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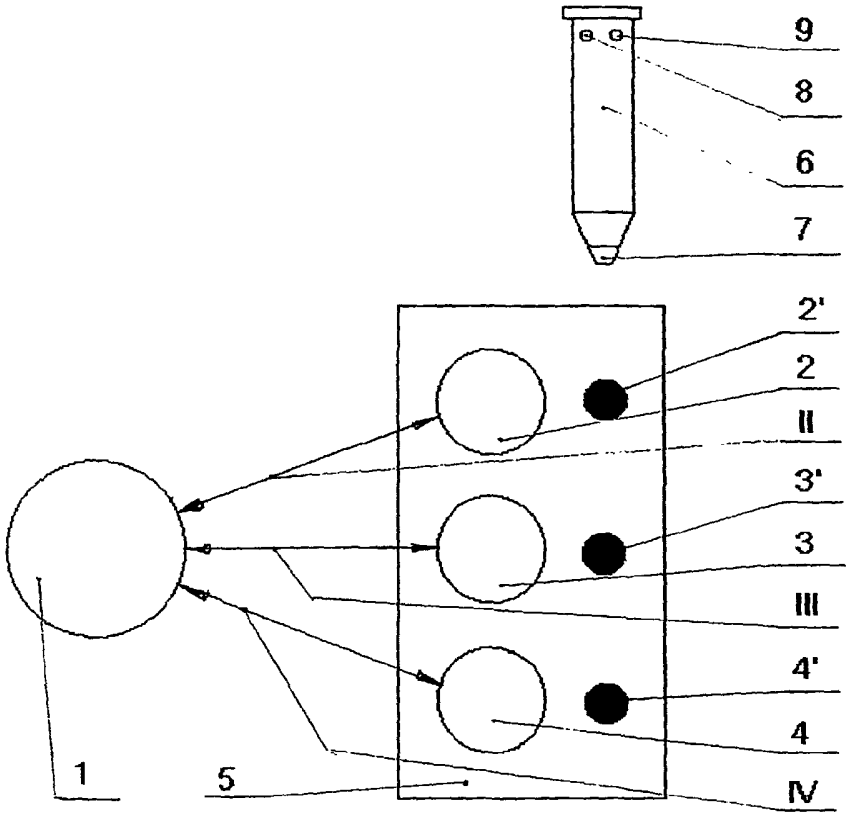
(54) Title: METHOD FOR PRESENTING KNOWLEDGE



(57) Abstract: A method for presenting knowledge consisting in that logical expressions comprising designations of objects and sets of objects are graphically presented in form of interrogative expressions (1) connected with a set (5) of variant answers (2), (3), (4), advantageously in form of an alternative. By giving an answer correct in the logical meaning in connection with an interrogative expression (1) a sentence (II), (III), (IV) in the logical sense is formed, having a determined logical value. At least one of sentences (II) formed in that way describes the state of presented knowledge corresponding to the real state. An interrogative expression is given as a field (1) in word-and-graphic form and nearby said expression there are presented variant designations in form of a set (5) of answer fields (2), (3), (4). Fields (2), (3), (4) in said set are presented in word-and-graphic form. Markers (2'), (3'), (4'), advantageously graphic ones, are situated nearby each of said fields (2), (3), (4), said markers being visually undistinguishable.

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Method for presenting knowledge

The present invention relates to a method for presenting knowledge.

Various methods for presenting knowledge are known in many branches, especially in form of handbooks, as well as various teaching methods adapted to said methods beginning from lectures and conventional handbooks (in form of books) to using projectors, e.g. electronic ones, as well as computers.

According to the conventional methods contents and problems in various knowledge and teaching branches are presented mainly by verbal and descriptive means. As an activating means a set of questions and problems to be solved by oneself is usually placed at the end of a chapter in a handbook in order to check and fix the taken material.

From traditional handbooks, especially for teaching mathematics and orthography, it is known to give some expressions in which one should insert into indicated places determined numbers or letters satisfying respectively an equality condition or respectively letters corresponding to the orthography or grammar rules.

Methods are also known for presenting knowledge by sets of questions and answers, sometimes in a variant pattern.

When using traditional methods for transferring knowledge the teaching is focused, especially at the beginning, on recognizing and remembering designations of names and notions used in a given branch. The main effort of a learning person is directed to know name designations used in a given branch and differing from the common parlance.

By such a method for transferring knowledge the attention is given to passively remembering expressions, notions and definitions and not to taking the essence and to abstractive thinking, and in the result the taken knowledge is of transition nature.

Some natural methods for taking knowledge are known, especially in the elementary teaching, in particular when acquiring mother or foreign tongue. It is carried out by listening sounds and looking at surrounding objects, as well as by linking them with name designations. Then sentences are built, literal and mathematic symbols are learned, as well as the written communication.

