
FORMING THE ABILITY TO STRUCTURE INFORMATION TECHNOLOGY

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Annotation

Thus, all this predetermines the need to pay serious attention to the formation of skills necessary for effective work with hypermedia in the process of teaching elementary school students and to the creation of an array of information when building hypertext or hypermedia. The analysis of methodological resources and textbooks reliably shows that at present, insufficient attention is paid to the formation of effective methods of working with hypermedia in primary classes.

As mentioned above, primary school students should be given assignments on structuring information resulting in hypertext or hypermedia.

Keywords: Information, ability, form, technology, primary, classroom, learner, teaching.

Introduction

Trainings aimed at working with hypertext fulfill two roles: on the one hand, working with hypermedia is effectively mastered, and on the other hand, the work on creating hypermedia helps to achieve important meta-science results and analysis, synthesis, generalization and categorization. provides the formation and development of general intellectual skills, such as classification according to types, analogies and determining causal relationships. The process of creating hypertext includes specific and non-specific actions[1]. Non-specific actions: distinguishing the title, sub-heading, dividing the information material into parts, plan, glossary are also used in other subjects in elementary grades. The method of formation of such skills is well developed. Specific actions on creating hypermedia or displaying linear text in the form of hypertext include distinguishing the main objects, determining the types and forms of connections, creating a thesaurus, creating a hypertext scheme, describing possible navigation, etc. enters. It is important for students to clearly understand the meaning of the concepts of "hypertext", "hypermedia" and the terms directly related to them[2].

Currently, despite the widespread use of the terms "hypertext" and "hypermedia", there are no clear established definitions of these concepts. At the same time, every teacher should clearly understand what trends exist in the situation where he teaches hypermedia technology[3].

Analysis and results

During the analysis of the literature, we found that today there are two main approaches to uncovering the essence of hypertext. From the point of view of one of them, the concept of hypertext is based on a comparison with ordinary text ("incoherent writing", "non-linear document" and even simply "hypertext" and "text with hyperlinks")[4].

Hypertext - "extreme text", that is, an information unit whose components are texts; a text whose parts have "super-relations", that is, connected not by a linear relationship in one-dimensional space (a consistency relationship as in the regular text of natural language), but by various relationships expressed in multi-dimensional space. In hypertext there are no predetermined restrictions on the nature of connections (network).

Hypertext or non-linear text is the organization of information material, in which there is a connection between text fragments when passing from one part of the text to another; non-linear documents distributed in the form of a tree or network, which has links and allows a person to read in the order of his choice.

Another approach emphasizes computer technology, where hypertext is defined as "an array of information in which associative and semantic connections between distinct elements, concepts, terms, or sections are established and automatically maintained." interpreted as, where "individual terms are highlighted on the display screen and their definition can be immediately displayed on the screen"[5].

Here are a few more definitions of hypertext that emphasize its non-linearity and non-coherence.

As T. Nelson writes, "By hypertext I mean non-coherent writing. Usually the writing process is done sequentially for the following two reasons. Firstly, it is taken from a ... speech, which cannot be coherent (because we have only one channel for it), and secondly, it is inconvenient to read the books in any other way than reading them sequentially. However, thoughts form incoherent structures, which are connected by many possible transitions."

"Hypertext is a principle non-linear organization of information units that can be represented by text, audio and video information based on the idea of associative navigation[6]."

VP Morozov, VP Tikhomirov, MM Subbotin, Ye.Yu. Khrustalev and after them OV Voronina, GN Chusavitina, SA Shikunov understand such a form of organizing the text of semantic information divided into fragments under hypertext, in which there are transitions to similar fragments with indicating the type of communication for each fragment.

The concept of hypertext was first formulated in the seventies of the last century, but over time it was clarified. To date, the essence of hypertext, in our opinion, is fully reflected in the definition proposed below: "Hypertext is a form of organization of textual material in which its units are not in a linear sequence, but in a clearly indicated probability A system of

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transitions is presented as connections between them. According to these connections, the material can be read in any order, creating different linear texts[7].

However, today a hypertext page can contain not only text, but also interactive elements or media objects: sounds, music, speech, video stream, graphic object, animation. In this case, the concept of hypermedia is used.

Hypermedia is defined as "hypertext that incorporates graphics, sound, video, text, and links to form the basis of a non-linear information environment."

In his research in the field of hypermedia, IP Zaysev distinguishes such a component as the Internet. "By traditional hypermedia system, we mean an interactive electronic publication distributed over the Internet and containing static and dynamic links."

VS Kravchenko considers the media element as one of the components of hypermedia. He gives the following definition: "We call reality or any form of visual, acoustic, textual, symbolic, virtual space of an artistic image as a media element..."[8].

