

A Model of Second Language Learning by Means of Developing the Prognostic Component of Thinking

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Abstract: The study discusses the development of students' prognostic component of thinking in foreign language learning and the issue of bilingualism and multilingualism in multicultural education. The researcher suggests a model of foreign language learning based on the development of prognostic abilities by identifying its structural and processional characteristics. The model can be used in university education to improve the effectiveness of learning. According to the analysis of speech and thinking activities conducted in bilingual environment, successful foreign language learning of undergraduates depends on the level of the development of their thinking prognostic component. A comparison of prognostic abilities in students with different levels of foreign language skills demonstrates that errors of probabilistic prognosis in speech are manifested in the course of constructing speech utterances and may cause inadequacy of a communicative situation. A high level of communicative anticipation development involves the ability to understand and evaluate the behavior of other people, predict their utterances and be ready to respond multi-variably, choosing the most productive way of interaction. A comparative analysis shows that successful second language learning requires a high level of prognostic abilities.

Key words: Speech and thinking activity, bilingualism, prognostic component of thinking, multicultural education, probabilistic

INTRODUCTION

The current conditions of social development and education reform set new requirements for the 21st century education. Axiological features of personality and one's spiritual world come to the fore.

Recently, the number of schools and classes with profound learning of foreign languages has considerably increased along with the social demand for multi-lingual specialists who are able to run business and establish professional contacts in a multilingual environment to be effective participants in intercultural communication.

Setting new goals in the sphere of teacher and humanitarian education means enhancing practice-oriented character of bilingualism and multilingualism. In recent years, psychologists and psycholinguists note the enhancement of interference and transposition in language learning. Both the target and mother tongue influence each other. Under artificial conditions the mother tongue dominates in foreign language learning while under natural conditions, it is a foreign language that dominates. In this regard, we will consider the phenomenon of bilingualism. In modern psycholinguistics, a particular area of knowledge called the theory of bilingualism is distinguished. This theory has direct relevance to learning a second language (Bialystock, 2001; Maldonado, 1994).

Many researchers consider bilingualism to be the most wide-spread type of multilingualism which as they believe, either is a closely related or unrelated type. Given the conditions of Tatarstan, it is appropriate to speak about the development of bilingualism (the Russian language and the language of the national republic, i.e., Tatar) or of multilingualism (Russian, Tatar and a foreign language). A process of integration of languages and cultures is in progress. The concepts of bilingualism and multilingualism are defined as similar concepts and imply the use of multiple languages within a specific community (especially a state), the use of multiple languages by an individual or a group of people, each of which is selected in accordance with a specific communicative situation. In a new language situation, the issues of bilingualism and multilingualism are seen as a social need. Thus, multilingualism is fraught with problems of linguistic interference on the part of three and more languages (Gabdulhakov, 1999; Shishova, 2014).

However, mastering a second language necessitates the development of complex skills and abilities which in turn causes significant difficulties for the majority of learners. Experts note the lack of rigorous scientific psychological basis of second language acquisition as well as insufficient consideration of learners' psychological features (Belyaev, 2005; Tylets, 2009).

MATERIALS AND METHODS

Changes in the nature of learning mean changes in the basic approach to this process as a whole and to the way each subject, a foreign language in particular, is taught.

Currently, insufficient research is being conducted on the main psychological factors contributing to students' success in second language learning (Sparks *et al.*, 1998). The study of anticipation features, probabilistic prognosis as a key factor of success is one of the important issues in psychology of second language acquisition as this aspect of study is connected with speech-thinking activities and mechanisms of speaking. The mechanism of probabilistic prognosis (anticipatory reflection) increases the opportunities for proactive behaviors in speech as it is one of the analytic-synthetic mechanisms responsible for the verbal area, proactivity, prediction, accuracy, rate of speech actions and ability to estimate the linguistic probability of words and sentences for an individual to expect in interaction (Akhmetzyanova, 2014; Solobutina, 2014).

Mental reflection along with the properties of activity, agility, accuracy has the properties of proactivity in other words, mental reflection is anticipatory reflection. Anticipatory reflection exists in various forms: foreboding, foresight, prediction, divining, forecasting. The most general concept covering all forms of anticipatory reflection manifestation is the notion of "anticipation" (Lomov and Surkov, 1980).

