

education should not just provide knowledge in individual sciences, but educate a cognitive personality interested in knowledge, its development, creativity, and interaction with the environment, be it intellectual systems or people. Interoperable intelligent training systems based on new generation computer systems can play a significant role in this.

The article presents an analysis of the importance and ways of developing cognitive abilities, emotional intelligence and the properties of interoperability at school age. Some proposals are presented for the introduction of these methods and methods into the educational process of secondary school. Some descriptions of basic concepts, processes and methods of the subject area “human interoperability” is proposed for their formalization and.

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ИНТЕРОПЕРАБЕЛЬНОСТЬ КАК ВАЖНЕЙШИЙ КОМПОНЕНТ ИНТЕЛЛЕКТУАЛЬНОЙ ОБРАЗОВАТЕЛЬНОЙ СРЕДЫ В СРЕДНЕЙ ШКОЛЕ

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В работе представлены некоторые результаты анализа роли развития интероперабельности, когнитивных способностей и эмоционального интеллекта у детей в современной школе. Обсуждается важность и способы внедрения технологических средств с возможностями взаимодействия и обмена данными для оптимизации образовательного процесса. Также рассматривается значимость развития когнитивных способностей и эмоционального интеллекта учащихся и влияние этого на их академические достижения и социальную адаптацию.

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OSTIS Glossary — the Tool to Ensure Consistent and Compatible Activity for the Development of the New Generation Intelligent Systems

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Abstract—This paper includes a detailed analysis of the problems of organising various types of collective activities, a comparative analysis of current solutions to ensure the consistency and compatibility of information from different knowledge areas, as well as an analysis of methods and technologies for creating unified information spaces to ensure consistent and compatible storage, processing, accumulation and dissemination of knowledge.

The paper proposes one of the options for realising a unified information resource to ensure consistent and compatible activities in the development of new generation intelligent computer systems — the *OSTIS Glossary*. It describes its structure, rules of structuring, placement and identification of knowledge in it, as well as its operating principles.

Keywords—problem of mutual understanding, knowledge unification, knowledge convergence and integration, knowledge consistency, semantic knowledge compatibility, knowledge standardisation, interdisciplinary synthesis, consistency and compatibility of activities, Artificial Intelligence, semantic knowledge representation, semantic web, knowledge base, intelligent system, scientific knowledge portals, *OSTIS Glossary*, *OSTIS Standard*

I. Introduction

In the era of information society, the problem of mutual understanding between people is becoming more and more acute. Due to the existing inconsistency in the definition of terms of concepts, people not only do not understand each other, but (!) also do not have the necessary means to communicate with computer systems and create collectives of computer systems that understand each other [1], [2].

First of all, the reason for this problem lies in the form of information representation and the means by which this information is presented, accumulated, processed, distributed and visualised [1], [3], [4]. As

the amount of information increases, not only the number of different forms of representing this information [5] grows, but also the number of different tools and methods to support them.

In addition, due to the rapid development of information technology and the emergence of new fields, knowledge can quickly become outdated or may not correspond to reality and current needs. Therefore, it is important to constantly update and clarify terminology, establish common standards and rules for the use of terms to reduce the likelihood of inconsistency of concepts.

At the current stage of information technology development, the problem of information inconsistency is solved with the help of integrated repositories in the form of reference books, encyclopaedias, standards and online resources. However, even with the use of these tools, the problem of conceptual inconsistency remains relevant for several [1] reasons:

- In different fields of knowledge, terms of concepts often have different meanings, leading to misunderstandings between the people using these terms [5].
- The understanding of the terms of concepts may vary from person to person depending on their experience, education and culture.
- With the development of the internet and digital technology, information has become more accessible. Among the variety of information available, it is often difficult to understand which term is used in which context, what its exact meaning is, and to which field it belongs.
- There are many sources of information, some of which may be inaccurate, distorted or misinforming [6].
- Modern natural languages are constantly evolving, the terms of concepts in them are rapidly changing their meanings or acquiring new ones depending on context and usage, which complicates the task of creating information resources, such as encyclopaedias or reference books, which could fully reflect the unified meaning of terms

[1].

- There is a problem of translating terms of concepts from one language to another, which also leads to misunderstanding and misuse of these terms.
- Concepts are described and represented in different ways, which makes it difficult for both humans and computer systems to use them in problem solving [7], [3].

Most often the main problem is not the concepts themselves, but (!) the terms of the concepts with which we name these concepts. All the above problems are related not so much to the current capabilities of the technology as to the current state of modern information technologies and the means realised by them. To solve these problems, it is necessary to switch to methods and technologies of a new level [3], namely:

- to develop standards for the unified unified interpretation of concepts and their terms in different fields of knowledge;
- to create and implement accessible, unified integrated, information resources that are continuously updated and adaptable to changing meanings and contexts of the terms of concepts;
- to develop the conditions and capabilities to build collectives of people and computer systems and to enable them to enhance their understanding, agreement and coordination capabilities;
- to create and implement human-centred systems that reduce the requirements and improve the conditions for their adaptation adaptation and knowledge acquisition.

In simple words, to solve these problems it is necessary to comprehensively standardise the existing terminologies [3], [4] used in various fields of knowledge and to create a unified information space for quick access to information in it, as well as the possibility of using and processing this information not only by a human but also by computer systems [4], [8].

The objective of this paper is to address these issues by creating a single *integrated glossary* that can be used to:

- to provide a single source for the interpretation of concepts from different fields of knowledge;
- to provide a single source for obtaining relevant and reliable information;
- to integrate knowledge from different information sources;
- to systematise concepts and the links between them in the form of hierarchies of these concepts;
- to unify the representation form of concepts and their terms, i.e. to describe concepts in the same language understandable both to a human and a computer system;
- to standardise the descriptions of these concepts and their terms by introduction and consistent use of common rules for their identification, specification and placement;

- to provide collective consistency and supplement of existing concepts and introduction of new ones;
- to provide open access to all knowledge and facilitate its exchange;
- and, finally, to develop semantically compatible intelligent systems of various kinds.

Such an integrated glossary needs to be developed as an intelligent system, which will provide:

- usability of this glossary, for example, will allow to explain the difference between terms, to give advice, to automate (!) the search for synonyms and homonyms on the basis of some secondary features, and so on;
- convenience of this glossary development, which will allow not only to collectively develop such a glossary, but (!) also will help the system to improve itself.

In the next section we will consider in detail the main problems associated with the organisation of various types of collective activity and the problems associated with the representation, processing, accumulation and transmission of information, since these are the problems that are the object of study in this paper.

II. Analysis of modern solutions to the problems of consistency and compatibility of different types of activities

A. History of the development of the problem of consistency and compatibility of different activities

To understand modern problems of consistency and compatibility of different types of activities it is necessary to consider the problems associated with the presentation, processing and application of different kinds of information, namely, it is necessary to study the history of the development of society in the direction of improving the ways of interaction between people, organisation of their activities and ways of transferring and accumulating knowledge from the older generation of people to the new generation.

As far back as in ancient times, people began to face the problem of understanding each other. First of all, the need to understand each other was the need for self-preservation (survival) in the environment of similar people. The only way of communication between people for a long time remained communication by means of gestures, pictures and other similar means. For a long time people exchanged knowledge with the help of these means. And not all gestures came only from the man himself. Man also perceived the gestures of nature and made strategically important decisions based on them. With the development of mental capabilities and the increasing needs of each individual, people began to look for more flexible forms to realise their self-preservation (survival) in nature. People began to realise that it is possible to negotiate with each other to achieve a certain