

Tolerance of Ambiguity and the Linguistic Intervention Program

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Abstract

The study examines the process of foreign language learning. The aim was to investigate dynamics and stability of the variable *tolerance of ambiguity* in the process of learning a foreign language through the means of specifically designed linguistic intervention program. The investigation aimed to find out the impact of the intervention called The Linguistic Intervention Program in the process of foreign language learning and tolerance of ambiguity in the foreign language performance. Moreover, the purpose was to investigate long-lasting changes in the selected periods, after one year. The focus was put on the ability to create a cognitive structure, especially the ability to achieve cognitive structuration. The linguistic intervention program represented a method of active social learning, and autonomous learning.

The approaches we used were the following: relaxation, cooperative techniques, communication techniques, and the techniques aimed at social perception and intercultural communication in a foreign language. The linguistic intervention program was based on the natural approach of foreign language acquisition. The research method called the scale of the ability to achieve cognitive structure AACS was used on the sample of 256 college students enrolled for the foreign languages teaching programs. The results showed unique findings in the process of dynamics and stability of the examined variable, tolerance of ambiguity through the means of the linguistic intervention. They showed statistically significant higher score in AACS and statistically significant score in long-lasting changes in time. AACS appeared to be a stabile characteristic in the foreign language learning.

Keywords: tolerance of ambiguity, linguistic intervention program, foreign language learning

1. Introduction

Intervention represents an essential frame of education in the process of foreign language learning because the process itself suggests its complexity, and a wide spectrum of other processes encompassing human individuality. It is impossible to find identical human individuals exercising identical foreign language performance. Language represents a continuous human creativity, original and not replicable image of human cognition. As will be defined, tolerance of ambiguity is an ability of optimal risk-taking and an ability of flexible response to ambiguous social situations. Design of a foreign language sentence structure and its differentiation demonstrate ambiguous situations. The differentiation may burden learners without a communicative level of foreign language knowledge. They are not able to produce the desired language. Ehrman and Oxford (1995) examined tolerance of ambiguity in relation to foreign language education. Their findings directed to the fact that those learners who demonstrated higher level of tolerance of ambiguity were able to take risks in foreign language production, compared to those who demonstrated low levels of such tolerance. The ability to take risks is one of the essential factors facilitating the development of foreign language communicative competences.

Thus, research in the field of tolerance of ambiguity (Liu, 2012; Clarke, 2012; Stranovská et al., 2013; Sarmány-Schuller, 2014; Liu-Lu, Liu, 2016; Švecová, Pavlovičová, 2016; and others) represents a wide field of investigation, induction as well as deduction. Presumably, tolerance of ambiguity is a skill necessary for all foreign language teaching programs; it enhances natural foreign language communication as well as in-service teachers' foreign language self-esteem. Yet despite the ample work on the tolerance of ambiguity intervention, there seems to be a low number of research studies aimed at the primary and the secondary education (Švarbová, 2012; Lalinská, 2013a; Stranovská et al., 2013; Gadušová, Hašková, 2015; and other). Evidently, two suitable models reflecting modern needs of leading approaches in foreign language education: the model of transdisciplinary thinking (Root-Bernstein, 2003; Henriksen, Mishra, Fisser, 2016) and the model of creative concept of foreign language education (Clarke, 2012; Runco, 2014) have not been reflected in the conditions

of the educational system in Slovakia, yet.

One of the ways how to make the process of education attractive and effective, is the integration of such teaching methods which focus on cognitive stimulation of intrinsic motivation and develop learner's thinking flexibility, or their tolerance of ambiguity towards unaccepted phenomena, which learners come across during the lessons of foreign language every time. The research study set out to demonstrate the influence of the cognitive variable tolerance of ambiguity towards achievements in a foreign language production (Liu, 2012; Brown, 2000 and others). Furthermore, it examined the influence of the variable on the learner's syntactic skill development: sentence structure production development, and overall sentence comprehension in a foreign language (Stranovská et al, 2013).

Although contemporary research emphasizes coherence between the selected cognitive variable and foreign language performance, it does not investigate the extent of the variables considered, learner's mental characteristics, a subjective experiencing and its impact on the process of foreign language learning. Neither the research studies investigate the level of dynamics or stability in the process of learning a foreign language. Although learning a foreign language is a profound process encompassing both, the linguistic and the personal factors, tolerance of ambiguity seems to have an impact on the perception and the production.

The aim of the research study was to examine the effects of the intervention (LIP) on the tolerance of ambiguity. Furthermore, it was to examine the ability to achieve cognitive structures and its dynamics in the process of foreign language learning through the means of LIP, and the level of stability of changes in time (one year after the intervention program). The results demonstrated stability/dynamics and increase/decrease of the variable through the means of LIP.

