

EVALUATION OF DISTANCE EDUCATION ENVIRONMENTAL ADVANTAGES

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Abstract. Nowadays distance education as an innovative and requested form of education becomes very topical in all levels of education. It is very important for the whole Latvia education system and particularly in adult education. The introduction of distance education as an alternative form of studies is a complicated process that needs: 1) scientific research of distance learning specificity; 2) specific organisational provision in management. In order to uncover the specific features of distance education environment and to provide the grounds for it, the authors of the article have based their research on the *ecological approach* in *Education* and *Business Administration sciences*. In theoretical and empirical research the authors of this article have paid special attention to the analysis and evaluation of advantages of the environment of distance education, which is very important in the management of distance learning at school ensuring educational institution competitiveness and sustainability. The aim of this article is to publish results of empirical research: evaluation of the distance education environmental advantages in the students' and teachers' point of view.

Keywords: ecological approach, evaluation of advantages, distance education/distance learning, management.

Introduction

Nowadays distance education as an innovative and requested form of education becomes very topical in all levels of education in Latvia. It is very important for the whole Latvia education system and particularly for adult education. The introduction of distance education as an alternative form of studies is a complicated process that needs specific organisational provision in management. In the management of distance education it is very important to apply the principle of *management by walking around*, where the basis is communication with the staff, and information obtained *on first hand basis*. There are three fundamental principles of distance learning environment: 1) distance learning as the environment of technologies; 2) distance learning as open and accessible environment of education; 3) freedom and flexibility in the environment of distance learning.

In order to uncover the specific features of distance education environment and to provide the grounds for it, the authors of the article have based their research on the *ecological approach* in *Education* and *Business Administration sciences*.

Nowadays (at the beginning of the 21st century) the ecological approach regarding to education, including distance education, was scientifically justified in several publications [1-6].

Ecological approach provides a wide perspective for the research of specific features characterizing the educational environment, where the education environment, including distance education environment, is understood as: 1) multilevel environmental system, therefore it is possible to study the environment from the structural, evolutionary and functional point of view; 2) a multicomponent/multicontextual and multifunctional environmental system. *On the basis of the ecological approach in education, several features and functioning principles of education environment as an ecological system can be distinguished, analysed, and assessed.*

In our theoretical and empirical research we have paid special attention to the analysis and evaluation of advantages of the environment of distance education, which is very important in the management of distance learning at school ensuring educational institution competitiveness and sustainability. *The aim of this article* is to publish results of empirical research: evaluation of the distance education environmental advantages in the students' and teachers' point of view.

Materials and methods

Nowadays, there is a growing need for interdisciplinary studies, which ensure multidimensional and holistic view on research. Following the ecological approach, the authors of the article in collaboration with the founder and the Director of Riga 1st Distance Education Secondary School (RDESS) Gita Vāvere have for several years researched the environment of distance learning focusing on the following.

- **Ecology of Education** as interdisciplinary scientific trend [7-14];
- **Business Administration sciences** [15-17].

Research in this field is carried out in several directions: 1) sustainable development of environment for distance learning, including the study of distance learning development; 2) viability and competitiveness of environment for distance learning; 3) specificity of distance learning environment, including advantages in comparison with the environment of full-time education; 4) structure, features and principles of distance learning environment; 5) implementation of distance learning, its organization and quality management in education environment.

From the standpoint of **Ecology of Education** the advantages of distance learning are the features and quality characteristics of education institution as education environment, which are vital for the viability of education environment nowadays and its sustainability in future. Personal experience and research show that the sustainability of education environment is ensured by the following aspects: 1) diversity of education environment, where most importance is attached to those education institutions that offer the opportunity of distance learning; 2) freedom to choose education environment, as well as 3) accessibility of education environment. The ecological approach in the assessment of advantages ascribed to distance learning environment at the same time ensures humanist, human-centred approach, as only those features of distance learning environment are advantageous which exhibit such education environment that is friendly and supporting for the target audience, and stimulates its development, respecting the interests and needs of students, as well as their rationale for choice, thus ensuring individualization of education.

