



Areas of Tension

Area of Tension 1: Data privacy vs. data tracking for personalized learning

Position A:

Data privacy will be a major concern in the future of TEL when data will be stored for personalized learning environments. The learner's data privacy, that is, the learner's control over the storage, use, and dissemination of their personal data can be endangered. Data privacy is an important goal because it prevents misuse of personal data, such as a person's learning history. Such data could, for example, be misused for unfair evaluations of job candidates, or for taking control of people's learning trajectories in a patronizing way. Without data privacy, inaccurate information, once entered and distributed, could have a negative impact on a person's life. The development of data security concepts as well as the teaching of data literacy skills that ensure maximal control over one's personal data will therefore be key focus of the future of TEL.

Position B:

Keeping track of a learner's data in order to enable the personalization of learning environments is a key issue in TEL. With the help of detailed and accurate records, personalized instruction can facilitate learning by adapting to the learner's individual learning history, affective characteristics, learning styles, or interests. Future technology-enhanced learning environments will therefore collect and store large amounts of user data, and will communicate these data with other tools in order to provide the best possible support across learning contexts. Learners will no longer remain anonymous to the tools and programs they use for learning. The advantages of such transparency will by far outweigh its disadvantages, thus learners will provide information in order to get the best out of their learning tools.



Area of Tension 2: Digital divide despite technology spread

Position A:

Technological developments often sustain existing social inequities. For instance, developing countries have low levels of technological infrastructure and (computer) literacy compared to industrial countries. Additionally, large amounts of information are provided in merely a few dominant languages like English, and thus cannot be accessed by everybody. Consequently, research has provided evidence that people who are already privileged in the usage of technology often benefit the most from new ICT developments. Hence, there is a real danger that future TEL-solutions, too, will sustain or even enlarge the already existing “digital divide” between people with and without access to educational and informational resources.

Position B:

There are many promising initiatives and projects aiming at improving the technical infrastructure (e.g. one laptop per child) and creating the social preconditions (e.g. through teacher training) for offering access to educational and informational resources to the poor and disadvantaged. Technology-enhanced learning solutions that capitalize on the development and increasing spread of smaller, cheaper, and easier to use technological tools will empower disadvantaged people and thus help to reduce the digital divide. For example, TEL-solutions will help to provide easy access to information and education in developing countries. Thus, due to technological advances and the initiatives already taken by researchers, politicians, and other stakeholders, there is a realistic chance that we will be able to overcome the digital divide in the future.



Area of Tension 3: Focused and critical processing of information vs. ubiquitous learning opportunities

Position A:

Ubiquitous access to information and communication resources can lead to distractions from the learning process. For instance, modern students often divide their attention between many tools at the same time, such as simultaneously experimenting with a virtual lab, speaking to a learning partner on the phone, and searching for relevant information on the Web and in textbooks. This multitasking distracts students from the focused and elaborated processing of information. Further, the vast amount of information easily leads to a fast and superficial processing of the learning content. This enhances biases like the “confirmation bias” (that is learners tend to focus on information that confirms their own hypotheses or attitudes, and to disregard disconfirming information). Technology-enhanced learning should therefore focus on training essential skills for identifying and focussing on relevant aspects, searching information and testing hypotheses, and for elaborating the learning content. Learning activities and settings should aim for an attentive, conscious, and holistic learning experience, and for ensuring the acquisition of both factual and metacognitive knowledge.

Position B:

Technology-enhanced learning capitalizes on the possibilities offered by modern mobile and portable devices, which enable ubiquitous information access and thus ubiquitous learning opportunities. Today’s students are “digital natives” who grew up with technology and use it naturally. They already have developed useful strategies and skills to find and handle the information they need. Search engines such as Google offer increasingly accurate search results and thus help to filter the enormous amount of available information. In addition, context-aware devices enable contextualized learning experiences by adapting the information they provide to the situation or context of the person. Technology-enhanced learning should build on these societal and technological advances by making the world’s information available and accessible to each learner at any time and any place.



Area of Tension 4: Approved practices vs. continuous innovation in the classroom

Position A:

Research on technology-enhanced learning should, whenever possible, be grounded in well-established educational theories, and in practices that have been proven beneficial for learning. The ultimate goal of TEL in the classroom should be to create and support reliable, well established and highly successful school practices. New technologies should only be adapted into real-world classrooms when their usefulness for learning has been proven. Usage of technology as an end in itself should be prevented. For instance, the unreflecting use of new learning technologies bears the risk that learners will engage in a shallow learning process, and that ineffective educational practices are simply carried on with new technological tools. Thus, TEL-research should aim to clarify in which ways a new technology can enhance didactic concepts, and assure that only those TEL-solutions that have been proven to be effective for learning are applied in the classroom.

Position B:

The adoption of new technological tools in the classroom often sparks the employment of new and innovative educational methods and concepts. For instance, mobile devices facilitate new forms of contextualized learning, computer simulations enable new forms of inquiry learning, and communication tools support new forms of collaborative learning. Therefore, new technological tools and TEL-solutions should be employed in real-world classrooms as early as possible, enabling a constant evolution and shaping of learning settings and educational practices. Furthermore, the adoption of new technologies in the classroom also ensures that learners become acquainted with innovative developments and thus improve their computer literacy. It is therefore important that teachers are familiar with new technological developments and quickly integrate them into their classrooms. In doing so, they will continuously take their educational practices to the next level.



Area of Tension 5: Standardized learning paths vs. individual learning paths

Position A:

By introducing individual learning paths, we run the risk of losing common standards and educational norms. Standardization is essential for proper assessment, accreditation, and better comparison of degrees, as well as comparison of content and skills that have been learnt. Even more important, learners will often lack the skills and competencies to create a coherent sequence of learning events in their area of interest. As novices in that field they will have difficulties to identify meaningful learning goals and objectives. Standardized learning paths can provide academic guidance and faster access to the essential contents of a domain. Finally, standardization of educational content supports communication and collaboration by ensuring a common ground of mutually shared knowledge within a society. Technology-enhanced education should therefore focus on offering its learners standardized learning trajectories that have been professionally created and evaluated.

Position B:

The development of new technological tools and changes of the educational landscape enable people to create their own learning paths regarding content, interests, needs, and skills. The result is an infinite number of possible individual learning profiles that guarantee a more comprehensive and transdisciplinary evolution of our knowledge. Furthermore, individualised learning paths can facilitate learning as students are most motivated to deal with subjects they are interested in and feel responsible for. Individualised learning paths can thus increase learning progress and success. Consequently, we should allow learners plenty of room for their individual ideas about what and how to learn and provide them with technological tools and meta-cognitive skills that make individualisation possible.