1.1 Tolerance of Ambiguity

Every foreign language learner works with an abstract structure, relates to a language and its structures, and tries to analyze, deduce, and synthesize specific set of information. Learners gradually build their identities in foreign language and its culture, they either recognize the language as unknown, and foreign or relate to it closely, depending on the extent of recognition. Apparently, ambiguity plays one of the essential roles in the process. Tolerance of ambiguity refers to the way a learner processes information about uncertain stimuli and situations generally considered uncertain when a set of uncertain, complex or incongruent information is confronted (Stranovská et al, 2013).

As the following studies presented, tolerance of ambiguity represents one of the learning styles, the ability to tolerate uncertainty and achieve cognitive structures. It corresponds with the ability to work with new stimuli without frustration. It is closely related to creativity. Bar-Tal (1994), Bar-Tal and Spitzer (1999) present cognitive structuration as a process assisting in achieving certainty by filtering unnecessary sets of information, assuming assimilation of information in the cognitive structure and thus, utilize it in a context. When the general system of cognitive structuration of an individual is simple and rigid, then they continually use the same constructs and make the same errors.

Contemporary research has demonstrated how the high level of cognitive structuration corresponded with the high level of communication skills and with the process of coping with stressful and demanding situations (Výrost, Ruisel, 2000, Bar-Tal and Guinote, 2002). Liu (2012) and Liu-Lu, Liu (2016) considered the factor of risk-taking in the process of learning a foreign language as one of the essential in the context of tolerance of ambiguity. They found out a significant influence of the factor of risk-taking on the performance of the university students in EFL. The students, who took risks more often, began conversations more often, thus, communicated in the target language often. The essential concept of the risk-taking factor encompasses both, the ability to mentally detach from the fixed phrases or the expressive means and experiment with the unknown structures, and enhance linguistic creativity instead. This appeared to be the main motivation to conduct our research on tolerance of ambiguity through the means of the linguistic intervention program.

1.2 The Linguistic Intervention Program

Although there is a wide range of intervention programs utilized in education, there is no program specifically designed for the linguistic purposes. The linguistic intervention program (LIP) was developed to demonstrate a possible positive impact on the learners learning a foreign language. To certain extent it is a modification of foreign language instruction methods, including a variety of theoretical approaches, strategies, and procedures (project learning, student-oriented teaching, active social learning, self-regulating learning, interactive and co-operative learning), to achieve the highest possible comprehension of foreign language expressions, and to achieve cultural authenticity called natural communication in foreign language. LIP is a post-communicative eclectic method encompassing the following variables: language ability, linguistic and intercultural sensitivity, and tolerance of ambiguity in foreign language learning (the need for structure), self-esteem, certainty in foreign language performance, and a set of strategies in foreign language learning. Optimisation was represented in the program as a reinforcement and development of the selected variables. The common aim of the linguistic intervention program for the learners was to acquire comprehension of expressions, and cultural authenticity in a foreign language. The intervention referred to an intentional involvement of a method or a

technique on a learner leading into an interruption, a change, an adjustment or a reinforcement of an on-going process. The adjustment was represented by optimisation, support, reinforcement, modification of the ways the learners learn, how they identify and how they evaluate themselves and what different kinds of strategies they use and prefer. LIP utilized active social learning and self-regulated learning. The essential concepts related to such activities that lead to new forms of behavior, experience, evaluation, and emotions.

As to the procedure of the program, learners openly communicated in a circle without any support (a latent intervention of security). It was divided into three basic phases: warm-up included the basic orientation of the group members in the newly designed situations, they also tried to achieve certainty; the production phase included the solution of the thematic tasks, acquisition of new knowledge; the cognitive information phase connected to the experiential phase. Finally, a calm-down phase included evaluating of the whole lesson, summarizing emotionally saturated themes and transferring of achieved information or experience. As Popelková (2003) stated the last phase, a mentally relaxed concept, was an important part for the reflection.

2. Research Question, Materials, and Methods

In the following part of the research study the investigation of the variables is presented. The study was based on the theories and research studies of Sarmány-Schuller and Jurčová (Jurčová, Sarmány-Schuller, 1993 and others). They assume there is a relation of innovations, and willingness to take risks in social situations. In order to cope with ambiguity and uncertainty in social situations it is required to over-cross habits of stereotypes, and accept changes in behavior, convictions, and attitudes. The main assumptions supported the idea of modification brought by the LIP.