In this work, "hypermedia" means a non-linear information array that has any kind of communication between media objects (media elements), interactive elements or fragments without them.

It is possible to distinguish several descriptors (words, phrases) that have a special meaning in an informative article, and SA Shikunov calls them *basic phrases*. These phrases describe concepts and terms related to the subject area, considered objects, subjects, processes, events, etc. may contain descriptive keywords, symbols. For elementary students, the concept of "main object" can be introduced along with the concept of "key words" at the initial stage[9].

It should be noted that, as mentioned by LV Smolina, in elementary school, an object is usually understood as "the name of any object, living being, phenomenon or event." When studying hypermedia technology, this concept is expanded, and when the student works with a linear text, under the object there is already a separated main member of a sentence, several sentences, etc. the main idea is also understood, therefore, it is appropriate to rely on the following concept of an information object: "ordered (structured) elements of information or other objects that are accepted as a whole and distinguished by form in a certain information-language field "items".

Analyzing the text, distinguishing the main word combinations (main objects) in it, combining them into elementary fragments, groups of basic phrases, determining the type of connection between the basic phrases in the elementary fragment is the most important for the formation of the ability to structure information, because information Centering and grouping actions develop mental operations such as synthesis, generalization, comparison in students .

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Hyperlinks are used between articles and hypermedia pages. There are several definitions of a hyperlink. "A hyperlink is a line in an HTML document that points to another file that may be located on the Internet and stores the full path (URL) to that file."

But such a definition, which has a lot of technical terms, cannot be used in the process of teaching elementary school students. Other interpretations can be found in special literature[10].

"A hyperlink to a user is a graphic image or text in a website or e-mail that establishes a connection and provides access to other objects on the Internet" [40].

Thus, it is appropriate to use the following definition as a working definition in the context of propaedeutics of hypermedia technology in the formation of the ability to structure information in elementary school students. A link is a pointer to a specific area (textual, graphic, etc.), other pages, or page fragments that allows you to navigate through the array of data by clicking on the link[11].

A group of links to similar articles is a kind of local information system. Formalization of a group of links to similar articles can be different. The first option involves placing the titles of related articles after the article title. In the second option of formalization, references are included in the text of an informative article, as in dictionaries, encyclopedic dictionaries or encyclopedias. Link or italicize, underline and/or color and highlight. can be highlighted with , or an abbreviation in parentheses (see "..."), or as a graphical representation. Another method of formalizing a group of links can combine the first two types of formalizing the link: placing the link both in the text and after the title[12].

Links by type can be divided into links to move from one topic to another; referral links; organizational links; links to the document itself; comments or annotations to the text.

Special literature on hypertext and hypermedia examines various types of links between articles. They can be: paradigmatic (synonymy, type-category, magnification, fragmentation, process-process, process-process stage, technology-method, object-model, goal-result, method-means), syntagmatic (process -actor, subject-process, cause-and-effect, method-means, object-property, process-result) and associative. However, we note that in the process of propaedeutics of the concept of hypermedia, it is appropriate to use only some of the above, for example, process-result, object-model, goal-result, in the development of the ability to structure information in elementary school students[13].

It should also be noted that when students perform tasks related to the need to identify types of communication and types of links, they develop mental operations of classification and analysis, which helps to form the ability to structure information.

A list of main topics is a mandatory component of hypermedia. It includes all informational article titles that do not contain references to "synonymy," "part-whole," or "species-species"

relationships. Hypermedia may contain content. It consists of an alphabetical grouping of the titles of all articles available in hypermedia.

It can be said that key word combinations (main objects) are the lexical expression of the conceptual apparatus, its thesaurus. Therefore, key word combinations form a hypermedia thesaurus that serves as a basis for information systematization.

The term "thesaurus" was found for the first time in B. Latin, and encyclopedias were called that. It is used together with the meaning of "treasure", "reserve", "wealth". At present, widespread thesauri are used to increase the completeness and accuracy of information search when working with an information search array. In hypermedia, the search engine is implemented as a hypermedia thesaurus[14].

"Thesaurus is widely used in linguistics to designate a special type of vocabulary that reflects to some extent a 'world picture', a 'linguistic model of the world'."

In a thesaurus, words are grouped according to their meaning and stored in a structured form. A thesaurus can be considered a universal system for storing information about a subject area available in hypermedia. "Thesaurus-dictionary is a systematic arrangement of the lexicon of any scientific or technical field, and in the most general form - a general literary dictionary, and in addition, it consists of the entire dictionary of a certain language."

A hypermedia thesaurus contains a list of related article titles, as well as a group of thesaurus articles stored by a thesaurus article title. The title of the hypermedia thesaurus includes simple and complex names of the object described in the informational article. Any process, object, relationship or even system can serve as an object[15].

