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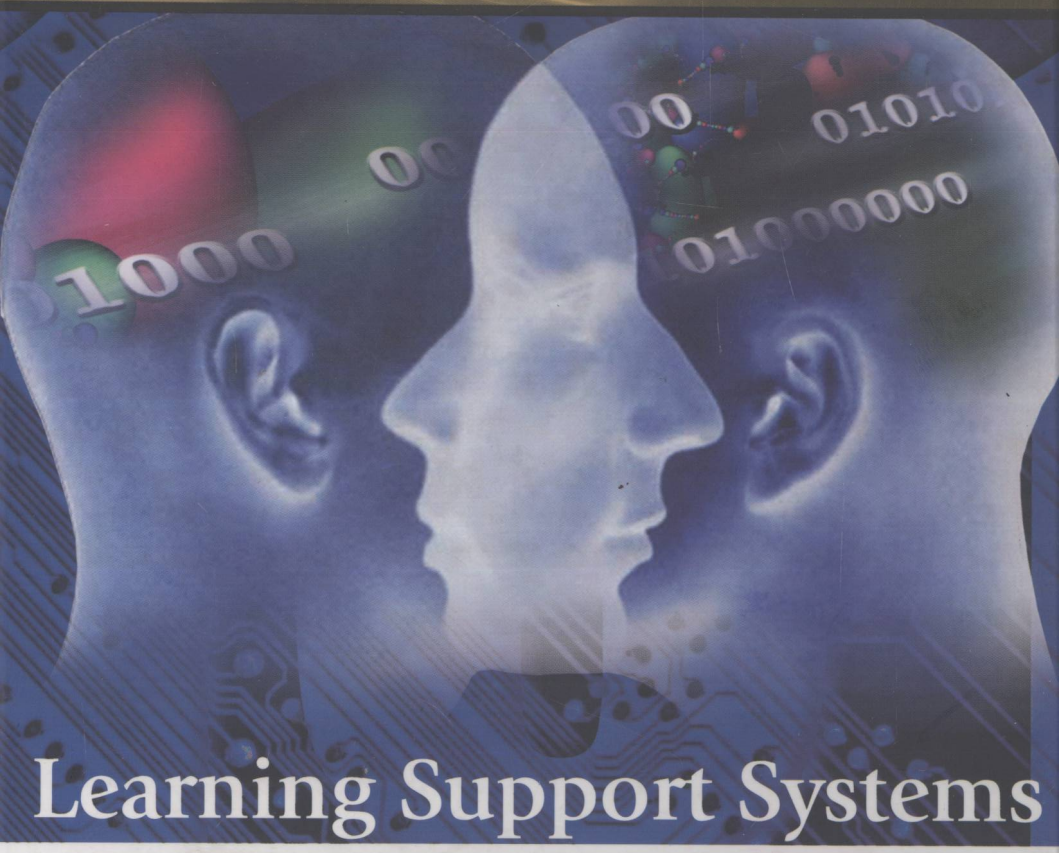

Learning Support Systems *for* Organizational Learning

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Preface

The chapters compiled in this book are based on articles and projects reflecting the implementation and evaluation of learning support systems and applied scientific research in the last seven years, 1997 to 2003. Most articles have been reviewed, mostly peer reviewed, and published in scientific journals or volumes, respectively. However, they are not always homogenous because the papers accompany and summarize relevant sections of our work with different projects in corporate, educational, and scientific institutions. We have to apologize, if this book does not always show the full coherence and homogeneity of an original scientific publication.

However, we are optimistic that it is worthwhile to work through the text of this book, nonetheless: It clearly reflects not so much a scientific research program but the development of learning and information systems (in mostly) European academic and business environments. Mostly, the examples described here are taken from our work with the German Ministry of Labor, major European private banking institutions, Austrian academic organizations and a number of international companies.

We want to thank all those who helped us to put together this book:

The first author, Joachim Hasebrook, would like to thank Prof. Dr. Dr. Hermann Maurer, who encouraged him to become a member of international program committees and to write papers about his work; Maurer was also a thoughtful and helpful mentor during his academic career. He gratefully acknowledges the opportunity to teach courses for the online program 'Master of Distance Education' of University of Maryland University College (UMUC) and to become a member of

UMUC's faculty; Gene Rubin, director of UMUC's online programs, and Dr. Urich Bernath, director of distance education at the University of Oldenburg, gave him this opportunity. He would like to thank his friends and colleagues who assisted in studies and statistical analyses reported here for their help, namely Prof. Dr. Gerd Doeben-Henisch, Dr. Louwrence Erasmus, Markus Gremm, Wolfgang Nathusius, and Jürgen Wagner. Bank Academy, the non-profit organization for ongoing education of the German bank associations, has been a supportive and exciting work place. The director of the board of Bank Academy, Prof. Dr. Udo Steffens, and the member of the board of Commerzbank and director of the supervisory board of efiport Inc., Klaus Müller-Gebel, gave him the chance to work in the new and emerging field of 'e-learning' and to become a member of the board of the educational financial portal [efiport] AG, the e-learning company of Bank Academy and the major German private banks.

