Review

Review of Some Recent Soviet Research on Vocabulary Learning and Teaching

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This article presents a review of some recent Soviet research on vocabulary learning and teaching. It has been demonstrated in a number of experiments with young and older students, and using both first and second/foreign languages, that even young children can learn linguistic word analysis skills and can benefit from such teaching.

Introduction

0.1. OVERVIEW. This article presents a review of some recent research on vocabulary teaching and learning done by Soviet scholars. The reasons for such a review are the following: (1) Vocabulary has been a relatively neglected area of research (Takala, 1984). Yet it is an important aspect of language and language use and thus seems to deserve to be addressed in an article. (2) Our knowledge of Soviet research is usually rather limited. (3) Soviet research has shown a continued interest in vocabulary learning and teaching. Thus, it seemed possible to do two things in the review: (1) to address a neglected yet important topic, and (2) to make largely unknown yet interesting Soviet research known to a Western audience.

The review begins with a brief description of some leading Soviet researchers' views on language development with a special emphasis on vocabulary. This is followed by an account of the results of some experiments where young school children

were taught how to analyze words linguistically. After that the results of experiments on teaching word formation are presented. Then some experiments are reviewed which addressed the memorization of words. The review concludes with some results concerning vocabulary growth in students' written compositions.

1. LANGUAGE DEVELOPMENT. A short description of some prominent Soviet scholars' views on child's language development will be presented first to provide a basis for the review of empirical studies.

1.1. The significance of language in children's intellectual development has been widely studied by e.g. Piaget, Skinner, Vygotsky, Leontiev and Luria. They have stated that, while learning the main forms and functions of speech, children come into contact with the outside reality behind words. In a special way words are directed inwards and they organise the child's internal, intellectual life.

Aidarova (1982) gives a detailed description of the child's language development. While learning to speak children are active. At first the activity is imitative: The child tries to imitate sounds, syllables and then words. But the moment he realizes that sounds can mean something and be used for communication, he vigorously begins to master the vocal aspect of words as well as their meanings. The child's vocabulary expands when he grasps the meaning of roots, suffixes and prefixes. The child's vocabulary can also grow due to transfer to the meanings of some words to others.

1.2. An even more detailed account of the child's language development is presented by Markova (1974). She describes the development of the functions and forms of speech and language in general during the different stages of childhood.

During infancy (0-2 months), the child establishes contact

with grown-ups, acts upon the contacts and supports them in his speech responses. The expressive function of speech is beginning. Furthermore, the development of the social function of speech is of great importance. At the end of the stage the indicative function of speech develops, i.e., naming of objects with words.

At the early preschool age (1-3 years), the generalizing function of language develops, and the child learns the symbolic role of words. At the age of two the lines of development of thought and speech intersect, and the child's speech begins to be intellectualized. Children learn the syllabic composition of words, i.e., word contour, earlier than accurate pronunciation. The first grammatical expressions of speech prepare the way for the development of dialogue, and the grammatically primitive speech is situational. The child builds his utterances (vyskazyvaniia) and takes into account the way the person he is talking to understands him.

During the preschool age (3-6 years), regulatory and planning functions of speech develop. First the child describes an action that has already taken place. Later he plans an action: (a) he tells someone what he is about to do, (b) he plans for himself i.e., he uses speech to control his own behavior. At a later stage, the child needs no external speech, and plans by means of internal speech alone. Role playing, which is a "dominant activity" of the preschool age, gives rise to new forms of speech such as the monologue. The child feels a need to speak in a way that can be understood from its context alone without relying on the external situations. This kind of speech is called contextual.

During school age (7-17 years), the generalizing function of language is perfected. The pupil learns a new system of meanings. They emerge from his own practical experience and communication with adults as well as from the subject matter dealth with in school. Another function typical of the school age is the regulatory function. The pupil's own behavior is regulated as

well as that of others around him. The pupil becomes aware of his own social position and acquires specific skills for self-expression. The acquisition of social values is mediated by the increase of self-awareness. The complex interaction of communicative speech ("speech for others") and the speech "for oneself" make the language more nuanced and individualized.

