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SEMANTIC AWARENESS OF THE WORD: SOME THEORETICAL AND METHODOLOGICAL ISSUES

In this paper I first discuss the present state of knowledge about the reasons for the emergence and development of semantic awareness of the word, as well as about the functions of these abilities. The discussion is based on the results of studies with children as well as with adults. Then, a short review of my research in this field is presented. The first study showed the relationship between the emergence of conscious awareness of words and the appearance of reflectivity in thinking. The other studies focused on some methodological issues and problems that are associated with the study of children's semantic awareness. The results indicated that the questions about renaming in the nominal realism questionnaire, and the questions about meaning and reference in Osherson and Markman tasks, were sometimes misinterpreted both by children and adults. The mode of task presentation (oral vs. written) did not influence the success in solving Osherson & Markman tasks, nor did the typicality of concepts used in the tasks.

Introduction

In the present article, I will first lay out the current state of knowledge on the reason for the emergence and development of metasemantic abilities, as well as about their functions. This will be followed by a short review of my studies in this field. I will present my research about the relationship between the emergence of semantic awareness of the word and the appearance of reflectivity in thinking, followed by research dealing with some of the issues and problems that are associated with the study of children's semantic awareness. Which method makes possible an accurate assessment of conscious awareness of the semantic aspect of the word - the nominal realism questionnaire or Osherson and Markman's tasks? How does the typicality of concepts used in the tasks influence success in solving Osherson & Markman's tasks? Does the mode of task presentation (oral vs. written) affect the responses?

Some theoretical issues of metasemantic abilities

Metalinguistic abilities are in general a fascinating object of study for socioculturally minded psychologists. The effective use of semiotic or sign systems (among which natural language is the most important) sometimes requires that we are consciously aware of various aspects of these systems. Although the bulk of research has been done on various

metalinguistic abilities which differ in their fields (pragmatic, syntactic, phonetic, or semantic aspect of language) as well as in the level of conscious awareness (from implicit to explicit knowledge about language) has been done, it has been mostly descriptive in nature. It asks when and how these abilities emerge and develop, rather than why this or that particular aspect of language/speech is brought into consciousness at all. This is true also for the recent state of investigation on metasemantic abilities. Most of the work has focused on the age when these abilities emerge, but there has been little study of the association between semantic awareness and cognitive and linguistic development. A more limited set of research has addressed the question which social and cultural factors are responsible for the emergence and development of metasemantic abilities.

Metasemantic abilities and language development

Metasemantic abilities include the following: knowing the concept of word, the ability to distinguish between a word and its referent, and understanding the arbitrary nature of the relations between a word and its referent. These particular metalinguistic abilities have evoked considerable interest because they may be explained functionally through their role in the development of children's thinking rather than in the development of speech and language (see Tulviste, 1993). Vygotsky assumed that communication does not require differentiation of the word from its object. He said: "At first we find that the child is not aware of the forms and the meaning of words, and does not differentiate between the two. A word and its phonetic construction are perceived as a part of a thing or as a property of the thing, inseparable from its other properties" (Vygotsky, 1956, 335). Levelt et al. (1978) also suggested that it is quite possible to imagine communication without the ability to distinguish between the word and the object. Further evidence for the view that metasemantic abilities might not be necessary for oral communication comes from studies of adults from traditional cultures. For example, in studies carried out by Kolinsky et al. (1987), illiterate Portuguese adults got poor results when asked to give an example of a short word and a long word and when asked which word is longer. Vocabulary studies have found that the word "word" was missing from some languages. According to Lord's (1960) analyses of poets in Yugoslavia, one word signifies any unit of speech (the same word refers to syllable, word, utterance and poem). There is no special word signifying a "word". Goody (1977) found "word" missing in two West African languages. Heeshen (1978) got analogous results analyzing the vocabulary of the Eipo tribe in New Guinea.

However, some research show that children at the age of 6-7 seem to begin to differentiate a word from its referent, and that 10-12-year-olds start to give correct definitions of the metalinguistic term "word", but their success rate in many tasks of metasemantic awareness is still quite low (see Gombert, 1992). For example, they do not understand the arbitrary and conventional nature between a name and an object.

Similarly to many other metalinguistic abilities, the semantic awareness of words has been related to the written language. Gombert (1992) lists metasemantic abilities among those metalinguistic abilities which are required at the first stage of learning to read and write. It has also been revealed that teaching children to read and write enhances their metasemantic abilities. On the other hand, poor results of 5-6th graders (Brook, 1970; Williams, 1977) indicate quite clearly that it is perfectly possible for children to learn to read and write without these abilities. Another indication that learning to read and write

Table 1

Nominal realism questionnaire
1. How did the name of the sun begin?
2. How did we first find out what things are called? How did we know that that was what the sun was called?
3. Where are the names of things? Where is the name of the sun?
4. Does the sun know its name?
5. Which was first, the sun or the name of the sun?
6. Why is the sun called the sun? Could the sun be given a different name? Could the sun be called "moon" and the moon "sun"?

required conscious awareness in thinking than children who were less successful in the tasks involving metasemantic abilities.

