

FaR 2021**International Forum “Freedom and responsibility in pivotal times”****FOREIGN LANGUAGE AND ITS ROLE IN OVERCOMING
DIFFERENT KINDS OF UNCERTAINTY**

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Abstract

The article examines the problem of self-regulation of students in foreign language classes as well as ways and methods of overcoming linguistic uncertainty. Linguistic uncertainty is an integral part of the concept of entropy. Situations of entropy emergence in the process of mastering a foreign language by students are described. It is argued that reliance on the communicative-cognitive approach in foreign language education most fully meets the goals and objectives developing students' communicative competence and overcoming linguistic uncertainty. In the process of training specialists the importance of skills and abilities is based on the analysis of difficulties which students encounter while learning a foreign language. In conclusion, it is stated that the developed skills and abilities help a specialist to overcome not only linguistic entropy, but also deal with upcoming difficulties, arising in professional activities. The experience of foreign language teaching in a non-linguistic university and the results of conducted research show that it is necessary to develop skills needed to deal with linguistic an informational uncertainty and it is required to design special pedagogical tools which can be used in a teaching process. The methods of observation of the pedagogical process were used and the results of the students' behavior in situations of uncertainty are given. An attempt is made to suggest pedagogical tools which enhance tolerance for uncertainty.

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Keywords: Foreign language, linguistic uncertainty, entropy, metacognitive competence, cognitive activity, professional conceptual sphere



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1. Introduction

The development of ways to overcome uncertainty has been in the focus of attention of Russian researchers in the areas of cognitive psychology and the methodology of teaching foreign languages. The problem is being viewed as closely related to such phenomena of self-regulation, self-awareness and the systems of personal meanings and values owned by educational participants (actors) (Evans, 2012; Golovanova & Pankratova, 2019; Markova & Narkaziev, 2019; Shimichev, 2020). The term “actor” used in this paper corresponds to the term “human agency”. The problem of overcoming different types of uncertainty is becoming more relevant due to the students’ need to process huge amounts of information which leads to the complication of their cognitive activities in foreign languages classes in non-linguistic universities.

The interpretation of uncertainty principle proposed by Prigogine Prigozhin and Stengers, (1986) and means that uncertainty has begun to be associated with the fact that out of a large number of opportunities for the development of the system, only one is realized. The principle of uncertainty in psychological research, as Kornilova et al. (2009) noted, is associated with the introduction into language-pedagogy of such categories as: "subjective / objective uncertainty", "tolerance / intolerance", "overcoming uncertainty" (Evans, 2012; Hastie & Dawes, 2010; Kornilova et al., 2009).

Zinchenko (2007) proposes to consider the principle of uncertainty along with other classical problems of psychology. The author insists on a certain tolerance for uncertainty in activities. In modern psychological research, the issue is usually raised in connection with overcoming uncertainty by the actor. Self-regulation is seen as an integrative characteristic in overcoming uncertainty by the actor. Uncertainty, in its turn, becomes a condition for the actor’s self-realization. Self-realization serves as a basis which helps to completely reveal the personality potential of the individual (Kornilova et al., 2009).

2. Problem Statement

The problem of tolerance for uncertainty is important for all the actors involved in the educational process. This is also significant for the development of communicative competence within the framework of teaching a foreign language in a non-linguistic university. Development and enhancement of communicative competence are primarily realized in language classes. It implies the ability to communicate in the presence of uncertainty. Consequently, the teacher as an actor is required to possess a set of certain skills and abilities (Shimichev, 2020).

It is widely accepted in the Russian pedagogical community that a foreign language is a general educational discipline in non-linguistic universities. It has a significant impact on the cognitive base of a student, the formation of students’ intellectual capabilities and conceptual sphere. The discipline is also able to provide great potential to develop the resourcefulness of students, the ability to process the information creatively and analytically and innovate in their professional activity (Zimnjaja, 1978).

3. Research Questions

The current research attempts to answer the following questions:

- First, what is the role of entropy in the acquisition of a foreign language in a language class in a non-linguistic university?
- Secondly, what can cause uncertainty in the process of mastering a foreign language?
- Thirdly, what are ways and methods to overcome linguistic uncertainty?

4. Purpose of the Study

The purpose of the research is to identify, select and systematize the methods and techniques of overcoming linguistic entropy in the process of teaching a foreign language to students in non-linguistic universities.

5. Research Methods

To solve the problem of overcoming different types of uncertainty in a foreign language class, we used a set of complementary and mutually verifying research methods, namely:

- scientometric analysis of psychological, pedagogical and methodological works on the problems of the research;
- the method of pedagogical modeling in the selection of ways and means of overcoming uncertainty in the process of learning a foreign language;
- analysis of educational programs and standards, educational and methodological documentation and educational information regulating the processes of foreign language education;
- observation of the pedagogical process;
- diagnostic (survey, questioning, interviewing, conducting various types of cross-section, etc.).

