The E-book vs. the ordinary book

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Pre-Discussion Paper

The fast progress in information technology brings us to the point where we should analyze the position of a commercially printed paper book in the near future. One may state unequivocally that the printed book created by Gutenberg (1398-1468) has finished its role as a carrier of ideas and now it has no future, just as it was with the wonderfully illuminated fables written by monks in the monasteries. The revolution brought by the computer surpasses by far that introduced by the invention of printing.

As is known to everybody a book consists of subject matter and its physical basis – printing paper, imposed type and   cover. The computer may affect, to some extent, the subject matter of a book, but will never replace the essence of the book and nobody is considering "replacing the book by a computer" - but it is clear that replacing the existing form of the book by an electronic book is inevitable and will occur very soon. Some of the obvious advantages of the e-book are recapitulated in the following:

1. The ordinary printed book is produced in a large number of copies. This calls for a large initial investment, for providing storage and accounting for the remaining stock, while an E-book is produced in the exact quantities requested by the market.
2. The distribution of an e-book is practically free of charge, and its delivery is immediate - by electronic mail.
3. The e-book may be updated as often as it is necessary while an ordinary printed book becomes obsolete, sometimes very fast.
4. The e-book may utilize any type of font in whatever size, and may use an electronic magnifying glass that shows the relevant part of text with any requested magnification.
5. The e-book may be downloaded on a floppy disk, CD or any other storage device that occupies much less space and weights much less than a printed book. All encyclopedias and many other reference materials are already printed in form of e-book.
6. The author's honorary may be paid after selling every copy.
7. The buyer of an e-book may print it at home in any format. He may print only the interesting chapters or parts of the book, and may share the book with an unlimited number of friends.
8. The author of an e-book sees it published immediately after the book has been finished and corrected.
9. The e-book may be translated into several languages immediately and free of charge.
10. All these features may contribute to a substantial increase of the number of the readers.
11. One may reasonably expect that in course of the next 3 to 5 years storage devices with memory of some 50 to 75 GB will appear, enabling users to store a whole library containing several thousand books on a single disk. Thus every child may be supplied with all the masterpieces of world literature on a single disk.
12. An e-book may contain large number of illustrations, photos and diagrams without increasing its weight or volume.
13. An e-book may be read by voice, as well as contain clips of music or poetry.
14. There is no delay between writing an e-book and its publishing worldwide.
15. The "transportation" of an e-book does not call for packing and handling.
16. An e-book may be printed on some kind of durable medium which may survive hundreds of years, even under adverse climatic conditions.
17. Conducting a search for specific passages or for certain information in an e-book is decisively easier than in a commercially printed book.
18. The fate of an old book is, in most cases, regretfully - that it gathers dust on the shelf until somebody will dare to throw it away. Most people don't have enough time to read new stuff, let alone the old one. In the case of an e-book the problem does not exist, since it occupies a miniscule space on the storage medium and may be deleted by one click without ecological damage.

19. An e-book provides access to most of the museums and thus may contribute to the dissemination of art and sciences among the population. The existing catalogues of most museums are heavy and costly while the quality of pictures is, in general, far below what a good modern monitor may provide.

20. Undoubtedly using computer graphics, sound and animation teaching kids read and write may be performed more effectively than by using old printed books only (in Poland the book teaching read and write – Elementarz Falskiego- was in use for almost hundred years).

21. Computer-based learning creates lasting interest in learning, while oral teaching associated with commercially printed books is deadly boring. Many teachers feel that things learned from computer stay etched in the mind for a long time if not forever, while knowledge gathered from old handbooks evaporates very fast.

22. Computers allow an extra dimension in education (of adults and children) and call for a complete change of philosophy and teaching methods. Such a change may take place only by the replacement of the entire structure of education by another one, fully computer-based.

23. The Introduction of computers in primary schools helps to introduce this form of media earlier in life, and there is no doubt that this is the most valuable aid in further education.

24. There is no place for a distinction between e-books and commercially printed books since we can place books online and download their contents in minutes. Books and computers are made for each other and serve each other's purposes. But where computers are really going to shine is in conjunction with the Internet in online courses of education.

25. The e-book provides easy links to similar articles while commercially printed material besides indicating (in the best case) the existence of relevant material - does not assist in getting it.

26. The e-book can offer interactivity that engages the student. The e-book and the computer have the potential of analyzing the students learning pattern and optimize the learning process. Frequently the computer (especially the Internet with its hypertext links) allows the user to find information without effort. All this proves that the e-book has the potential of surpassing (rather than encompassing) commercially printed books.

27. Artificially intelligent, high quality courseware allows tailoring lessons individually for each child – nothing similar can be provided by a commercially printed handbook.

