Design Education via Project based Learning in Globally Distributed Teams supported by Enhanced Digital Libraries

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The design and development of products for the global marketplace require engineers to perform in internationally situated teams, utilizing cutting edge information and collaboration technologies. The implications of the Bologna reform and the situation in industry call for appropriate courses on the master's level with students learning and working on real world problems in multi-disciplinary, distributed international teams.

Effective design engineering teams are composed of autonomous learners, who can independently determine and pursue their learning goals and content. Such teams need a different learning scenario with the pedagogical paradigm shift from classical teaching to coaching. It also requires an adaptation of the use of digital media and tools supporting the learning process. Information and factual knowledge arranged in digital libraries serve for a scenario of consulting learning. Digital libraries are enriched with video sequences about the collaboration process, thus allowing for the reflection on the learning process itself.
Among others essential issues are:

- the training of the product development process in distributed, multi-disciplinary ICT-supported teams,
- the study of student learning performance in different cultural contexts which influence the use of alternative sources of information and varying forms of Information and Communication Technologies;
- the application of methods for information exchange, retrieval and archiving skills by the students through real world projects.

The pedagogical scenario of the project is project based learning. Students will be challenged with each others' disciplinary differences throughout the course. At the end of a course, students acknowledge the process as a valuable learning experience. The focus, therefore, lies on the development of a pedagogical scenario of independent learning complemented with tools utilizing information technology that enhances peer-to-peer communications, and thus, the co-generation and sharing of design knowledge. The documentation of the development process with video sequences capturing process knowledge improves the learning and teaching process.

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