

## **DE IN SLOVENIA: WHERE ARE WE?**

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### **ABSTRACT**

*Expansion of distance education (DE) is one of the characteristics of the information society by which we can judge the level of development in a society. As we witnessed many changes in Slovenia in the last ten years we were interested in what is happening in DE as a modern way of education. DE in Slovenia is still developing, so the institutions that offer it are rather rare. An exception is the Faculty of Economics in Ljubljana. Generally, the realisation of DE is vaguely supported by Information and Communication Technology (ICT) in Slovenia. The influence of ICT is more likely to be seen in the variety of pre-university educational offerings, where a number of Web sites can be found.*

### **INTRODUCTION**

Lately, knowledge has been given increasing importance, which is probably connected with the changes regarding the third industrial revolution. Rapid changes in the field of microelectronics have caused the change of work, in which more educated staff is needed. Knowledge gained at schools quickly becomes out-of-date therefore it must be updated. Sometimes the gained knowledge even has to be forgotten and replaced by that which will be more suitable for the present age. The act of updating the existing knowledge is mostly done by the active part of the population, which can hardly afford to leave their work and start studying. Nevertheless, in the last decade, various forms of education have been developed, which help solve this problem. One of them is distance education (DE).

DE belongs to the phenomena of the information society, which – with regard to its wide use – can indicate the development of a country (indicator of development by RIS). This is why we were interested in the spread of DE in Slovenia, supported by Information and Communication Technology (ICT). Collecting data of this type is extremely demanding and connected with business privacy protection. So we decided to research DE only through the investigation of web pages of institutions that are involved in DE and have their activities represented on the Internet.

By doing research of Slovene education environment we will try to prove that the following statements are true or false:

- The term DE is mainly used incorrectly as it does not describe the education in which the teacher and the student are, despite their separation in space and time, connected<sup>1</sup>. We believe that the term DE represents online material or online exercises that can be solved by a student from his home. Very often online exercises are replaced by a mere web page with educational content, which is read by a person seeking knowledge from outside the classroom.
- Taking into account the fact that the term DE is used incorrectly, we assume that there are only a few DE institutions in Slovenia.
- The majority of web pages that can be found in Slovene virtual reality through key words were designed randomly and in an unplanned way. Building web pages is connected only with the testing of possibilities offered by ICT, which points mainly at the technical aspect of DE.
- The maintenance of DE web pages is not planned, web pages are neither maintained nor updated.

The research of Slovene education environment has been done through web pages available by using search engine on Slovenian web portals.

## **DISTANCE EDUCATION**

Distance education<sup>2</sup> is a form of education with the following characteristics (Keegan 1991, 44; Bregar 1998a, 14):

- The teacher and the student are separated in place and time, which differs DE from classical face-to-face education.
- DE is organised by an education institution that plans and prepares study materials and gives support to students, which makes DE different from personal, non-formal education and the so-called self-education.
- Education institution offers the possibility of two-way communication, which makes DE different from other forms of ICT use in education.
- The teacher and the learner are connected through different media, e.g. printed materials, audio and video media, and computer media. Lately, the use of the Internet and intranet has become widely used, in online learning - OL (Microsoft 1998, slide 4).

In DE, there is a separation in space between distance teaching and distance learning, so we have to keep in our mind that it is only possible to speak about DE if these two phases – regardless of their separation in time and space – are connected. This is why we speak about DE in our contribution when we have in our minds both teaching and learning.

DE is a system oriented towards a goal, with its basic aim, connected with educating learners. DE is a partial system of the entire education system of a country, which includes classical, traditional forms of education. Our purpose is not the comparison of classical forms of education with that of DE, therefore DE will be treated as a system and not as a partial system. DE is, as a system, connected with its environment through numerous connections and thus belongs to the so-called open systems, in the same way as all other social systems. Basic components of DE system are people entering the system of DE (organisers, teachers in co-