Some methodological issues of metasemantic abilities

In order to examine semantic abilities in children, several tasks were used: defining "words", providing examples of words possessing particular characteristics, tasks of lexical ambiguity and synonymy, etc. (see Gombert, 1992; Tulviste, 1988). A number of researchers have used either nominal realism questionnaire or Osherson & Markman's tasks, both made on the basis of questions used by Piaget for investigating nominal realism in children. In the nominal realism questionnaire the first questions measured the ability to distinguish words from their referents. Children were asked, for example, about the essence and the origin of the name of the sun, e.g., "How did the name *sun* begin?". The other questions measured the ability to understand the arbitrary and conventional nature of the relation between a word and its referent. Children were asked about the possibility of renaming objects ("Could the sun be called "moon", and the moon "sun"?").

Osherson & Markman's (1975) tasks were designed to assess the ability to distinguish between a word and its referent and the ability to understand the nonphysical nature of words and nonlinguistic nature of objects. Some questions concerned understanding the relation between a word's meaning and its referent (whether children thought that when some object totally disappeared, e.g., every giraffe in the world, the meaning of the word also would have disappeared (Markman, 1976; Osherson & Markman, 1975). Both methods were also used (Tulviste, 1993) in the investigation of the relationship between the development of metasemantic awareness and metathinking processes (see above). In our study, performance on Osherson & Markman's tasks was better than on the nominal realism questionnaire. One reason for this may be that the nominal realism questionnaire also includes questions about the possibility of renaming objects. There is considerable evidence that the ability to differentiate a word from its referent and linguistic features of words from the physical features of their referents appears earlier than the ability to understand the arbitrary and conventional nature of the relation between a word and its referent (Piaget, 1973). In fact, only 23 per cent of the 5th and 6th graders participating in our study demonstrated, in renaming tasks, that they understood the arbitrariness of names.

Table 2

Osherson and Markman's tasks

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- (1) Meaning and reference.
Tasks about understanding that a word can still have meaning despite the disappearance of its referent, "Suppose for some reason all of the giraffes in the whole world disappeared. There is not one giraffe left in the whole world. Now that all giraffes are gone, could we still have the word giraffe?"
 - (2) Nonphysical nature of words.
This questions were designed to determine whether subjects realize that the words do not have the physical properties of the referents, e.g., "Does the word bird have feathers?"
 - (3) Nonlinguistic nature of objects.
Questions about understanding that objects do not have linguistic features, e.g., Does the car start with kuh?"
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The ability to differentiate a word from its referent, was shown by 54 per cent of the 5th and 6th graders when they were asked to solve the nominal realism questionnaire, and by 74 per cent when they were asked to solve Osherson & Markman's tasks. Thus, there were big differences in participants' ability to differentiate a word from its referent. The difference may be due to the method employed, which is also suggested by the results of the cluster analysis. Although the results of correlation analysis indicated that there was a significant correlation between success in solving both tasks of metasemantic awareness by the 5th and 6th graders ($r=0.383$, $p<0.01$), according to the results of the cluster analysis the two methods do not measure the same phenomenon (see Tulviste, 1993). This is unexpected, because both the nominal realism questionnaire and Osherson & Markman's tasks are supposed to measure the ability to differentiate between words and their referents. The results of the cluster analysis raise some intriguing questions that will now be addressed: Which method makes it possible to accurately assess semantic awareness? Nominal realism questionnaire or Osherson and Markman's tasks?

A plausible explanation for poor performance on some questions in the nominal realism questionnaire might be that they are difficult to interpret. Previous research has pointed to some problems with this questionnaire. Osherson & Markman (1975) argued with Piaget's view (Piaget, 1973) that young children are nominal realists. According to Osherson & Markman, children are simply not able to differentiate a word from its referent, nor are they able to distinguish between linguistic features and physical ones. Some critical remarks concerned questions about renaming objects. Here, the basic problem seems to be not that of word switching as such but rather that of substituting one meaningful lexical form for another. In Rosenblum & Pinker (1983) bilinguals often mentioned the social context of the renaming act. Aronsson (1981) argues that, in a sense, a child is correct when saying that words may not be substituted at will because lexical forms range from those highly motivated (e.g. onomatopoeic) to arbitrary ones. Her critics pointed also to the fact that the question "Does the sun know its name?" may be difficult to answer because the child lacks the necessary knowledge whether the sun is aware of its name or not. Aronsson quoted the studies in which the same is asked about babies and where children

