

E- Publishing in Medical and Life Sciences

Introduction

The presence of scholarly and academic communication on the Internet is a rapidly growing section on the field of biomedical and health sciences as well. Physicians generally accept and make use of the values of electronic publications, but they are aware of their disadvantages, too. Growing trend in electronic scholarly and scientific publication can be observed, however, all over the world.(1)

Scientific electronic communication in Hungary

In Hungary, the electronic communication and the electronic resources of information are open for libraries and scientific institutions. The universities, national research institutions, libraries are equipped with the modern tools of electronic communication and the actual governments give every possible support in purchasing and making use of them.

According to a Government Order, the Ministry of Education established a national information system (EISZ) (2) based on electronic information carriers. The aim of the project is to purchase the electronic sources and carriers of information, which are absolutely indispensable for the higher education and scientific research. The professors, researchers and students are entitled to use free of charge the following EISZ purchased sources of academic literature at all of the Hungarian institutions of higher education, at the Hungarian Academy of Science and its institutions, at the research institutes sponsored by ministries: *WEB of Science (WoS) from 1996, the Swetsnet Navigator, the Science Direct database.*

As early as last year, previous to many other countries, Hungary joined the

GIANT network - a project of primary importance of EU. So, we have and use the data transfer system of highest capability, and exploit the advantage of the Internet communication.. At present several suppliers, servers, etc. make the Internet communication possible.

We should mention, that the number of privately owned PC-s, and Internet subscribers are not comparable with those of the developed countries, because of financial difficulties. Hungary has to put up for the backlog of more decades. It is a factor, that impedes the access to modern technology by private persons – and most of Hungarian students - seriously.

In this presentation we would focus on the scientific (medical) communication and publication on the Internet.

From the source (1) we picked up the most used types of electronic sites in Hungary as follows:

Most used types of electronic sites for scholarly/academic electronic communication/publication in Hungary.

1. Online edition of hard copy books, textbooks, lecture notes:
2. Printed periodicals with on-line abstracts or indexes of content
3. Printed periodicals with on-line editions
4. Printed periodicals with “online first” editions
5. “On-line only” periodicals without hard copy editions
6. Scholarly and academic discussions lists and mailing lists
7. Internet congresses
8. Homepages of (medical) institutions/persons

The stepwise transition from the traditional printed forms of communication to the electronic ones is reflected in these forms. During the transition several legal and business difficulties should have been solved, first of all, the authorship and copyright, as well as the protection of mental property.

Selected advantages and disadvantages of electronic publication in medical and life sciences (7)

Advantages

- Shorter transit time, less transit costs
- No limits in space and time
- Possibility of simultaneous multiple usage
- Efficient searching possibility
- Content organised in databases
- Possibility of building up added values

Disadvantages

- Frequent changes in URL addresses
- High technical requirements
- Inconvenience of reading the screen
- Possibly network errors
- Archiving problems
- Software updates
- Embargo periods for the contents of certain periodicals(3)

In general, the shorter transit time from authors to readers is the main advantage of electronic publication for the following reason:

The authorship of a scientific result in medicine and health sciences is a delicate question. The patenting possibilities in these fields are limited because of ethical limits, so the scientist who has published a scientific medical result first and credibly is generally considered as the author of the scientific result in question.

Therefore, nowadays, *the publication in peer reviewed (bio)medical journals, to which one subscribes but can only access via the Internet* has become popular among the scientists all over the world. (The definition includes the *electronic editions of printed periodicals*, the *On-Line First* editions of printed periodicals /which are more or less adequate mirrors of their printed counterparts/, as well as the *Online-only* periodicals, which have no printed counterparts at all.)

According to a survey (4) similar opinion has been expressed by physicians, too. In order to have some insight into the popularity of electronic publication tools in Hungary, we performed a preliminary survey among the PhD applicants and other graduate physicians, patrons of our library.

Materials and methods

The study was conducted at the Central Library of Semmelweis University from

1st January to 31st May. During that time those applying for PhD degree, as well as other graduated people received a questionnaire and were requested to fill in. We ranked them in 3 categories based on the speciality they have chosen: Theoretical biomedical sciences (Group I); Clinical sciences (Group II) Pharmaceutical and other sciences (not declared) Group III.