Methods for teaching foreign languages are also known called "language by pictures".

In conventional handbooks knowledge is presented by authors verbally by using indicative and affirmative sentences. A material is acquired passively, by heart, with different results depending on memory ability, but often without linking notions, understanding a text and without any abstractive thinking. This method has a low effectiveness because when using a traditional handbook no possibilities exist to learn step by step on a base of already taken knowledge and no possibilities are given to quickly check the correctness of it.

By the conventional learning no possibilities exist to immediately self-estimate the logical value of the taken material presented in the logical sense in form of sentences consisting of questions and correct answers, especially conforming with the real knowledge state determined by the science.

It is an object of this invention to provide a method for presenting knowledge to make it possible to take knowledge and check oneself a state of mastery in this range, as well as to provide a didactic equipment for using this method.

This object has been achieved according to the present invention in the following manner:

A method for presenting knowledge consists in that logical expressions comprising designations of objects and sets of objects, abstractive notions, such as scientific notions, expressions, especially logical expressions, language meanings and rules, mathematic expressions, e.g. equations and inequalities, situation states of objects and similar designations are graphically shown in form of interrogative expressions connected with a set of variant answers, advantageously in form of an alternative.

By giving a logically correct answer in connection with an interrogative expression a sentence is formed having a determined logical value. At least one of so formed sentences describes the state of the presented knowledge conforming with the real state, especially one determined by the science.

According to the invention an interrogative expression is given in the word-and-graphic form and nearby variant designations are placed as a set of answer fields. Fields in this set are in the word-and-graphic form. Near each answer field markers are placed, advantageously

graphic ones, which are visually undistinguishable. A logical value of sentences is estimated by linking interrogative expression fields with an answer field selected from a set of answer fields. When evaluating the logical value of a sentence describing the presented knowledge as the logical value conforming with the real state, especially one determined by the science, the positive signal is obtained by means of markers situated by suitable answer fields, and by any other estimation the negative signal is obtained by means of other markers.

According to the present invention expressions, especially logical ones, may be located on a paper carrier or the like. An interrogative expression is given on a carrier as a field, in a word-and-graphic form and is assigned to a set of variant answer fields, advantageously alternative ones, and nearby each field markers are placed in form of great points, advantageously black ones, being visually undistinguishable.

According to the present invention only markers situated at answer fields having a contents which together with a contents in a field of an interrogative expression make in a logical sense a sentence having a logical value which describes the state of the presented knowledge conforming with the real state, especially one determined by the science, are covered with a special ink conducting electric pulses of very small power .

The method for presenting knowledge according to the present invention can be carried out in such a way that the estimation of a logical value of a sentence in the logical sense by selecting determined answer fields from a set of such fields formed on a paper carrier or the like for an interrogative expression is carried out by means of a device working as a reader, advantageously having an artistic form resembling a pen or

the like, and having a ferro-rubber multilayer conducting tip. By contacting that tip of a device working as a reader with a selected marker on a carrier nearby an answer field a signal is generated in this device, said signal being converted into an optical signal of various colors, and moreover said device emits an acoustic signal of various kinds, especially by using a speech synthesizer. But only by connecting the reading device tip with that marker situated nearby an answer field which is coated with a special ink a positive signal is generated in the device, said signal being optically presented, advantageously by green color, and moreover acoustically, advantageously by the word YES; and when connecting with other markers situated nearby answer fields having another characteristics a negative signal is generated in said device and is optically indicated, advantageously by red color, and moreover another sound is emitted from the device, advantageously the word NO.

Interrogative expressions can be converted according to the invention to the digital form of any system and language, advantageously in a computer program, and they are displayed on a computer screen. Said program is provided with a user interface enabling interaction by means of a cursor, advantageously in form of a picture presenting said reading device as an apparatus for communication with said program. A logical value is estimated by selecting from a set of answer fields one or more answers which are converted into a user signal in a visual form of various colors, and moreover a signal of various kinds is emitted, advantageously by means of speech synthesizer.

After estimating an answer given by selection from a set of fields, said answer presenting knowledge and forming in the logical sense in

connection with an interrogative expression a sentence, the logical value of which corresponds to the real state, especially one determined by the science, the positive visual signal is indicated on a screen in green color and by a picture, and moreover an acoustic signal is generated, advantageously the word YES. When answers having other characteristics are selected from said set a signal is displayed in red color on the screen delayed by 0.2 to 1 second, and moreover another acoustic signal is emitted, advantageously the word NO.

A subject of the present invention is illustrated in the enclosed drawing in form of a graphic diagram. There is shown a graphic method for presenting knowledge on a paper carrier by means of a reader.

