

THE SOCIAL UNDERSTANDING OF BULGARIAN BILINGUAL CHILDREN - THEORY OF MIND PERSPECTIVE

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Abstract

Background

The paper presents a study with 120 minority bilingual children from Bulgaria. 60 Roma-Bulgarian and 60 Turkish- Bulgarian children between the age of 3;6-5;0 years old are tested with two classical Theory of Mind tests, with two non-verbal Theory of Mind test, wh- questions using the mental state verb "to say", and evidentiality test in both mother tongue L1 (Turkish and Romani) and in L2 (Bulgarian). The Turkish children live in a small town and the Roma children in a village.

Hypotheses

The hypotheses are that the knowledge of grammatical categories can help the children to understand the Theory of Mind and the residence facilitates the development of Theory of Mind in children.

Results

The results from the tests showed that in some Theory of Mind tests the Turkish children are better and in other test the Roma children performance is better. The knowledge of the grammatical categories does not influence the understanding of Theory of Mind task. The residence is not a factor facilitating the Theory of Mind of Bulgarian minority bilingual children.

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Conclusions

The hypotheses that the knowledge of some grammatical categories could be a factor which helps Bulgarian bilingual children better to understand the Theory of Mind is partly fulfilled. The second hypotheses

regarding the structure of the languages which the bilingual children use and how much they facilitates the early understanding of the False Belief tasks is also partly answers. The last hypothesis that the residence of the children is a factor for understanding of the Theory of Mind task is not confirmed. Both group of bilingual children bilingual show similar trends and that does not depend on their place of residence.

Keywords: Theory of Mind; bilingualism; wh-questions; evidentiality; Romani; Turkish; Bulgarian.

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INTRODUCTION

The bilingualism

According to Grosjean (2013) half of the world's population is bilingual. Bilingualism influences the cognitive and linguistics experiences and functioning in everyday life of the individuals. Most of the research on bilinguals use self-reported questionnaires. In a study with different age groups of socially diverse background subjects Anderson et al. (2017) show that the impact of bilingual experience for aspects of cognitive performance across the lifespan, including attention ability in infants, cognitive performance in childhood and the ability to cope with dementia in older age. These are important findings with enormous consequences for education, public health, and social policy.

According to Ekiert (2005:7), "increased understanding of the ways in which multiple languages are represented in bilingual speakers' brains is undoubtedly advancing several theoretical issues in areas such as language acquisition and performance theory. Almost all of the work in modern linguistics and second language acquisition has been done on overt rather than covert linguistic performance. The linguists organize the overt spoken and written speech behavior into relevant categories, infer significant relationships, posit explanations, and attempt to discover relevant research variables accounting for variance in performance across different individuals and for the same individual over time." The author says that very little work has been done on first or second language acquisition from the neurolinguistic perspective. It is time "when the linguists must turn to neurological areas if they are ever to understand the nature of language acquisition and language processing". Such an information is important not only for physicians and psychologists, but also to teachers in general. Because the teachers deal every day with one of the most typical features of the human brain, namely the ability to learn.

Sabourin et al (2016) in a study integrate and reinterpret new data from a set of experiments in order to tease apart many of the fac-

tors thought to influence bilingual processing. Specifically they combine data from studies investigating age of immersion (AoI), manner of acquisition (MoA), proficiency and context of bilingualism to (1) investigate the organization of the bilingual mental lexicon and (2) determine the nature of the interaction between bilingualism and cognitive control. The authors suggest that a naturalistic MoA promotes the integration of the bilingual lexicon, and that an early AoI per se is somewhat less important (though it tends to lead to a more naturalistic MoA). Further, bilinguals with an integrated bilingual lexicon (i.e., naturalistic learners) only develop cognitive control advantages if they are in a dual-language environment.

In some minority groups, according to Kyuchukov (2016) the culture plays an important role in the development of the cognitive and linguistic abilities of young speakers. In different cultures the parents use different strategies to teach the language to their children: reading books, playing with toys, doing different activities together. Usually, the children learn the language through different activities typical for that particular culture. In some cultures, are used book reading activities, computer games, or rich environment with toys. Other cultures have more oral traditions, and they use the rich oral culture to teach the language to their children. This is one of the ways how the children also acquire the mental state verbs which are important for the understanding of the mental process in others (Kyuchukov, 2020)

Theory of mind

The Theory of Mind, according to Perner (1995:205), is "the name of the research area that investigates out folk psychological concepts for imputing mental states to others and ourselves: what we know, think, want, feel, etc." Or in other words, the Theory of Mind (TOM) is the research area which allows to clarify / to study/ analyze / explore the ability of the human being to understand other people's intentions, desires, and beliefs. The children develop the understanding of other persons' intentions in their early childhood,

however the question is: do all the children from all cultures develop this ability at the same age? Do the monolingual and bilingual children develop the ability of understanding other peoples' intentions in the same way, at the same age? What are the factors which helps the process of understanding of intentions and desires of the surrounding culture and people in it? These are some of the research questions which the scientists from all over the world have been exploring over several decades now (Alshahrani, 2017; Schroeder, 2018).

