Metaknowledge, weblogs and learning mechatronics

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Abstract *— We can see a rather dramatic change in eng ineering education. These changes include how it is delivered, its objectives, and who the students are. Key issues are team centered, project based learning activities, flexible delivery methods and portfolio assessment. New curriculums evolving are domin ated by integrative and holistic approaches to engineering education with early exposure to engineering practice and design. The learning activities are structured around projects and cases with complex and authentic tasks, objectives, questions and proble ms. The courses conducted are often designed to attract a wide range of learners, allowing for flexible individual solutions. This implies new educational approaches and tools.*

One important educational approach to engineering education curriculum is the awareness of metaknowledge and how it may increase the quality of learning. Metaknowledge is, simply stated knowledge about knowledge; the understanding of how to control our personal mental processes.

A tool for implementing the above approach may be a weblog. Weblogs are increasingly popular and seen in a wide range of scenarios; from an individual diary to complex websites open to all (like Slashdot.org). Generally, weblogs are devoted to a special topic (or person/group) that uses a dated log format that is updated frequently with new entries and comments. It can be thought of as developing commentaries on a particular topic. The popularity may be because the viewer knows that something changes every day and that there is a personal point -of-view in a n informal style. There is also (often) an opportunity to collaborate or respond with the authors and other participants.

A research study has reviewed and analyzed a case using weblogs for reflections and discussion on own learning activities. Key object ives in the study are the development and evaluation of educational tools to support reflections and understanding of our personal mental processes.

The review and analysis is based on the course Mechatronics. This is a 25 credits (European Credit Transfe r System) multi - disciplinary course based on project based learning and cases. The course is part of the new bachelor program in technological innovation and entrepreneurship run at Oestfold University College (the first of its kind in Norway). The case used in this review is the Robotics -Case. Its run over three phases each of 2 -3 weeks; Introduction, Building/programming and Presenting.

As part of the ongoing evaluation of the new bachelor course and cases are monitored closely. This is done using survey s, survey feedback discussions and the actual weblogs. This paper review and analyze the course with focus on metaknowledge and the use of weblogs.

Index Terms *— Mechatronics, metaknowledge, project based learning, weblog.*