28. One picture is worth thousand words – the number of illustrations in an e-book is practically unlimited and the cost of their insertion is miniscule.

29. An e-book provides an opportunity for a personal contact with its author.

30. An e-book provides all the means for supervising the child's activities and reactions, as well as his interests and this way the learner can benefit from the absorbed material.

31. Excellent multimedia material stimulates the child's intellect more than anything else. It induces further reading or watching, and may serve as the most powerful source of knowledge about the world and about people. The wealth of information provided by the e-book cannot be compared with that supplied by ordinary paper book.

32. The e-book stimulates the development of artistic talents of children, especially in the field of graphic art, drama, choreography, architecture, literature and music.

33. The reduction of the price of printers (a very good printer produced by HP costs below $40), together with reduction of the price of ink cartridges enables inexpensive printing of large blocks of downloaded materials, including e-books.

34. Reading material can be bound together and the result will not differ from a book produced by a professional book publisher at a much lower price.

35. In case of an e-book the attention of the child is concentrated on the text and the accompanying graphics while the dreadfully boring character of the paper book causes that the child is constantly distracted. A well developed, attractive courseware, prepared by team of outstanding pedagogues will undoubtedly raise standards among all learners, including primary school children.

36. Basing on the experience of the last 45 years there is no doubt that the next decade will bring processors that are, at least, ten times faster and hard drives that are at least ten times bigger, with all the possibilities arising from such a development in the education process. Enormous R&D budgets and thousands of talented scientists/engineers dealing with the subject guarantee that such a development is highly probable.

37. Valuable, well researched information is presented on the screen of TV or computer, because it attracts viewers and raises rating, while a paper book rarely contains information that is given away for nothing. Besides, in most cases this information is worthless, obsolete or outdated.

38. Reading the paper book goes hand in hand with headaches, eye strain and mobility problems because of the font of small size, unsuitable for people above 50, poor paper and the bleak printing ink (you see the font from the other side of the page), while the computer enables to get a font of any size by using the inherent features of the computer and, in addition, has the wonderful "electronic magnifier glass" feature that enables reading of every text even by people with very weak sight, without strain.

39. By using computers in an interactive way the horizons are virtually limitless. Of course we need to completely rethink teaching methods and to redefine the role of the teacher, if any.

40. If we accept the idea that it is the subject matter that counts, not the decorative effect, then the e-book has all the advantages – a decisively lower price, immediate delivery, easy transportation in case of relocation, no load on the floor, no fire hazard, fast access to needed information, a possibility of sharing with friends, easy disposal of outdated books and many others.

41. Of course such issues as the cost of a computer, portability and reliability will have to be resolved – these problems do not seem insurmountable – before e-books will finally replace ordinary books and mediocre teachers as the main tool for education.

42. An e-book may be discussed with a group of friends scattered over the globe while discussion of an ordinary book calls for the gathering of participants in one place or arranging a costly teleconference.

43. The failure of introducing of e-books and computers into the educational process so far results from the limited courseware development budget, from the lack of knowledge of most educators how to fully utilise computers, and last but not least, from the fear that computer will partially or fully replace mediocre teachers.

44. An ordinary book may be destroyed by fire or water and nobody keeps a back-up for books. However, an e-book may be stored on a CD-ROM less than 1mm thick and one may easily have a back-up that will cost a few cents and be kept in a safe place.

45. The delivery of ordinary book lasts several days and the cost of delivery is very substantial (comparable with the cost of the book itself) while an e-book is delivered in minutes and it costs practically nothing.

46. Ordinary books are often large and heavy - e-books in hundreds may be loaded on a single CD.

47. An e-book enables to get explanations, interpretations, and bibliographical data. It may contain a Thesaurus of words and phrases and thus assure better understanding of the subject matter.

48. Only the e-book together with distance learning may satisfy the growing number of learners that for the age span 14 to 17 exceeds 950 per thousand and the people in their thirties and forties that encounter new methods, new machines, new materials and new techniques.

49. Only a transition to e-book enables the utilization of the constructivist learning theory that is the leading learning theory today.

50. The e-book may prepare the learner to learn independently, without a teacher – in a real situation. The e-book may provide the learner with all the knowledge that is requested for understanding the new material. Only an e-book may contain the answers to all possible questions of the learner and may provide all the information that may be necessary for understanding the new material so that the presence of the teacher/lecturer should be redundant.

Bibliography

Scheidlinger, Z. (1999). Education calls for a new philosophy. *Educational Technology & Society, 2* (3), 119-122.

Post-discussion Summary

1. Introduction

The discussion was centered on the long standing emotions and deeply based prejudices regarding the existing form of the paper book as something eternal, given from heaven and pointing to the cultural level of the owner. Such an attitude to the book and to the private library persisted during the eighteen and nineteen century.