The background to the Theory of Mind (TOM) lies in the fundamental works of Piaget from early 1920s and 1930s, where in a series of publications (Piaget, 1926, 1928, 1929), he examined children's understanding of the physical world. During the second and third year of their lives, children show interest in their feelings, wishes, mental states, and conversations with them about their behaviour show that they, in their cognitive development, increase their understanding of mental processes. The interest in children's understanding of their own mental life started in the 1980-s and it continues. In number of publications the general issues of Theory of Mind were discussed (du Preez, 1991; Astington, 1993, 2000; Dunn, 1988; 1995; Bartsch and Wellman, 1995; Carpendale and Muller, 2004; Carpendale and Lewis, 2006; Doherty, 2009; Carpendale, Lewis, Muller, 2018).

Controversies in the study of bilingualism and Theory of Mind

One of the problems which needs further investigation is how bilingual children develop social understanding. Over the past decade, several publications have been discussing the issues how the languages used by bilingual children help them to understand the social life, the feelings, thoughts, and desires of others.

The study by Perner and Aichhorn (2008) showed that the cultural or linguistic influence on location of brain function and argues against maturation of innately specified neural substrates. It is reminiscent of effects of linguistic development, bilingualism and cultural differences on theory of mind development.

In her study Goetz (2003) examines whether an individual's linguistic knowledge, either as a speaker of a particular language or as a bilingual, influences a theory of mind development. Three- and four-year-old English monolinguals, Mandarin Chinese monolinguals, and Mandarin-English bilinguals were given appearance-reality, level 2 perspective-taking, and false-belief tasks. All children were tested twice, a week apart; the bilinguals were tested in each of their languages. The 4-year-olds in each group performed significantly better than the corresponding 3-year-olds. Both monolingual groups performed similarly on the tasks, and the bilinguals performed significantly better than the monolingual groups, although when the two testing times were examined separately, they had only a near-significant tendency to perform better at the second testing time. Possible explanations for this evidence of a bilingual advantage are greater inhibitory control, greater metalinguistic understanding, and a greater sensitivity to socio-linguistic interactions with interlocutors.

Berguno and Bowler (2004) in a study with 140 single language users and 57 dual language users (aged 3-4 years old), explored the effect of particular patterns of communicative interactions on young children's understanding of representations and the link between knowledge of a 2nd language and theory of mind. The authors tested the children with a deceptive task with 3 experimental conditions. In the deceptive-context condition, an experimenter made a reference to the deceptive object. The most significant finding was that knowledge of a 2nd language significantly improved young children's understanding of both mental and nonmental representations. Moreover, the results indicated that an experimenter's reference to a deceptive interaction greatly facilitated 3-year-old children's understanding of false belief.

Cho (2020) examines the relationship between Theory of Mind (ToM) and Executive Function (EF). Three experiments explore the nature of this relationship. Experiments 1 and 2 test whether socio-cultural factors known to influence individual differences in EF (i.e., bilingualism, country-of-origin) extend to

differences in ToM. If ToM and EF are two facets of the same process, then the pattern of differences in EF related to the socio-cultural factors and the pattern of differences in ToM should be comparable. Findings suggest that country-of-origin (but not language status) contributed to differences in EF (Experiment 1). In contrast, neither country-of-origin nor language status was associated with ToM (Experiment 2).

In studies with bilingual Romani and Turkish children Kyuchukov and de Villiers (2009) and Kyuchukov (2010;) show the connection between level of knowledge of different aspects of the language (L1 and L2) and comprehension of False Belief tasks.

The publications on the connections between bilingualism and Theory of Mind are diverse and controversial. Some research are more psychology oriented, others are more with neurology orientation, but very few research are interested to find out the connection how the language helps to understand Theory of Mind tasks. Because the connection between language and Theory of Mind is very little investigated, the goal of this study is to find out if the languages the bilingual children use from early age play any role in the process of understanding of False Belief tasks. The answer to this question will bring a new information to the literature of Theory of Mind.