Questionnaire design

We asked the respondents to specify their special subjects and department of work, but we did not ask them about their age and gender because we considered them irrelevant. In our opinion the time, when the subjects heard about the possibility of electronic publication is more important, so we included this question in the questionnaire. Similarly, we requested the respondents to select from six possibilities the ones they considered as electronic publication. Next questions related to the usage of Internet-given possibilities as well as to the respondents' knowledge of online only publication sources, with special regard to the Hungarian ones. In the end, we asked their opinion about the future perspectives. The questionnaire form can be seen in Appendix.

Analysis

Because this presentation is a preliminary survey with a small statistical sample, we could not perform a standard statistical analysis. Though we grouped the respondents in three groups, at the evaluation we did not treat the groups' answers and opinions separately, because of the small number of people in the groups. Based upon the answers and remarks we could draw, however, some remarkable conclusions.

Results

114 people completed the questionnaire:

	Respondents'	
	number	in %
Professors	12	10
PhD aspirants	57	50
Physicians, specialists, other graduate people	36	32
University students	9	8

Total	114	100

	Respondents'	
	number	in %
Categories of speciality:		
Theoretical biomedical sciences (Group I):	30	26
Clinical sciences (Group II):	60	53
Pharmaceutical sciences and other (Group III):	24	21

Total:	114	100

Respondents' answers to the questions of the questionnaire

When were you first informed about electronic publication possibilities?

First informed about electronic publication possibilities

	in % of respondents
1995	11
1998	26
2000	40
Other	13
Not informed	5
No answer	5

Total	100

Remarkable, that relatively a small percentage of respondents was informed about Internet possibilities in 1995 or earlier (1991-1994). Even more surprising, that five per cent of respondents haven't heard about these possibilities before!!!

What do you mean by electronic publication from the preset possibilities?

Classification of Internet/electronic publication possibilities based on the respondents' votes.

Positive answers given in percentage of the respondents.

Electronic version of printed periodicals	Online first version	Online only periodicals	Mailing lists	University homepages	Others	No answers
71%	63%	66%	29%	29%	3%	16%

Others, as declared by the respondents:

Conference abstract books, if they are accessible only electronically;
 International Pharmaceutical Abstracts (IPA)
 Real, useful publications sent via Emails to scientific periodicals;
 Articles of health education attached to conversational/discussion forums.

Do you use any of the above sources (reading, publication)

Usage of Internet possibilities according to the respondents' votes.
 (Positive answers given in percentage of the of respondents.)

Electronic version of printed periodicals	Online first version of periodicals	Online only periodicals	Mailing lists	University Homepages	Not Specified	No answer	Negative answer
50 %	36 %	25%	10%	20%	35%	1%	35%

We may draw the conclusion, that most people use the electronic possibilities, mainly those that meet their professional demands.

Most popular are the electronic versions of printed periodicals.

Have you got an Internet homepage of your own?

10 per cent of the respondents has got an Internet Homepage of his/her own.

Do you take part in conferences on the Internet?

About 2,5 per cent of the respondents takes part in Internet conferences

Have you ever published articles in online only periodicals?

Only one respondent has an article (in preparation)

Do you read pure online only periodicals

About 51 per cent of the respondents read online only periodicals.

How many online only periodicals do you know in your special line?

31% of respondents gave answer, 3 periodicals were signed generally

Are there Hungarian ones among them?

Only 1

How many online only periodicals do you know in other fields of medical and life sciences?

30% of the respondents gave answer for this question.

The best informed respondents reported to know 5 –20 online only periodicals.

Are there Hungarian ones among them?

Only 1

How many electronically published textbooks /reference books do you know?

40% of respondents gave answer for this question. 20% of them reported to know Hungarian books, 80 % foreign books

Which ones? (List, please)

(English books about 16 different titles)

Listed titles for example: Echocardiography; Online books of medicine; Wheeler's Textbook of Orthopedics; Spine; WHO Statistics, Digital signal processing guide, Online medical dictionaries.