Study and assessment of distance learning advantages from the perspective of **Business Administration Sciences**, on the other hand, ensures the competitiveness of the education institution. This is very important in the present day education and economic environment. Assessing the advantages of distance learning from the perspective of Business Administration Sciences attention is focused on the customer-centred approach and distance learning is perceived as a product/offer/service provided by the education environment, where of utmost importance is the attractiveness of distance learning to the potential customer, i.e. the potential student/student of an education institution.

Theoretic studies carried out by the authors of the research became the basis **for empirical research** with the following **aim**: to determine the advantages of a distance learning secondary school from the standpoint of students and teachers in the context of competitiveness and sustainability of an education institution.

Data were obtained applying several methods of research: 1) questionnaire and the analysis of the questionnaire content for data mining and analysis (qualitative data processing allowed to isolate several groups of advantages for a distance education secondary school); 2) methods of mathematical statistics to obtain descriptive statistics (proportional coefficient and rank determination) and inferential statistics (Spearman's rank correlation test in SPSS software).

In the first stage of the research an electronic questionnaire was developed for the students of the *X Distance Education Secondary School (XDESS)*, which could be accessed for 2 weeks on an Internet site. The respondents anonymously answered the questions. At random selected were 100 questionnaires filled by 10-12 grade students at XDESS, who participated in the research voluntarily (48 – men (48 %), 52 – women (52 %)), who were studying at secondary school programmes: grade 10-20 students (20 %); grade 11 – 21 student (21 %); grade 12 – 59 students (59 %). The place of respondent residence during the survey: 59 % – Latvia, 41 % – abroad. During the survey the students had to tell three advantages for distance learning. Then the data were collected and a qualitative analysis was performed, grouping in core groups of qualities all the advantages for distance learning elicited by the respondents (altogether: 300 statements) to determine the proportion of each distance learning advantage group. Thus the most important advantages could be determined, and a rank was ascribed to these groups of distance learning environment qualities, determining also the proportion percentage of frequency of mentions.

In the second stage of the research an electronic questionnaire was prepared for the teachers of RDESS. In the questionnaire there was also a question about the advantages of distance learning. In this survey 20 teachers of the XDESS participated voluntarily. The same way as students, the teachers also had to name the three most important advantages of distance learning that could serve as a factor

determining the potential choice of teachers and students in favour of distance learning. The questionnaire for teachers was also anonymous. After the receipt of questionnaires, the data were collected and qualitative analysis was performed. Similarly as in the previous stage, also in the second stage all the advantages elicited by the respondents (altogether 60 statements) were grouped into several core groups of qualities.

In the last (third) stage of the research the results obtained from the survey of students and teachers were compared employing methods of inferential statistics (Spearman's rank correlation test).

Results and discussion

The data obtained from the survey of students were analysed by way of qualitative research and summarised in a table. All the obtained answers were grouped and systematized in the mentioned thematic groups of advantages related to distance learning (Table 1).

Table 1

Advantages of distance learning in the opinion of students

Groups of advantages for distance learning with indicators		Absolute count	Specific weight coefficient	Rank
I. Accessibility of education and democratic attitude				
1.	Opportunity to study regardless the age	72	0.72	4
2.	People with various health conditions (also the disabled) can study.	17	0.17	11
II. Studies can be adjusted to the lifestyle, time etc. needs of the respondent				
3.	Opportunity to study when it is convenient; there is no need to attend the school every day	88	0.88	2
4.	Opportunity to study anywhere, in any place of the world	92	0.92	1
5.	Opportunity to combine studies with work, family life, hobbies etc.	68	0.68	5
6.	More freedom, less stress and pressure on the part of the school, no need to be ashamed for a mistake in front of schoolmates, confidentiality of the personal data and exam results	59	0.59	8
III. Distance learning for the development of career un professional growth				
7.	Studies at a distance education secondary school provide opportunities for career progression.	11	0.11	12.5
8.	Opportunity to economize time and finances. These resources are so important to be competitive in the labour market.	38	0.38	10
IV. Methodological, technical and pedagogical support for distance learning				
9.	Learning is organized on the Internet; also Skype tutorials can be used, online tests.	73	0.73	3
10.	Opportunity to learn in acceptable tempo	63	0.63	6.5
V. Students' learning motivation, self-directed learning, self-organization and self-assessment				
11.	Great team, support and encouragement from teachers.	11	0.11	12.5
12.	Qualitative and convenient study materials (books, learning aids, video lectures).	51	0.51	9
13.	Thanks to distance education secondary school I have regained self-esteem; here I am treated as a personality.	3	0.03	16
14.	Opportunity to learn independently.	63	0.63	6.5
15.	Enjoy studies using different technologies.	6	0.06	14
16.	Opportunity to learn time management; opportunity to find the necessary information independently; my library-Internet.	4	0.04	15
17.	Thanks to electronic learning aids and video lectures, it is possible to do self-testing exercises when preparing for exams.	1	0.01	17

