Profile

The Centre for Educational Technology (Frankfurter Technologiezentrum [:Medien] – FTzM) at the Frankfurt University of Applied Sciences (Frankfurt UAS) is an interdisciplinary academic centre dedicated to research on the use of digital media in education. The centre specializes in applied research in educational informatics, media education, and educational technology with the aim of bridging the gap between basic research and institutional application. Research is conducted in close cooperation with the practical (regional) projects carried out by members and staff in and for educational institutions. The findings of these projects are used to develop theories which are then published, while the experiences gained are applied in practical projects and thus benefit the (further) development of digital educational media, didactic concepts, and tools.

Digital Concepts

Digital and networked technology has conquered every sphere of our society in recent years. It falls to schools and universities to promote "digital education" – more specifically, media education and educational informatics – in order to ensure that everyone can use this technology responsibly to achieve their goals and to participate in societal debates about the challenges and the potentials of digitization.

The concepts developed in FTzM’s projects are aimed at enabling educational institutions to implement digital media for educational purposes ("teaching with media") and to teach about media. The (further) development of viable concepts that meet the needs of educators and students could help to overcome the obstacles preventing the regular use of technology in the classroom and for the organization of schools and universities. Such concepts could also help not only to increase the willingness of teachers to use digital tools in everyday situations but also to design infrastructure that is both economic and fulfils the requirements of schools and universities. These are two of the centre’s goals.

Digital media and tools have enormous potential for teaching and learning with media and should therefore be available as standard tools in schools and universities. In order for digital media to promote learning as well as support teaching, it is important that teachers are familiar with and consider various deployment scenarios (see, for example, the "Potential of Digital Media" project). Educational technology must also be evaluated from both the teachers’ and the students’ perspectives and developed in accordance with their requirements.

Learning with and about Media

Both learning about media and with media require the appropriate technical infrastructure and the willingness of teachers to use digital media in educational settings. Digital media can
facilitate organizational and communicative processes in educational institutions, but since its implementation depends on reliable IT infrastructure, it is essential that (technical) infrastructure and processes are tailored to suit the organizational structures of schools and universities (cf. inter alia the fraLine; IBIdiM projects).

FTzM’s projects offer conceptual and practical assistance to overcome existing barriers and enable teachers to apply digital media and tools in the classroom to support teaching and promote learning. In addition to choosing the appropriate equipment and designing concepts for integrating educational media, promoting media literacy among teachers and other key individuals is one of the essential factors for the successful implementation of educational technology, i.e. learning with media – and learning about media. Teachers can only tap the potential of digital media and teach their pupils media literacy if they themselves have comprehensive media literacy skills. Thus, media literacy is not only the goal of media education in schools, outside of schools, and in universities, it is also a basic requirement (cf. inter alia fraSEM and classroom assistance).

The potential of digital media has frequently remained untapped for a variety of reasons. For example, educational technology is often disregarded due to insufficient educational and didactic evaluation and further development. FTzM members and staff have consequently been carrying out empirical studies in practical projects and classroom visitations to establish typical scenarios for deployment and assessing requirements for educational technology that should be considered in its further development (cf. IBIdiM).

Often, the potential of digital tools is left untapped due to organizational obstacles such as outdated technology or a lack of equipment that prevents teachers from taking first steps towards a regular use of digital media in the classroom. FTzM assists schools, universities, and decision-makers by evaluating their equipment and examining how they use educational technology in order to develop suitable and cost-efficient solutions that meet their requirements. This also helps educational institutions and decision-makers to choose the appropriate equipment and effectively implement IT and media infrastructure (cf. IBIdiM, fraLine 1–4, fraDesk, fraDiTa, fraVNC, fraSchulVW, fraLaCarte).

Digital media is also disregarded due to ignorance: a lack of knowledge about the potential of digital media in educational settings often leads to insecurity and reservations about their use. For this reason, FTzM offers training courses to support teachers and schools, thereby providing them with basic theoretical and practical knowledge about digital media and an awareness of possible deployment scenarios (cf. fraSem – Basic Knowledge: “Digital – Media – Education”). FTzM also offers individual assistance and coaching for specific contexts to teachers who wish to use or try out new digital media in the classroom (cf. classroom assistance).

**Disciplines**

Digital networking, media penetration, and the increasing relevance and complexity of digital technology all require an interdisciplinary perspective for analysing and (further) developing digital educational concepts and tools.
*Educational informatics*, one of the two areas upon which FTzM focuses its research, connects didactics, the psychology of learning, and technology and offers a platform for technical research and development that focuses on educational issues and research on teaching and learning.