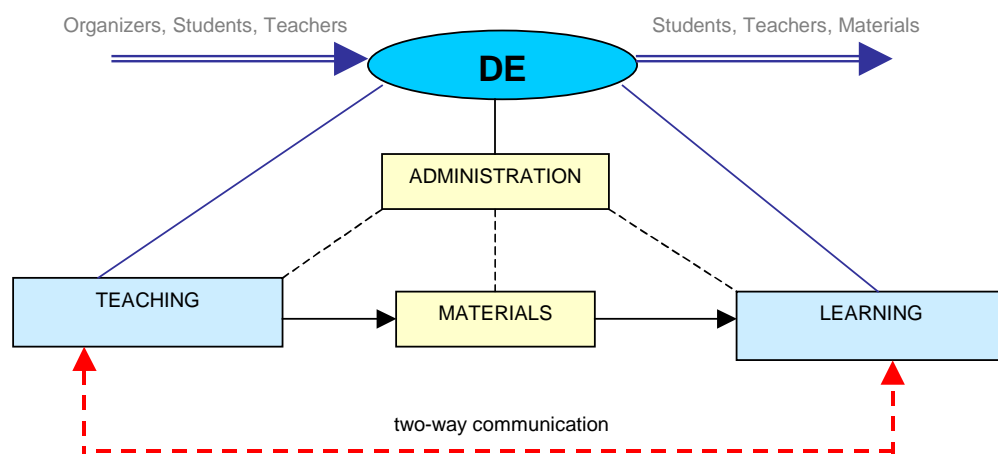
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<sup>1</sup> Derived from the definition of DE given by Keegan (1991, 44) and Bregar (1998a, 14).

<sup>2</sup> There are also other terms used in practice, e.g. open, flexible distance learning - ODL, integrated study or network study (Keegan 1990, 18; Bregar 1998b, 1, 9). Laboratory for telecommunications (<http://www-lt.fe.uni-lj.si/>), at the Faculty of Electrotechnics uses the term distance learning.

ordinators, students) and leaving the system (students with fulfilled/not fulfilled obligations). One of the most important characteristics of DE are that students are in the centre and that all activities are directed towards them.

Figure 1 represents a general model of DE system, made up of two related parts – teaching and learning. Teaching and learning are central components of DE, which is an open system, closely linked with its surroundings, from which organisers, students and teachers are coming. Students and teachers that gained new knowledge and experience are leaving the DE system and are likely to transfer this knowledge and experience into their environment. The system of DE creates DE materials that can also be used in other forms of education, outside the system of DE.



**Figure 1:** General Model of distance education system

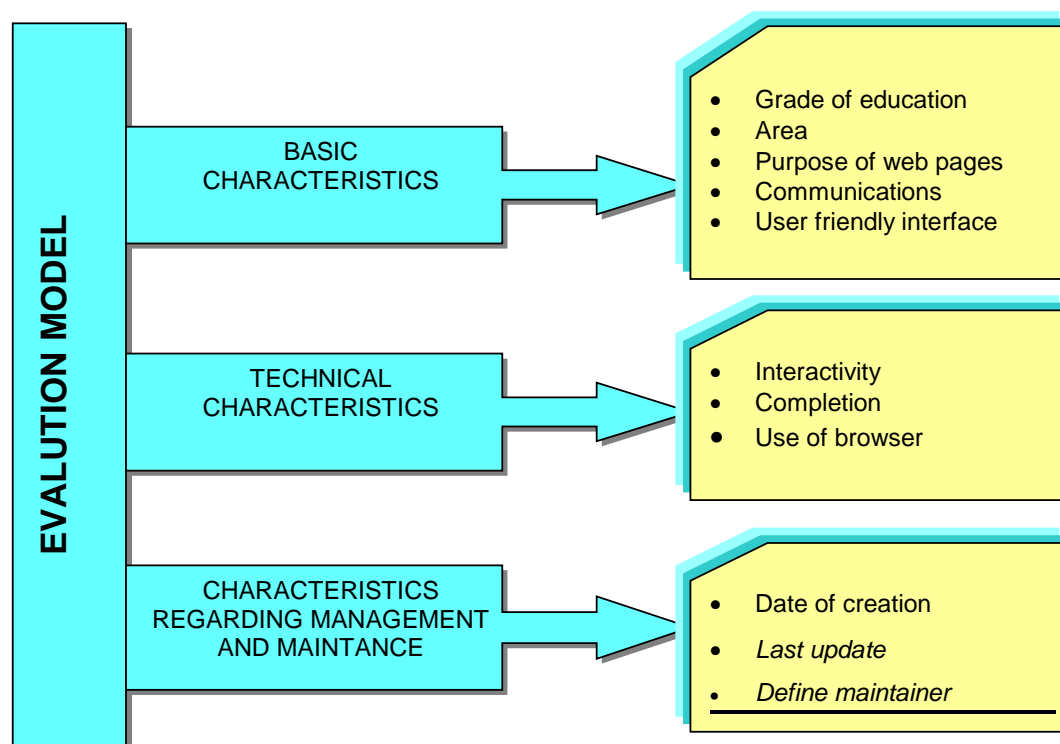
Components of the system are linked. Materials link central components - teaching and learning, as materials comprise of the necessary standards, the textbook and exercises. Teachers can be, but not necessarily, the authors of the materials. With the development of ICT the materials are getting technologically extremely difficult, therefore the majority of materials are made by external institutions in co-operation with teachers. There is a two-way communication going on between teachers and students, which is usually done in the form of regular or periodical consultations, either individual or in groups, synchronous (in a dialogue) or asynchronous (through e-mails). Due to the development of ICT, a great deal of communication is carried out through telephone network (telephone conversations, e-mails, forums, chats).