Building a thesaurus article is one of the most complex activities in creating hypermedia. Undoubtedly, it is necessary to adapt the material for primary school students to the capabilities of students of this age (relevant materials are presented in paragraph 2.1). Compilation of thesaurus (reorganization of information) requires elementary school students to summarize information and present it in a certain structure - hypermedia.

Also, students are required to do a great job of selecting, highlighting, and representing the relationships between these concepts in a hypermedia thesaurus. In other words, schoolchildren *simultaneously perform actions on information centering and grouping, which helps to form mental operations of classification and systematization in students*[16].

The above necessitates the creation of a thesaurus of hypermedia technology, as it allows systematization and generalization of relevant information. Practice shows that small fragments of this thesaurus can be used in tasks aimed at developing students' ability to structure information.

We recommend using SA Shikunov's keyword phrase technique to create an informative hypertext article and develop text structuring skills. It consists of "sequential enlargement of

the structure. In this case, the construction of hypertext begins with the selection of key word combinations (main objects) used in the text and the determination of relationships between them, and ends with the creation of finished fragments of the text and grouping them into pages. Practice shows that this method is difficult for elementary school students to understand, so the goal was set to adapt this method for elementary school students[17].

, it is necessary to distinguish key phrases (main objects) in the text and combine them into fragments. Then these fragments are combined into certain groups, which, on the one hand, must be complete in terms of meaning, and, on the other hand, must be sufficient for understanding. The group(s) are then given a name. The meanings of the group headings may correspond to the selected objects defined in the text of the news article. It is very important that the selected headings fully reflect the content of the respective group. When setting a title, students should justify their choice of one type of title or another. To move from one group to another, a meaningful connection - a hyperlink - is established. The types of transitions and links are defined here. When developing the ability to determine the type of communication, it is necessary to choose a text that includes objects with various types of communication (associative, category-type, part-whole, object-model, cause-effect)[18].

At the next stage, a hypermedia scheme is created. Then introduce the students to the concept of "ergonomics" and accept the text on the page, formalize, etc. should be offered to ensure optimal placement that is convenient for

We emphasize once again that when creating hypermedia, students must first focus information (select primary and secondary objects, determine headings and build links), then group information (form an informational article), and only this after the operation, they must perform actions on information reorganization (adding and/or changing one information structure to another). When building hypermedia, it is necessary to take into account the principles of hypertext, which can also be included in hypermedia: the principle of general relevance, the principle of objectography, the principle of life cycle. The learning material related to the principles of hypertext construction should also be adapted to the learning characteristics of elementary school students[19].

The principle of general relevance means that the key words (main objects) included in the article should belong to the title of the article, and the information units that have category-species relations and are located at different levels of the hierarchy should be located in different informative articles.

It should be noted that because schoolchildren do not understand the principle of general relevance, cannot determine species relations from the title of an article, students usually forget about the purpose of the search, get distracted from the main thing and just surf the Internet.

The practice of computer science classes has shown that not only elementary school students, but also middle school students are not able to perform tasks aimed at finding and selecting information from various sources, while students They often waste a lot of time by clicking links unnecessarily. Conscious perception of the principle of general importance significantly reduces such negative manifestations. The principle of objectography is that an information article contains key combinations (key objects) that describe a single object or a class of objects. Information in hypermedia, as in traditional documents, is not grouped according to the bibliographic principle in which information about a single object, process or event is present in the text of an informative article . A hypermedia news article is a compilation of information collected from various sources. According to this principle, the activity of students to create an informative article also *helps to form the ability to structure information by performing actions on grouping of information*[20].

The principle of the life cycle of hypermedia means that information about the life cycle of an object (that is, all the processes in which the object is involved: formation, development, etc.) is usually grouped in one informative article, while in ordinary life information is in different spaces (different sources, items etc.) may be located.

Conclusion

By performing tasks on identifying and creating hypermedia, taking into account the life cycle principle, students learn to determine the characteristics of information such as relevance, usefulness, completeness. Such tasks also serve to prevent Internet addiction, because knowledge about the life cycle of an object encourages you to stop and not continue a pointless search.

In the context of hypermedia technology propaedeutics, the next type of activity that allows schoolchildren to form the ability to structure information is schematization of information, because it is based on the actions of centering, grouping and reorganizing information, where students create hypertext or hypermedia schemas.

Hypertext and hypermedia can include universal structures such as groups, tables, schemes, which play an important role in the formation of the ability to structure information.

Usually the following structures are considered: linear, matrix (tabular), hierarchical. Undoubtedly, with the development of informatics and information technologies, new structures will appear that do not fit into this list.

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