6. Findings

The term "entropy" has been accepted in psychological research to denote uncertainty. It is assumed that in conditions of uncertainty, a person has to urgently turn to the "mechanism of orientation in unknown conditions" (Galperin, 1957, 2000, p. 76). It is no coincidence that Galperin (2000) raises the issue of "psychological orientation" in human activities (speech, educational, intellectual, production). A psychological orientation as a mechanism of human activity makes possible not only to cope with the situation of uncertainty, but also to make proper decisions. Being able to find an efficient way to cope with the situation of uncertainty may therefore be viewed as a special type of human intellectual experience, a special way of acquiring new knowledge. It is extremely important for time sensitive human activity, especially for a person involved in business processes, production and manufacturing. Overcoming different types of uncertainty involves the ability to replenish ones professional knowledge in real time with relevant innovative knowledge. The knowledge can be inferred by a specialist and immediately included in the informational and professional thesaurus.

Let us clarify how we use the concept "entropy" in the article. At the same time, we will answer the question, what it has to do with mastering a foreign language by students of non-linguistic universities.

In information theory, entropy is interpreted as a measure of uncertainty of a certain system, as a certain amount of educational information that is still unknown, which the student must learn in foreign language classes (Vencel', 1969; Zaripov, 2005; Zimnjaja, 1978).

To organize the process of a foreign language teaching, it is important to take into consideration the psychological conditions necessary to go beyond a given situation and to take actions to reduce the level of linguistic anxiety and uncertainty.

The practice of teaching foreign languages at a higher educational institution shows that students' knowledge of the lexical, grammatical, terminological systems of a target language is not properly organized and structured. Students are not able to orient themselves in the terminological system quickly enough. As non-linguistic universities can allocate only a limited amount of academic hours to teaching a foreign language, it does not imply a deep and thorough study of all lexical and grammatical phenomena, their systemic features and its subsystems, especially terminological ones. It causes the situations of entropy in professional communication and analyzing the foreign sources of information.

It should be noted that students' knowledge in professional area is fragmentary even in the third or fourth academic year. Thus, the situation in which a non-linguistic university student is supposed to master a foreign language can be termed as the situation of uncertainty.

The most common situation of uncertainty which can be observed in a foreign language class is caused by insufficient knowledge of grammar and vocabulary. Situations of uncertainty can be also caused by the following: 1) excessive amount of information about the social and cultural characteristics of professional and business communication with representatives of the global professional community; 2) the rapid process of obsolescence of professionally significant information.

The theoretical background in professionally oriented teaching a foreign language can be seen in the cognitive-communicative approach and designing informational foundation of the professional activity.

Mastering a foreign language at the level required by of the Federal State Educational Standard of Higher Education and the Model Program suggests the ability to use a foreign language as a means of verbal communication, as a means of professional communication, as a means of acquiring professionally significant knowledge in special subjects for the purposes of professional purposes (Bojko, 2020). A foreign language as a discipline contributes to the development of the specialists' conceptual sphere.

Thus, a student as an actor is faced with two groups of difficulties: the misunderstanding which arise due to linguistic uncertainty and difficulties caused by problems with navigating the enormous flow of professionally relevant information (Markova & Narkaziev, 2019). It testifies to the fact that the situations of entropy arise constantly (Zinchenko, 2007; Zubarev & Morozov, 1998). In this respect, it is important to teach students in foreign language classes to correctly navigate the flows of professionally significant information, to filter out secondary and less important information, to constantly overcome the uncertainty or at least to lower the level of informational ambiguity. The language teacher's role is to facilitate the process of overcoming ambiguity using various ways of eliminating it.

In order to be able to eliminate entropy students are supposed to possess a set of pragmatic skills which might be learnt in foreign languages classes. A certain type of cognitive dissonance is inevitably felt at any type of a foreign language class connected with acquiring new professional knowledge from different sources of information (Zimnjaja, 1978). It is necessary to teach students to bridge or eliminate cognitive

dissonance and choose alternative interpretation, use techniques of rephrasing in order to succeed in communication.

In a foreign language class, conditions are created for the transfer of information processing skills and abilities formed by means of a foreign language to situations of professional activities. Furthermore, the set of skills developed at foreign language classes may be used to deal with uncertainty in professionally relevant situations. There is no doubt that the linguistic competence of students plays a major part in overcoming linguistic ambiguity (Bozhovich, 2016).

With regard to the educational process in non-linguistic universities, it signifies that the actor is ready to overcome a lack of guidelines and go beyond the requirements given in a particular situation. In this case it is logical to assume that a university graduate has matured to show a willingness to overcome various types of linguistic uncertainty, as well as any uncertainties in the professional activity. The actor is ready to assess personal, cognitive resources and the prospective contribution to the solution of engineering and production problems. This is a desirable outcome of the educational process and it undoubtedly requires a lot of pedagogical effort.