Having in mind all the work done with different types of bilingualism and the controversies in the scientific literature, regarding the connection between Theory of Mind and bilingualism among children, the following hypotheses are formulated and tested in the present study:

- The knowledge of some grammatical categories could be a factor which

helps bilingual children better to understand the Theory of Mind.

- The structure of the languages which the bilingual children use facilitates the early understanding of the False Belief tasks.
- The low level of L2 proficiency makes difficult to understand the Theory of Mind Tasks.
- The residence of the children is a factor facilitating the development of the Theory of Mind in bilingual children.

METHODOLOGY OF THE STUDY

Experts suggest that bilingual subjects should be tested with the same test but in both languages (Anderson et al, 2017). My research follows that suggestion and the children in the study were tested in both their languages: mother tongue and second language.

Participants

The present research was carried out in Bulgaria with 120 minority bilingual children (60 Turkish and 60 Romani speaking children) between the age of 3;6 - 5;0 years old. The Turkish children live in a small town and the Roma children live in a village. All of them attend kindergarten and they speak their mother tongue and Bulgarian as well, which is their second language. The total number of children in the study is given in Table 1.

The selection of the participants was done on the random principle, but the following criteria were followed. In the research were not included children with language delays or with degree of mental disorders, as well as children who do not speak Bulgarian as their second language to degree to understand the language

Table 1

The total number of the children in the study

Age group	Turkish children	Mean age	Roma children	Mean age
3;7-4;0 years old	20	3;8	20	3;7
4;1-4;6 years old	20	4;4	20	4;5
4;7-5;0 years old	20	4;10	20	4;11
Total	60	4;3	60	4;4

tasks. All the children from both ethnic groups are with low socio-economic status.

Ethics

To test the children a written permission was asked from the parents, ensuring that the testing of the children will not damage them physically or psychologically. And because the children attend kindergartens in Bulgaria, the regional offices of the Ministries of the education were asked for permission to test the children. The children were tested in the kindergarten's environment in a separate room, where the researcher, the child and a teacher were present.

Procedure

The testing was done individually with every child. The children were tested both in mother tongue (Turkish or Romani) and in their second language (Bulgarian). In order to avoid the influence of the order of the tested language, one part of the tests were done in the mother tongue of the children and the other part in Bulgarian, and next day opposite – the testing languages were changed on the tasks given to the children.

Instruments

TOM tasks

The children were given 4 TOM tasks: two classic False Belief tasks known from previous studies on Theory of Mind (*Unexpected Content* and *Change of Location*) and two non-verbal Theory of Mind tests with series of pictures.

In the unexpected content test task, the child is usually shown a box/package of something with the contents clearly visible and asked the question: what do you think is in the box/package? Usually the child answers what is drawn on the package (candy, cookies...). The box is opened and the contents are found to be something else - a toy, a pencil... The box is closed and again the question is asked: What did you think was in the box when you first saw it? And what was in the box?

The second task involves changing the location of an object. First two protagonists (can be two children, two toys...) place an object in one place, then one protagonist leaves the

scene. In the absence of the first protagonist, the second protagonist changes the location of the given object. The first protagonist returns to the place of action and the child is asked: Where will he/she look for the object?

The non-verbal TOM tasks are similar but instead of the verbal explanation the children are shown pictures.

The tasks given to the children are as follows:

TOM 1 Task - Unexpected Content

TOM 2 Task - Change of Location

TOM 3 Task - non-verbal TOM task

TOM 4 Task - non-verbal TOM task

The first two TOM tests are well known from the scientific literature. The non-verbal TOM tests were developed by the researcher, following the concept of the classical ones.

Language tasks

The language task comprised a test of wh-questions with 8 items (pictures) and a test of evidentiality, also with 8 items (stories told in Past tense and second time the same story with Evidentiality markers).

The wh-questions are used with the mental state verb "to say", as shown in the following example:

The child said he paints his brother, but he painted clouds.

What did the child say, that he is painting?

The evidentiality test developed by the researcher, gives the children the same story once told by the toy dog and second time is told by the toy cat. Here is an example:

Told by the dog (in Past Tense):

The boy was playing in the yard with a ball. He saw a cat. He dropped the ball and started chasing the cat.

Told by the cat (with evidentiality marker):

The boy was playing- EVID. in the yard with a ball. He saw-EVID. a cat. He left-EVID. the ball and started-EVID. chasing the cat.