The linguistic means (forms) emerging in the school age are the phonemic composition of lexical items and grammatical structures, the development of an individual style of speech as well as the cultivation of educated oral and written speech.

Teaching Linguistic Analysis of Words

2. Several Soviet studies indicate that it is possible to teach children in early grades skills characteristic of linguistic analysis. This has been confirmed by the fact that children are able to find independently certain linguistic characteristics in new material presented to them.

2.1. Aidarova and Savelyeva (1972) studied to what extent it would be possible for children in early grades to master some basic methods of analyzing words linguistically. The study was carried out in 1968-1971 in grades 2-4 in one school in Moscow. About 200 children took part in the study each year. Children were not given ready-made models of linguistic analysis but they were encouraged to discover linguistic structures themselves and thus become aware of systems in language (cf. Leontiev, 1969).

First the children learned to discover formal and semantic characteristics and their interrelationships between words, then within a paradigm, and finally between paradigms. Thus, in the case of Russian nouns, the children learned to find the root and note its meaning, then note how any affixes modify the meaning, and finally determine the number and case (the latter indicating the relationship of the noun with other words). When Russian verbs were analyzed, children learned to discover the

root and establish its meaning, noted any additional meaning due to affixation (eg., aspect) and inflections (number, person, mood, tense).

In one experiment the authors studied the 2nd and 3rd graders' ability to distinguish between a word's formal and semantic aspect. There were 59 children in the former group and 64 in the latter. The children were asked to come up with words which were similar to model words in terms of (1) both form and meaning, (2) only meaning, and (3) only form. In the fourth task the children were given two rows of words and they had to indicate if the words corresponded to each other with regard to form and meaning. Incomplete answers were regarded as wrong. The results are summarized in Table 1.

TABLE 1

Percentage of correct answers in an experiment on linguistic analysis skills (Source: Aidarova & Savelyeva, 1972, Tables 1 & 2)

Grade	Selection of Words Similar in Terms of			Compa-rison	Model Building	M1→M2	M2→M1	Production of Words (M1)
	Form & Meaning	Meaning	Form					
2	94.3	88.4	97.0	98.6	88.4	81.3	77.9	76.8
3	96.4	87.3	98.5	98.7	97.6	93.6	89.0	92.9

The figures in Table 1 show that children were able to do the required linguistic analyses quite successfully. According to the authors, children did well even on homonyms. With one exception, third graders did somewhat better than second graders.

In another experiment Aidarova and Savelyeva studied to what extent 2nd and 3rd graders could construct a model of concrete words and independently derive from it a general model of a grammatical category. The experiment consisted of four parts: (1) The children had to construct a model of words given for them to analyze, (2) the derived model (M1) had to be transformed into a more general model (M2), eg., a model constructed from concrete nouns had to be transformed to apply to all nouns, (3) the general model (M2) had to be transformed into new models corresponding to M1, and (4) new concrete words, corresponding to M1, had to be produced. The results (Table 1) show that children did quite well on all of these tasks and that 3rd graders did consistently better than 2nd graders. The differences in the second set of experiments between the two grades were bigger than in the first experiment.

The authors also showed that 87.3% of 2nd graders were able to use a model provided by the experimenter to analyze a complex new word into its six component characteristics (2stems, 2 suffixes, intervening vowel, and zero morph as ending: vozduhoplavatel, literally "air sailor").

Finally Aidarova and Savelyeva studied if 2nd graders could understand that a word is made up of morphemes which have meaning. They had to show how number and some other suffixal meanings are expressed in German, English, French, Spanish (written in Roman alphabet), as well as in Grusian, Osset, and Turkish (written in Cyrillic alphabet). In some cases children were given a foreign word which had to be translated, in other cases they were given a Russian word and had to find a given foreign language equivalent. Each time a number of different forms were presented, which made it possible to discover both structural elements and meanings. The experiment was run in two classes. The results are summarized in Table 2., and show that children were quite proficient in word analysis.