The methods of observation of the pedagogical process, diagnostic (survey, questionnaires) were used in 2015- 2021 in Nizhny Novgorod State Technical University (Russia) in order to investigate the behaviour the student measuring in IT technologies in situations of uncertainty while communicating in the English language. The fourth- and fifth-year students took part in the survey. The total number of participants was 600. The results are given below in table 1 (Golovanova & Pankratova, 2019; Lazarevich, 2021).

Table 1. The results of the questionnaire

Questions	Percentage of positive answers	Percentage of negative answers
1. Would you continue communicating with the person if you had a lack of words?	35	65
2. Would you prefer communicating in writing to oral communication if you had a choice?	89	11
3. Would you feel confident and continue the communication if your partner argued with?	45	55
4. Would you feel confident making a public speech?	13	87
5. Would you speak confidently in new environment?	70	30
6. Would you meet the challenge of communicating with members of professional community?	27	83

As the research shows a significant percentage of students (55 %) do not possess skills necessary to face the situation of uncertainty. Thus, ambiguity decreases their cognitive flexibility and adaptive potential. That is why a number of graduates are able to solve technical and professional problems, only through long deliberations and agreements with their superiors. Although such problems could be

potentially solved with the use of knowledge and skills acquired in specialized subjects and partially in foreign language classes.

Students majoring in different engineering areas need to solve loads of various problems. Each problem contains a certain degree of uncertainty. The skills of dealing with uncertainty which students acquire in a foreign language class create the basis of the problem-solving skills. The latter might be applied to solving a range of problems in situations of ambiguity.

Students are trained to deal with uncertainty in a specially created academic environment.

Nevertheless, while at college, most students try to avoid making independent decisions, striving to remain in the zone of social and emotional comfort. On the whole it contradicts the main tendencies of higher educational development such as diversification, academic mobility, contextual learning.

The resolution of the emerging contradiction could be achieved on the basis of the formation of certain types of metacognitive competencies of students in foreign language classes as the basis of self-regulation. Students should be thought to analyze their own communication experience and experience of the group mates; they need to be thought their weaknesses as communicators. It will help students plan the strategy of developing their skills.

The authors of the article advocate the idea that metacognitive and metaregulatory processes serve as the bases for self-assessment, self-regulation of the actor. The same processes are essential in the professional activity of an engineer dealing with sophisticated problems. A vivid example of dealing with sophisticated problems under the conditions of uncertainty could be the work of a specialist (a chief engineer or a project leader) who needs to resolve the issue with the deadline not having important information about the availability of certain equipment in the warehouse. However, those problems have been resolved in most developed countries.

The authors believe that above given considerations testify to the fact that the ability to deal with uncertainty as well as critical thinking, creativity, cognitive flexibility and emotional intelligence has become a competence which every specialist must possess (Markova & Narkaziev, 2019).

Original engineering solutions always arise in complicated production circumstances, when specialists who have profound deep professional demonstrate the ability to produce new knowledge. That is why the development of all metacognitive processes of students should be in the focus of attention in training students of non-linguistic universities. Exploring and conceiving the world, including research of business processes) is based “on the complex perception, observation, categorization, communication and cognition” (Shamov & Kim, 2020, p. 120).

The experience of teaching a foreign language in a non-linguistic university and the results of conducted research show that: 1) it is necessary to develop skills needed to deal with linguistic an informational uncertainty; 2) it is required to design special pedagogical tools which can be used in a teaching process.

The development of metacognitive and metaregulatory processes in students can be carried out in the course of performing specific tasks in a foreign language class. An example of pedagogical tools used for this purpose can be “Discussion Evaluation Form (DVE)” (table 2).

The DEV is aimed at triggering the process of reflection in students on the way other people communicate and achieve their aims and on the way each student communicate. After the discussion the students negotiate the weak points and think of areas to be improved next time.

Table 2. Discussion Evaluation Form (DVE)

Criteria	0	1	2	3	Comments/Improvement Steps/ Mistakes Analysis
	NO	YES			
1. The purpose of the discussion is set and is clear to all the participants.					
2. The leader or the facilitator of the discussion is appointed.					
3. Active vocabulary is used by all the participants.					
4. Everybody participates in the discussion. There were no dominators on the discussion.					
5. The discussion is focused, the participants managed to stick to the point. No irrelevant discussion.					
6. The participants gave facts, quotations, evidence from the text to support their arguments.					
7. The participants gave examples, referred to analogous cases and their experience to support their arguments.					
8. The problem was attacked from different points of view.					
9. The participants managed to find contradictions and weak points in opponents' arguments.					
10. All the ideas of the discussion were summarized and the decisions made in the course of the discussion are stated.					
11. The aim of the discussion is achieved.					
TOTAL SCORE					

7. Conclusion

In conclusion the development of skills needed to deal with uncertainty is an essential part of the pedagogical process in a foreign language class. It is important to teach students to implement their willingness to take risks in the face of subjective uncertainty in their academic and further on professional environment and be ready to transfer the skills to their professional activities. A teacher who is planning to develop such group of skills needs to apply a lot of efforts and use some special pedagogical tools.

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