Can I do that?
Scenario Feasibility as an Enabler of ICT Usage

Wolfgang Müller[1] and Paul Libbrecht[2]

[1]Media Education and Visualization (MEVIS), [2]Informatics Education
Weingarten University of Education, Germany
muellerw|libbrecht@ph-weingarten.de

Abstract. In this poster, we describe a vision of supporting the teachers towards the choice and adoption of ICT-based learning scenarios by means of mappings to the school infrastructure. The vision proposes the selection and curation of didactical design patterns, as repeatable solutions to problems found in such works as learning scenarios, and their mapping to each school's infrastructure. This collection of patterns, linked to experience reports and scenarios, will offer the regular teachers a way to plan for their applications with a trust of realizability.

Keywords: computers at school, course planning, teacher training

1 Adopting Scenarios: Barriers and Opportunities

Today, schools are expected to support students in building media competence and ICT literacy. This requires an comprehensive integration of media and IT into the classroom, allowing for frequent, unobstructed, and wise use of technology in all subject fields and situations. However, today's teachers often lack appropriate knowledge and experience to apply media and IT effectively in the classroom, and they require therefore adequate support in this field.

Descriptions of approaches and lesson plans that can use the information and communication technologies of the schools can be found in great amounts on the world wide web. The forms include didactical scenarios, simple re-usable material, complete interactive games, or semi-formal descriptions of best practices in terms of didactical design patterns, such as [**?**]). They are generally attractive for teachers to apply provided that some conditions are met.

Technical feasibility relates to the question whether the infrastructure at the teacher's school is sufficient to implement a selected scenario. Without a sufficient degree of confidence that this can be answered positively, teachers can only plan for an attempt, having one or two *plan Bs* in their pockets. Assessing technical feasibility requires technical skills which teachers often do not possess: Questions such as "Is the version of the plugin sufficient?" are typical sources of uncertainty.

Adequacy of content to the instructional goals and the learning environment represents another essential aspect to be met. While corresponding reports and discussions of teachers, who applied this content, can sometimes be found in rating and comment sections of supplying portals, teachers need to be able to assess

relevance to the context of their classroom using their professional knowledge by simulating as much as possible.

Furthermore, resources need to provide sufficient *adaptability* to allow for the application in the teachers own classroom, if the two above criteria fail a bit.

Few approaches aim at supporting the teachers' in assessing these values. There aspects may be addressed in some teacher trainings and in peer discussions, but corresponding knowledge typically remains undocumented and therefore not at hand when required. As a result, teachers often drop ideas to adopt new approach and scenarios for using IT in the classroom.

2 The Proposed Approach

In our approach we target to bridge teachers' uncertainties in the possible application of educational scenarios and contents and to provide adequate support on demand by the means of *rich instructional patterns* and a platform providing access to these patterns and allowing for extension and commenting. *Rich instructional patterns* represent an extension classical design patterns [**?**] to contain not only abstract descriptions of general solutions for recurring problems in the educational field, but also to provide links to required infrastructure and possible variants of the scenario conforming to variations in the infrastructure.

Our *rich instructional patterns* will represent a compact set of guidelines for several types of applications, which focus on the essential aspects of the learning processes. They will be based on examples, but will be sufficiently abstract so that they can address a wide range of situations, and bridge the gap between the technological (what is feasible?) and the pedagogical aspects (what is intended?) of learning scenarios. These patterns will be obtained via interviews aimed at understanding what current ICT practices are followed by each participating school, and also from existing literature.

Our approach will be applied and evaluated in a collaboration project with schools and academic partners from three different countries called eSIT4SIP (Empowering the School IT infrastructures for the implementation of Sustainable Instructional Patterns). In this project we shall disseminate the rich instructional patterns found and thus contribute to the increase of efficient technology enhanced learning practices in identified schools where we shall map them to the infrastructure information.

References

1. Bergin, J. Fourteen pedagogical patterns. In *Proceedings of the 5th European Conference on Pattern Languages of Programs (EuroPLoP)* (Konstanz, 2000), M. Devos and A. Rüping, Eds., Universitätsverlag Konstanz, pp. 1–40.
2. Johnson C., Fuller U.: Is Bloom's taxonomy appropriate for computer science? In: Baltic Sea '06 Proceedings of the 6th Baltic Sea conference on Computing education research: Koli Calling 2006, pp 120 - 123, ACM New York, NY, USA, 2006
3. Mor, Y., Mellar, H., Warburton, S., and Winters, N., Eds. *Practical design patterns for teaching and learning with technology.* Springer, 2014.