An interrogative expression is given in form of a field **1**. In this field **1** there is shown an expression in form of a question or an indicative sentence which is to be supplemented. In the field **5** there is located a set **5** of logically correct answers **2**, **3** and **4** which in the logical sense form sentences **II**, **III** and **IV** together with the interrogative expression **1**. A logical value of the sentences **II**, **III** and **IV** is determined by the real state of knowledge in a given branch of the science. A logical value of the sentences **II**, **III** and **IV** can be checked by means of a reader **6** provided with a conducting tip **7** and with signaling lamps **8** and **9**. The first lamp **8** corresponds to the positive signal YES and the second lamp **9** corresponds to the negative signal NO. Nearby each field in the set **5** of answers **2**, **3** and **4** there are located markers **2'**, **3'** and **4'** in form of full black circles. The marker **2'** located nearby the answer field **2** is coated with a special black conducting ink.

For example in the filed **1** there is located a text of an interrogative expression in form of incomplete indicative sentence presenting the historical knowledge.

- "The Second World War broke out in .....". The set **5** of answer fields comprises those fields in which the following years are given: in **2** - 1939, in **3** - 1938, in **4** - 1945. The estimation of a logical value of this sentence is carried out by selecting an answer from the set **5** by means of the reader **6** by contacting the tip **7** with one of markers **2'** or **3'** or **4'** located respectively nearby the answer fields **2** or **3** or **4** according to the acquired historical knowledge. Contacting the marker **2'** nearby the answer field **2** with the tip of the reader **6** causes the green lamp **8** to light. This state indicates that the interrogative expression **1** has been supplemented correctly and in the logical sense the sentence **II** consisting of the interrogative expression **1** and the answer **2** is the sentence corresponding to the real historical knowledge. In a case the logical value of the sentence is estimated by selecting other answer fields **3** and **4** from the set **5** by contacting the marker **3'** or **4'** with the tip **7** of the reader **6** the red lamp **9** lights indicating that in the logical sense the logical value of the sentences **III** or **IV** does not correspond to the real state of the historical knowledge.

Claims

1. A method for presenting knowledge characterized in that logical expressions comprising designations of objects and sets of objects, abstractive notions, comprising science notions, expressions, especially logical ones, meanings and language rules, mathematical expressions, comprising equations and inequalities, situational states of objects and the like designations are graphically presented in form of interrogative expressions (**1**) in connection with a set (**5**) of variant answers (**2**), (**3**), (**4**), advantageously in form of an alternative, whereas by giving a correct answer in the logical meaning a sentence (**II**), (**III**), (**IV**) is formed in the logical sense together with an interrogative expression having a determined logical value, but at least one of sentences formed in such a way describes the state of the presented knowledge corresponding to the real state, especially one determined by the science, said interrogative expression (**1**) being given as a field (**1**) in word-and-graphic form and nearby this field designations are presented alternatively as a set (**5**) of answer fields (**2**), (**3**), (**4**), said fields (**2**), (**3**), (**4**) in said set are presented in word-and-graphic form, and moreover markers (**2'**), (**3'**), (**4'**), advantageously in graphic form, are placed nearby each of said fields (**2**), (**3**), (**4**), said markers being visually undistinguishable and a logical value of sentences (**II**), (**III**), (**IV**) in the logical sense is carried out by linking the interrogative expression field (**1**) with an answer field (**2**) or (**3**) or (**4**) selected from the set (**5**), whereas when estimating a logical value of the sentence (**II**) or (**III**) or (**IV**) in the logical sense, said value describing the state of presented knowledge as the logical value corresponding to the real state,

especially one determined by the science, the positive signal is obtained by means of markers (**2'**) situated nearby suitable answer fields (**2**), but for another answer by means of other markers (**3**) or (**4**) the negative signal is obtained.

2. A method for presenting knowledge according to claim 1 characterized in that expressions, especially logical ones, are located on a paper carrier or the like, whereas an interrogative expression is presented on said carrier in form of a field (1), in word-and-graphic form and is assigned to a set (**5**) of variant answer fields (**2**), (**3**), (**4**), advantageously alternative ones, and moreover nearby each of said fields (**2**), (**3**), (**4**) markers (**2'**), (**3'**), (**4'**) are placed in form of great, advantageously black points, said markers (**2'**), (**3'**), (**4'**) being visually undistinguishable, and only that marker (2') which is located nearby the answer field (**2**) and forms together with the interrogative expression field (**1**) in the logical sense the sentence (**II**) having such a logical value that describes the state of presented knowledge, corresponding to the real state, especially one determined by the science, is coated with special ink conducting small power electrical pulses.

