

ATTITUDE TOWARD THE MEDIA IN THE LIGHT OF INCREASINGLY FREQUENT APPLICATION OF INTERNET IN EDUCATION

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SUMMARY

In these times, when Internet is being recognized as a global communication media, it became necessary to study the impact of specific media as the means of information transfer, especially in the context of application in the life-long learning process. Therefore, a research of the change of attitude toward the media as the means of information transfer was conducted. The research was focused on the factors of affinity toward the use of Internet in relation to affinity toward the traditional mass media like television, radio and press. The results were obtained through regression analysis and the method of the tree of decision; they pointed to the various profiles of interest and other personal characteristics of the users, which motivate them for the use of certain type of media. The obtained results are interpreted regarding the possibility of application in the education, as well as the means of knowledge gathering and life-long learning process.

Key words: Internet, media, communication, Internet services, education

1. INTRODUCTION

Information technology has brought many changes in all spheres of human activity. By its communication features, it made the strongest impact on:

- Speed of data transfer
- Information exchange
- Flow of the capital
- Movement, enlargement and interaction of technologies
- Spatial distribution of business systems etc.

A condition for participation in these changes on the global level, in the global distribution of work and goods, is the possibility of communication with those systems, and the continuous build-up of knowledge about the organizational changes and professional technology. The indicators that the business activity is moving into electronic space, or is conducted exclusively through it, are inevitable. In the business, the open distributed systems are used with increased frequency. The increase of values realized in such way is happening in ever-faster rate, and for certain branches of activities it went beyond the possibility for presentation (stock market, business between banks, specific forms of production). Such trend probably exists in other activities too (for example in tourist agencies for the realized travels, shown in Figure 1)

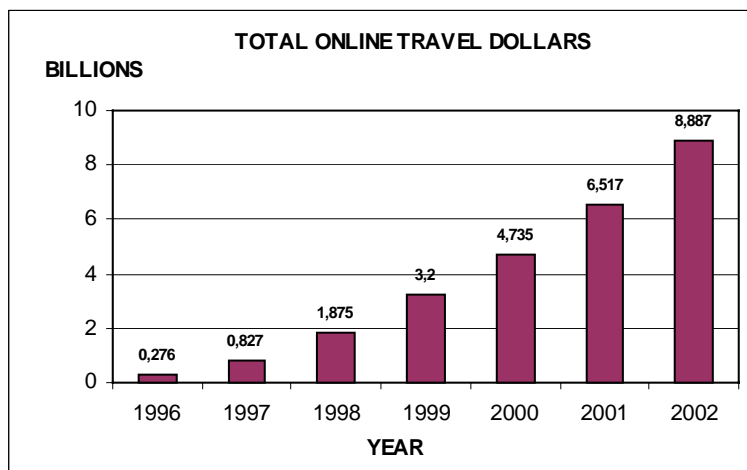


Figure 1. The sheme of increase of money invested in travels through the Internet¹

¹ http://www.nua.ie/surveys/analysis/graphs_charts/travel/total_online_travel_spend_96_2002.html

The Internet-based commerce is a business with growing incomes. The revenue realized through the Internet-based commerce can be seen in the Figure 2. These incomes in 1994 equaled 0,008 billions of dollars, and in 2001 they increased to 717 billions of dollars. This is an increase of 89 625 times.

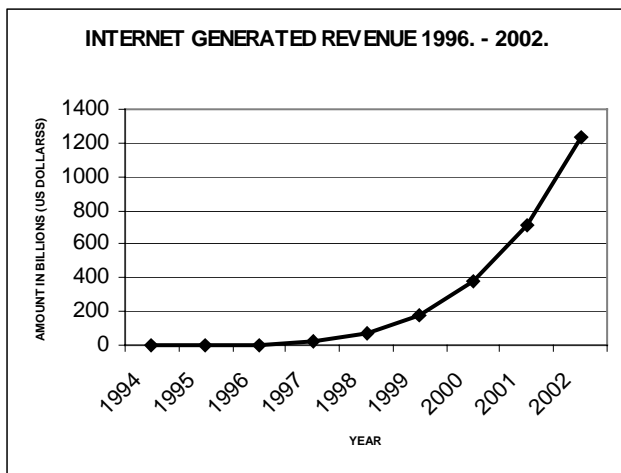


Figure 2. Increase of Internet-generated revenue²

The increasingly frequent use of the open distributed systems is shown in the Figure 3; it is visible in the increase of the realized values of financial transactions in communication between an individual and the business system, and between two business systems respectively. This increase is significant and it has continuous growth trend; also, even faster increase rate is expected of the participation of data communication in all sectors of business activities, with growing base of mobile communications.