Descriptive statistics was obtained performing quantitative data processing: frequency of features (advantages of distance learning) or absolute count and the specific weight coefficient. Depending on both statistical parameters a rank was ascribed to each advantage in distance learning.

Also results of the teacher survey were summarised (Table 2), were it is possible to see the classification of groups of distance learning advantages, which show only minor differences from the results obtained from the students, but at the same time the teachers have a broader vision than the students, as their opinion includes also the aspect of professional development of teachers and the initiative of a student in the study process. Processing these data, it was also possible to obtain descriptive statistics: frequency of the advantage feature mentioned in questionnaires, the specific weight coefficient, as well as the rank.

Table 2

Advantages of distance education in the opinion of teachers

Groups of advantages for distance learning with indicators		Absolute count	Specific weight coefficient	Rank
I. Accessibility of education and democratic attitude				
1.	It is possible for anyone, irrespective of the age to acquire primary education if the traditional education is not acceptable (life-long learning).	10	0.50	4.0
2.	Opportunity to study also for people with special needs (even disabled people).	4	0.20	7.5
II. Opportunity to adjust studies to the lifestyle, time resources of the student				
3.	Opportunity to study at a convenient time of the day (during the day, at night).	17	0.85	1.0
4.	Opportunity to acquire secondary education anywhere, where there is Internet access, even at home. One can study even living abroad, as there are no national borders in the environment of distance learning.	12	0.60	2.0
5.	Opportunity to combine studies with work, family duties (raising children etc.).	6	0.30	5.0
6.	During studies there is complete personal freedom, no need to think about discipline, "no one disturbs you and you do not disturb anyone", no need to be afraid that your mistake will be seen by other students.	3	0.15	10.0
III. Distance learning for career development and professional growth				
7.	Studies at a distance learning secondary school provide opportunities for career development.	3	0.15	10.0
8.	Student develops skills to search and find the necessary information on the Internet.	1	0.05	16.0
IV. Methodological, technical and pedagogical support for distance learning				
9.	Studies are organized using the Internet, there are on-site and distance tutorials, including SKYPE tutorials, which allow the student to discuss issues with the teacher every week.	3	0.15	10.0
10.	Individual and flexible approach from the administration and teaching staff: opportunity to study according to one's level of education (level of difficulty); opportunity to study in one's own tempo.	11	0.55	3.0
11.	The support of the teachers orientates the student towards a positive result, rising student's self-esteem and strengthening self-reliance.	2	0.10	12.0

Table 2 (continued)

Groups of distance learning advantages with indicators		Absolute count	Specific weight coefficient	Rank
12.	Thanks to the methodological competence of pedagogues in distance learning, there are prepared sufficiently qualitative materials and video lectures.	5	0.25	6.0
V. Motivation for students, self-organization and self-assessment				
13.	Greater motivation as there is a definite aim for studies.	1	0.05	16.0
14.	Studies using cutting edge technologies, including IT, motivate to study.	1	0.05	16.0
15.	Self-education skills are developed.	1	0.05	16.0
16.	Opportunities for self-management: time planning, the student is the one who chooses when and what to study and which task is more important. Thus self-organization skills are developed. Thanks to methodological materials in e-environment it is possible to acquire the material independently (self-education, self-learning skills are developed).	4	0.20	7.5
17.	Distance education is aimed at students who are motivated to acquire studies; moreover, this motivation grows during studies.	1	0.05	16.0
18.	Self-assessment skills are developed.	1	0.05	16.0
VI. Opportunities for professional development of teachers				
19.	This is an opportunity to grow professionally-improve one's professional competence.	1	0.05	16.0