The accomplishment of DE is entrusted not only to the faculty but as well as to the administration, which altogether plans and organises a certain programme, supervises the accomplishment of the programme, and keeps a record of teachers and participants. In addition, it is also in charge of materials, it distributes them and communicates with the surroundings.

## DE IN SLOVENIA

### Evaluation Model of DE Web Pages

The evaluation of DE web sites has been done on the basis of the Evaluation Model (Figure 2).



**Figure 2:** Evaluation Model of DE Web pages

The evaluation of the ease of use, interactivity and completion has been done by means of a four-grade scale.

As for basic characteristics, the web pages have been classified according to grade of education, field of science that has been covered by the page, and according to the purpose of the web page. Web pages can be intended for students or teachers only, or can support both teaching and learning. Web pages can also notify visitors, thus substituting classical notice boards. Method of communication has also been registered, which can be asynchronous (e-mails) and synchronous (chats, forums). The ease of use has been judged according to the access to a certain web page, and the navigation between individual pages.

Technical characteristics of web pages have been judged according to the degree of interactivity and the degree of completion. We were interested in finding out if authors recommend the use of any of the known browsers (e.g.. Internet Explorer or Netscape).

Maintained Web pages should include the date of creation, and last update. We also wanted to find information regarding the person, responsible for pages and their maintenance.

## Research Methods

We forecasted in the Introduction that all DE institutions, which introduce ICT into their activities, have their web pages on the Internet, which is why our research of DE in Slovenia is based on the survey of web pages. The following Slovene engines were used:

- Mat'kurja3 <http://www.matkurja.com/>
- Pehta - <http://www.pehta.com/>

- PIVI - <http://www.siol.net/iskalnik/query.aps>
- Portal EON.si. - <http://www.eon.si/>
- SIO - Slovensko izobraževalno omrežje - <http://sio.edus.si/>
- SIS - Spletni imenik Slovenije - <http://www.sis.si/>
- SloVista - <http://www.slovista.net/>
- SloWWWenia.com. - <http://www.slowwwenia.com/>
- TOBI - <http://slo-web.com/>

Web pages were accessed from July, 17 until July, 22, 2000.

Web pages of DE institutions were found with the help of key words:

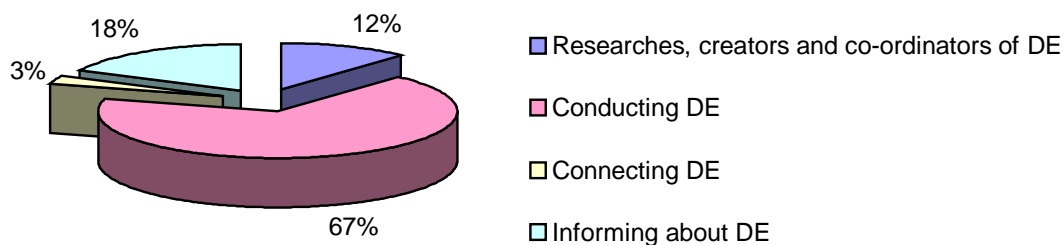
- distance learning (slo. učenje daljavo)
- distance education (slo. studij daljavo)

The survey and the evaluation of web pages have only been done on the basis of data gathered from web pages, accessed during the six days. Data collected about web pages was classified on the basis of the Evaluation Model, with which basic, technical, management and maintenance characteristics were evaluated. Data was statistically processed and represented in our contribution in the form of graphs and tables.