Remark:

Many people (about 60 per cent of respondents) did not give answer to the question, presumably they did not remember what was the exact title or did not want to take the time for giving answer.

List the electronic resources you use most often

90% of respondents gave answer for this question, 35 different electronic resources were marked.

The frequency was the following:

1. Electronic periodicals (Highwire, Springer, ScienceDirect, AHA journals): 15 times mentioned
2. MEDLINE: 13 times mentioned
3. Searching motors
4. Different portals

What is your opinion about the effects of electronic publication in the scientific academic field?

Possible answers: positive (+) negative (-) ambivalent (+/-) I don't know (?)

Results are given in percentage of the respondents.

On the users				On the sciences				On the quality of publications				On the education			
+	-	+/-	?	+	-	+/-	?	+	-	+/-	?	+	-	+/-	?
71	0	13	16	87	3	2	8	29	13	42	16	89	3	0	8

Respondents' opinions about different relevant questions

Advantages of electronic publications

1. Quickness in access and in publishing
2. Up to date information
3. Independence from libraries (if one has Internet access at home!)
4. Comfortable usage
5. Quicker and broader flow of information
6. Broader publicity

Disadvantages of electronic publications

1. Lack of quality control of publication may result in poorer quality
2. Data downloaded onto servers are unprotected, everybody may use them
3. Selecting really valuable articles is difficult, enormous flow of information may

cause confusion

4. Rapid moral ageing of information: what are worth saving?

5 Expensive hardware and software requirements limit the accessibility

6. Subscription fees for Internet usage and for different sources of information are expensive.

Roles of libraries and librarians in the future.

All of the respondents expect increased role for libraries and librarians in giving help and establish newer possibilities for Internet access. "Look at a good western library and you will see the future role" says one of the respondents.

Librarians should be well oriented and up to date. Important role of librarians to guide the readers, to give the necessary information for the patrons even in field of electronic possibilities. Trainings are needed in order to teach the readers how to use the Internet and other electronic (and non-electronic) means efficiently.

General opinion is that the libraries and librarians are indispensable in the future, too: help is always needed. Librarianship is and will be an important line of sciences., though one of the respondent said, that in case of well arranged online possibilities, role of librarians might decrease.

Possibly alterations in library holdings in the future

All of traditional documents should be found at public and central libraries,, **electronic libraries should be on the desks!** Most probably, the future of library holdings is a question of financial funds. Expectation will shift towards the electronic possibilities and sources of information; traditional holdings should not be changed, more electronic sources should be added! CD-collections will increase, privately owned laptops/notebooks will gain increased role in saving and storing information; acquisition of printed documents will be diminished; shared collection are needed.(Consortia).

Electronic data collections require smaller space for storing. The electronic

articles should get printed and accessible in printed form as well.

According to the forecasts, a shift will take place in the future towards the electronic means and sources “less paper, more computers”. The velocity of transformation depends on financial possibilities. *Contents increase, volume decrease with advent of electronic communication.*

Other miscellaneous individual opinions related to this topic

The young prefer the electronic possibilities. The older generation has grown up without this possibility. According to their opinion computer usage damages the vision.

Most important is the preservation of older documents (before 1965), because their contents are not covered by Medline. It would be very good, if the electronic access were not be financially limited, at every level (not even at home!):

Some people would be glad, if more full text articles could be read online. Others would not be glad if they were deprived of traditional reading. Only printed documents could be taken and read at home (at present). Reading a book or a periodical gives a special joy to many people. The electronic communication makes the live and work of researchers easier. The library can and should take efforts to meet these demands.. The electronic communication makes the live and work of researchers easier.

It would be ecologically favourable, if not all articles appeared in printed form. One can print the articles he or she is interested in. The EISZ is a good example of the cooperation between ministries and universities. They can subscribe more databases and periodicals, etc. in common and provide shared usage for every university and scientific institution. This will improve borderline research activity.

Diametrically opposed opinions have been expressed. The individual opinions depend on the personality and have not much to do with the objective realities.