gave more elaborated explanations. Weakness of particular questions on nominal realism was also indicated by poor results of undergraduates in our study. Their success rate in answering some questions was quite low (70% of answers to the third and 87% to the fourth question showed their ability to differentiate a word from its referent). In object-renaming questions, 74% of them agreed with renaming, but 87% of participants (some of them who agreed with renaming, and some who did not) referred to the communicative context of renaming ("Of course we could change the names, but it has no sense. People are used to calling them this way"). These results were consistent with the criticism both of the fourth question ("Does the sun know its name?") and of the renaming tasks made in previous research. Thus, concerning renaming tasks, the basic problem seems to be not that of word switching as such but rather that of substituting one meaningful lexical form for another. Here we have further proof that the nominal realism questionnaire has some weaknesses. What about the Osherson & Markman's tasks? Are these tasks easy to interpret? This question was addressed in Virak's (1994) study. She compared the performance on three subgroups of Osherson & Markman's tasks by 2, 3, 5 and 6 graders, and found that the answers to questions in subgroup II (nonphysical nature of words) and subgroup III (nonlinguistic nature of objects) had a significant correlation ($r=0.37$, $p<0.001$), but that there was no significant correlation between the answers to question in subgroup I (meaning and reference) and subgroups II and III ($p>0.05$). The questions in group I often caused misunderstandings. This was also illustrated by difficulties experienced even by adults in answering the questions in subgroup I (82 % of undergraduates claimed that a word can still have meaning despite the disappearance of its referent). At the same time, in subgroup II and III adults answered to all questions as expected (see Virak, 1994).

The influence of oral/written task presentation

In metalinguistic tasks children have to analyze the spoken language in terms of the written language. According to the literature, written and spoken language usage differ in many aspects (Street, 1984; Tannen, 1982). These differences may be a source of the poor results in the tasks measuring metasemantic abilities, even in the case of school-children who have some fluency in reading and writing. To determine whether the mode of task presentation influences the success rate of solving Osherson and Markman's tasks, half of the tasks in our study were presented to 6-graders orally and half in a written form. We expected that the written presentation would cause more errors than the spoken presentation in the tasks involving the nonlinguistic nature of objects ("Does the car start with kuh.") This is because a written presentation makes it harder for the children to understand that they are expected to talk not about how to write a word but about real cars. We expected also that in the tasks involving the nonphysical nature of words ("Is the word "bird" made of feathers?") the tendency to respond to the questions about words in terms of the word's referent rather than properties of the words themselves diminishes when the tasks are presented in written form. Moreover, in tasks presented to children orally, some errors may be due to memory failure. On the basis of correlation analysis, no task presentation effect was found (Tulviste, 1995; Virak, 1994). Thus, the results did not support our hypothesis. These results show also that there is no need to test every child individually using an oral presentation of the metasemantic tasks as it has been done in previous research. It seems that giving them those tasks in a written form should be equally effective.

(Proto?)typicality and conscious awareness of the semantic aspect of a word

According to the literature, different aspects of language and speech are brought into consciousness at different ages (see Gombert, 1992; Tulviste, 1993). It is a well established fact that the level of conscious awareness depends, among other things, on the nature of the tasks used, on how much knowledge the subjects have about this particular type of tasks, etc. (Markman, 1981; Sharp, Cole & Lave, 1979). It may be assumed that the results depend, among other things, on the concepts used in the study. We were interested whether the performance on the tasks depended also on the typicality of concepts used in the study. The hypothesis about the effect of typicality of concepts was tested by comparing children's performance on questions with typical concepts (apple, car, sparrow) with their performance on questions with nontypical concepts (grape, elevator, penguin). The typical and nontypical concepts were taken from those used by Cherniak (1984). We expected that in the case of typical concepts it is more difficult to differentiate the word from its referent, therefore, subjects should respond to questions about those words in terms of the word's referent rather than properties of the words themselves (Tulviste, 1995). The results revealed that answers to both types of questions had a significant correlation (for 2-3 graders $r=0.94$, $p<0.001$, for 5-6 graders $r=0.73$, $p<0.001$) (Virak, 1994). Thus, the typicality of concepts had no influence on subjects' answers.

Conclusion

The current state of investigation does not allow us to say exactly how significant metasemantic abilities are for various modes of language use (spoken vs. written). The investigation of metasemantic abilities has been focused rather on the age when these particular abilities emerge than on the function of the abilities themselves. Some research link metasemantic abilities with certain properties of the thinking process. Our research (Tulviste, 1993) supports Vygotsky's idea that these abilities are related to the emergence of reflectivity in thinking.

In the earlier studies concerning the age when metasemantic abilities appear, it has been assumed that in European culture children are able to solve tasks measuring their ability to differentiate between a word and its referent and their ability to understand the arbitrary and conventional nature of the relation between the two. However, our studies with 2, 3, 5 and 6 graders as well as with adults using the nominal realism questionnaire and Osherson and Markman's tasks revealed that it is not so self-evident. Some of the questions in both methods were misinterpreted not only by children but also by adults. Namely, in the nominal realism questionnaire, the question "Does the sun know its name?" as well as renaming tasks caused the subjects a lot of problems. Although Osherson and Markman's tasks were less problematic for the subjects than the nominal realism questionnaire, it did not hold true for the questions about differentiation of word meaning and reference. In addition, our studies showed that the typicality of concepts used in the questions had no influence on the performance on the tasks. Tasks involving typical concepts were solved as well as tasks with nontypical ones. Also, we did not find an effect of the mode of task presentation (oral vs. written).

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