### Characteristics of a Sample

Using Slovene engines<sup>4</sup> 34 web pages were found using key words that are, according to their authors – related to DE. Web pages were divided into four groups:

- Web pages of researchers, creators and co-ordinators of DE
- Web pages for conducting DE
- Web pages for connecting DE
- Web pages for informing about DE



**Figure 3:** Groups of DE web pages

The classification of web pages has been done on a subjective basis, as all pages have been found by using key words “distance education” or “distance learning”. Creators of DE were put in the first group of web pages.

The second group of Web pages comprises of pages, according to their author’s opinion, through which DE is performed. There were 23 such pages (68%). Of those 7 (30%) pages were devoted to foreign language learning, and 3 (13%) pages to Slovene language learning. All in all, there are 10 (43%) pages devoted to

<sup>4</sup> The list can be found in sources.

language learning. Three pages (13%) combine at least two fields, the closest to DE. The rest is not worth mentioning, as there are only single web pages.

In the third group, only one web page was placed, with the role of linking different web pages. This is the web page of the so-called Virtual university, through which one can get to faculties and schools of higher education, which are members of the University of Ljubljana. The contents of the Virtual university depends on people taking care of the maintenance of the web page, who are mainly employed at individual faculties, and on the willingness of teachers in higher education to co-operate. This is probably why the majority of these pages is still unaccomplished.

The fourth group of web pages belongs to pages with an informative nature and which, we believe, do not intend to participate in DE. Such pages mainly offer links to other web pages that do offer DE. Web pages with links to foreign institutions that offer DE were not taken into account, as the purpose of our survey lies in the investigation of Slovene virtual space.

### **Introduction of the 1<sup>st</sup> group of researchers and creators of DE web pages**

The first group belongs to researchers, creators and coordinators of DE:

- Slovene National Contact Point for Distance Education<sup>5</sup> for DE from Ljubljana,
- Institute MIRK<sup>6</sup> from Ljubljana (Mladi In Računalniške Komunikacije - Society for Project and Research work on Internet),
- Centre for Distance Education Development<sup>7</sup> in Maribor (CDED) and
- Laboratory for telecommunications<sup>8</sup> at the Faculty of Electrical Engineering from Ljubljana, which develops The Integrated System for Distance Education (ISID).

The Slovene national project unit and CDED are involved mainly in higher education, whereas the activities of MIRK and the Laboratory for Telecommunications has lately<sup>9</sup> been centred towards primary and secondary education. These pages do not support DE, if subpages of the Laboratory for telecommunications are excepted, which refers to their product called ISID. These pages provide information about events, research and contributions from the field of DE, but do not support the processes of teaching and learning.

The Integrated System for Distance Education (ISID) is a product developed by the Laboratory for telecommunications at the Faculty of Electrical Engineering in Ljubljana, in co-operation with the Institute MIRK. The Laboratory for telecommunications introduced ISID to two faculties from Ljubljana – the Faculty of Electrical Engineering and Faculty of Economics (CEEC on-line textbook<sup>10</sup>), and to two business environments – Iskratel and Gea Colleague (Bešter et.al. 2000). We did not find links to the mentioned addresses through Slovene search engines. In the school year 1999/2000, the development of the primary school version of ISID started in co-operation with the Institute MIRK, which will be pedagogically, technologically and visually adjusted to the primary school population (Bešter et.al. 2000). At the moment, the system is in the phase of testing. The link to the demo web page of the ISID for the primary school was found also through Slovene search engines and is thus included in our further analysis.

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5 [http://www.ef.uni-lj.si/ncp/slo\\_1250/index.html](http://www.ef.uni-lj.si/ncp/slo_1250/index.html)

6 <http://www.mirk.si>

7 <http://www.cdcd.uni-mb.si/Default.htm>

8 <http://www-lt.fe.uni-lj.si/>

9 The system ISID is also used in higher education, as will be evident further on.

10 <http://www.ef.uni-lj.si/projekti/cees/demoSlo/index.html>

11 The document has no date. Sources mentioned in it are from the year 1999, so it was probably made in 1999 or 2000.

## Findings and Discussion

Tables *Table* to 3 represent an overview of statistical data after the described Evaluation Model