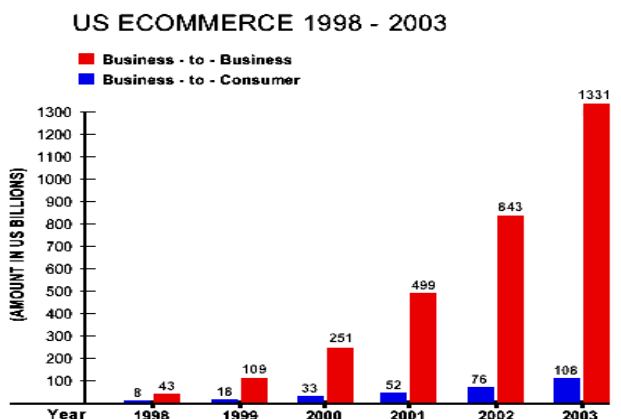


Figure 3. Increase of financial transfer realized through e-commerce in USA for the period 1998-2001 with the projection to 2003³

If we want to participate in these processes, we should involve ourselves both technologically and

organizationally. The technological involvement requires financial means for the purchase of technical devices. Information technology has recently lowered its prices in significant degree. The organizational changes can be implemented through possession of certain knowledge and skills. The knowledge and skills that were generated recently have been developing and changing at extremely fast rate. The educational system should be able to respond to the dynamics of change of the new knowledge and new facts, and to make possible their transfer to the users.

2. FOLLOWING THE TECHNOLOGY DEVELOPMENT THROUGH THE LIFE-LONG LEARNING PROCESS

Education/learning is realized through formal, non-formal and informal educational systems. Formal educational systems are relatively inert, and they teach, depending upon the degree of education, the basic premises of individual scientific areas, with the multitude of facts and quantitative relations. Realization of such teaching is in most cases linear, and it does not give the necessary respect to the personality of an individual student. Non-linear approach to teaching the educational content is rarely used, and the educational methods are not adapted to such approach. The difference of the motives, affinities and interests of the students are being taken at an average level, and the goal is to achieve at least average knowledge standard. It depends upon the average capabilities of the students, capability and motivation of the teacher, and educational technology, which is at disposal within the frame of the system.

After the formal educational system, regardless to the degree of education and the age, the practical knowledge and skills are being realized through practical work. The sequence of the increasing dynamic of technology changes is followed by the system of seminars and education organized by large systems – protagonists of the technological development. Such seminars – educations are very expensive and are treated as an exclusive feature of large systems. But this is also just a part of knowledge that is transferred in such way. Beside the seminars, a large portion of knowledge is being put at disposal through the Internet technology, by the use of multi-media presentation. Such knowledge can be achieved with a certain fee, or without it, although this happens not so often. Information technology enables the multi-media presentation of the content. Multi-media enable the interactive and problem-sensitive content search with the possibility to connect the sources all over the world. Such contents could be reached only through the use of information technology, Internet connections and Internet services. Therefore, the user has to master the use of Internet technology and the methods of knowledge search (knowledge mining), as well as the verification of the discovered contents. Such practice of the developed countries sets before us the demand for use of the presented contents. But there are some obstacles. Beside the existence of the information infrastructure, the other (and bigger) obstacle is the level of knowledge which the users need to approach the contents and use them. Apart

²http://www.nua.ie/surveys/analysis/graphs_charts/comparisons/total_revenue_generated_2002.html

³http://www.nua.ie/surveys/analysis/graphs_charts/comparisons/e-commerce_us.html s izvorom iz: <http://www.forrester.com/Home/0,3257,1,FF.html>

from the knowledge level, what also should be changed is the attitude toward the means and media of the data content transfer. Therefore, a research of attitude of young people toward the different media – means of data content transfer – was conducted.

