

The Role of Cognitive Strategies in Learning a Foreign Language: The Degree of Their Application

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Abstract

This paper examines the role of cognitive strategies in learning a foreign language which has been tested on students at Tehran universities. It also analyzes the relationship between learning strategies and student independence. In other words, we try to understand whether learning strategies affect students' independent work or not. And what strategies are most used by them. All of them are necessary for a student to successfully learn a foreign language. For a more accurate result, students of a foreign language from Tehran universities were interviewed according to cognitive categories, which include the following factors: repetition, semantic relations and extracurricular practice, guessing, generalization, recording basic information, memorizing, deductive inference, classification, control. We used the self-integrated survey method, based on O'Malley's classification of cognitive strategies, in order to test our hypothesis. The hypothesis involves the application of cognitive strategies and the relationship between cognitive strategies and the independence of foreign language students. We came to the conclusion that students of a foreign language of these universities often use the strategy of recording basic information, the strategy of guessing and the strategy of semantic interrelation.

Key words: student, application, learning, foreign language, learning strategies, independent, cognitive strategies.

1. Introduction

In recent years, the theory of learning foreign languages has changed a lot. Today, the attention of specialists in teaching foreign languages is more focused on how students learn than on the content of the lessons. In other words, the world has moved from behaviorism to cognitivism. In this work, we study what strategies students of a foreign language use to understand, memorize and recall information, and what factors influence the choice of a particular strategy. We studied the relationship between the use of cognitive strategies and student independence in language learning. The research questions were which cognitive strategies affect the student's independence in learning a language and which cognitive strategies are most used among students studying a foreign language.

How is the strategy of studying, most likely a foreign language, determined? "Learning strategies are a set of behaviors, actions, or activities that learners use to make it easier to acquire, store, retrieve, and use new information. Research in the field of language learning shows that language learning strategies lead to improvement and progress for learners in various areas of the language. These strategies turn foreign language learners into independent learners who are in control of their own learning process. "According to Eliss, "Language learning strategies are general approaches, methods or specific actions used to learn a second or foreign language" (Eliss, 2001). These and similar definitions show how important it is to teach and apply strategies when learning a foreign language.

Study history

According to De Villers (1992), "Learning strategies are the art of planning and linking a set of operations to achieve a goal." (De Villers, 1992). Legendre (1993) also views learning strategies as actions that the learner uses to simplify their learning.

Cyr, P. believes that "foreign language learning strategies imply a set of behaviors, techniques, pre-programmed programs, conscious or unconscious mental activity, cognitive or applied skills and methods that a student uses to solve their problems in the process of learning a language." (Cyr, 1998).

Observing the behavior of students of a foreign language when solving their problems, Rubin compiled a list of the characteristics of a "good student of a foreign language" (Rubin, 1975). And analyzed his hands-on learning strategies.

The most theoretically substantiated and practically exhaustive classification of educational strategies is the classification of RL Oxford R. L. (1990), where it is proposed to subdivide strategies into main and auxiliary, or direct and indirect (Oxford, 1990). "A significant contribution to the development of the theory of learning strategies was made by O'Malley and Chamot (1990), from the position of which strategies are techniques for the manifestation of general cognitive processes that determine language learning. In the later work of AU Chamot (1999), the concept under consideration is interpreted as conscious thoughts and actions taken by the student to achieve the educational goal." (Timofeeva, 2011). "O'Malley, Chamot divide language learning strategies into three categories: cognitive strategies, metacognitive strategies and soci-affectives strategies" (O'Malley, 1990).

Oxford R. L. divides language learning strategies into two main categories: "direct" and "indirect" strategies. Direct strategies are directly related to language learning. These strategies include "memorization strategies", "cognitive strategies" and "compensation strategies". "Memorization strategies" are activities that facilitate the storage of information. "Cognitive strategies are actions that the student takes to make the materials understandable." Compensation strategies help the student overcome defects in their knowledge. Indirect strategies involve mediocre language teaching (Mukhametzyanova Flera et al., 2018). These strategies also include three strategies: "metacognitive strategies", "affective strategies" and "social strategies".

Metacognitive Strategies help students plan, set a goal, and regulate their learning. Social strategies lead to an increase in the student's interaction with the target language. With an effective strategy, attention is paid to the emotional state of the student in relation to the language being studied.

Cognitive Strategies

We briefly describe cognitive strategies and list their varieties as they are related to the topic of the work.

Strategies imply "mobilizing resources and balancing between different competencies" (Soviet Evropi: CEFRL Common European Framework of Reference for Languages: Study, Training, and Assessment).

According to Gagne's definition, "Cognitive strategies refer to any action or thought that a student uses during the study. The application of these strategies contributes to the systematization and retention of skills and knowledge, as well as to facilitate the use of this knowledge in the future. These strategies help students concentrate and learn better." (Gagne, 1968). In other words, cognitive strategies help us combine new information with previously received information and store it in our long-term memory.