Education sciences, (educational) psychology, engineering, and computer science provide important theories, approaches, and empirical findings for the (further) development of digital tools for teaching and learning. However, each individual discipline only provides a limited perspective. A single interdisciplinary perspective on educational processes that equally considers technical and educational issues can help to design concepts and didactic tools that support and promote education.

FTzM’s research in educational informatics is based on an iterative process that incorporates both constant feedback from practical experience (cf. Practice – Theory – Practice – Application) and a recurrent cycle consisting of interdisciplinary analysis and responses to current (empirical) findings, modelling (prototyping) and design, evaluation, and documentation:

Consequently, the *media education* research conducted by FTzM has also an interdisciplinary focus: it incorporates influences from media education (with an emphasis on media didactics), educational science and didactics, computer science, engineering, and (educational) psychology. The goal is to monitor the use of digital media for educational and organizational purposes in educational institutions and to support its use by offering a framework for implementation and technical infrastructure. Criteria for evaluating and further developing educational concepts, digital technology, and didactic tools are thereby derived from practical experience.
Practice – Theory – Practice – Application

Educational concepts and digital media and tools that are used in educational settings to facilitate teaching and improve learning are the subject of the research, development, and practical projects at FTzM. Detailed knowledge of the specific organizational settings at individual institutions is necessary in order to evaluate and further develop digital technology and techniques to assist teaching and promote learning in educational institutions. The specific, practical work carried out in the centre’s projects supplies new fields for further research and development on the implementation of digital media. The findings and advances gained in these projects are then applied in practical settings (Practice – Theory – Practice – Application).

Reliable and regular contact with educational institutions and a direct exchange of information and experience with teachers and media-practitioners provide a vital source of information about the successful implementation of media, existing obstacles, supportive organization, and scenarios that facilitate learning. This close contact with educational institutions ensures that digital media is designed to meet the needs of those using the educational technology – i.e. teachers and students. The goal is to develop educational concepts and didactic tools based on the educational and organizational contexts in which they are to be implemented – in accordance with the principle “technology follows education”. This is not only a technical but also an educational task. Suitable educational concepts and didactic tools can only be developed from an interdisciplinary perspective that takes educational, didactic, and technical issues into consideration.

Publications

The results of research, developmental activities, and practical projects are published in the centre’s research reports (open access), as Web publications, in relevant publishing media, and as part of the fraMediale series, which has been published by the Munich (Germany) publisher, kopaed since 2011 (cf. FTzM publications).

Qualification Options for Students

As an academic centre of the Frankfurt University of Applied Sciences (Frankfurt UAS), FTzM assists students throughout their studies, resulting in academic, subject-specific, and transdisciplinary qualification. Students who actively participate in FTzM’s research or practical projects have access to information on current topics for theses and the opportunity to gain (initial) professional experience.

As part of our projects, students can write Bachelor’s and Master’s theses or doctoral dissertations with a practical focus or carry out their practical semester at FTzM. All of the projects are carried out under the academic supervision of a member of the centre. In accordance with our interdisciplinary focus, students from a variety of disciplines, including computer science, engineering, education sciences, media education, and media didactics can work or study at the centre. The tasks carried out by students participating in our projects provide them with initial (professional) experience and are an important motivational factor for a successful degree: instead of examining fictional scenarios, students
work on genuine tasks. This practical experience and the support received from working in a team can help students through the difficult stages of their degrees.

Students gain professional experience at FTzM that is similar in principle to a dual degree ("Duales Studium"), which connects a university degree with professional experience. Individual projects apply methods based on the didactic models of cognitive apprenticeship, anchored instruction, and learning by teaching.

The demands placed on students are high; they are not mere assistants but are instead full project team members and university employees under the collective wage agreement of the state of Hesse (Tarifvertrag des Landes Hessen, TV-H) with a fixed-term contract.

Current vacant positions for students or trainees can be found under job offers (only in German).

**Collaborating with FTzM**

An interdisciplinary perspective is necessary in order to evaluate, design, and develop educational concepts and digital tools for assisting teaching and promote learning in educational settings. We ensure this essential basis by integrating FTzM into the university as an interdisciplinary research centre and establishing collaborations with other universities. Teachers, students, and employees from all universities are therefore welcome to connect with our centre and become involved with FTzM.

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