HTT33-P01   Room:Convention Hall   Time:May 27 18:15-19:30

Repository for Humanity and Nature in Asia Region - Inter-University Knowledge Base for Global Environmental Issues

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"Repository for Humanity and Nature in Asia Region - Inter-University Knowledge Base for Global Environmental Issues" is a project of Research Institute for Humanity and Nature collaborating with more than 30 research institutes of universities in Japan. The project is aiming to develop a repository for global environmental issues, and collecting data and information about databases from various scientific fields.

There are two main activities in the project. Feasibility studies conducted by institutes of universities are working on data construction and case study using interdisciplinary datasets. For example, some studies are salvaging data from old data storage or researcher's field notes, and considering data conservation and future usage for education. Another activity of the project is development of data sharing system using semantic web technology. The system will realizes retrieval of various kinds of data and knowledge relating with global environmental issues.

It is expected that the results of the project contributes to establish interdisciplinary resource sharing not only for natural sciences but also for humanities.

Keywords: interdisciplinary study, semantic web

RIHN Archives - for transdisciplinary research on global environmental studies

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Research Institute for Humanity and Nature (RIHN) solicits, develops, hosts, and funds fixed-term research projects on pressing areas of interaction between humanity and nature. RIHN promotes coordinated, problem-centered, context-specific, and multi-dimensional science. RIHN projects can last from three to five years; they are always multidisciplinary and employ multiple methodologies, and they are supposed to offer solutions to the problems under study.

RIHN undertake an important task to accumulate the research products of RIHN research projects on transdisciplinary global environmental studies and resources for successors since almost all researchers leave RIHN after the end of their project.

"RIHN Archives" has been developed in 2008 in order to accumulate and charge research products of RIHN. It contains metadata of publications,reports, posters, handsouts and movies of seminars, evaluation reports, obtained data, maps, and so on. RIHN Archives database is open to public.

"RIHN Archives" itself is not only the record of transdisciplinary studies held in RIHN but also the storage of seeds of new projects.RIHN Archives must play an important role on planning new feasible studies to design futurable earth.

Keywords: transdisciplinary study, outreach

Interdisciplinary research development in global environmental issues using experiments with ontology engineering

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To tackle with global environmental problems, collaboration among experts in all kinds of research fields is essential. Sustainability science and environmental studies which aim to deal with global environmental problems therefore are of interdisciplinary nature and should involve people with disparate backgrounds. Interdisciplinary research is a mode of research by terms or individuals that integrates information, data, techniques, tools, perspectives, concepts, and/or theories from two or more disciplines or bodies of specialized knowledge to advance fundamental understanding or to solve problems whose solutions are beyond the scope of a single discipline or area of research practice (Committee on Facilitating Interdisciplinary Research (2004)). By such natures, interdisciplinary research is pluralistic in method and focus.

How do we implement interdisciplinary research collaboration by sharing all sorts of knowledge among researchers? In order to facilitate the collaboration, the method to share differences in perspectives in an explicit manner is absolutely necessary. For example, knowledge-sharing could be ensured from the procedural aspect if we can compare the conceptual models proposed by experts in different domains. Ontology engineering, which is one of the base technologies in semantic Web technology, is a method that helps design some sort of guideline facilitating such knowledge-sharing.

In this paper we examine the effectiveness of ontology engineering in the process of collaborative research by experimental approach. Specifically, we first outline the ontology engineering approach. Second, we propose the experiment plan of the collaborative research development targeting researchers in different fields who work on sustainability science and environmental studies. For the experiments, we targeted researchers working in such fields from Research Institute for Humanity and Nature and Osaka University. Third, we show the results of the experiment and then discuss their implication based on the experiment results. Finally, we propose the scheme of information base to support facilitating the collaborative research to solve the global environment problems.

Reference:

-Committee on Facilitating Interdisciplinary Research (2004) Facilitating Interdisciplinary Research, National Academy of Sciences, National Academy of Engineering, Institute of Medicine, 332pp.

Keywords: interdisciplinary research, collaborative approach involving experts, global environmental issues, ontology engineering