The second author, Hermann Maurer, would like to thank Prof. Dr. Joachim for invaluable discussions and for the possibility to contribute in this book, albeit in a minor way; he wants to thank co-authors of his papers used as basis of some material in this book, particularly Eva Heinrich and Ron Oliver. He is very much indebted to Thomas Dietinger and Frank Kappe for the support of Hyperwave, and to Nick Sherbakov for many invaluable inputs.

We finally want to make it clear that the basis of this book has been a set of papers by the two authors, with much additional material added and updated. The papers at issue are:

Hasebrook, J., & Nathusius, W. (1997). An expert advisor for vocational guidance. Journal of Artificial Intelligence in Education. 8(1), 21-41.

Hasebrook, J., & Gremm, M. (1999). Multimedia for vocational guidance: Effects of testing, videos, and photography on acceptance and recall. Journal of Educational Multimedia and Hypermedia, 8(2), 217-240.

Hasebrook, J. (1999). Exploring electronic media and the human mind: A Web-based training. World Conference on Internet, Intranet and World Wide Web (WebNet), Honolulu, Hawaii.

Hasebrook, J. (1999). Searching the web without losing the mind - traveling the knowledge space. WebNet Journal, 1(2), 24-32.

Hasebrook, J. (1999). Web-based training, performance, and controlling. Journal of Network and Computer Applications, 22, 51-64.

Hasebrook, J. (2000). Knowledge workers and knowledge robots. Invited paper. Proceedings of International Conference of Computer in Education (ICCE), Taipeh, Taiwan.

Hasebrook, J. (2001). Learning for the learning organization. Journal for Universal Computer Science, 7(6), 472-487.

Hasebrook, J. (2002). Cooperative and interactive distance learning: application of team-oriented and selective learning strategies in a European bank. Journal of Universal Computer Science, 8(9), 834-847.

Heinrich, E. & Maurer, H. (2000). Active documents: concept, implementation and applications . Journal of Universal Computer Science, 6 (12), 1197-1202.

Maurer, H. & Oliver, R. (2003). The future of PCs and implications on society. Journal of Universal Computer Science, 9(4), 300-308.

Maurer, H. (2003, in press). Necessary aspects of quality in e-learning systems. Proceedings of Quality in eLearning Conference, Geelong University, Australia, February 2003.

We gratefully ackowledge the permission to reprint parts of the afore mentioned articles. Especially, we would like to thank the Association for the Advancement of Computer in Education (AACE, see www.aace.org), namely Gary Marks, and the editors of the Journal of Universal Computer Science (JUCS, see www.jucs.org) and the Journal of Network and Computer Applications (JNAC). Additionally, we cited some figures and tables from the following recent works of ours:

Hasebrook, J., Rudolph, D.W. & Steffens, U. (2002). E-Learning Business Strategies & Opportunities. Chichester (MI): Datacom Research Report.

Hasebrook, J., Herrmann, W. & Rudolph, D. (2003). European perspectives for e-learning: Markets, technologies, and strategies. Thessaloniki: CEDEFOP (European Centre for Vocational Training).

Joachim P. Hasebrook & Hermann A. Maurer

Contents

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Prologue

Key Trends in Global E-Learning

The major trends with the biggest impact on the global e-learning markets and learning support technologies are.

- the increasing demand for academic degrees,
- growing numbers of students attracted to educational hubs, and
- the rapid growth of non-traditional, especially elderly, target groups.

We are convinced that all effective e-learning scenarios will be centered around personal tutoring. Sustainable e-learning efforts will need sufficient private and public financing. Regular content updates by skilled subject matter experts as well as careful control of the didactical quality of the delivered content will be essential. Additionally, cost-effective e-learning will only emerge from already existing systems and processes, such as corporate databases, human resource management or public administration and 'e-government'.