TABLE 2

Percentage of correct answers in an experiment on word analysis skills
(Source: Aidarova & Savelyeva, 1972, Table 3)

Class	Number German plural	Marking French sing.	Osset plural	Turkish sing.	Suffix Recognition and Forming New Words				
					French	Engl.	Grus.	Span.	Germ.
IIA(33)	100.0	100.0	91.0	91.0	91.0	87.9	91.0	87.9	91.0
IIB(27)	100.0	100.0	96.3	88.9	85.2	85.2	81.5	74.1	66.7

In another experiment, 59 3rd graders, who had worked on nouns, verbs, and to some extent on adjectives, were asked to show if they could independently discover systematic relationships between them. From the stem "hod" (passage, travel) they had to form all possible words they could think of and to make a list of posisible relationships between words. A group consisting of 7-8 words sharing some characteristic was produced by 13.4% of children, 30.4% found a group of 5-6 words, and 55.9% found a group of 3-4 words. No child found less than 3 words.

2.2. In a more recent book "Child Development and Education" Aidarova (1982) describes a native language course at school. The aim is to find linguistic ideas in terms of which a language can be described and presented to the pupil as a new subject. The second aim is to find a type of activity which enables pupils to discover the characteristic features of language. The concept 'communication' was taken as the initial concept for the course. The concept of word as meaningful form was singled out within the initial concept, and it served as the focal point of the course.

The course consists of four sections. The first section in-
cludes topics as Types of Communication, The Origin of
Language, and The Word and an Object. In this section a learning
episode is presented to the pupils in the form of linguistic
research. Secondly the pupils get an idea of the word as com-
munication, which will later become subject matter for further
analyses. The following linguistic contents are treated in the
first section: (1) The two aspects of communication — form and
content, (2) the relationships of synonymity and homonymy in
communication, and (3) the two aspects in the overall semantics
of communication — (general, social) meaning and (specific,
personal) sense.

The three subsequent sections — grammar (primary school
pupils start with morphology), spelling and poetics — provide
different conceptual systems which describe the various aspects
and levels of language. Morphology represents the smallest
meaningful units, morphemes, whose specific combinations act
as grammatical characteristics of a word. The section devoted to
spelling makes it possible to apply the initial relationship bet-
ween form and meaning to the analysis. The poetic section gives
the pupils an idea of the formal and semantic characteristics of
words. Poetry provides material for developing an ability to see
different meanings and senses. Analysis of the relationship bet-
ween form and meaning both in morphemes and words helps
the pupil to understand language as a whole.

Teaching Word Formation

3. Teaching word formation both increases pupils'
vocabulary and helps them to understand unfamiliar words.

3.1. Mikaeljan (1973) conducted a study with 1,469 students
in grades 5 through 10 in three Armenian schools. The purpose
was to study the effect of instruction in Russian word formation
on the growth of students' vocabulary. In the first stage the
author studied student's ability to understand the meaning of

derived words (nouns, verbs, and adjectives) and their skill in using derived words. Word formation was not usually taught in Armenian schools at the time of the study. When the student's ability to use words was studied, they had to translate from Russian to Armenian, to make sentences from given words, and to choose a word from 4 alternatives that fitted the sentence context. When the knowledge of word formation models was tested, the students had to find words with identical stems and translate them into Armenian. The words were taken from the vocabulary minimum established for grades 1-3 of the Armenian schools, and the texts were taken from a 4th grade textbook. The tasks were identical in all grades.

The results indicated that the students often used morphemes mechanically in finding new words from an identical stem, but they did not know the meaning of such words in 40 - 80% of all cases. When the students were asked to translate derived words from Russian to Armenian, 6th graders could translate about 2 words out of 10, 10th graders could translate 4-5 words. It should be remembered that these words had occurred during previous grades. The results were improved by 10-15% in the case of recognizing words in a sentence context, but they were even worse when translation from Armenian to Russian was the test format.

The effect of knowledge of word formation on the growth of vocabulary was studied with verbs. Instruction on 7-8 word formation groups was arranged during 8 lessons. After the instruction, students in the experimental group could form about 3 words whereas students in ordinary classes could form about 2 words on the average. The percentage of known word meanings was 56% before instruction and 70% after instruction. The percentage of correct word translation before instruction was 35% among "good" students, 25% among "average" students, and 10% among "weak" students. The corresponding figures after instruction were 95%, 75%, and 65%, respectively. Before instruction, the students could form 220 sentences and after in-

struction 510 sentences. Thus, it appears that teaching word formation skills for students who have to learn a relatively richly inflected language like Russian helps students to utilize the morphemic clues in words.