"Cognitive strategies form the linguistic competence of students. They include reasoning, analysis and conclusions, synthesis, transformation, etc." (Oxford, 1990).

Cognitive strategies can be divided into the following categories: summarizing, referring to reference resources, recording basic information, memorizing, semantic relationship and connotation, translation and comparison, control, language practice, deductive inference, regulatory strategy, classification of materials, expansion of mental connections.

A short definition of the previously mentioned strategies will be given in the following.

Summarizing strategy involves mentally or writing summarizing rules or materials. The teacher can be a good role model for language learners. This is especially important when he summarizes his lesson objectives or expresses his expectations of the students at the end of the lesson.

The strategy of referring to reference resources involves the use of various sources, such as books, the Internet, encyclopedias, etc., in order to independently study a foreign language, without the teacher's requirement.

Strategy recording of basic information includes extracts of new words, terms and phrases that are used in the educational task. This strategy is most common among Russian language learners. When combined with the memorization strategy, it plays a very effective role in language learning.

Memorization strategy involves the use of a variety of memorization methods. The memorization process requires very complex cognitive processes, and this aspect of learning is very important when learning a foreign language. O'Malley and Chamot "consider memorization to be a separate strategy and believe that all cognitive strategies include this particular strategy" (O'Malley, 1990). For example, the use of a conscious representation of a picture, keywords and the connection of the beginning of words, repetition, classification and collection of materials, recording basic information, etc. Most of the memorization techniques that a language teacher observes in students or can teach them to students is using conscious presentation of the picture, keywords and the creation of a tree of cognate words

The strategy of semantic relationship and connotation is used when the student is faced with new words and tries to understand the meaning of the new word through another single-root word, which he already knows. This strategy is very important when learning a second language. For example, a student who first hears the word marriage will immediately remember the verb to marry. Hence, he connects the new element with what he has already learned. Learning to use this skill is important when learning a language.

"The strategy of translation and comparison is related to the native language of the student in the application of the rules learned both in the native language and in another foreign language, and has a compensatory aspect." (Oxford, 1990).

A control strategy involves monitoring what you have learned over time, for example, on the same day, after two days, after a week, after a month, etc. The goal of this strategy is to automate the skill and familiarity with words so that they are remembered more quickly and naturally.

The language practice strategy involves the creation of situations in which one can speak the target language. Repetition or mental review for the purpose of memorizing something in temporary or short-term memory, thinking in the target language and talking to oneself, loud repetition create the essence of this type. Various studies in this area show that repetition aloud and in various ways has a large impact on students' comprehension and speaking ability. This strategy is used more often among beginners than other strategies.

The deductive inference strategy uses a previously learned rule to create a new element or understand it in a foreign language. It should be clarified that sometimes the application of this strategy leads to incorrect generalization in a foreign language, for example, with the first person plural in the conjugation of the verb want, the student may incorrectly use the want. Russian language teachers often face this problem in class.

The regulatory strategy imposes a kind of organizational structure on the student to make the materials more simplified and understandable to study. "Regulation also enables teachers to better adjust to the needs of the students as well as evaluate teaching and learning strategies deeply." (Heydarnejad et al., 2021). The simplest form of regulation is placing information in certain groups for the purpose of easy assimilation and memorization. When we classify a variety of learning materials, we reduce the strain on our working memory and increase our concentration. "For more complex materials,

strategies should be used that not only help expand short-term memory, but also help students comprehend new information and transfer it to long-term memory. Regulatory strategies include, for example, drafting textbook lesson titles or converting text into a wall newspaper or outline.” (Seif, 1976).

The materials classification strategy is used to simplify and memorize materials. For example, sorting, classifying materials based on a specific set of words, such as verbs, phrases and words related to a specific topic: words related to agriculture, medicine, construction, or situational words: all the words we use when greeting.

The strategy of expanding mental connections as a paraphrase involves a descriptive transfer of the meaning of another expression or word (for example, if the word is forgotten during a conversation). This strategy is mainly used when the learner is unsure of his word and seeks to maintain communication with the audience, which sometimes leads to confusion.

“Learning strategies and learning styles require exploring three interrelated concepts: autonomy, consciousness, and function. ” (Brown, 2007). In this work, we tried to study the role of cognitive strategies on student independence. As already mentioned, attention to the individual characteristics of the learner of a foreign language, as well as to student-centered language teaching, emphasizes the importance of the position of instructional strategies in language teaching. Meanwhile, student autonomy is considered to be an integral part of cognitive strategies. So, self-reliance is the expected and logical outcome of applying strategies. Achieving independence in language learning is one of the goals of the learning process.