In general, e-learning will make education more effective but not better, because technology is aimed to enhance the efficacy of processes whereas didactics' objectives are to enhance the quality of the steps and tools involved in the learning process. E-learning mostly is a piece or a system of software, although some hardware – like computers and networks – always has to be involved. Efficient software provides the opportunity to be more scaleable, flexible and personalized than without adequate software. Hardware, however, is measured – according to Moore's law – in terms of cost per unit (e.g. the price for one million instructions per second). Unfortunately, e-learning software has been 'sold' to the educational markets like a piece of hardware, promising it would cut costs for travel, accommodation, personnel and delivery of

content. Many e-learning vendors, however, painstakingly learned that labor intensive tutoring, didactical adequate media and up-to-date contents are costly key success factors for e-learning. In a corporate environment, e-learning will fail like other forms of electronically supported learning, such as computer-based training (CBT), if it cannot become an integrated part of corporate knowledge and human resources management. In public and academic environments, e-learning will only flourish if it does not add too much effort and costs to the processes in place. E-learning will not be a 'killer application' for the further expansion of international markets for electronic devices. Instead, e-learning has to become one of the key drivers of a rapid international knowledge transmission and transition. This will lead to accelerated economic development and will give a multilingual and multicultural society incredible opportunities to support the creation of global alliances and wealth.

One of our core assumptions is that e-learning does not replace traditional classroom education. Instead, it expands the market for education products and services. Thus, e-learning assists the growing population of non-traditional learners, many of whom must divide their time between work and school, to pursue an education. Further, e-learning solutions can be applied to non-education markets such as public relations, sales, and investor relations. The same tools developed to facilitate imparting knowledge to students can be used with great effect in persuading customers, investors, and commentators. Corporate training, career development, and expert enhancement are areas ripe for sustainable growth. E-learning facilitates cost-effective production and delivery of courses for specific companies, jobs, and skills.

E-learning technology enables course authors and producers to readily re-use content in different courses or different versions of the same courses. Thus, e-learning courses can be more customized than traditional classroom teaching. The ability to address special needs with minimal effort ensures the broadest possible market for any given content. While there has been much interest in using the Internet for 'distance learning,' its use as a global distribution channel presents a much bigger opportunity. Highly specialized courses for which there is

insufficient local demand may do well in the global market. The Internet can also increase the success of courses that do well locally.

Benefits from Technology

E-learning will change our minds about how much education we need, and when and where learning can take place. When education is a purely local affair, highly specialized courses are sometimes not viable due to insufficient enrolment. The ability to offer such courses to the global market makes a difference. There are also many people who would like to take courses but who do not have the time or cannot commit to attending a regular class. Education is already a big business. E-learning, by making it easy to impart information and skills to anyone, anywhere, anytime, and for any purpose will grow the education market. As always, the big winners will be those vendors that identify and serve emerging and sometimes hidden markets.

Recently, the 'Organization for Economic Co-Operation and Development' (OECD; www.oecd.org) published a report *e-learning: the partnership challenge* (OECD, 2001) examining the status and growth perspectives of electronically supported learning and skills development in all 30 member countries and some of the more than 70 associate countries. The key findings concerning possible benefits of use of information and communication technologies (ICT) are listed in the following table 1.

E-learning technology can be used almost anywhere and anytime. The lines between traditional education, self-improvement, and marketing are being blurred – just as the line between education and entertainment has blurred. The biggest growth segments unleashed by e-learning are education for non-traditional students and the use of educational methods in related areas such as public relations, sales, and investor relations. E-learning permits dramatic expansion of the education market. While 'distance learning' is the best-known example, we believe providing continuing education for busy professionals is even a much bigger opportunity.

E-learning is primarily about superior solutions for self-study and online courses. These solutions, however, can be readily adapted to sales and public and investor relations. In both cases, the object is to get information across to the recipient. While the education industry correctly emphasizes the learner, that does not mean there is no longer a need for teachers. Teaching and persuading have many things in common and can share many of the same advanced tools. Corporate training and personal career development are segments ripe for considerable growth. Businesses need to impart both general skills and company-specific information to their employees. They need solutions that are highly reliable, consistent, and available in order to bring new employees quickly up to the required level of competency. Increasingly, corporations are realizing that the Internet and extranets can be used to train customers and business partners, as well as persuade investors, consultants, industry analysts, and potential customers.

Table 1. Benefits of using ICT to deliver learning (OECD, 2001, p. 23)

Things that cannot be done without technology
the de-materialization of time and space – learning any time anywhere
mass-education – access to learning for everyone
Internet access to ever growing collections of educational resources and services
input for task-based learning using fast search and retrieval software, or for research work
learning on demand
peer-group teaching / learning through distance learning via ICT
Things which can be done better with technology
the choice of learning style
customized and personalized learning materials and services
individualized tracking and recording of learning processes
self-assessment and monitoring of learner performance
interactive communications between participants and influences in the learning process
interactive access to educational resources

Key Enabling Technologies

Technology penetration has been greatest in the workplace, although other sites such as homes and community centers are increasingly wired

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