Chapter 5.8
Individual Learning and Emotional Characteristics in Web-Based Communities of Practice

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ABSTRACT

The knowledge management paradigm of communities of practice can be efficiently realized in Web-based environments, especially if one considers the extended social networks that have proliferated within the Internet. In terms of increasing performance through the exchange of knowledge and shared learning, individual characteristics, such as learners' preferences that relate to group working, may be of high importance. These preferences have been summarized in cognitive and learning styles typologies, as well as emotional characteristics which define implications that could serve as personalization guidelines for designing collaborative learning environments. This chapter discusses the theoretical assumptions of two distinct families of learning style models, cognitive personality and information processing styles (according to Curry's onion model), and the role of affection and emotion, in order to explore the possibilities of personalization at the group level of CoP.

INTRODUCTION

Traditionally, the social aspect of learning from a psychometric point of view has been correlated to personality traits. For example, a widely used personality psychometric tool is the Myers Briggs Type Indicator (MBTI) classification of types (Myers-Briggs et al, 1998), that separates the way people perceive and learn in mutually exclusive preferences that involve (or not) social interaction (specifically, orientation to people: Feeling vs. Thinking types).

Moreover, major factor analysis approaches to personality (Feist and Feist, 2006) refer to extraverted and introverted persons, whose behavior is more or less socially oriented, with consequent effects to group dynamics. It must be stated that this extraversion-introversion scale is not the equivalent to MBTI extraverted/introverted types, which are derived from the work of C.G. Jung and refer to the conceptualization of the outer world.

However, personality traits and their integration in an adaptive mechanism might seem rather vague in terms of quantifying and optimizing possible implications; still, the role of social interaction in learning has already been summarized in a number of cognitive and learning style theories, providing a useful personalization guideline for Web-based CoP designers.

The term Communities of Practice obviously emphasizes on collaborative learning processes that are conducted horizontally within groups of people. The three elements that comprise a Cop are (Wenger, 1998):

- **Domain:** the area of knowledge
- **Community:** the group of people
- **Practice:** body of knowledge, methods and tools

The concept of incorporating individual characteristics in the context of a Web-based environment could fit both in the Community and Practice elements, since:

- The usage of adaptive tools and methods (Practice element) can increase the level of comprehension by matching the learning material to the cognitive and emotional style of the learner, or by providing different types of knowledge resources to groups of participants with common cognitive and emotional characteristics.
- Collaborative learning processes can be optimized by assigning equally distributed different types of individuals in groups. Such an allocation would increase the number of problem solving approaches, since different types of learners approach problems in distinct ways (e.g. rely on others or work alone, theoretical vs. practical etc).

At the generic level of learning, Web-based environments need to integrate individual and group characteristics in order to facilitate effective learning for every single user. It has been argued that the distribution of learning material in ways that match learners' ways of processing information is of high importance, since it "can lead to new insights into the learning process" (Banner and Rayner, 2000). Regarding these individual differences, there have been many attempts to clarify cognitive and learning parameters that correlate to the effectiveness of learning procedures, often leading to comprehensive theories of learning or cognitive styles (Cassidy, 2004).

Amongst these theories, some deal with the most intrinsic individual cognitive characteristics, such as Riding's CSA (Rayner and Riding, 1997) or Witkin's Field Dependence (Witkin et al, 1977), whilst some also take into account group interrelationship characteristics, such as Kolb's Learning Style Inventory (Kolb and Kolb, 2005) or Felder/ Silverman's Index of Learning Style (Felder and Silverman, 1988), regardless of their theoretical classification. As a result, the selection of the appropriate cognitive or learning style theory to be integrated in a Web-based application should

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