ABSTRACT

The primary objective of this research is to externalize the experts' knowledge in an e-learning environment for capturing and sharing the knowledge of the right persons at the right time. Dynamic Query Handling Model (DQH Model) is constructed to automatically transfer a user query to the best subject expert available in the system. Internet Data Relevance and Expertise Mapping model (IDREM) are implemented to rank the experts from relevant expert data available on the Internet than using the traditional method of self-classification and document based relevance expert ranking. Improved Internet Data Relevance and Mapping model (IIDRM) is developed to consider the experience and qualification of the expert as a leading factor on expert ranking along with Internet verified expertization level of the expert to suggest the best subject expert for query transformation.

The dynamic query handling model has a significance of taking a query from a user to an appropriate expert automatically without the use of manual routing parameters such as subject expert IDs and expert group IDs. In this approach, the knowledge seeker who raises the query does not require any type of prerequisite knowledge, but only needs to post the query, the query goes into an automatic processing flow mechanism that processes and routes the query to the most relevant expert in the system. The queries raised by users are also stored in the internal database and made searchable to other users. The query handler checks the query within the query database and if a pre-existing query with solution is not available in the database. It transfers the query to the query processor. Query Processor is a component that delivers the raised query to the natural language processing parser to obtain the extracted words. These extracted words are transferred to the query mapper. Query Mapper takes the extract words into the process of word mapping to check the higher feasibility of mapping the words with expertise keywords. Once a higher match is found, the query will be mapped to the concerned expertise group to route or transfer the query to the particular expert. The query assigner uses the result of the re-ranked expert
list and finds the high performing expert for the particular query, and the user query is transferred to that particular expert.

The barriers created in the identification of experts from the websites, blogs etc and the authenticity requirement to access their resources from journals are overcome by this newly implemented Internet Data Relevance and Expertise Mapping model (IDREM). IDREM Model is implemented as an unbiased expert ranking system to cross verify the experts’ expertise level globally from data available in the Internet. In this approach, search engines were utilized as an agent to extract the expert’s data available on the Internet and weightage were given to the expert according to their contribution made by the expert towards the given expertise area. The search engines are used as a data retrieving agents, since they can access Meta data or data of any websites. The results generated by the search engines were downloaded into the database. In turn these results were used as an input to the relevance and the expertise mapping process. We have used Relevance Matching Algorithm and Expertise Level Mapping Algorithm to process the data generated by the search engines. These processes yield one’s expertization level on a particular area or field.

In addition to Internet data relevance of an expert, it is also considered to include experience and qualification of the expert as a leading factor in expert ranking process. Multiple regression analysis has been used to obtain the best subject expert from the expert group. The results are retrieved by applying this mechanism yielded data with high accuracy levels to ensure the expertization level of an expert. The results also show creditable improvement in the approach of query transfer and mapping it to the best expert for knowledge externalization. These mechanisms can satisfy most of the needs of knowledge seekers by directly connecting the domain expertise for the collection of tacit knowledge and then transforming it into externalized knowledge.