In human activity, it is impossible to find a situation in which anticipation would not play a significant role. Being a psychological phenomenon, anticipation in its various forms has universal significance for all aspects of human activity. Its versatility is due to the fact that one of the most typical things for people is not only their reflection of the present not only the preservation of the past but their active mastering of the future prospects.

Already at the beginning of any activity the person has a mental model of certain expected results. According Regush (2003), the success of different human activities is associated with the manifestation of predictive abilities or requires them (Regush, 2003). To substantiate this statement the researcher reminds that prognostics has been recognized as an independent science that the presence of physiological preconditions act as makings of one's ability to predict.

Prediction in speech has become a special object of study in a series of experiments conducted by Granik and Bondarenko. As a result of these investigations it was found that anticipation is included in the cognitive processes at different levels. Owing to anticipation, presetting, alteration of movements, actions, thoughts, or their forestalling can be observed (Lomov and Surkov, 1980).

Learning foreign languages is directly related to speech and thinking activities and mechanism of speaking. Zhinkin (1998) examined the mechanism of speaking, which is characterized by a two-link structure and complementarity (interchangeability) of all speech mechanisms. Also, Zhinkin (1998) defined basic mechanisms of the speech act implementation: mechanisms of comprehension, memory and preemptive synthesis (anticipatory reflection).

The researches of Leontiev (2014) study in detail the mechanisms of speech and thinking activity (mechanisms of speech production), the mechanisms of interchange of words, word choice, etc. from the point of view of their structure and function.

Zimnyaya (2001) identified a number of general and specific functional mechanisms correlated with the three phases of speech activities: motivational-incentive, orienting-investigative and executive. In the first phase of speech activity, a starting mechanism of motivation is considered. The next two phases coincide with the activity of anticipatory reflection, comprehension, short-term memory and permanent memory as well as specific speech mechanisms of internal processing of utterances (operations of selection, comparison, compilation, combining, structuring, etc.) (Zimnyaya, 2001).

Accordingly, the development of prognostic abilities in students learning a second language has aroused scientific and practical interest.

RESULTS AND DISCUSSION

Positive changes in foreign language learning are associated with the development of sense perception, memory, thinking (Carrol, 1990) and prediction as the effectiveness of second language learning depends primarily on the features of the thought process and basic mechanisms for the implementation of the speech act which according to Zhinkin (1998) are the mechanisms of comprehension, memory and anticipatory reflection. According to the well-known concept of probabilistic text ordering, speech experience of native speakers is characterized by certain subjective perceptions of probable hierarchy of speech elements, allowing them to predict the upcoming speech situation and build their speech activity in accordance with this prediction (Linsker, 1990).

Consequently, we need to elaborate a model of foreign language learning, based on the development of students' thinking prognostic component which creates more favorable conditions for second language learning in higher education. It will ensure, the success of

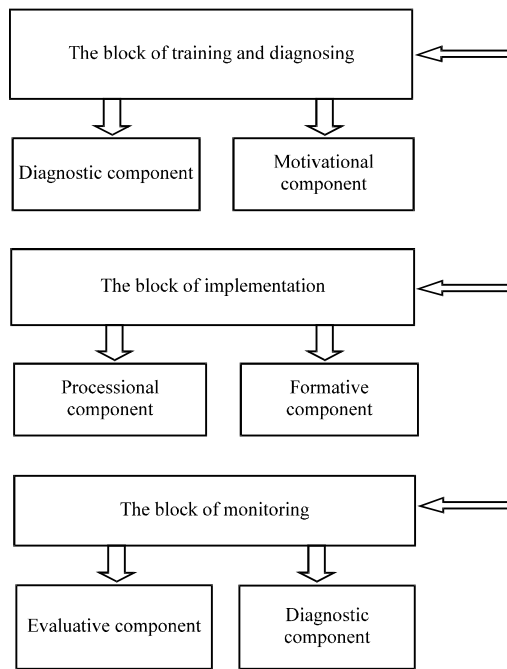


Fig. 1: The model of students' second language learning based on the development of prognostic thinking component

cognition as an integral component of thinking in general and increase the effectiveness of learning. The developed model assumes the implementation of several blocks (Fig. 1).

The first block, the block of training and diagnosing, includes diagnostic and motivational components and the development of students' awareness of the fact that the prognostic thinking component in the structure of foreign language skills is one of the success factors in mastering a foreign language. In the course of implementation of the motivational component, we form positive motivation to learning goals, students focus on success and self-development within the framework of second language learning. The diagnostic component is connected with the identification of the current level of speech activity development, prognostic abilities as well as testing the level of students' successfulness in second language learning. The second block, the block of implementation, includes processional and formative components.

