Chapter 11
Towards Pedagogical Patterns on Feedback

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ABSTRACT

Patterns are a practical means for transferring experience from experts to laymen as well as to other experts in a field. Patterns have been very successful in software engineering, but over the last decade they have enriched the practice in other disciplines as well, such as: interaction design, computer mediated interaction, project management, and several more. There have also been initiatives on pedagogical patterns, but these have so far mainly stayed undiscovered by the pedagogical community. With a background in patterns as well as in computer science education, this chapter foresees see a large potential for pedagogical patterns. In this chapter we provide motivations for the applicability of patterns in the realm of pedagogy by discussing three example patterns that focus on the concept of feedback in learning.

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Patterns document good practice and capture innovation as it cools down from the quickly changing state to the stable state widely accepted norms and organizational procedures. A pattern describes a recurring solution to a common problem that is chosen over and over again without implementing it exactly the same way twice (Alexander, 1979). It helps the practitioner to understand the problem at hand as well as
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creating an appropriate solution for the problem based on the experiences of other practitioners. Using links, patterns are connected into a web of patterns forming a pattern language. A pattern language has the goal of empowering lay people to act like experts (Alexander, 1979). In the last decades, there have been numerous pattern activities in different application domains.

The most successful application can be found in the field of software engineering (Buschmann et al., 1996; Gabriel, 1996; Gamma et al, 1995). Other more specific areas of computer science followed, including the application of patterns for user interface design (Tidwell, 2005), or patterns for creating Web 2.0 sites (Yahoo, 2008). In the socio-technical domain, they have, e.g., been used for the following purposes:

- Describing interaction, e.g., in the context of ethnographic fieldwork where patterns were used to describe typical scenarios observed by the field worker (Martin et al, 2001).
- Designing socio-technical systems, e.g., for knowledge management (Herrmann et al, 2003) or community-based learning (Carroll & Farooq, 2005). The most recent and largest collection of socio-technical patterns is the pattern language for computer-mediated interaction (Schümmer & Lukosch, 2007). It includes 71 patterns addressing, among others, issues of community design, small group interaction, and the design of infrastructures for collaborative systems.

However, other projects in management (Manns and Rising, 2005) or civil society (Schuler, 2008) showed that the concept of patterns is not limited to technical domains. While they were initially focused on the construction or engineering of artifacts, they can also be used for designing social interaction.

Patterns are often considered as static imperatives that do not adapt to new usage experiences. This is especially true for patterns that have undergone an intensive peer reviewing process: once these patterns are published, there is in most cases no further discussion and improvement of the patterns. However, we assume that any pattern can only be a small step towards the detection of a real invariant, especially if the pattern captures interaction between living organisms and organizations. Revisiting the description of Alexander’s pattern language confirms this view:

“We hope, of course, that many of the people who read, and use this language, will try to improve these patterns – will put their energy to work, in this task of finding more true, more profound invariants – and we hope that gradually these more true patterns, which are slowly discovered, as time goes on, will enter a common language, which all of us can share.” (Alexander et al, 1977, p. xv)

In this sense, patterns should be considered as living documents and every practitioner should be invited to adapt, extend or generally improve any given set of patterns.

PEDAGOGICAL PATTERNS

One central goal of the pedagogical patterns workshop held 2009 in Tübingen, Germany, was to bridge the gap between pedagogy and the pattern communities. Several researchers from the pattern community (who think that patterns and educational practices should be a good match) tried to motivate the pattern approach and demonstrate its usefulness for teaching contexts.

However, all through the workshop we observed that the way patterns are described is not easy to understand. It seems that pairs of problem and solution descriptions are an unusual format, if one has never been exposed to it. We illustrate our observation with the metaphor of a carpet: Many
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