Independence in learning

Self-reliance means competence or the ability to master one's own learning. And competence, as defined by N. Chomsky, “denotes the ability necessary for the implementation of linguistic activity, mainly in the native language” (Krasilnikova, 2009). An independent student of a foreign language is one who knows how to learn. He can make decisions about his curriculum, manage his learning goals, learning methods and materials in a timely manner, and evaluate the materials he teaches. According to Schwartz, “independence means taking in your own learning and taking responsibility for your learning” (Schwartz, 1972). This ability is usually acquired with experience, that is, the student realizes how to eliminate his problem and tries to solve them in the course of educational activities.

Relying on the student's own characteristics and the student's use of strategies will lead to his independence in learning a foreign language. As explained above, in this study we seek to assess the impact of the use of cognitive strategies on the autonomy of Russian language students.

Theoretically, a lot of work on cognitive strategies, but they are practically poorly understood. In this work, we raised the practical connection between cognitive strategies and the independence of a foreign language learner, specifically Russian.

2. Analysis methods and tools

To obtain a practical result, a questionnaire was created, consisting of 12 questions, which were answered by 52 students of the Russian language of Tehran universities (42 girls and 10 boys) aged 18 to 22 years. To select the statistical population, we used the method of random selection of students. Students who speak English before learning Russian were selected. Since they already had experience in learning a foreign language and used at least some strategies. The questionnaire included questions about the use of cognitive strategies. Each question was answered: always, often, sometimes, rarely and never.

The questions in this questionnaire are a combination of definitions of cognitive strategies based on the classification of Cyr, P. (1998), O'Malley & Chamot (1983) (Cyr, 1998; O'Malley, 1990) and Neger's qualitative questionnaire in an article entitled "Sociological Approach to Motivation" (Neger, 2003).

When analyzing the data, firstly, the number of students' use of cognitive strategies was found out, and secondly, the relationship between the use of cognitive strategies and the independence of students studying a foreign language based on statistical conclusions was revealed.

Descriptors	values (%)
summarizing	7
referring to reference resources	6
recording basic information	23
memorizing	7
semantic relationship and connotation	14
repetition	4
control	5
language practice	4
deductive inference	1
regulatory strategy	7
classification of materials	5
guessing	17

To study the number of applications of learning strategies, the Friedman test was used.

As shown in the above diagram, the application of the strategy of writing basic information is higher than that of other strategies (23%), followed by the strategy of guessing (17%) and the strategy of semantic relationship (14%). The least application is associated with the strategy of deductive inference (1%). The number 8 was always the answer parameter and it indicates the greatest use of a certain strategy.

Thus, we can say that recording basic information is the most common strategy among Russian students in this statistical population.

In the second question, the relationship between the components of cognitive strategies and the independence of students was analyzed. Stepwise regression was used to determine a significant association between cognitive strategies and student autonomy. Regression analysis with the Inter model was used in response to the question of determining the degree of student independence and to determine the interactive effect of variable

cognitive strategies. Hence, the student's total independence score as a dependent variable and the total score of the cognitive strategy variables were placed in the regression equation to determine the correlation of each of these variables with the self-reliance number.

The Stepwise model was used to measure the impact of cognitive strategies on self-reliance. We selected the dependent variable of student independence separately for each of the 12 independent variables of cognitive strategies, i.e. each time we studied the influence of each element of the cognitive strategy on the student's independence and it turned out that the semantic relationship strategy most of all (50%) influenced the student's independence. At the second stage, there was a strategy of referring to reference books. Self-assessment was calculated from 100%. When answering, they *always* put 8 points, therefore, when answering, they *never* one. As a result, we calculated the amount of each option and expressed it as a percentage. For example, if all questions were *always* answered, the total score would be one hundred.

3. Conclusions

The results of the work showed that among the cognitive strategies of learning, Russian undergraduate students use the strategy of recording basic information the most, the strategy of guessing and the strategy of semantic relationship, and the strategy of deductive inference is used the least. Another study result showed that the degree of independence of students in the present study, according to the questionnaire, was small, and this shows that students are highly dependent on the teacher. Another result of this study was to find the relationship between cognitive strategies and the degree of independence of students. Statistical analysis showed that the strategy of the semantic relationship of words and the strategy of referring to reference books greatly affect independence. Although this strategy is very effective for the independence of foreign language learners, our students are less likely to use this strategy.

When accompanied by cognitive strategies with correct and principled teaching, students become independent and begin to control their learning process even in the absence of a teacher. In order to enhance student autonomy through cognitive strategies, the teacher can motivate the use of different cognitive strategies so that students can use these strategies more consciously. When teaching a student, the type of strategy does not have to match the desire of the teacher. Adult education especially needs to be based on self-reliance and not on the way teachers are taught. Through classroom discussions, the most effective learning strategies and styles can be identified and presented to students. In this way, students are more mindful in the learning process and can apply more effective strategies to learn better learning methods. In this type of learning, students take full responsibility for their learning process. This means that they first set goals, then consider the learning situation, commonly referred to as learning aids, and continually evaluate their learning outcomes. The purpose of this assessment is to enable students to know if they have reached a desired level or not.

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