The research question we raised was the following: *Is tolerance of ambiguity a dynamic or a stable personal characteristic?* Based on the research question the presumption was formulated whether the selected variable as defined within the frame of the linguistic intervention program increased, and the stability of the presumed changes in language learning and a positive linguistic identification with the foreign language occurred.

2.1 Participants

The sample included 256 students of the Constantine the Philosopher University in Nitra, Slovakia. An average age of the sample was 21, 5 years (2nd – 4th graders). 3 experimental and 3 control groups, ES I experimental group I (students of teaching programs majoring a foreign language at the Faculty of Education), ES II experimental group II (students of teaching programs majoring a foreign language at the Faculty of Arts), ES III experimental group III (students of teaching programs majoring a foreign language at the Faculty of Natural Sciences), and 3 similar control groups KS I, KS II, KS III were designed for the purpose.

The average length of the exposure to the language was 9 years and the level of proficiency was B1, B2 (according to Common European Frame of Reference). The research was conducted through the years 2013/2014, 2014/2015, 2015/2016.

2.2 Instruments

The tool of the Scale of the Ability to Achieve Cognitive Structure (AACS) by Yoram Bar-Tal (1994) (the Slovak translation and adaptation done by Ivan Sarmány-Schuller) was used to measure the obtained data. It contained 24 components. The scale of the tool consisted of 6 items. The components represented the way the participants responded to the issue of cognitive structures. For instance, a response expressed with an ease “Usually I don’t have enough of ideas after making a decision up,” a response expressed with difficulties “Although the decision making process is demanding for me I cannot decide easily and free myself from the difficulties”, a response expressed with ease gradually “Usually I check if the work I am doing is thoroughly planned and well organized”, an difficulties expressed gradually “Even if I make a list of tasks I need to accomplish, it is difficult for me to do as planned.”

2.3 Procedure

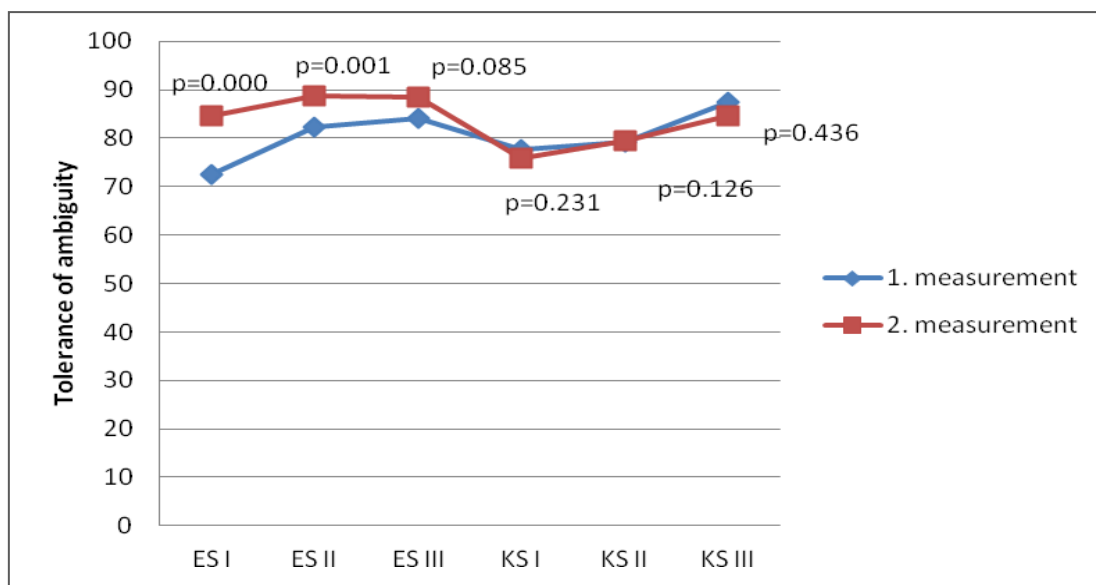
Specifically designed procedure for the purpose of the research study was the following: LIP development, selection of experimental and control groups, conducting of the LIP research, pre-measurement and post-measurement, statistic processing of outcome data, outcome data analyses and conclusions. A formal structure of each individual lesson that students were exposed to, all together 12 lessons, within the LIP was as follows (detailed design of the lesson plans available by agreement):

0. Introduction of the program, work with expectations and anxieties, first measuring.
1. Self-perception, foreign language and identity.
2. Self-perception, self-esteem, foreign language and identity.
3. Self-perception, self-esteem, foreign language and identity.