In the next stage of data processing those 11 advantages of distance learning were selected, which received the highest rank from the standpoint of the students. These are the most important factors which have already influenced the choice of the students in relation to the environment of education and may influence the choice of perspective entrants of secondary distance education schools.

The same way advantages for distance learning mentioned by the teachers were selected, so that it would be possible to compare the results obtained from both survey groups. The comparative table (Table 3) was designed, therefore the corresponding advantages mentioned by both students and teachers are given in one row. The corresponding percentage of proportional indicator is given both for students and teachers in the respective columns.

Table 3

Comparative table of the most important advantages in distance learning from the standpoint of students and teachers*

Most important advantages in distance education from the standpoint of teachers of distance education secondary school		Specific weight, %	Most important advantages in distance education from the standpoint of students of distance education secondary school	Specific weight, %
1.	Opportunity to study at a <i>convenient</i> time of the day (during the day, at night).	85	Opportunity to study when it is <i>convenient for the student</i> ; there is no need to attend the school every day.	88

* Corresponding words and expressions, phrases are put in bold.

Table 3 (continued)

Most important advantages in distance education from the standpoint of teachers of distance education secondary school	Specific weight, %	Most important advantages in distance education from the standpoint of students of distance education secondary school	Specific weight, %
2. Opportunity to acquire secondary education <i>anywhere</i> , where there is Internet access, even at home. I can study even living abroad, as there are no national borders in the environment of distance learning.	60	Opportunity to study living <i>anywhere</i> , in any place of the world.	92
3. Individual and flexible approach from the administration un teaching staff: opportunity to study according to one's level of knowledge (difficulty of the content); opportunity to <i>study in one's own tempo</i> .	55	Opportunity to <i>study in one's own tempo</i> .	63
4. It is possible for anyone, <i>irrespective of the age</i> to acquire primary education if the traditional education is not acceptable (life-long learning).	50	Opportunity to study <i>at any age</i> .	72
5. <i>Opportunity to combine studies with work, family</i> duties (raising children etc.).	30	<i>Opportunity to combine studies with work, family</i> life, hobbies etc.	68
6. Thanks to the competence of pedagogues in the methods of distance education, there are prepared sufficiently <i>qualitative methodological materials</i> and <i>video lectures</i> .	25	<i>Qualitative and convenient teaching materials</i> (books, teaching aids, video lectures).	51
7. Opportunity to study also for <i>people with special needs</i> (even disabled people).	20	Also <i>people with health problems</i> can study.	17
8. Opportunities for self-management: time planning, the student is the one who chooses when and what to study and which task is more important. Thus self-organization skills are developed. Thanks to methodological materials in-e-environment <i>it is possible to acquire the material independently</i> (self-education, self-learning skills are developed).	20	<i>Opportunity to study independently</i> .	63
9. More <i>freedom</i> , less stress and pressure on the part of the school, <i>no need to be ashamed for a mistake</i> in front of schoolmates.	15	More <i>freedom</i> , less stress and pressure on the part of the school, <i>no need to be ashamed for a mistake</i> in front of schoolmates, confidentiality of the personal data and exam results.	59

Table 3 (continued)

Most important advantages in distance education from the standpoint of teachers of distance education secondary school		Specific weight, %	Most important advantages in distance education from the standpoint of students of distance education secondary school	Specific weight, %
10.	Studies are organized using Internet, there are on-site and distance tutorials, including SKYPE tutorials, which allow the student to discuss issues with the teacher every week.	15	Learning is organized on the Internet; also SKYPE tutorials can be used, online tests.	73
11.	Other (studies at distance education provide opportunities for professional growth).	15	Other (opportunity to economize on time and finances. These resources are so necessary to be competitive in the labour market).	38

The next task was to create a data table in SPSS software 19.0 and process the data applying the Spearman's rank correlation test. Since the proportional indicators (of advantages for distance learning) of features were obtained from qualitative analysis and they show the frequency of a definite feature (distance learning advantages) or feature groups in the survey questionnaire, it was decided that for data processing the non-parametric data processing method must be applied, as verbally expressed advantages were grouped as nominal values.