Both the TOM and Language tests are not standardised for the languages such as Bulgarian, Romani and Turkish. All the adaptations of the tests to these languages are done by the researcher.

The dependent and independent variables are described and summarized in the next table 2.

The statistical analyses of the results are done using SPSS and ANOVA Programs.

RESULTS

In mother tongue

Theory of Mind tasks

How did the children understand the TOM 1 task in their mother tongue? The TOM 1 task is the Unexpected Content task. This is

shown in Figure 1. From the figure is evident that the Roma children score better than the Turkish children, which means that the Roma children perform better this task. The influence of the factor mother tongue of children on raw scores on the TOM 1 Test in their L1 is statistically significant ($F=18,53$; $p<0,00004$). The effect size is medium ($\eta^2=0,15$). This is shown in Figure 1.

However, there is no statistically significant influence of the factor mother tongue on the raw scores on the verbal TOM 2 test. The

Table 2
The dependent and independent variables

Dependent variables	Number of factors
Classical Theory of Mind tasks	2
Nonverbal Theory of Mind tasks	2
Language tests	2
Independ variables	
Residence	town and village
Age groups	1 gr.: 3;6-4;0, 2 gr.:4;1-4;6, 3 gr.:4;7-5;0
Languages	Bulgarian, Romani and Turkish

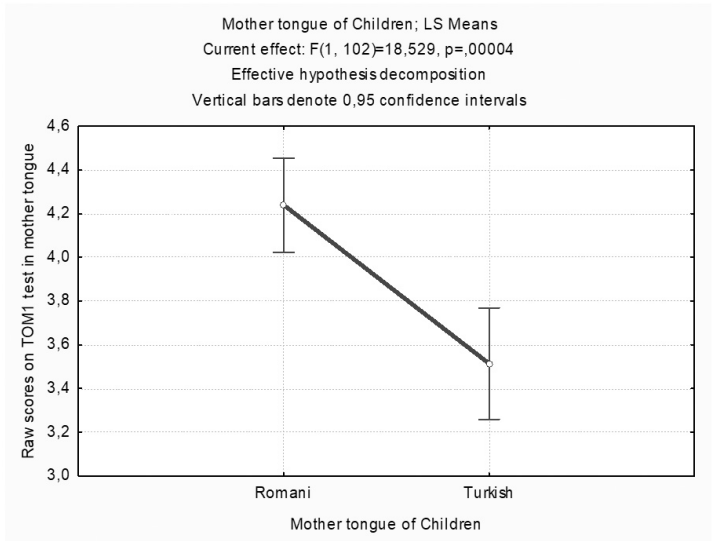


Figure 1. Influence of the mother tongue of children on the raw scores on the TOM 1 test in their mother tongue

children from both groups are performing the test equally well.

The influence of the factor mother tongue of children on the raw scores on the TOM 3 - nonverbal test in the mother tongue is statistically significant ($F=11,73$; $p<0,000$). The effect size is small ($\eta^2=0,10$). Figure 2 shows the results.

As can be seen from Figure 2 the Turkish children show better results performing the TOM 3 (non-verbal test) than the Roma chil-

dren, i.e. the Turkish children understood better this task than the Roma children. The statistical differences are significant ($F(1,102)=11,729$, $p<0.000$)

The influence of the factor mother tongue of children on the raw scores on the TOM 4 - nonverbal test in the mother tongue is also statistically significant ($F=6,05$; $p<0,01$). In the performance of this test the Roma children show better results. The effect size is small ($\eta^2=0,06$). This is displayed in Figure 3.

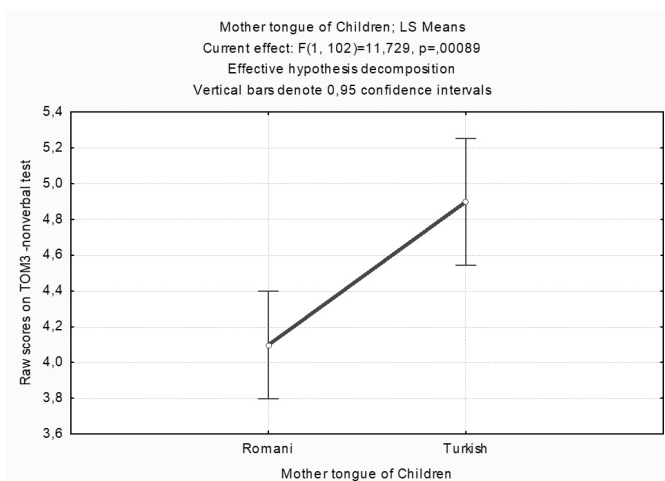


Figure 2. Influence of the mother tongue on the raw scores on TOM 3 - non-verbal test