3. THE RESEARCH OF ATTITUDE OF YOUNG PEOPLE TOWARD THE MEDIA OF CONTENT TRANSFER

The research was conducted through a survey of 601 students from all four years of the Faculty of Organization and Informatics in Varaždin, Philosophical Faculty in Rijeka, Pedagogy-Informatics and Mathematics-Informatics Departments, and the Faculty for Tourism and Hotel Management in Opatija. This is a generation of students who have mastered the use of information technology (Hutinski, Ž., K. Kero, B. Bojanić-Glavica:

Quality of Internet use in students education, MIPRO 2001, Proceedings of the Conference, Computer in education, Opatija, May 2001., pp. 1-6.), and they will certainly have to upgrade their knowledge and to adjust the systems of e-communication to the global tendencies.

The survey was anonymous, and it contained 33 questions concerning their attitude toward the press, Internet Web, radio and television. Their responses – attitude toward a specific question, the respondents expressed through five levels (1 – extremely low/bad, 2 – low/bad, 3 – average, 4 – high/good, 5 – extremely high/good). We will show several specific and characteristic questions and answers that are adequate to the topic and size of this paper.

We wanted to assess the frequency of use of specific media by the young generation, and to point to their readiness to use these media to acquire the new knowledge. The results for the first question are shown in Table 1.

Table 1. Assessment of frequency of personal use of the media

	Press		Internet WEB		Radio		Television	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	2	3	4	5	6	7	8	9
1	25	4,2	102	17,0	69	11,5	22	3,7
2	83	13,8	123	20,5	120	20,0	47	7,8
3	251	41,8	178	29,8	146	24,3	125	20,8
4	174	29,0	139	23,1	125	20,8	212	35,3
5	68	11,3	58	9,7	141	23,5	195	32,4
Σ	601	100,0	601	100,0	601	100,0	601	100,0
\bar{x}	3,29		2,88		3,25		3,85	
σ	0,98		1,22		1,32		1,07	

It is very indicative that the structure of media use shows the lowest use of electronic media ($\bar{x}=2,88$; $\sigma=1,22$). The lowest informative value regarding the scientific and professional contents is achieved through the television, and because of its entertaining contents it is used most

frequently in the population of respondents ($\bar{x}=3,85$; $\sigma=1,07$). Table 2. shows the results of responses to the question of personal preferences for the use of individual media.

Table 2. Personal preferences for media use

	Press		Internet WEB		Radio		Television	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	2	3	4	5	6	7	8	9
1	19	3,2	4	0,7	58	9,7	35	5,8
2	55	9,2	16	2,7	90	15,0	52	8,7
3	187	31,1	54	9,0	175	29,1	152	25,3
4	220	36,6	200	33,3	137	22,8	183	30,4
5	120	20,0	327	54,4	141	23,5	179	29,8
Σ	601	100,0	601	100,0	601	100,0	601	100,0
\bar{x}	3,61		4,38		3,35		3,7	
σ	1,01		0,81		1,26		1,15	

The analysis of the responses to this question shows that most of the respondents rated their wish to use the Internet technology with “high” and “extremely high” rates. These results are opposite to the distribution of responses to the first question. They show the inaccessibility to the

information technology or to Internet. They also show the consciousness of the respondents about the need for use of the information technology. The responses to the question "Assessment of media as the source of professional contents" also point to this.

Table 3. Assessment of media as the source of professional contents

1	Press		Internet WEB		Radio		Television	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
	2	3	4	5	6	7	8	9
1	36	6,0	4	0,7	106	17,6	40	6,7
2	108	18,0	21	3,5	229	38,1	113	18,8
3	214	35,6	74	12,3	172	28,6	251	41,8
4	163	27,1	192	31,9	73	12,1	143	23,8
5	80	13,3	310	51,6	21	3,5	54	9,0
Σ	601	100,0	601	100,0	601	100,0	601	100,0
\bar{x}	3,24		4,30		2,46		3,10	
σ	1,08		0,86		1,03		1,02	

Young people use the Internet, i.e. Web most frequently as the source of professional contents. The press and the journals are in the second place, while television and radio are the least informative in this context. The use of Internet enables the problem-sensitive non-linear search of the

content, which reflects the responses regarding the writing of the seminary papers and the problem-oriented approach to learning. The statement about the Web contents being the most inaccessible for the respondents is confirmed by the responses shown in Table 4.

