



SDM Thesis Proposal Form

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Today's Date: Mar 1, 2010 Thesis Completion Date: May 7th, 2010

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Thesis Committee: Mitchel Resnick e-mail Address: mres@media.mit.edu

Thesis Title: Revolutionize Education with Awareness of the Value of Knowledge System

Motivation:

Students in many countries tend to lose their focus, attention and even interests in academic classes when they are unable to:

- Envision possible real-world applications of the knowledge concepts,
- Appreciate the values of the knowledge concepts, and
- Recognize the subtle connections among those knowledge concepts that can be actually linked to derive an advance knowledge concept or develop innovative ideas around them.

This problem in education systems results in loss of opportunity for students to productively grow their own lives and communities.

It appears that most of the academic classes in developing countries still cannot explicitly present how to apply knowledge concepts to address students' real-life problems as well as providing visibility to those connections among knowledge concepts. Consequently, this fragmentation of key knowledge concepts obscures a holistic picture of the learning, which then leads to incomplete understandings of the learners.

I strongly believe that the awareness of each knowledge concept value and the connection among of the knowledge concept can captivate the students' focus, attention and interest. For that reason, one possible initiative in improving current education systems is to explore whether or not the concept of "Awareness of the Value of Knowledge System" is a complementary piece that can be seamlessly incorporated into existing learning system architectures around the world. Perhaps, this missing piece could raise students' interest in learning, and eventually drive the students to be highly self-motivated and eager to learn at their maximum potential.

Primary Research Objective:

The primary research objective is to develop a conceptual learning system with awareness of the value of knowledge system. This conceptual system is intended to significantly motivate high-school students to learn intrinsically by introducing students to the realization of the values of knowledge concepts, their applications of the knowledge concepts and connections among the knowledge concepts, which are likely to encourage students' engagement in learning experience at the end.

Engineering and Management Content:

- *System Architecture:* The principles in system architecture are used to design a conceptual learning system that meets the given primary objective as well as satisfying key stakeholders in order to increase the adoption rate of this one-of-it-kind system, resulting in dominating use.
- *Product Design and Development:* Several techniques in need findings and product development are used to enhance the design and development of the conceptual learning system. Thus, the conceptual system can attract the targeted users, leading to the user acceptance and great supports.
- *Knowledge Representation:* The concepts in knowledge representation will be applied in designing the ontology of a selected knowledge domain, which will unveil the subtle connections among knowledge concepts.

Research Methods & Approaches


- Literature reviews on effective teaching practices, student motivation and creative learning systems
- Develop an example of the ontology of the selected knowledge domain
- Define the value of each knowledge concepts in that domain, which can be holistically viewed as a “**knowledge value map**”
- Design and develop a conceptual learning system with awareness of the value of knowledge system
- Validate the positive relationship between students’ focus and the awareness of knowledge concept values through case studies and interviews with focus groups
- Recommend a refine conceptual learning system with awareness of the value of knowledge system based on the feedbacks

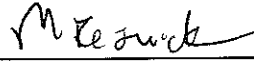
Timeline:

Jan 1 st , 2010 – Mar 31 st , 2010	Literature reviews, researching and collecting participants’ contact
Mar 5 th , 2010	<ul style="list-style-type: none"> • Confirm Thesis advisors and Thesis Committee • Official Thesis Proposal Submission
Mar 5 th , 2010 – Mar 20 th , 2010	<ul style="list-style-type: none"> • Develop ontology of that knowledge domain • Define the value of each knowledge elements
March 20 th , 2010 – March 31 st , 2010	Design and develop a conceptual learning system with awareness of the value of knowledge system
April 1 st , 2010 - April 15 th , 2010	Validate the relationship between students’ focus and the awareness of knowledge concept <i>through case studies</i> and interviews with focus groups
April 15 th , 2010	Finish the first draft of Thesis
April 15 th , 2010 - April 30 th , 2010	Refine the conceptual learning system with awareness of the value of knowledge system based on the feedbacks
April 30 th , 2010	Revise Thesis and complete the second version
May 3 rd , 2010	Complete the final version of Thesis
May 7 th , 2010	Thesis final due date

Signatures:

SDM Fellow: _____ Date: 3/4/2010

Thesis Supervisor:  _____ Date: 3/5/2010

Thesis Committee:  _____ Date: 3/4/10