The Learning Bench: Personal Knowledge Management Technologies and Methodology in Learning

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From knowledge "Hunters" to knowledge "Collectors"

One of the greatest privileges of being a teacher is the ability to give people gifts that might influence their lives. Facing a group first year students, identifying their lack of understanding and usage of learning technologies, I felt that it has become more than just a privilege, it has become my duty. I need to show them how their own learning experience could be empowered by the computer and the Internet.

The paper is about an attempt to introduce students to information technologies that can improve dramatically their ability to learn. It is hoped and predicted that once they are trained to use technologies in a way that will have them experience the immediate benefit to their ability to know and use what they have been learning, they will keep using them for their life-long learning quest.

This paper describes a feasibility study of a concept we call "The Learning Bench". The question behind this study is: Will the integration of learning technologies, packaged into a conceivable concept, influence the way new students learn and apply their new knowledge?

The "Learning Bench" Concept

In her presentation of "Our Professional Inquiry Cycles" before the MT (Master of Teaching program at the University of Calgary) faculty (2001), Gail Jardine presented her interpretation of the inquiry based learning cycle. Although the need for knowledge management is relevant for all six phases of Jardine model, one phase of the cycle highlights the need of a personal and shared knowledge management system: "Hunt and gather resources to help you learn (texts, articles, videos, the Internet, people)…" The concept presented in this paper suggests another metaphor for the activity behind learning: "collector". Shifting from the "hunter" mode into a mode of a "collector" is an important idea in a world where so many knowledge resources are flooding any hope of maintaining control.

Kidwell et al (2000) suggest that amongst new trend in knowledge management today, there is an increasing use of knowledge management to enhance innovation and an increasing use of tacit knowledge (rather than explicit knowledge). Tacit knowledge is the major type of row material that could be expected in the field of education. The writers classify into "tacit knowledge" knowledge that represents best practices; procedures; skills; beliefs and values. As tacit knowledge is personal, context-specific, difficult to formalize, communicate and transfer. It is obvious that if we are to attempt introducing knowledge management systems into the learning
environment we should be ready to adapt or develop technologies and methodologies that will be suited for tacit knowledge.

What are the methodologies needed for the management of tacit knowledge? Fran and Hixon (1998) point the following procedures that are being used in UCLA's MBA program: Categorizing, classifying, naming, making distinctions, evaluating, assessing, integrating and relating. These procedures will be presented to the students with examples and suggestions of how to adapt a personal style of management and documentation.

So far the need for KM was presented in terms of volume and type. Is there any evidence that this quest will lead towards better transfer of knowledge? Better performance? In an examination of the effects of personal experience and social interaction on individual knowledge and performance in a specific decision making task context, Handzic and Tolhurst (2000) have found support for the proposition that a knowledge management initiative will enhance individual working knowledge and improve performance in a non-deterministic decision making task context. These results are encouraging looking at the challenge this project is facing

Handzic and Tolhurst's study provides another important finding: "Participants who interacted with others while handling the decision problem tended to exhibit significant learning over time which led to improved quality of their decisions. This finding is an important probe into the question of group knowledge building and the meaning of a community of learners. Will sharing knowledge in an effort to construct a shared knowledge base provide the type of interaction that will improve the student's ability to act upon a real need?"

The PKMT project is pilot study, aimed to provide the MT students with skills and a frame of mind. Skills are reference here in two orientations: Information Technology skills and Knowledge Management skills. IT skills will be presented through a web-based workshop that offers four types of knowledge collection, sharing and management, all based on a concept developed for the program – the "Learning Bench". This concept is aimed to "package" the technological learning environment into an easy to understand and implement entity. The knowledge management skills will be implemented in the workshop based on examples taken from the Case I course, in integration with the field experiences and the theoretical lectures.

The following map represents the flow of information in the "Case Tutorial" course (A case-based, educational issues, inquiry oriented course that is a part of the Master of Teaching program for teacher's preparation at the University of Calgary):
The "need" is developed while the student is faced with a real educational problem in the field or in one of the case stories. The problem triggers an action in response to the problem based on life experiences, values and beliefs and on theoretical knowledge. The action is followed by a feedback from the possible spectators in the situation and might result in a cognitive and/or emotional dissonance. The students will share their reflections and discuss the feedback within their group using channels like class discussions and an internet forum. These discussions will be classified and analyzed and documented in the shared knowledge base that will be evolving with the course.

The learning technologies integration model proposed in this project is suitable for any learning environment. The students that will attend this course and workshop will be using the same learning technologies in their own studies (as learners) as we hope to see them using in their future classroom. It is suggested that they will encourage their own students to use the Learning Bench and the web-based workshop once they start teaching.

This course will focus on collective knowledge creation, while stressing the individual and his place in his reference group (his community). Creating a shared knowledge base will be the needed infrastructure to enable future collaboration between teacher
educators and classroom teachers. This infrastructure will enable both research, feedback and group support for all participants.

Research Questions

1. Will Personal Knowledge Management systems enhance student ability to acquire and transfer knowledge in an integrative learning environment?

2. Will students using the PKMT collect more knowledge "snippets" than the non-user students in the Case I course?

3. Will students using PKMT express more confidence in their ability to use knowledge acquired in the Case I course than students that were not using the system?

4. Will students that have been using the PKMT show usage of the Learning Bench in other courses and their personal lives?

5. Will faculty members and students from other curses will become aware of the PKMT model and will use it for their own needs?

Research Design

Procedure

1. The students in Case I group led by this author, will voluntarily participate in the study.

2. The students will be offered a PKM web-based workshop to be taken along the Case I course. The workshop introduces KM tools and methodologies. The workshop is built in a modular form, each module carries tasks that use the content from the Case I course, field experiences and theoretical knowledge as it develops throughout the semester. The tasks will guide the student to assemble their own Learning Bench, construct a personal knowledge base, contribute to a group’s knowledge base and participate in a forum. Students that will complete all the tasks will be considered as the experimental group for this study.

3. At the end of the semester, the students' final paper, addressing the educational issue they found most compelling and integrate all possible knowledge they can into it, will be used for analysis.

4. Each student will be interviewed (structured interview) about issues concerning their experiences; their personal knowledge bases will be evaluated in terms of number of resources, management methods and implementation in other courses or their personal life. Their contribution to the group's knowledge base will be measured in terms of counted items and innovative ideas.
5. An analysis of the web-base PKM workshop will be conducted to show if other faculty members or students have been using it – if so, they will be asked about their feedback and implementation.

6. Students from another Case I course will be asked to volunteer and submit their final paper (as a control group) and their papers will be compared with the experimental group’s papers in terms of usage of resources, transference of knowledge and innovation in terms of original ideas. These students will be interviewed as well.

Intermediate Results

In the proposal for this presentation experience is expected that the students in the experimental group will show more usage of references, both in quantity and in diversity than the control group. It is expected that they will transfer knowledge from other courses and experiences.

Students in the experimental group are expected to report more confidence in their ability to use the knowledge acquired during the semester.

Students that will be using the system are expected to be using it in other course and predict they will use it as teachers in their own classroom.

Each student will have a personal knowledge base to carry out with him into his life.

A shared knowledge base will evolve and would be offered to all students in the program.

It is expected that as the results will start to form and shared, more faculty members will be using the system in their professional work and offer it to their students.

References


