Introduction and Problems

- E-learning has become an integral part of digital earth.
- It supports everyone who is keen to learn and get higher performance.
- Every organisation or individual can easily and quickly creates e-learning content, teaching activity and suggests materials.
- Pro. is learners can access to study anywhere, and anytime.
- Con. is how learners trust that the teaching activity or materials in e-learning could help them to achieve a learning outcome.

Objective

- To calculate a learner’s trust value in the teaching activity.
- This learner’s trust value aims to help learners select the trustworthy teaching activity and material.

Conceptual of Learner’s Trust Model

Learner’s Trust Value Calculation

- In e-learning, learner states their purpose is an achieving good performance in the expected intended learning outcome (ILO) under the specific pedagogical context.
- Each learner’s trusts value and the perceived trustworthiness value of teaching activities may vary according to personal skills, experiences and knowledge.
- This skills, experience and knowledge of learner are combined to form a learner’s competence.
- So, learner’s trust value in teaching activity is calculated by the perceived trustworthiness of teaching activities from the parts learners, the expected ILO of learner and the exiting learner’s competence within the specific pedagogical context and the learner’ competence of himself.
- Given a set of learners \( A = \{a_1, a_2, a_3, \ldots, a_n\} \) and a set of teaching activities \( \text{Act} = \{\text{act}_1, \text{act}_2, \text{act}_3, \ldots, \text{act}_m\} \)
  \[
  \text{Trust}_{\text{act}}(a_n, \text{act}_m, Tw_{\text{act}_m}, c) \equiv \text{has}(Tw_{\text{act}_m}, \text{act}_m, c, M_C) \supset \text{believe}(a_n, Tw_{\text{act}_m} - > x)
  \]

How does Semantic Web Technology help to calculate learner’s trust value?

- Using semantic technologies to construct Knowledge Representation of following information: Learner’s Competence, Intended Learning Outcome (ILO), Material’s Rating
- Using semantic technology to support automated reasoning and draw conclusions.

Future Work

- Designing knowledge bases of competence, ILO, rating information.
- Developing algorithm
  - Investigating effective machine learning techniques to automate ILO matching and competence matching.
  - Implementing prototype based on the knowledge bases and the algorithm
  - Testing and evaluating model

Example of Prototype Screen

- Using semantic technologies to construct Knowledge Representation of following information: Learners Competence, Intended Learning Outcome (ILO), Material’s Rating
- Using semantic technology to support automated reasoning and draw conclusions.

Potential Learner’s Trust Value in each Learning Activity

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  - Reasoning Web 2012 Summer School 3-8 Sep 2012