Summary

We wanted to delineate several aspects of scientific electronic communication and publication possibilities and the popularity of Internet in Hungary in sphere of scientists and graduated people.

At the university and academic, libraries the scientists and graduated people have the possibility of Internet usage and electronic communication.(5,6) For private persons the possibilities are limited because of financial difficulties.

To assess the quality and quantity of Internet-usage (for research work) we issued a questionnaire and sent them to readers. From their answers and comments, we could draw the following conclusions:

Conclusions

1. The possibilities of electronic communication and publication are not as popular in Hungary as it could and should be. Even the scientists are not well oriented in the possibilities. The majority of the respondents has acquainted with these possibilities as late as after 1998.
2. As regards the electronic publication possibilities, the electronic version of printed periodicals, the online first version of printed periodicals and the online only periodicals are considered as really electronic media by the respondents.
3. The respondents generally use the electronic media for reading articles if these have not been published in printed form.
4. The online-only form of electronic media as a means of scientific publication is not very popular because of these periodicals haven't got Impact Factors as yet, and the quality control of the articles is questionable in most cases.
5. The most preferred electronic sources of information are the databases, search engines and homepages.
6. The respondents' opinions about the effects of electronic publication in the

scientific, academic field are mainly positive, with some objections. In general, the quickness of information-flow, the easy access and the broader publicity are appreciated. Concerns are expressed about the effect of quality of publications and the legal protection of publications.

The effect on the education is considered unequivocally as positive.

7. According to the majority of the respondents, the electronic publication will not replace the traditional ways completely, but its presence will be more dominant.

8. The respondents' opinions about the last five questions of the questionnaire are rather interesting, sometimes even surprising, and useful for our future work.

Research plan for future

We want to make interviews with competent people in order to reveal their problems with the electronic publication and communication possibilities and to discover the weak points.

We want to continue this survey as well. We have, however, to transform the questionnaire by posing more accurate, goal-oriented, unequivocal questions.

Last, but not least, we want to issue brochures in order to inform the broader public about the possibilities and electronic sources that are at their disposal in Hungary at present. Our aim is to propagate these sources. By the use of electronic possibilities, the publication activity will be enhanced.

Appendix

Questionnaire

Special degree:

Affiliation:

When were you first informed about electronic publication possibilities?

(Underline, please, the correct answer):

1995

1998

2000

other

Classification of Internet publication possibilities:

1. What do you mean by electronic publication?

(Positive answers should be marked by +)

a) Publication in electronic version of traditional (printed) periodicals

b) Publication in "online first" version of printed periodicals

c) Publication in "online only" periodicals (which have no printed counterparts at all)

d) Comments, publications in professional lists of correspondence

e) Publications, comments on homepages

f) Others

(List, please)

Usage of Internet publication possibilities

1. Do you use any of the above sources (reading, publication)

regularly? Yes – No

If yes, which one?

2. Have you got an Internet homepage of your own? Yes - No

3. Do you take part in Internet conferences? Yes – No

4. Have you ever published in online only periodicals? Yes – No

(If no, short reasoning, please)

5. Do you read pure online only periodicals? Yes – No

6. How many online only periodicals do you know in your special degree?

7. Are there Hungarian ones among them?

8. How many online only periodicals do you know in medical and life sciences?

9. Are there Hungarian ones among them?

10. How many electronically published textbooks /reference books do you know?

Which ones? (List, please)

11. List the electronic sources you use most often (in addition to university homepages), please

What is your opinion about the effects of electronic publication in the scientific academic field?

i on the readers

ii on the sciences

iii on the quality of publications

iv on education

Positive (+) Negative (-) Neutral (+/-) (Short reasoning welcomed)

Respondents' opinion about the future of electronic publication in the scientific academic fields

a) Dominant in the future Yes - No

b) Replaces the traditional documents completely Yes - No

c) Equal to traditional forms of publication Yes No

Possibly preferred professional line:

Other remarks

Advantages of electronic publications

Disadvantages of electronic publications

Role of libraries and librarians in the future

Possibly alterations in holdings in the future

Other individual opinions in this topic

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