		$f_k$	%	Mean	St. dev.
Level of education	Primary education	16	47.1		
	Primary and secondary education	2	5.9		
	Secondary education	4	11.8		
	Higher education	11	32.4		
	Other (undefined)	1	2.9		
Area	Social sciences	19	55.9		
	Natural sciences	6	17.6		
	Technical	3	8.8		
	Other	6	17.6		
Purpose of the web page	For learners to learn	14	41.2		
	For teachers to teach	0	0		
	Learners and teachers	8	23.5		
	Information	12	35.3		
Communication	Asynchronous (e-mails)	24	70.6		
	Synchronous and asynchronous	10	29.4		
	Forum only	0	0		
User friendly interface	1 = Difficult to use	0	0	3.18	0.80
	2 = Not easy to use	8	23.5		
	3 = Easy to use	12	35.3		
	4 = Very easy to use	14	41.2		

**Table 1:** Survey of statistical data regarding basic characteristics

The surveyed web pages are devoted to various levels of education. In processing the data, it has been taken into consideration that some web pages were meant for the primary and secondary school population. Undefined level of education is such level that is not standardised education in the area of primary, secondary or higher schools. Only one such page was found, which, through DE, organises training for the use of programme languages HTML and JAVA.

High number of DE web pages in the field of primary education can be explained by the organised approach to ICT implementation in primary education, especially through RO project of the Ministry for Education and Sports (MŠŠ).<sup>12</sup> There is a large interest in DE in the field of primary and secondary education, which is revealed in the wish to help children who cannot participate in regular education. Children suffering from a prolonged illness (education in the so-called Hospital school) belong to in this group according to Bešter (2000), active athletes and artists, and Slovene children with parents working abroad. A DE pilot project that received a lot of attention was the one, in which the two children of the Kvaternik family are participating in DE while sailing around the world with their parents (sailing ship HORN 2000).

<sup>12</sup> The beginning of RO project goes into the year 1994, after the so-called "School tolar" had been introduced.

Interestingly, of all web pages there are only 18% of them that did not arise within the RO and Phare projects or with support of various institutions (MIRK, ZRSŠŠ).

The majority of pages is devoted to learners or both learners and teachers. The attempt of teachers of Slovene language is an interesting one<sup>13</sup> as it unites learners and teachers on the same page, but it is a pity, because the page has not been updated for a long time.

		f <sub>k</sub>	%	Mean	St.dev.
Degree of interactivity	1 = not interactive	9	26.5	2.71	1.27
	2 = low level of interactivity	6	17.6		
	3 = medium interactivity	5	14.7		
	4 = high level of interactivity	14	41.2		
Degree of completion	1 = the page only started	2	5.9	2.88	0.95
	2 = many unfinished pages	11	32.4		
	3 = a few unfinished pages	10	29.4		
	4 = no unfinished pages	11	32.4		
The web page recommends a browser	Not stated	23	67.6		
	IE14 recommended	3	8.8		
	Netscape recommended	7	20.6		
	IE or Netscape recommended	1	2.9		
	Other browsers recommended	0	0		

**Table 1:** Survey of statistical data regarding technical characteristics

In our attempt to define the DE on page 0 we stressed that DE differs from other types of education mainly in that it connects the teacher and the learner, despite the fact that both key participants are separated in time and space. Communication, either synchronous or asynchronous, brings the teacher and the learner together. Because of the importance of communication in DE the mode of communication has also been researched. In the majority of web pages (70,6%) the asynchronous communication through e-mails is used. In addition to asynchronous communication, more than one fourth of web pages uses chat programmes or forums for a certain field, which are both visited by only a few visitors. The reason for the small number of visits lies in stressing the technical aspect of DE, and forgetting other aspects of DE, especially personnel aspects. DE in Slovenia is founded on the enthusiasm of individuals, and to a much smaller extent on an organised approach, which was also proved by our research, as there are only two institutions that are involved in DE thoroughly, systematically and with plans (also developmental) – the Laboratory for telecommunication in Ljubljana and the Centre for DE Development in Maribor. Both institutions approach DE from the technical point of view, but are, this can at least be seen from the data available on their web pages, in Ljubljana aware of the importance of non-technical factors (Bešter et.al. 2000), which are of utmost importance for the success of DE. In Maribor, they stress the importance of video technology, which should – in their opinion – be used for presenting lectures. On their pages<sup>15</sup> they invite lecturers to participate in taping their lectures. We believe that according to the definition of DE in Chapter 2 videotaping lectures represents only one

<sup>13</sup> <http://www.zrssh.si/~slavisti/>

<sup>14</sup> Internet Explorer

<sup>15</sup> <http://www.cded.uni-mb.si/Default.htm>

possible learning aid, but not the only one. We have to keep in mind that the aim of good teaching lies in various methods of teaching which satisfy the needs of different learning styles of students.

