

Tele-Learning for bankers: Connecting Internet, Intranet, and digital-TV

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Tele-learning and banking

Banks and insurances have been among the pioneering users of multimedia in the last few years. In Germany, 30% of all insurances and 15% of all bankinghouses are actively using multimedia, more than 50% are planning to do so in the future (Hasebrook, 1995). More and more, tele-cooperation is applied in order to support training-on-the-job, counseling, and customer services. Although computer- and video-conferencing are not yet used in every-day business, they have become a standard technology (Hasebrook & Woerrlein, 1996).

Recent attempts to implement tele-banking services stimulate the introduction of technologies for tele-cooperation and tele-learning in bankinghouses. From an economical point of view it seems clear that costs can be reduced drastically. Little is known, however, about the effects of tele-cooperation upon corporate identity, learning behavior, and communication processes (Sproull & Kiesler, 1991; Hasebrook, 1996). Bruce (1995) compared computer conferencing via e-mail, video-conferencing, telephone conferences, and personal communication. She ascertained that video-conferencing is much more like telephoning than like personal communication. But simple e-mail conferences can provide several advantages as Sproull and Kiesler (1991; Kiesler, 1992) discovered: Personal communication takes less time but electronic mailing leads to agreements more frequently. Additionally, conferencing by e-mail allows for a more symmetrical participation than personal discussions. Bankinghouses and their departments for human resources development aim to take advantage of these new technologies.

Internet and Intranet

There are about two Million PC- and one Million on-line users in Germany. The Internet is the biggest global network of computer networks; the Internet Society expects more than 50 Million servers to be in the Internet – and a uncertain number of users. The yearly turn-over derived from businesses in the Internet is dramatically increasing: Prognoses suggest that the global turn-over is heading for 1000 Billion US-\$ in the year 2000 – in Germany one Billion US-\$ is expected. German corporations do not share these optimistic prognoses: In a recent study, 60% deny that there will be any productive effects triggered by the Internet (cf. figure 2; Hasebrook & Woerrlein, 1996). Up to now, the Bank Academy and the private University of Banking in Frankfurt (Germany) are using their World Wide Web sites to provide free informations and services. But we are planning to generate a considerable turn-over with services like archives, chaired discussions, and workshops on-demand.

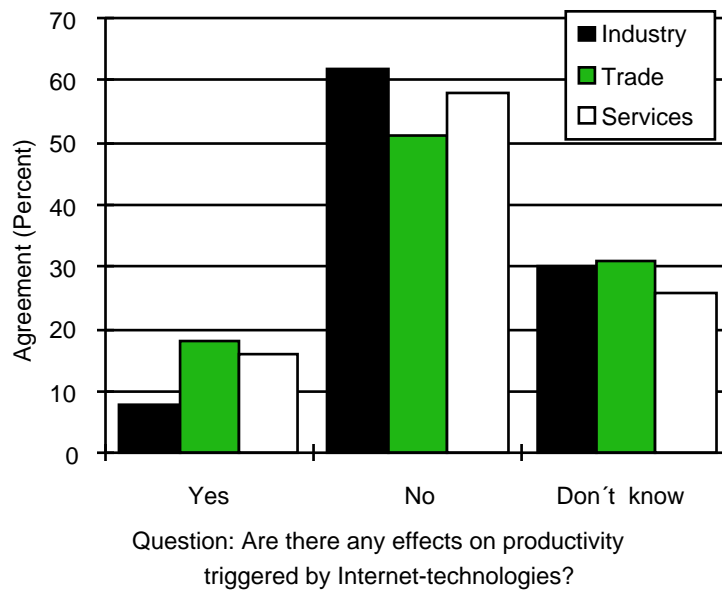


Figure 2: The majority of German corporations does not not rely on Internet-technologies, but the sectors trade and services give considerable support to Internet-technologies (source: Business Computing, 8/96).

Internet-based technologies, like the transfer protocol HTTP, are used to build in-house networks called "Intranet". In spring 1996, about 15% of German corporations were using Intranet-technology, 30% were planning to implement Intranets. Recent statistics from October 1996 show that corporate Intranets are growing quicker than commercial services in the Internet: International consulting trusts expect a yearly turn-over of 600 Million US-\$ in the Internet, but a turn-over of 1,6 Billion US-\$ generated by Intranets (Hasebrook & Woerrlein, 1996).