4. Non-verbal communication, intercultural Communication.
5. Non-verbal communication, intercultural Communication.
6. Verbal communication, intercultural communication, speech acts.
7. Verbal communication, intercultural communication, speech acts.
8. Solving of everyday and conflict situations, speech acts.
9. Solving of everyday and conflict situations, speech acts specific language development.
10. Solving of everyday and conflict situations, speech acts, specific language development.
11. Feed-back, second measuring.

One year after the LIP was applied the third measuring was carried out. After the three measurements were carried out, statistical processing of the outcome data, data analysis, and the results interpretation followed.

3. Results



Graph 1. Statistical significance of the differences in AACS displaying the first and the second measurements (Student's pair t-test)

Explanations

ES I: Experimental group I (students of teaching programs majoring a foreign language, The Faculty of Education)

ES II: Experimental group II (students of teaching programs majoring a foreign language, The Faculty of Arts)

ES III: Experimental group III (students of teaching programs majoring a foreign language, The Faculty of Natural Sciences)

KS I: Control group I (students of teaching programs majoring a foreign language, The Faculty of Education)

KS II: Control group II (students of teaching programs majoring a foreign language, The Faculty of Arts)

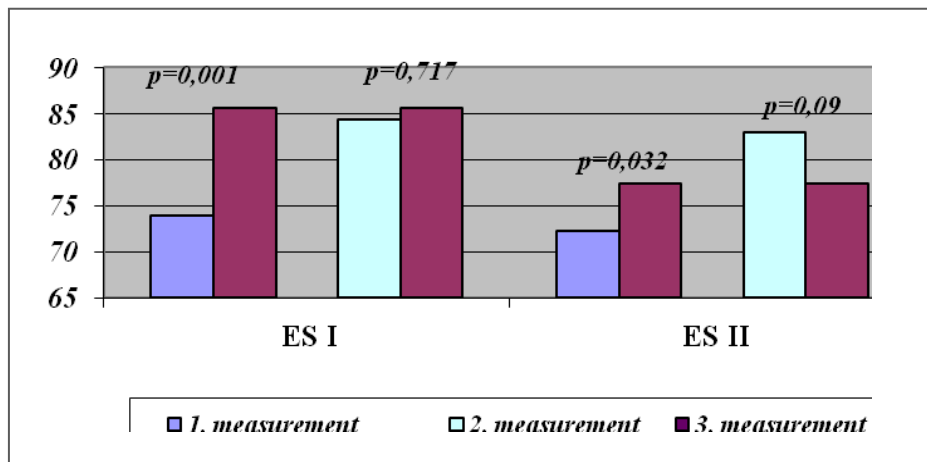
KS III: Control group III (students of teaching programs majoring a foreign language, The Faculty of Natural Sciences)

1st measurement – measurement before the program in a foreign language

2nd measurement – measurement after the program in a foreign language

AACS – Tolerance of ambiguity

Graph 1 illustrates statistically significant increase of the values in the ability to achieve cognitive structure, tolerance of ambiguity, in the experimental groups I and II ($p=0.000$, $p=0.001$). It represents the group of the selected in-service teachers, the university students majoring a foreign language at the Faculty of Education and the Faculty of Arts after the intervention program. Considering the students of the Faculty of Natural Sciences, the values were increased, too, however, without any statistical significance. There was no statistical significance observed between the first and the second measurements in the control groups.



Graph 2. Statistically significant differences in AACS between the measurements 1, 2 and 3 (after one year)

Explanations

ES I: Experimental group I (students of teaching programs majoring a foreign language, The Faculty of Education).

ES II: Experimental group II (students of teaching programs majoring a foreign language, The Faculty of Arts).

The third measurement verified the level of stability after one year, maintaining statistically significant change in the direction of the increased ability of structuration of ambivalent social situations in time. The measurements of the experimental groups after one year were conducted in the groups ES I and ES II. The initial testing (measurement I) was compared with the measurement after one year (measurement 3) (Graph 2). The students of the teaching programs of the Faculty of Education participated in these measurements and as assumed they did not use the same stereotypes, as the results between the measurements 2 and 3 (graph 2) demonstrated no statistical significance.

4. Discussion

Examining dynamics/stability of the tolerance of ambiguity in the process of foreign language learning was the purpose of the research study. The main variable was the tolerance of ambiguity in the linguistic intervention program and its changes in dynamics/stability after certain time, specifically one year after the intervention was applied. The research question was the following: Is tolerance of ambiguity a dynamic or a stable personal characteristic? Based on the research question the presumption was formulated whether the selected variable as defined within the frame of the linguistic intervention program increased, and the stability of the presumed changes in language learning and a positive linguistic identification with the foreign language occurred.