3. A method for presenting knowledge according to claim 1 and 2 characterized in that a logical value of sentences in the logical sense by selecting for a field (**1**) of an interrogative expression (**1**) a determined answer field (**2**) or (**3**) or (**4**) from a set (**5**) located on a paper carrier or the like is estimated by means of a device (**6**), working as a reader, advantageously in the artistic form resembling a pen or the like, having a conducting multilayer ferro-rubber tip, whereas contacting said tip (**7**) of the device (**6**), operating as a reader, with the selected marker (**2'**), (**3'**), (**4'**) formed on the carrier nearby the answer field (**2**) or (**3**) or (**4**) makes the device to generate an

electric signal which is converted into an optical signal (**8**) or (**9**) of various color, and moreover the device (**6**) emits an acoustic signal of various kind, especially by means of speech synthesizer, whereas contacting the tip (**7**) of the device (**6**), operating as a reader, only with that marker (**2'**) which is located nearby the answer field (**2**) coated with special conducting ink makes the device (**6**) to generate the positive signal optically indicated by green color and moreover to generate a sound, advantageously the word YES, and when other markers (**3'**) or (**4'**) located at answer fields (**3**) or (**4**) having another characteristics are contacted with said tip the device (**6**) generates the negative signal optically indicated (**8**) advantageously by red color and another sound, advantageously the word NO.

4. A method for presenting knowledge according to claim 1 and 2 characterized in that interrogative expressions (**1**) are converted into the digital form in any system and language, advantageously in a computer program, and they are displayed on a computer screen, said program being provided with an user interface enabling the interaction by operating with a cursor, advantageously in form of a picture of a device (**6**) working as a reader, being a device for communication with said computer program, and a logical value of sentences in the logical sense is estimated by selecting one or more of answers (**2**) or (**3**) or 4 from a set (**5**) of such answers to convert this estimation into a signal displayed on a screen in the visual form (**7**) or (**8**) having various colors, and moreover a signal is emitted of various kinds of sound, advantageously by means of a speech synthesizer, whereas after selecting from said set (**5**) of fields an answer (**2**) presenting knowledge and forming together with an interrogative expression (**1**) in the logical sense the sentence (**II**) having a logical value corresponding to the real

state, especially one determined by the science, a positive optical signal (**8**) is immediately displayed on the screen in a color, advantageously green one, and in form of a picture, and moreover an acoustic signal, advantageously the word YES is emitted, and after selecting from the set (**5**) of fields and answer (**3**) or (**4**), having another characteristics, the signal is optically (**9**) displayed with delay of 0.2-1 second, advantageously of red color, and moreover another acoustic signal is emitted, advantageously the word NO.

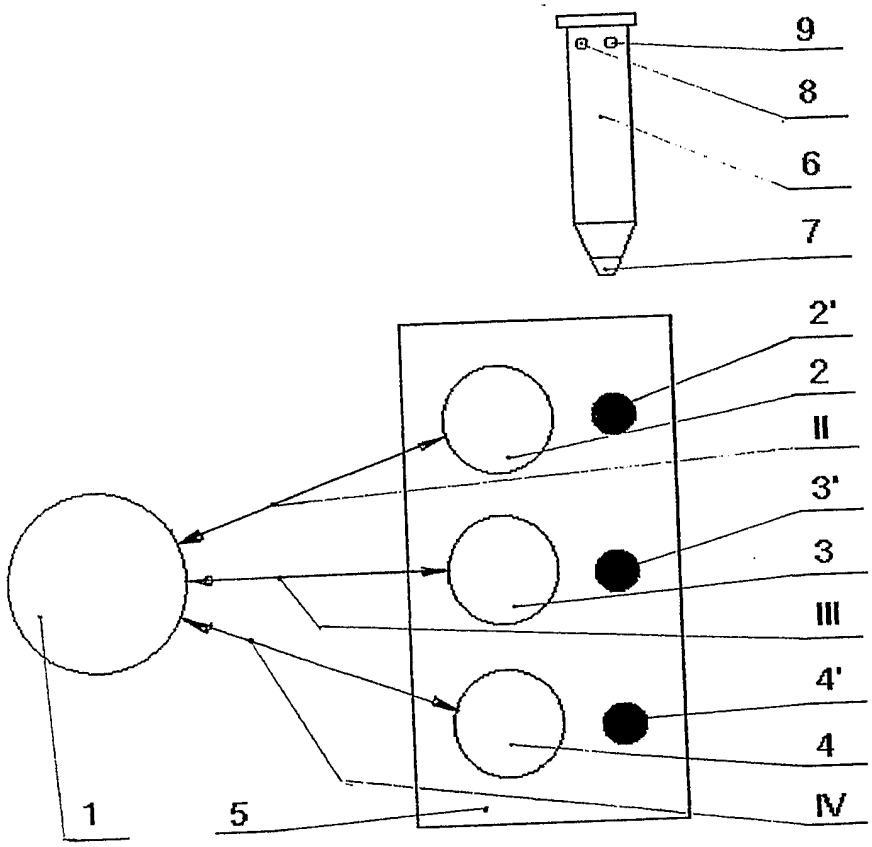

Fig. 1