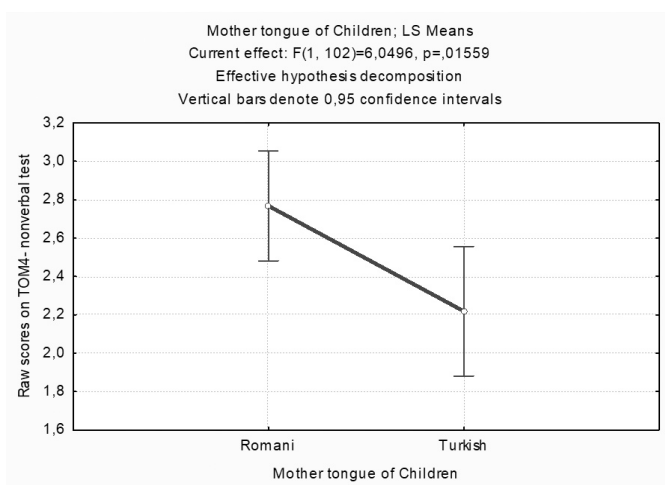


Figure 3. Influence of mother tongue on the raw scores on the TOM 4 - non-verbal test

Let us see how the children perform the Tests by age groups. This will be shown in the following figures.

Figure 4 shows that the influence of the factor age group on the raw scores on the TOM 1 test in the mother tongue is statistically significant ($F=3,99$; $p<0,05$), but the effect size is small ($\eta^2= 0,07$). Which the growth of the age the children better understand the task. The figure shows that with the growth of the age the children perform better the test. The differences between the age groups are statis-

tically significant.

By the performance of the TOM 2 (verbal test) and TOM 3 (non-verbal tests) there are no statistically significant differences between the age groups from both ethnic groups, i.e. the Turkish and Roma children from all age groups comprehend and perform equally well the tasks. However, statistically significant differences between the age groups is shown by the performance in the TOM 4 non-verbal test. This can be observed in the next Figure 5.

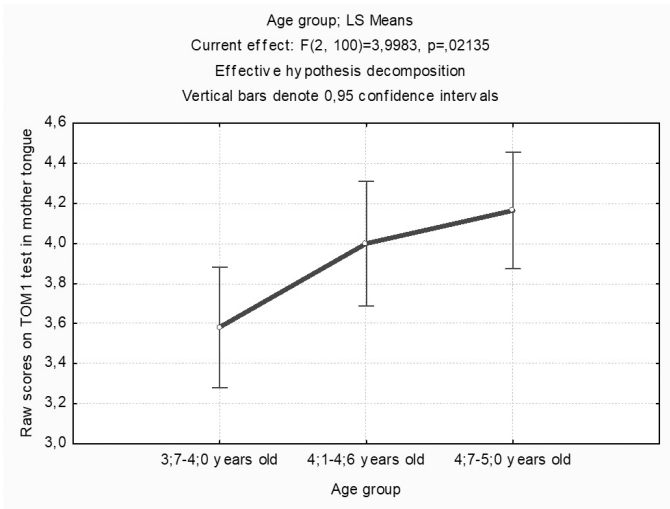


Figure 4. Influence of Age group on raw scores on TOM 1 test in Mother Tongue

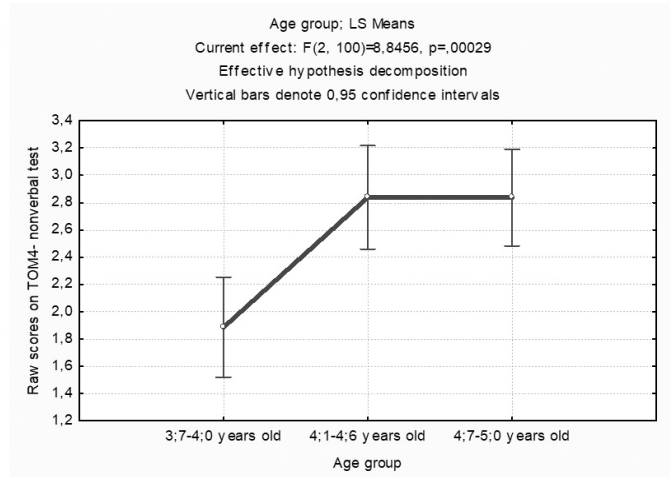


Figure 5. Influence of age group on raw scores on TOM 4 - nonverbal test

The influence of the factor age group on raw scores on the TOM 4-nonverbal test in the mother tongue is statistically significant ($F=8,84$; $p<0,000$). The effect size is medium ($\eta^2=0,15$). In both ethnic group children with the growth of the age grows their performance of the task as well.