Table 4. Physical accessibility (my access to the site of use/purchase)

1	Press		Internet WEB		Radio		Television	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
	2	3	4	5	6	7	8	9
1	14	2,3	54	9	8	1,3	13	2,2
2	16	2,7	80	13,3	15	2,5	14	2,3
3	93	15,5	160	26,6	40	6,7	48	8,0
4	168	28,0	124	20,6	94	15,6	105	17,5
5	310	51,5	183	30,4	444	73,9	421	70,0
Σ	601	100,0	601	100,0	601	100,0	601	100,0
\bar{x}	4,24		3,50		4,58		4,51	
σ	0,97		1,29		0,83		0,9	

Physical accessibility of the information technology has got the lowest response values ($\bar{x}=3,50$; $\sigma=1,29$), while other media are more accessible to the young people, with low standard deviation. These results are to a certain degree in collision with the results of previous researches, which have shown that more and more students own their own personal computer, depending upon the year and the area of studies. The research of 699 students from all three faculties has shown that 72.10% of them have their own PCs, while 27.80% of them do not have PCs. Of 263 respondents from the Faculty in Varaždin, 88.50% have PCs, while 11.41% do not have PCs. The students from the Rijeka Faculty have their own PC in 89.15% of cases, while 10.85% of those students do not own a PC. Of 307 respondents from the Faculty in Opatija, 50.81% have PCs, while 49.19% do not have PCs. These indicators can be seen in the Figure 4.⁴

Figure 4. Structure of polled students according to the year of study, Faculty and ownership of a personal computer

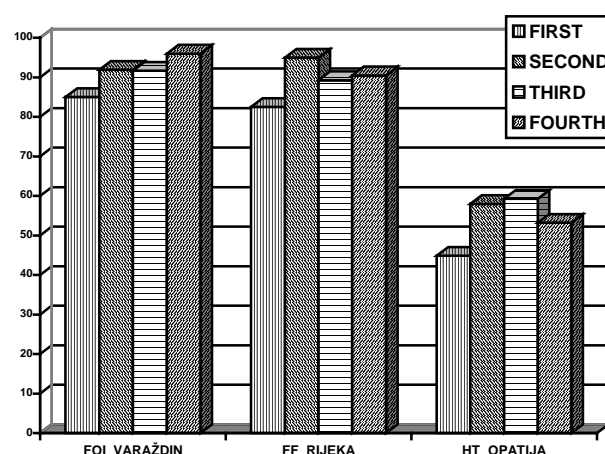


Table 5 shows the results of the research regarding the opinion of the respondents about the possibility of personal adjustment of the media, i.e. about the possibilities of personalization of the content and the approach to the content. Most of the respondents are of opinion that the Internet content can be personalized, while other contents cannot be personalized. Other contents, consumed through the press, radio or television, are to be used in their original form, through a linear approach to the content. The only

⁴ Hutinski, Ž., K. Kero, B. Bojanić-Glavica: Quality of Internet use in students education, MIPRO 2001., Proceedings of the Conference, Computer in education, Opatija, May 2001., pp. 3.

possibility of adjustment is the choice of TV or radio station he/she wants to listen/watch, or the choice of journal or book he/she wants to read. The structure of the presented content cannot be altered. This is not the case with Internet. Intelligent “agents” prepare for all users, day by day, desired content structure; through this structure the user can move in a non-linear manner. The user also has the possibility to get the notice about significant changes or about appearance of a new content in the field of interest, which could be significant for the consumer.

Regarding the question about the knowledge needed for the use of media, the respondents mostly answered that they have high level of knowledge of all media, except for the use of the Internet technology. They assessed that they do not have adequate knowledge in this aspect, despite the fact that respondents are university students. This insight about the missing knowledge is the foundation for the next step, which should be taken during the studies, with the goal of adopting the knowledge in professional sense, but

also of keeping the pace with events in the development of information technology. This way, we would not lag behind the possibility of communication related to professional contents through Internet technologies. The results of the analysis of the responses to this question are given in the Table 6.