After secondary mathematic data processing the obtained data for inferential statistics were entered into Table 4.

Table 4

Results of the Spearman's rank correlation test

		Teachers	Students
Spearman's rank correlation	Teachers	Correlation coefficient	1.000
		<i>p</i> -value (Sig. (2-tailed))	0.00
		N	11
	Students	Correlation coefficient	0.588
		<i>p</i> -value (Sig. (2-tailed))	0.057
		N	11

As the obtained p -value = 0.057 > α = 0.05, but r_s = 0.59, which is closer to "1" than "0", thus null hypothesis H_0 cannot be denied and it can be concluded that there are certain connections between the proportion indicators of distance learning advantages elicited by teachers and students.

Conclusions

- The results obtained from the student and teacher survey allowed us to separate groups of advantages in distance learning: 1) accessibility of education and democratic approach; 2) opportunity to adjust studies to the lifestyle, time resources of the student, etc.; 3) distance learning for career development and professional growth; 4) methodological, technical provision for distance learning and support from pedagogues; 5) motivation for students to study, self-directed learning, self-organization and self-assessment; 6) opportunities for teachers to develop themselves professionally. These results show only slight differences in comparison with the results obtained from the students.
- The most important advantages in distance learning from the standpoint of the students and teachers are the following:

- Opportunity to study when it is convenient, at any time of the day, even at night, no need to attend the school every day.
 - Opportunity to study and obtain secondary education in any place, where there is available Internet access, even at home. It is possible to study even living abroad, as there are no national borders for distance education.
 - Individual and flexible approach from the administration and teachers: opportunity to adjust studies to the student's level of knowledge (level of content difficulty); opportunity to study as fast as one prefers.
 - It is available to anyone, regardless the age, to acquire primary education and secondary education, if the traditional education is not appropriate (life-long learning).
 - Opportunity to combine studies with work, family duties (raising small children etc.), hobbies.
 - Thanks to the competence of pedagogues in the methods of distance education there are sufficiently qualitative materials and video lectures prepared.
 - Also people with disabilities, who have different health conditions, have an opportunity to study.
 - Opportunities for self-management: time planning, the student is the one who chooses when and what to study and which task is more important. Thus self-organization skills are developed. Thanks to methodological materials in-e-environment, it is possible to study the material independently (self-education, self-learning skills are developed).
 - During the studies there is more freedom, no need to think about discipline, "no one disturbs you and you do not disturb anyone", no need to be ashamed for a mistake in front of schoolmates, less stress and pressure from the school, confidentiality of the personal data and exam results.
 - Studies are organized using the Internet, there are on-site and distance tutorials, including SKYPE tutorials, which allow the student to discuss issues with the teacher every week.
 - Other advantages: studies at a distance education secondary school provide an opportunity to economize time and finances, which are so important to be competitive in the labour market.
3. Comparing the opinions of the students and teachers on the advantages of distance education it was concluded that there is a connection between the proportional indicator of answers given by the students and teachers, as the obtained p -value = 0.057 > α = 0.05, but r_s = 0.59, which is closer to "1" than "0". This means there is connection between the proportional indicators of advantages elicited by the teachers and students (which are the features of distance learning environment).
4. Both in the samples of pupils-respondents and teachers-respondents there was established the correspondence of opinions regarding the advantages of distance education, which has something in common also with the scientists' conclusions. Distance education offers opportunities of individualization and accessibility of education, because three basic principles of distance education are: studies from the distance, flexibility and openness. It is very important for promotion education diversity, competitiveness and sustainability.

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