Currently, the Bank Academy and the University of Banking are implementing searchable archives und full-text engines which contain all published materials of the Bank Academy publishing house. Parts of these archives are used to update the services provided by the Internet sites. Futhermore, the SGML-based archives are prepared to produce a variety of media, like printed matter, CD-ROM and on-line services. Thus, the Intranet supports both internal and external services of the Bank Academy. For instances, the hardware manufacturer Tandem uses e-mails to spread questions like "Does anybody know how to...?" among the 11000 employees. Frequently asked questions (FAQ) are stored in a computer archive. This FAQ archive is accessed more than 1000 times per month.

Integrating digital business-TV

Digital TV has not become very popular in Germany, yet. There are two Pay-TV channels with all in all 1,5 Million customers. Big media trusts, like the Bertelsmann group, withdraw from the market. Therefore, all companies providing digital TV are focussing on business TV with conditional access for closed user groups. Additionally, feedback channels are implemented using telephone and Internet access. A German broadcasting company provides a technique to connect Internet servers and TV set-top-boxes which will be used by the Bank Academy to facilitate cooperation and data transfer in

educational programs of bankinghouses. Figure 3 gives an impression of how the Bank Academy will connect Internet, Intranet, and digital TV. A first project will be set up in 1996.

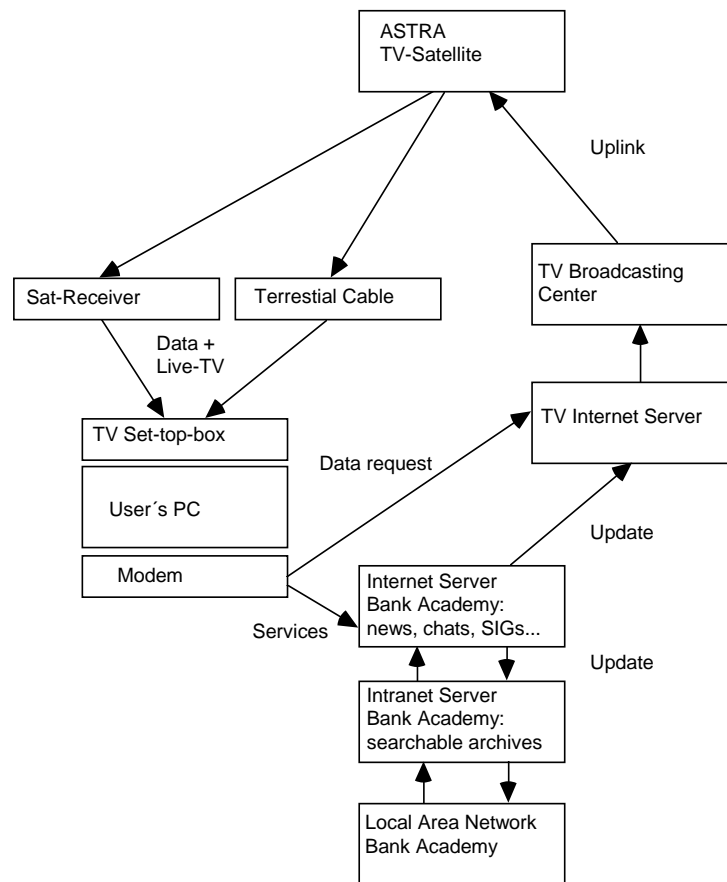


Figure 3: Bank Academy and University of Banking implement a connection of Internet services, Intranet archives and digital TV broadcasting to facilitate educational programs in German bankinghouses.

Benefits from new technologies

Despite promising pilot projects the practical use of multimedia in education turns out to be disappointing, quite frequently (e.g. Cummings, 1995). Van den Berg and Watt (1991) compared multimedia in competition to a classroom lecture, multimedia supplementing a lecture and multimedia replacing a lecture. They draw the conclusion (pg. 119): "Objectively the academic performance of (multimedia) users was not different from those attending classroom lectures [...] Although positive about (multimedia) technology, they indicated that they would prefer to use it as supplement to lectures and books." In their most recent meta-analysis, Kulik and Kulik (1991) examined 248 research studies about computer-supported learning. 150 studies failed to show any significant effects. The other studies showed only a slight advantage of multimedia over textbooks or lectures: Error rates of simple retention tests were reduced between 5% to 15% ($d=0.3$), problem solving was hardly enhanced, and study time was reduced between 20% to 70%, with an average reduction of time about

30% ($d=0.7$). Considering all studies included into the meta-analysis, multimedia produced only a small effect ($d<0.01$; Hasebrook, 1995a).