Apparently, the LIP proved to be the predictor of the variable tolerance of ambiguity in direction of a significant increase. The LIP introduced a variety of heterogeneous simulated social intercultural situations and the students solved the situations individually or in groups based on the selected task, all in a friendly and free atmosphere. Together with the results reported by Sarmány-Schuller (2001), our results also recognized tolerance of ambiguity as one of the learning styles, as the ability to achieve a cognitive structure, the ability to work individually, stimulated by new impulses without frustration. Tolerance of ambiguity showed to be a dynamic variable depending on the exposure to the LIP stimulation. Statistically significant difference was demonstrated between the first and the second measurements of the results obtained from the students from the Faculty of Education and the Faculty of Arts in direction of increased tolerance of ambiguity. The students of the teaching programs from the selected faculties performed to be able to structure information about uncertain stimuli and situations in greater extent and were also able to achieve certainty in ambiguous situations, and more, think flexibly in a variety of communicative activities. Apparently, the reported results were achieved by the utilization of drama games, didactic games supporting creativity, active social learning methods, activities supporting metaphoric thinking, maps of ideas, project work supporting self-reflection, setting personal goals, life organization, aspiration setting, crossing stereotypes, support of thinking flexibility and development of independent behavior of the students-participants. The LIP served as a tool for motivation towards increased foreign language behavior, self-perception, and identification with the foreign language, its lexical, grammatical structures, and for increased tolerance of ambiguity, and uncertain stimuli. Furthermore, statistical significance shown in the results was considerably positive indicator. As Stranovská et al (2013) claimed individuals equipped with higher extent of tolerance of ambiguity perceived uncertain situations as 1) wanted, 2) challenging, 3) interesting; accepting them without refusal. As Bar-Tal and Guinote (2002), Sarmány-Schuller (2001) claimed a person was equipped with a simple and rigid system of cognitive structures, when they used the same structures or constructs and could not avoid making the same mistakes over again. In order to

avoid restrictions in foreign language structures, it is suggested to utilize the intervention in the field of tolerance of ambiguity and support individuals in risk-taking.

Although the level of tolerance of ambiguity increased in the group of the students enrolled for teaching programs at the Faculty of Natural Sciences, there was no statistical significance demonstrated. Probably, it was related to the higher values in the selected field in the beginning of the program, or the students-participants studying natural sciences think in different constructs and patterns compared to those students enrolled for the teaching programs in education or social sciences. Further research is necessary to examine the field of interest. There was no statistical significance demonstrated in the controlled groups compared to the experimental groups (Graph 1). There was no increase of appropriate information structuring and uncertain stimuli or situation processing identified.

Stability of the findings was verified one year after the LIP. It showed the same increase of the variable in the process of cognitive perception and performance. Presumably, it was essential to consider the other variables after one year of time, for instance, various aspects of natural developmental maturing. It was verified by comparing final test achievements (measurement 2) and test achievements after one year of time (measurement 3), but no statistically significant difference was confirmed in the groups ES I and ES II which confirmed the effect of the program on the ability to achieve structuration and the ability to categorize ambivalent social situations. Brown (2000) recommends to teach individuals tolerance of ambiguity (intuitive behavior, risk-taking, refusing to search for grammar regulations in each sentence) and accept it as an essential element of foreign language learning. LIP is considerably effective method of foreign language learning which stimulates certainty in foreign language performance.

5. Conclusion

Apparently, the Linguistic Intervention Program was demonstrated in our research as a significant variable, which had an impact on the level of dynamics or stability in the process of foreign language learning. The linguistic intervention program reflected increasing levels of tolerance of ambiguity in a foreign language performance (statistically significant increase of the ability to achieve cognitive structure) and maintaining of the changes in time after one year. Considering the contemporary context of global foreign language education goals the linguistic intervention program represents a key element of learning a foreign language in all its levels. Moreover, the cognitive view synthesizing with emotional experiencing, plays the essential role in the whole process. Apparently, it is not enough to be acquainted with the methods and strategies of the intervention program but to acquire them, cognitively root them, to be engaged with them emotionally, and gradually utilize them in their further teaching carriers. Cognitively rooted represented cognitive structuring, processing of contents, tolerating ambiguity and being assimilated with purposeful stimulation of cognition. Analyses of the attributes and examination of the cognitive variable were considered essential in the current research study. Process of cognitive anchoring acquires both to learn about the approaches but also experience them and be engaged. As the results showed, the LIP supported tolerance of ambiguity in the category of the students enrolled for the teaching programs at the faculties of education and arts and showed no significant effects of tolerance of ambiguity in the groups of the students studying natural sciences programs.

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