

# Teleteaching in Germany - Training Instructors to Use Videoconferencing

Olaf A. Schulte, Jana Döring

University of Duisburg-Essen, Germany  
Fachbereich 3: Literatur- und Sprachwissenschaften  
FUB XI: Kommunikationswissenschaft  
Universitätsstraße 12  
D- 45117 Essen  
Germany  
avk@uni-essen.de

**Abstract:** With teleteaching in Germany becoming more popular with cooperating, merging, or multi-site universities, a project at the University of Duisburg-Essen is dedicated to the communicative research of videoconferencing. Empirical as well as theoretical findings show the need for participants to adapt to specific patterns and characteristics of videoconferencing. A work-in-progress report shows current as well as future activities focused on training instructors in a teleteaching setting.

## Introduction

In contrast to countries like the US, Canada, or Australia, teleteaching does not play an important role in distance education in Germany, mainly due to its geographical disposition. Today, the *FernUniversität Hagen* as the first and only distance learning university uses videoconferencing merely for orals. Since the late 1990s, however, German universities have been observing the opportunities of teleteaching for their own benefit. Being forced to cooperate with other universities for financial or political reasons or having to connect different sites as a consequence, universities started to use videoconferencing, especially since the technical infrastructure today allows for comfortable broadband transmissions over IP. As a result, there are some thirty dedicated teleteaching uses with different sites, different settings, and operational areas (classes, lectures, exams, etc.). The main projects are:

- The Virtual University Oberrhein (VIROR)
- Teleteaching in Thuringia, connecting three sites for a joint course
- University of Erlangen-Nürnberg, connecting the two sites

However, teleteaching has not yet become a success stories in Germany.

## Status Quo of Teleteaching

Technical difficulties and financial needs are only minor problems compared with the fundamental communicative problems of teleteaching - and low acceptance rates amongst students as well as staff members as a result. Due to the technical principles of videoconferencing (such as delay, quality of sound and picture), participants have to adapt to specific patterns and characteristics of communication. These turned out to be particularly obstructive to their use in university contexts since communicative needs of teaching and learning are fundamentally different to those in business use. The feeling of not being a part of a lecture due to the characteristics of a *remote site* impedes learning amongst students just as the lack of backchanneling from their site makes teaching more difficult for the instructor.

Thus, teleteaching in Germany has come to a point more experienced users in the US or Australia had already reached a couple of years before. Just as the technical setting calls for scrutinized preparations, participants (instructors as well as students) have to adapt to the communicative characteristics of videoconferencing with the help of training measures: "Teleteaching requires new skills that may exceed the abilities of instructors. [...] the event must be treated by everyone as a learning event." (Williams 1994, 152). As a consequence, research at the University of Essen, Germany, began in 2000 with a focus on the communicative characteristics of videoconferencing in general, and with teleteaching becoming the major empirical object.

## Research Methods

Empirical research on videoconferencing used to be based on questionnaires and experimental settings. Only recently, scientists are beginning to use video recordings and transcriptions (Ruhleder & Jordan 1999) for ethnographic research - a method the project described considered to be adequate to videoconferencing as a communicative activity.

First, techniques and methods had to be developed in order to gather information in a way appropriate to the characteristics of videoconferencing. For example, with the asymmetry of two sites being one of the main problems, video material had to be collected in order to analyze both sites simultaneously. *Digital recordings* of teleteaching turned out to be insufficient unless they were synchronized at the highest level (using videosplitters or SMPTE- / EBU-timecodes). As a result, communicative activities can be analyzed as they are occurring at the two sites connected, for example by using a quartersplit-recording with the two audio channels providing the sound from each site.