Although, multimedia seems to save some time and reduce simple learning errors, it has not been found to be very effective as a problem solving tool. Clark and Craig (1992) investigated several meta-analyses, including the analysis by Kulik and Kulik (1991; Kulik, Bangert-Downs & Williams, 1983; Kulik, Kulik & Cohen, 1980). Their findings also indicate that multimedia applications are not overly effective. Most of the positive effects derive from general organizational and instructional changes in the learning environment. Fortunately, however, there are also some promising studies showing that multimedia could potentially facilitate the learning processes. The Software Publishers Association (1995) reviewed the effect of instructional technologies in 133 school studies from 1990 to 1994. They stated that there were better test results, an increase in self-reliance, and a closer interaction between students and teachers. Similarly, Boettcher (1993) collected 101 success stories in higher education" in his book. Thus, multimedia can help people to enhance communication, motivation, and self-efficacy.

Combinations of off-line multimedia and on-line databases can provide up-to-date information while books tend to be out-dated as soon as they are printed. Hypermedia does not restrict the learner to fixed structures. Homework assignments such as "read the next 50 pages until Monday" do not make a lot of sense anymore. Instead, students may be more motivated to measure the air pollution in their hometown to find out that it is higher in the center of the town. Carefully designed animation, feedback facilities, and simulations can help teachers overcome the weaknesses of study materials and to focus more on the learning and communication processes. The university of the future won't be filled with computers and isolated students in front of the machines. The school of the future will be an intensive interaction and communication between teachers, pupils, and other schools from different countries. Computers and multimedia applications are important tools to support this development – but at least technology is the solution for technological problems, only.

References

- Boettcher, J. (Ed.) (1993). 101 success stories of information technology in higher education: The Joe Wyatt challenge. New York: McGraw-Hill.
- Bruce, V. (1995). Interactions between non-verbal and verbal information in communication and cognition. In O. Guentuerkuen, R. Kuski, C. Walter & A. Wohlschlaeger (Eds.), *Beitraege zur 37. Tagung experimentell arbeitender Psychologen (S. I-III)*. Regensburg: Roderer.
- Clark, R.E., & Craig, T.G. (1992). Research and theory on multi-media learning effects. In M. Giardina (Ed.), *Interactive multimedia learning environments. Human factors and technical considerations on design issues* (pp 19-30). Heidelberg: Springer.
- Cummings, L.E. (1995). Educational technology – a faculty resistance view. *Educational Technology Review*, 4, 13-18.
- Hasebrook, J. (1995). Weichen falsch gestellt? Erste Multimedia-Studie für den Deutschen Bundestag vorgelegt (Set the wrong course? Multimedia studies in charge of the German parliament published, in German). *iX Multiuser-Multitasking-Magazin*, 11/95, 116-124.
- Hasebrook, J. (1996). Evaluation of two studies about information and communication technologies in education and training. Expert opinion in charge of the Scientific and Technical Options Assessment (STOA) of the European Parliament, Luxembourg.

- Hasebrook, J., & Woerrlein, H. (1996). Telearbeit. Die Zukunft der Arbeit? (Tele-working. The future of work?, in German). München: te-wi.
- Kiesler, S. (1992). Talking, teaching, and learning in network groups: Lessons from research. In A.R. Kaye (Ed.), Collaborative learning through computer conferencing (pp. 145-165). Heidelberg: Springer.
- Kulik, C.-L., & Kulik, J.A. (1991). Effectiveness of computer-based instruction: An updated analysis. *Computers in Human Behavior*, 7, 75-94.
- Kulik, J.A., Bangert-Downs, R.L., & Williams, G.W. (1983). Effects of computer-based teaching on secondary school students. *Journal of Educational Psychology*, 75, 19-26.
- Kulik, C.-L., Kulik, J.A., Cohen, P. (1980). Effectiveness of computer-based college teaching: A meta-analysis of findings. *Review of Educational Research*, 50, 252-544.
- Software Publishers Association (1995). Report on the effectiveness of technology in schools, 1990-1994. Washington, DC: SPA.
- Sproull, L. & Kiesler, S. (1991). Connections: New ways of working in the networked organization. Cambridge, MA: MIT Press.
- Van den Berg, S., & Watt, J.H. (1991). Effects of educational setting on student responses to structures hypertext. *Journal of Computer-Based Instruction*, 4(18), 118-124.

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