In recent five to ten years this attitude started to change. Encyclopedias and reference books appear almost entirely in form of laser disks, the capacity of which steadily increases, reaching at present tens of gigabytes and, most probably, toward the end of a decade, will reach hundred or even thousand of gigabytes. The efforts to increase the capacity of disks are partially dictated by the DVD popularity, which captures the growing share of the market and calls for disks of large capacity.

The posting by Bowerbird Intelligentleman covers most of the problems connected with the transition from paper book to the e-book. It calls for creation of high quality e-book software with the following features:
1. Ability to have several pages/books open simultaneously;
2. Ability to highlight portions of the text and variety of annotations capabilities such as margin notes, underlining, dog ears, bookmarks, "paper clipping".

3. Ability to provide font of any kind, any convenient size, any color, any leading between the lines, any convenient background color.
4. Because of the abovementioned abilities the eye strain may be reduced or even totally avoided.
5. Because of the possibility of using wireless keyboard and mouse, together with voice recognition, the posture when reading and writing may be changed within wide limits, much wider than in case of paper book.
6. Ability to store an equivalent of thousands of volumes (or even tens of thousands of volumes in the near future).
7. Dimensions and weight of the most recent readers (Scheidlinger, 1999) do not exceed those of a paperback.
8. Ability to work in landscape or portrait format – whatever suits the reader.
9. Ability to resize the window with rewrapping the text accordingly
10. Ability to toggle the horizontal justification of lines.
11. Ability to toggle vertical justification (page balancing).
12. Ability to have the user read out loud to him.
13. Ability to control the widow/orphan of the text in the window.
14. Ability to choose all lower-case display.
15. Ability to jump to any page directly, by page number.
16. Ability to return easily to the last page displayed.
17. Ability to jump, upon opening the book, to the page last shown.
18. Ability to show all the time the relative position in the book.
19. Ability to search the text for a key term (i.e. word or phrase)
20. Ability to conduct multiple key term searches simultaneously.
21. Ability to show the lines containing any found key term.
22. Ability to write results of key term searches to the clipboard.
23. 23 Ability to write results of key term searches to the file.
24. Ability to copy any picture in the e-book.
25. Ability to write out any sound in the e-book.
26. Ability to copy any movie in the e-book to clipboard.
27. Ability to make text annotations at any point in the book.
28. Ability to make various types of marks anywhere in the book.
29. Ability to create easily e-books using their own text.

Jean-Marc Dubois sees many serious hurdles before paper books may be replaced by e-books. The main obstacle is the necessity of a radical change in the whole education philosophy.

He does not take into account the great number of highest quality specialists mobilized for the task, enormous budget at the disposal of the task, the most valuable experience gathered in course of development of complex, multi - transistor chips.

Cooperation between specialists located at different places on the globe may enhance progress of the necessary technology.

Progress in the cognitive theory achieved in recent decade provides a basis for new effective teaching methods and therefore comparison with the failures in the past of switching over to video tapes and later to CDs should be considered in this case as irrelevant.

As soon as computer will be given **an active role**, and replace, at least partially, the teacher, successful computerization of the education process will proceed very fast.

Charles Adams points out that small e-book readers may call for frequent page changes thus slowing down the reading. She also thinks that ordinary books make addition of notes and finding them again simpler than in e-book.

Mary Harsh reports about natural language agents developed by her that could be accessed through a hotlink in an online web environment. She intends to use it in combination with web-based educational materials in game-like activities. Students may ask any question not just a list of pre-defined questions. The agent is built on Filemaker Pro with CDML web components. It has the capability to be edited from the web as well as queried from the web. Natural language agents are not as totally spontaneous as real human beings but contrary to humans are available 24/7/365 and provide instant feedback.

Errol Thompson asserts that searching, indexing and hyperlinking attract him to use e-learning tools but he sees a possibility of employing them for printed books too.

If we look for defender of the idea that the future belongs to e-book Manny Halpern provides the necessary arguments. She finds it easier to open several windows than to open several paper books. In case of relocation – quite often in many countries –it is easier to move around e-books than tons of paper books and therefore she stopped purchasing text books. If the purpose is to compile information and create new information the ability to cut, paste and edit from several electronic sources is decisively easier than from paper books.

For preparation a chapter illustrating dynamic work activities she found that no still picture, let alone words, could have adequately explained what actually takes place. A video-clip inserted into the text was found much better for this purpose. She did not found that reading text on the screen causes more eye strain than paper format. She considers that the ability to control display offered by e-book was her salvation. What may cause eye strain for one, may be a blessing for the visually impaired. She informs that flexible, deformable displays are already available (Fildes, 2003).

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