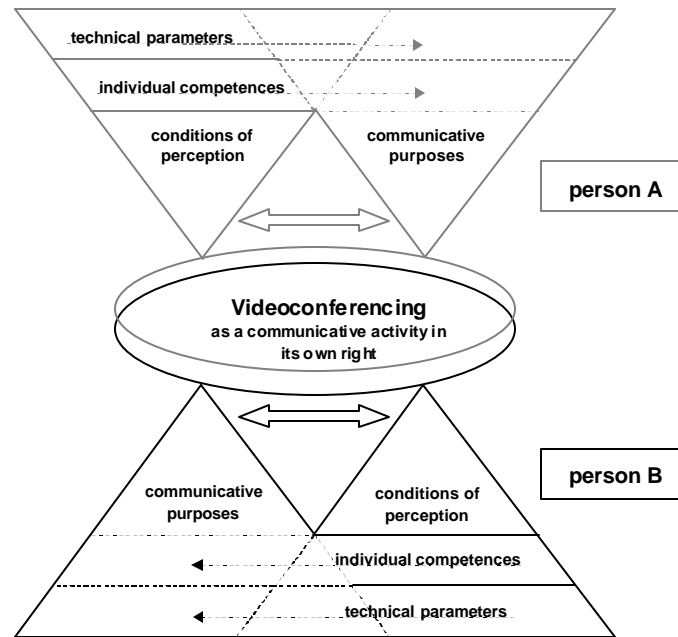


**Figure 1: Quartersplit with videoconferencing pictures and context camera pictures**

Similarly, *transcripts* of recordings have to be produced digitally: As it is the case for recordings, transcripts have to integrate communicative activities from both sides by using an objective timeline as a frame of reference. Furthermore, the complexity of all relevant aspects of communication (speech, gaze, gesture, etc.) calls for a flexible system that is able to integrate them while still leading to a readable transcript. Finally, digital transcription provides for extended options of quantitative analysis.

## Findings

Based on the material gathered, the communicative characteristics of videoconferencing had to be worked out on a theoretical level. By using empirical data as well as by reviewing literature on videoconferencing, these considerations, on the one hand, lead to a model of videoconferencing that describes the relevant aspects of videoconferencing as follows:



**Figure 2: Videoconferencing as a communicative activity in its own right (Friebel et al. 2003)**

On the other hand, examples of characteristic communicative activities were isolated from the material recorded; some of these are:

- delay / lack / loss of backchannel signals
- problems with turn-taking
- problems with spatial orientation

## Future Research Activities

With the University of Essen merging with the University of Duisburg as of 2003, preparations have been made for future teleteaching activities. Based on the project's results, and by integrating experiences from universities being more advanced in the use of videoconferencing, a studio was set up – with the first seminar considered to be a test run for future settings. Recordings from the two sites connected provide material for further analysis. As the theoretical model implies, characteristics of teleteaching are highly dependent on the technical setting used as well as on the communicative purposes pursued (lecture, seminar, etc.). Recordings from different sites and operational areas will have to be made in order to gather a more coherent picture of teleteaching. Analyzing the material will establish communicative characteristics as well as problems of teleteaching.

## Training Measures

Training methods will have to be developed for both students and instructors to help them adapt to the characteristics and cope with the problems of teleteaching. Viewing recordings of previous events is a first step to avoid the biggest mishaps, especially for instructors (Williams 1994). All participants can adapt to the the asymmetry of the communicative activity with the help of *syntopical monitoring*, a technique to perceive the local and the remote site at the same time (Bliesener 2002). Finally, didactic activities will have to be developed to allow for more involvement of the remote site. Active participation should be considered to be the key to successful communication - and thus, to successful teleteaching.

## References

- Bliesener, Thomas (2002): "Taste the difference. Training and optimization of synchronous, audiovisual, cooperative telelearning." In: *E-Learn 2002, Montreal, Canada, Oct. 15-19, 2002*. CD-ROM:\procbook.pdf. 1199-1201.
- Friebel, Martin, Jens Loenhoff, H. Walter Schmitz and Olaf A. Schulte (2003): "'Siehst Du mich?' – 'Hörst Du mich?'" Videokonferenzen als Gegenstand kommunikationswissenschaftlicher Forschung. *kommunikation@gesellschaft*, 4. [http://www.uni-frankfurt.de/fb03/K.G/B1\\_2003\\_Friebel\\_Loenhoff\\_Schmitz\\_Schulte.pdf](http://www.uni-frankfurt.de/fb03/K.G/B1_2003_Friebel_Loenhoff_Schmitz_Schulte.pdf) (May 2003)
- Ruhleder, Karen and Brigitte Jordan (2001). "Co-Constructing Non-Mutual Realities: Delay-Generated Trouble in Distributed Interaction." *Computer Supported Cooperative Work* 1 (10). 113-138.
- Williams, Martin (1995), "Designing the Course." In: Paul Held and Walter F. Kugemann (eds.). *Telematics for Education and Training. Proceedings of the Telematics for Education and Training Conference Düsseldorf / Neuss, 24-26 Nov. 1994*. Amsterdam, Oxford et al.: IOS Press. 152-155.

## Acknowledgements

The project on videoconferencing was supported by a DFG grant (*Deutsche Forschungsgemeinschaft / German Research Foundation*, SCHM 572/4-1); [www.uni-essen.de/videokonferenz](http://www.uni-essen.de/videokonferenz).