3.2. Trusina (1975) studied the possibility of inferring the meanings of unfamiliar words on the basis of word formation analysis. Her subjects were 105 foreign students from 27 countries at the international University in Moscow. The students had studied 6-7 months in the Soviet Union and had had 500-550 lessons in Russian.

The subjects were presented 30-50 Russian words (nouns, adjectives, adverbs, verbs, and comparative forms of adjectives). The students were asked to indicate the component parts of words, write all words from the same stem they could think of, and to translate the Russian words into their mother tongue or into the language that had been used as the language of instruction while they were at school in their respective native countries.

The results indicated that first-year foreign students had some ability to infer the meanings of derived nouns and adjectives but this was by no means fully developed; the percentage of correct answers for suffixed nouns was 42, for suffixed adjectives the figure was also 42, and for prefixed nouns and adjectives the proportion of correct answers was 63. When it was studied how well students knew the meanings of words with an international stem or affix, it was found that the proportion of correct answers ranged from 64 to 87 when students used their mother tongue for study purposes and 40 to 52 when they used some other language.

Memorizing Vocabulary

3.3. Kharlov (1974) studied the possibility of memorizing relatively large doses of vocabulary during foreign language

lessons. He studied 6 groups of first-year university students. Each group consisted of 8 students and half of the groups were majoring in a foreign language (German or French) and the other students were non-language majors. The experimental task consisted of memorizing 10, 20, 30, 48, and 60 English words during one lesson. The experimenter read aloud the words, and they were repeated in chorus by the subjects and copied in their own word lists from cards provided to them. The word list was read aloud a second time, and the subjects rehearsed the words on their own.

The learning stage was followed by three control tasks: (1) In the recognition task the subjects were given the studied words which were mixed up with new words (first 10 studied words plus 10 new words, then 20 studied words and 20 new words, etc). The subjects marked those words on the list that were familiar to them. (2) Russian sentences with embedded target English words were translated into Russian. The meanings of the embedded English words were such that they had not been taught to the subjects. (3) In a recall task the subjects were required to give English translation equivalents to Russian words. Tasks 1 and 3 were repeated after 6 days. The students' capacity for work was also tested by means of the Burdon tables test.

The results indicated that the language majors learned about 55 new words during a lesson, while the non-language majors learned and retained about 35 words. The capacity for vocabulary word did not decrease among language majors in this range of 10 to 60 words, whereas among non-language majors the capacity was clearly deteriorated, if the number of words to be learned during one lesson was around 49 words.

3.4. Zelevskaja (1967) studied how students perceive new foreign language words with different informational loads. Students' span of immediate memory for words with different informational loads was used as an index of perception of new foreign words. Zalevskaja classified English words into five

groups on the basis of consideration of their structural composition and the presence of elements known to students at a given stage of learning. For the purpose of a quantitative representation of the degree of difficulty of words, the informational load of each word was expressed as the sum of the informational loads of word components and of their combination, and calculated in conditional units of information.

Word lists were constructed with 10 words belonging to the same group of informational load. Three experiments were carried out with 10 subjects in each participating group (3 good, 4 average, and 3 weak students). One group from grade 8 and one from grade 9 (total = 20) took part in the first experiment. One group from grade 9 took part in the second experiment, and 5 groups from grades 5, 6 and 7 each in the third experiment. Zalevskaja reports the results for grade 7 in detail (N = 50). They are summarized in Table 3.

