USING ONTOLOGIES FOR STRUCTURATION OF EDUCATIONAL RESEARCHERS

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One of the major stages of the scientific method is the report of results. That is why for results data storage and structuring were created the academic databases and scientometrics databases available. In this case, many scientific publications devoted to the principle of working scientometrics databases [1–7], and their number is growing. Thanks to them, such a concept as "metadata" of scientific articles in scientometrics began to be actively used [1–7]. Metadata is essential information such as titles, authors, abstracts, keywords, cited references, sources, and bibliography, and other data. Metadata do not substitute for the corresponding article, but they bring out valuable information to give an approximate idea about its content. A promising way to solve this problem is to use ontological systems.

Previously, ontological graphs were used to systematize scientific articles [8–11] based on different approaches. For example, previously

was developed a special “Ontology system for scientific article recommendation” [12]. This system collects all user requests and structures the works based on them. “The Tagging system” [13] automatically identifies the keywords of each publication and structures the works based on them. The “Ontological machine learning system” [10] analyses the number of words related to a particular industry and on their basis combines work into certain clusters for systematization of scientific articles. The system for “Automatic summarization of scientific articles” [11] works in a similar way. None of the proposed ontological approaches [10–13] for systematization and structuring can`t work with a research report of students and pupils.

None of the previously proposed approaches [1, 2, 13, 3–7, 10–12] can offer a universal and complex solution for systematization, presentation of research and scientific results to pupils and students.

Despite the fact that scientific works have a different structure using the cognitive IT-platform Polyhedron to create a graph that duplicates their structure is easy. To demonstrate, the structuring of the master thesis and research educational report prepared for the defense of educational research by Junior academy of sciences of Ukraine scientific had taken. Two ontologies have built, the structure of which duplicates the content of the research report. The general view of the obtained graphs is shown in figure 1.

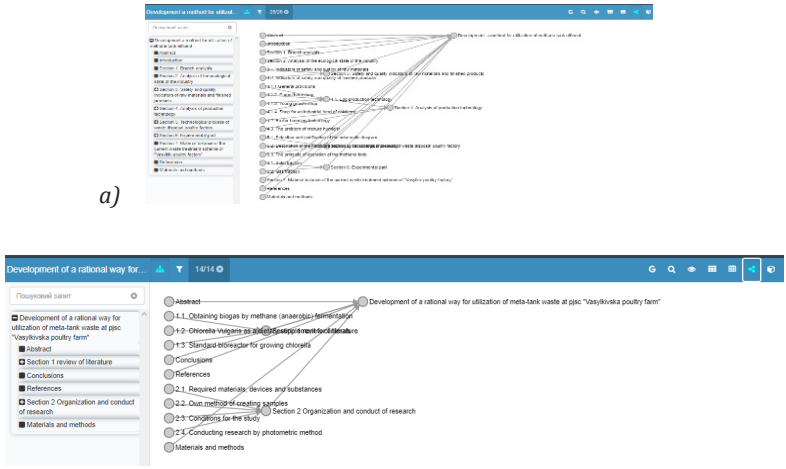

Fig. 1. The general view of the (a) master thesis (b) research educational report ontological graph

A separate node called “Abstract” has created, which contains all the necessary metadata of the work such as “Object of the study”, “Subject of study”, “The aim of the study”, “Practical value”, “Scientific novelty”, “Keywords” and “Hypothesis of scientific works” in form of the attributes.

The ontological form of research reports can keep data collection and analytical processes open, transparent, and simple. Because all metadata is contained in a separate node that can be expanded and supplemented thus the obtained ontological database can also account for variation by field in publication and citation practices and provide a base assessment of individual researches on a qualitative judgment of their portfolio.

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