The processional component implies students' activities conducted with the aim to boost prognostic thinking component by means of a program for the development of prognostic abilities at speech and thinking level. In this stage, students learn to correctly identify prognostic abilities and use them to a full extent. In this way, their acquisition of elements/fragments/subsystems gets more cognitive and specific.

The formative component develops the ability to predict at a speech and thinking level. We used the following methods in the process of professional training: a set of exercises to develop the prognostic component of thinking, training and associative techniques to develop prediction ability, game-related simulations, aimed at the development of speech activity components.

The third block, the block of monitoring is responsible for the control and self-control in students' activity: the evaluation component is students' assessment of their own performance on the above criteria; the diagnostic component is the reuse of diagnostic methods aimed at identifying the effectiveness of the work done, re-measure of the level of the prognostic thinking component development. This information is necessary for making further corrections in the model of students' second language learning based on the development of prognostic thinking component.

To test the model of foreign language learning at university level, we conducted a series of experimental verification of its effectiveness. In the stage of an ascertaining experiment, we chose Ebbinghaus Methodology and "Ability to Predict" as research methods. Initial empirical data were processed by means of the methods of statistical and correlation analyses (Regush, 2003).

The sample included 100 undergraduate students of the Institute of Psychology and Education and the Institute of Languages at Kazan (Volga region) Federal University. Based on expert opinion of language teachers and the results of 'the battery of tests' for abilities in foreign languages, LAB (language aptitude battery) created by Pimsleur (1966), we formed the samples of "successful" and "less successful" students (50 participants in each group) according to the level of their proficiency. We identify three factors that determine the success of mastering a foreign language: students' proficiency in the native language vocabulary, their skills in using verbal material analytically; motivation to learning foreign languages; auditory analysis in distinguishing sounds and sound-symbol connections.

The results of the empirical study of the prognostic thinking component demonstrate significant differences between able and less able students. According to the results of equity ratio levels of prognostic abilities in speech activity, most of the "successful" students have an average level of prognostic abilities in their verbal activity, namely 57 and 37% of students have a high level. The results of sampling of "less successful" students have the same trend for this indicator but in a much more

pronounced way: 80% of the participants have an average level and 10% have a low and high level, respectively. Basing on the data, we can conclude that the more successful students have the whole spectrum of prognostic abilities in speech activities such as guessing meaning from context, assessing the linguistic probability of word occurrence and predicting speech content. The differences in this parameter were calculated by student t-test with a high level of reliability ($p = 0.01$).

Summing up the results of a technique aimed at studying the quality and prognostic component of thinking, it can be concluded that individual psychological qualities of thinking in experimental groups differ in depth, analyticity, flexibility and forward-thinking which is reflected in the features of speech activity.

The results of a correlation analysis led to the conclusion that success in learning a second language depends on the prognostic component of thinking. Students with a well-developed prognostic ability are more successful in all kinds of speech activities, they are able to implement presetting, restructuring of thoughts as well as forestalling.

CONCLUSION

A comparative analysis of predicting features in students with different levels of foreign language skills demonstrates that students make errors in probabilistic forecasting of speech during the construction of utterances which may account for the inadequacy of a communicative situation.

It was found that students who are successful foreign language learners have a high level of thinking flexibility in comparison with "less successful" students. They tend to predict every move of their actions to achieve accurate results and conduct a more extensive search when hypothesizing. We revealed significant differences at the level of verbal generalization and comprehension of the probabilistic nature of consequences. "Successful" students demonstrate a much higher productivity in the stage of the prediction when establishing causal connections.

It was revealed that the participants of the compared groups experienced certain difficulties-disorders of the process of meaning-formation, inadequate use of foreign language lexical units and "obsession" with the same circle of concepts. Research results reveal the way disorders of the probabilistic prognosis in speech are manifested in the construction of utterances in a second language and account for the inadequacy of a communicative situation. To successfully master a foreign

language learners require a high level of predictive abilities, manifested in the establishment of causal connections, flexibility of thinking, reconstruction and transformation of representations and in planning. Consequently, we need to study and develop the prognostic component of thinking in the implementation of psycho-pedagogical conditions for foreign language learning in university education.

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