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# EVALUATION OF QUALITY OF ELECTRONIC LEARNING RESOURCES

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## **Theme #4, Quality of new resources, New approaches to quality, Learners and quality**

### **Abstract**

It is widely known that the quality of electronic learning resources is very varied; however there is little empirical evidence as to what the actual users' opinions are. It is very difficult to collect the views of users; even in traditional class room based education there is reluctance by users to complete evaluation forms and so it is necessary to consider alternative ways of obtaining feedback, that are closely intertwined with the use of the electronic learning resources so that the evaluation occurs ambiently.

Electronic resources currently in use include:

- discussion boards
- blogs
- web pages
- wikis
- quizzes

These are sometimes used in a standalone fashion, combined into a Virtual Learning Environment (VLE) or combinations gathered together as a mashup.

Users of electronic learning resources are also often used to "chatting" using Instant Messaging (such as provided by MSN Messenger and Jabber). So an evaluation tool based on chatting has been developed. By integrating a chatbot with the learning resources it is possible to elicit the users' opinion seamlessly from their use of the learning resources.

The approach is based on a chatbot (a chatting software agent or robot). The chatbot is based on the AIML chatbot language, supplemented by a domain specific knowledge base depending on the learning resources that are to be evaluated.

Two instantiations of the chatbot have been trialled: the first was used with the Blackboard Managed Learning Environment and the second with a set of web pages. The approach is flexible and by using appropriate knowledge bases, any combinations of learning resources can be evaluated.

A typical conversation with the chatbot evaluating web pages would be as follows:

**chatbot>**

When asked, some people claim that the News and Events Section is relevant. Do you support that view?

**user>**

no

**chatbot>**

Do you say that because you have not got an opinion?

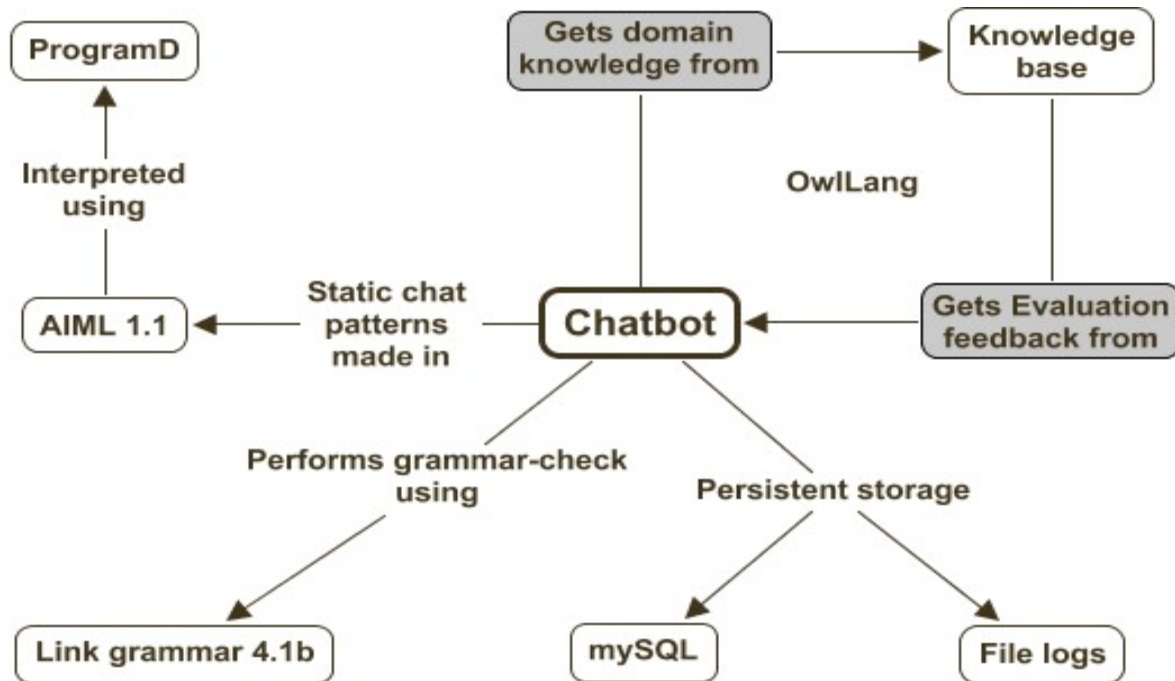
**user>**

i have got an opinion.

**chatbot>**

Really

The architecture of the chatbot is as shown below:



The current version of the chatbot is able to use over 100 different question structures; the exact nature of the question depends on the knowledge base selected. Supplementary questions are used to clarify the users response, for example to differentiate whether a user is disagreeing with a question or does not have an opinion.

The quality terms incorporated in the knowledge base are based on terms identified in the SEEQUEL (Sustainable Environment for the Quality in eLearning, an EU funded project). The terms related to the learning resources were identified by the authors as important within that domain. The knowledge base grows as more people use the chatbot, as questions can be structured that ask if the current user agrees with what others have said.

Grammar checking is incorporated to ensure correct structuring on the questions, including the correct use of "is" and "are". As a result of analysis from a pilot study use of double negatives is no longer allowed, a question that asked about material that was "not off topic" led to responses that clearly indicated confusion, this structure is now replaced by the clearer: "on topic".

Currently the analysis of the log files is undertaken by a human evaluator, for relatively small numbers of responses this is satisfactory and it facilitates the spotting of any semantic difficulties. However in future work it is planned to automate this process.

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