The technical evaluation of DE web sites is obvious that on the average pages is relatively interactive (mean 2.71 on the scale 1 to 4) and that they are quite completed (mean 2.88 on the scale 1 to 4). That means that the pages could and should be improved from the technical point of view.

		f <sub>k</sub>	%
Date when the page was built	Given	16	47.1
	Not given	18	52.9
Date of last update	Stated	20	58.8
	Not stated	14	41.2
The page has its own maintainer	YES	30	88.2
	NO	4	11.8

**Table 2:** Survey of statistical data regarding characteristics of management and maintenance

Let us closely look at the average Slovene web page. The average DE web page is meant for the primary and secondary education in social sciences, more rarely in natural sciences or technical sciences. Such a page is almost finished and to a great extent interactive. Communication with the learner is mainly done through e-mail.

Table 3 represents correlation between individual characteristics of DE web pages.

<b>Characteristics of web pages</b>	<b>1.</b>	<b>2.</b>	<b>3.</b>	<b>4.</b>
1. Level of education				
2. Interactivity				
3. Purpose		-0.79**		
4. Communication		0.41*	-0.35*	
5. Completion	0.44*			

**Table 3:** Significant correlations between individual characteristics of DE web sites

\*\* correlation is statistically significant, risk 1%

\* correlation is statistically significant, risk 5%

It can be seen that there is a strong negative correlation between the purpose and interactivity of a web page (-0.79). Pages aimed at learners have a higher degree of interactivity than pages devoted to giving information, which is quite logical, as the creators of web pages create different exercise for the students, mainly a multiple choice exercises that are easy to be supported by the WEB technology. It was stated in the introduction that many people believe how DE should offer an interactive page with exercises, which would help in consolidating or checking knowledge of learners in primary schools. This was also proved by our investigation and the correlation between the purpose and interactivity of the web pages. But we have to stress that individual interactive pages or a number of interactive pages together cannot represent DE, but only a learning aid that can be used during classical lessons as well as in DE.

There is another correlation between interactivity and mode of communication (0.41), which shows towards the fact that the communication in interactive pages is done through e-mail. This type of communication is used on pages devoted to learners (-0.35).

The higher the level of education the higher the completion, which can be revealed in the correlation between the level of education and completion (0.44). This is yet another point which proves that pages with exercises for learners on primary and secondary level of education consist of only individual exercises, which is why we assessed them as unfinished. In this case we can speak about learning aids and not about DE.

We have to point out that the sample of 34 pages is a small one, and that the correlations would probably be different in case of a bigger sample. Because of the swift development of DE in Slovenia, we are to expect a number of researches in this field, which will cover not only the technical, but also the organisational, legal, social and didactic aspect.

## CONCLUSION

Our research proved that ICT per se cannot bring improvements or new working methods. The role of human factors is extremely strong and should not be overlooked. DE web pages are the result of considerable amount of enthusiasm of individuals and are still in their developing phase. The statement that there are many web pages that are not updated could not be confirmed, as many authors do not give information about the date of creation or last update. Despite the fact that the accessed web pages do not serve DE, they can be used as a supplementing material for classical lessons, which are changing because of the development of ICT. Both, the implementation and the content of lessons keep changing.

The research confirmed that the term DE is not properly used in Slovenia, as it includes the use of learning aids over the Internet. We found out that DE is carried out only at the Faculty of Economics in Ljubljana and at its centres. But even their DE is not supported by ICT, as it is used only as a notice board, without giving support in the process of teaching and learning, with only one exception – statistics. Efforts of the Laboratory for telecommunications and MIRK can be labelled as interesting pilot projects, carrying out spadework in the field of DE and ICT.

The spread of DE is a characteristic of the information society, upon which the development of a certain society can be judged. It is therefore likely that Slovenia will follow developed countries and that the introduction of DE is inevitable. The Slovene education environment is small, but it is likely that Slovene educational institutions will start offering their services outside their borders. It is a demand of DE that the participants are highly motivated. It is the participants in higher education who are closest to fulfilling this demand, so it is sensible to expect that higher institutions with year-long experience in part-time education start supporting their programmes by ICT and take full advantage of the possibilities and opportunities offered by ICT. Materials for DE, supported by ICT, would represent an important shift in the field of higher education, as the preparation of materials for DE requires a special approach. Such materials can also be used as a supplementary material in full-time programmes of study.

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