Table 7 shows the results of the students' responses to the question about the attitude toward specific kind of media. The press scored lowest in this question ($\bar{x}=3,6$; $\sigma=1,14$), it was followed by radio ($\bar{x}=3,79$; $\sigma=1,10$), and television ($\bar{x}=4,0$; $\sigma=1,02$). The best attitude the respondents have toward Internet and Internet technology ($\bar{x}=4,30$; $\sigma=0,86$). The analysis of the responses to the last question also showed lowest rate of deviation from average values; this means that the respondents showed high level of response synchronicity and the intensity of the choice of this response.

Table 5. Possibility of personal/interactive adjustment of media

1	Press		Internet WEB		Radio		Television	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
2	3	4	5	6	7	8	9	
1	294	48,9	105	17,5	241	40,1	2,68	44,6
2	126	21,0	84	14,0	150	25,0	127	21,1
3	127	21,1	147	24,5	131	21,8	122	20,3
4	42	7,0	142	23,6	57	9,5	53	8,8
5	12	2,0	123	20,5	22	3,7	31	5,2
Σ	601	100,0	601	100,0	601	100,0	601	100,0
\bar{x}	1,92		3,16		2,12		2,09	
σ	1,07		1,37		1,15		1,21	

Table 6. I have the knowledge needed for the use of media

1	Press		Internet WEB		Radio		Television	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
2	3	4	5	6	7	8	9	
1	29	4,8	41	6,8	27	4,5	28	4,7
2	22	3,7	70	11,6	14	2,3	10	1,7
3	51	8,5	148	24,6	47	7,8	40	6,7
4	109	18,1	167	27,8	96	16,0	88	14,6
5	390	64,9	175	29,1	417	69,4	435	72,4
Σ	601	100,0	601	100,0	601	100,0	601	100,0
\bar{x}	4,35		3,61		4,43		4,48	
σ	1,09		1,21		1,04		1,02	

Table 7. I have positive attitude toward the technology that is the foundation of the media

1	Press		Internet WEB		Radio		Television	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
2	3	4	5	6	7	8	9	
1	25	4,2	9	1,5	18	3,0	20	3,3
2	69	11,5	11	1,8	64	10,6	25	4,2
3	196	32,6	65	10,8	142	23,6	115	19,1
4	140	23,3	166	27,6	180	30,0	214	35,6
5	171	28,5	350	58,2	197	32,8	227	37,8
Σ	601	100,0	601	100,0	601	100,0	601	100,0
\bar{x}	3,60		4,39		3,79		4,00	
σ	1,14		0,86		1,10		1,02	

4. CONCLUSION

The goals of upbringing and education have individual and social connotations that should be based upon democratic and humanistic values. In the educational process, they are realized through the possibility of continuous approach to the contemporary educational contents and their evaluation on the international scale in theoretic and practical fields. In the report of International Committee for Development of Education in 21st Century, UNESCO emphasized that the fulfillment of goals and tasks of the life-long learning requires founding the education on four basic pillars of knowledge: learning for knowledge, learning for work, learning to live together, and learning to be.

Traditional gap between basic education and continuous education which is usually related to adults, i.e. certain age, is questioned, because the time for learning is determined by the length of life, in which different knowledge is being connected. The four basic principles of learning that we quoted are called life-long learning and they bind all ages of life, and also they connect directed and organized educational activities with those spontaneous. In the quoted report of International Committee for Development of Education in 21st Century, life-long learning is defined as the "educational continuum which expands through the whole life and envelops the whole society in the end"⁵

The choice of responses in our research points to the change of attitude of the young people; this change is visible in relation to the contemporary media of content transfer. It is just one side of the problem. The young people who were the respondents in our research are involved in process of education on a university level, on the faculties whose basic fields of study are information technologies (with the exception of one faculty).

The older generations are not familiar with use of information technology in work, or they use it in limited fashion, within the frame of specific operation on their work places. The system of formal education is not adjusted for preparing people for individual life-long learning. The most common obstacle is not the information technology, but the level of teachers' knowledge of use of that technology in the educational process. In that way, such methodological procedure would become inevitable form of learning, and also form of life-long learning after the end of the formal education.

Life-long learning requires also the contents that are prepared in such way that they are accessible through Internet technology and that they fulfill the standards of multimedia and hypermedia system of approach to the content. The next condition that needs to be fulfilled for implementation of such approach to the learning is the communication infrastructure, viewed in the terms of open communication channels (multimedia requires a lot of free memory space) and the terms of prices of communication services.