Table 3

Percentage of immediate recall of English word meanings with different degrees of informational loads (Source: Zalevskaja, 1967, Table 2)

List	Total Information Load	Percentage of Immediate Recall in Experimental Group					Means	Variance
		1	2	3	4	5		
1	2	82.0	95.5	94.0	88.8	86.0	89.3	5.4
2	4	83.0	80.0	92.0	88.0	93.0	87.2	5.8
3	6	74.0	82.0	87.0	75.0	94.0	82.4	8.9
4	8	60.0	76.0	92.0	81.0	55.0	74.8	15.2
5	10	51.5	50.5	78.0	63.5	71.5	63.0	17.2

The figures in Table 3 indicate a clear decline in the percentage of immediate recall for new English words in relation to increased informational load. The differences were statistically significant at the level of $p < 0.01$. Thus the hypothesis was confirmed that the degree of difficulty of new vocabulary material for students is determined to a significant extent by their previous knowledge and must be defined with reference to known word elements. Zalevskaja concluded that it is on the basis of known elements that the logical processing of material takes place and increase in known elements leads to reduction in informational load and to an increase in memory span. An order effect was also observed in that students remembered better the words at the beginning and end of word lists than those that occurred in the middle of the lists. It was also found that when two lists belonging to the same informational load category were presented, students understood faster the words in the list where words were thematically related than the words in the other list where they were not semantically related. However, the results were reversed when meanings had to be related to English words.

Vocabulary Growth

4. There have been a few studies of vocabulary growth in written compositions.

4.1. Mistratova (1979) reports on studies on students' vocabulary growth in mother tongue, which were carried out in several parts of the Soviet Union in 1965 - 1977. The results are based on free compositions on narrative, descriptive and reflective writing assignments. It was found that there is clear growth in writing vocabulary from grade to grade. Each age group also has distinct and stable characteristics of vocabulary growth.

Writing vocabulary grows unevenly from grade 4 to 10. The mean for grade 4 is 96 words and that for grade 10, 353 words. There are two clear jumps in vocabulary growth from grade 6

to 7 the growth is 93 words and from grade 9 to 10, 77 words. Such growth is three times larger than during the previous grades.

There is also qualitative growth in writing vocabulary. Language increases in complexity and improves in correctness. Limited vocabulary in compositions is related with restricted content treatment in compositions.

Although there are individual differences in the size of writing vocabulary, this clearly remains within certain limits within each age group.

The indicator of vocabulary growth is partly dependent on the type of composition. The highest growth in writing vocabulary can be seen in narrative compositions and the smallest in reflective essays. Students do learn to master the essay style gradually, and the indicator of vocabulary size in essays grows in higher grades.

4.2. Denisova (1972), in an introduction to a symposium on minimum vocabularies in Russian, states that teaching Russian in the initial stage covers some 1,000 — 1,500 words and takes about 300 or 400 hours (9 — 10 words per lesson). A subsequent stage, which covers some 3,000 — 4,000 words takes an additional 500 to 600 hours (20 — 25 words a lesson).

Malir (1972) reports on a study which analyzed the vocabulary of 600 letters by Russian school children (aged 11-14) to their Czech pen friends. This amounted to a total of 68,070 words, which contained 2,734 different words. Of these 1,506 occurred only once or twice (2.9% out of total number of words). Words that occurred at least 9 times were distributed in different word classes as shown in Table 4.

Table 4

Distribution of the most frequent words in Russian school children's letters broken down by word class (Source: Malir, 1972, Table 2)

Word Class	Different Words		Total Number of Words	
Nouns	239	(34.6%)	13.910	(21.9%)
Adjectives	84	(12.2%)	3.755	(5.9%)
Pronouns	33	(4.8%)	13.877	(21.8%)
Numerals	37	(5.3%)	1.671	(2.6%)
Verbs	173	(25.0%)	10.785	(17.0%)
Adverbs	67	(9.7%)	4.796	(7.6%)
Particles	21	(3.0%)	1.591	(2.5%)
Prepositions	20	(3.0%)	7.937	(12.5%)
Conjunctions	12	(1.7%)	3.762	(5.9%)
Interjections	5	(0.7%)	1.431	(2.3%)

5.1. A few generalizations emerge from the studies reviewed. It is possible for children in the early grades in school to learn to master some basic methods of linguistic analysis. Similarly the teaching of word formation skills resulted in enlarged vocabulary. It was shown that students' ability to memorize and recall foreign words is determined to a significant degree by their previous knowledge and related to their knowledge of word elements. Increase in known word elements leads to a reduction in information processing load and to an increase in memory span. Finally, it was demonstrated that there is clear quantitative and qualitative vocabulary growth in students' written compositions with more years in school.

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