There are many preconditions for the concept of life-long learning that are yet to be defined in our environment.

However, the world does not wait for us to be ready. It develops very fast in this field, so our lag becomes bigger and bigger. The statements that remain on the declarative level are pushing us even further from the solution of this problem, because they give us the false sense of moving from the standstill point. The acquirement of the new equipment will not start the process of change, nor will the writing of new programs start it. These activities should not be avoided, of course, but the main changes should happen in general knowledge level of all - especially those who are teaching others and those who are being taught today, and who are going to be responsible and conscious protagonists of the life-long self-education process tomorrow.

Bibliography

1. Avison, D.E., & Shah, H.U. (1997) *The Information Systems Development Lifecycle: A First Course in Information Systems*. London, UK: McGraw-Hill.
2. Bandow, D. (1998, March) Working with the Borg: Trust development and dispersed work groups. *Proceedings of the 1998 Conference on Computer Personnel Research*, 163-169.
3. Beise, C.M., Niederman, F., Beranek P.M.. (1992, April) Facilitating technology supported group work: A new category of IS personnel. *Proceeding of the 1992 ACM SIGCPR Conference on Computer Personnel Research*, Cincinnati, OH, USA, 250-258.
4. Center for Resarch an Electronic Commerce, <http://www.netcaucus.org/statistics/>; 15. 01. 2001.
5. Cox, N. (1998) Web-based teamware lets users work in concert. *Network Computing*, vol 9, 102-103..
6. Delores, J.: *Učenje blago u nama*, Zagreb, Educa, 1996.
7. Freman., Ch.: *THE ECONOMICS OF HOPE*, Printer Publishers, London & New York, 1992.
8. Hutinski, Ž.: *INFORMATIČKA TEHNOLOGIJA – ČIMBENIK OBRAZOVNOG PROCESA*, drugi međunarodni znanstveni kolokvij «Nastavnik – čimbenik kvalitete u odgoju i obrazovanju, Sveučilište u Rijeci, 25. – 26. ožujak 1999., Rijeka, 1999. str. 744.-753.
9. Hutinski Ž., K.Kero, B. Bojanić Glavica: *QUALIFICATION OF STUDENTS FOR USE INTERNET SERVICES IN THE HOTEL INDUSTRY, TOURISM AND HOSPITALY MANAGEMENT, TRENDS AND CHALLENGES FOR THE FUTURE*, Sveučilište u Rijeci, 25 – 28. October 2000., Rijeka, 2000., str. 449. – 458.
10. Kero K., Ž. Hutinski, M. Šimunić: *OSPOSOBLJENOST STUDENATA ZA KORIŠTENJE INTERNET USLUGA U OBRAZOVNOM PROCESU* Informatička tehnologija - čimbenik obrazovnog procesa, Treći međunarodni znanstveni kolokvij "Nastavnik – čimbenik kvalitete u odgoju i obrazovanju", Sveučilište u Rijeci, Gospić, 25. – 26. ožujka 2000., Rijeka, 2000. str., 104 – 113.
11. Hutinski, Ž., K. Kero, B. Bojanić-Glavica: *Quality of Internet use in students education*, MIPRO 2001., *Proceedings of the Conference, Computer in education, Opatija, svibanj 2001.*, str. 1-6.
12. Rutkowski, A., M., Center for Next Generation Internet, <<http://www.ngi.org/rutkowski.html>>
13. Šošić, I., V. Serdar, *UVOD U STATISTIKU*, Školska knjiga, Zagreb, 1992.
14. <http://www.netcaucus.org/statistics/>
15. http://www.nua.ie/surveys/analysis/graphs_charts/comparisons/e-commerce_us.html s izvorum iz: <http://www.forrester.com/Home/0,3257,1,FF.html>
16. http://www.nua.ie/surveys/analysis/graphs_charts/comparisons/total_revenue_generated_2002.html
17. http://www.nua.ie/surveys/analysis/graphs_charts/travel/total_online_travel_spend_96_2002.html

⁵ Delores, J.: *Učenje blago u nama*, Zagreb, Educa, 1996., str. 110.