Language tasks

The language tasks are two types: wh- questions with mental state verb “to say” and evidentiality task. Both tests are with 8 items each. Here are presented the results from both tasks.

Wh-Questions

In Figure 6 are given the results from wh-questions.

From the figure is shown that the Roma children are performing this test better than the Turkish children. Romani allows wh-ques-

tions with wh-word in the beginning and in the middle of the sentence (long distance). In Turkish language the position of the wh- word is in situ. The 4;7-5;0 years old children's results are very demonstrative: 87% from Roma children and 46 % of the Turkish children answer correctly the questions and differences between the both groups are statistically significant ($t=6.78$, $p>0.001$). The differences between two groups in the comprehension of the tasks is due to the differences in the structure of the mother tongues of the children.

The evidentiality task

Let us see how the children perform the second language test. The results are shown in the next figure 7. Evidentiality as a language phenomenon which exist in all three languages - Bulgarian, Romani and Turkish. It is a grammatical category used for transmission of a hearsay message orally or in written form

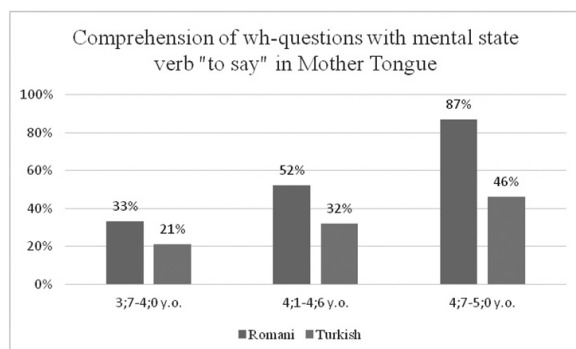


Figure 6. Comprehension of wh-questions in Mother Tongue

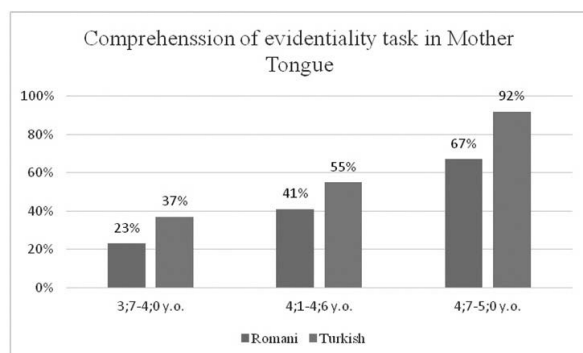


Figure 7. Comprehension of Evidentiality task in Mother Tongue

using specific linguistic morphemes. Testing the knowledge of the children on this grammatical category I would like to see if there is any connection between the use of it and understanding of the Theory of mind tasks.

The results form the evidentiality task is given in the next Figure 7.

As one can see from the figure above, the Turkish children are performing this language test better then the Roma children. The reason for that might be that in Romani the evidentiality is not used so much with Roma children from such an early age and it is may be acquired later. The differences between the groups are statistically significant ($t = 4.58$, $p > 0.001$)

Influence of the performance of Language tests on TOM test

The influence of factor comprehension of *wh-questions* in the mother tongue on the raw scores on TOM 1 are statistically significant, but the row scores TOM 2, TOM 3 nonverbal and TOM 4 nonverbal tests in the mother tongue are not statistically significant.

The influence of the factor comprehension of *evidentiality* in the mother tongue on the raw scores on TOM 1, TOM 3-nonverbal and TOM 4-nonverbal tests in the mother tongue

are statistically significant. The children with Turkish as a mother tongue show better results than the Romani-speaking children.

However, significant differences can be found in the performance of the TOM 3-nonverbal and TOM 4-nonverbal tests and this is shown in the next figures. There is an influence of the mother tongue score on the nonverbal tests scores. In Figure 8 is given the results for TOM 3-nonverbal test.

The influence of the factor mother tongue of children on the raw scores on the TOM 3-nonverbal test is statistically significant ($F=4,04$; $p<0,05$). The effect size is small ($\eta^2= 0,04$). The children with Turkish as a mother tongue show better results than the Romani-speaking children.

Figure 9 shows that the influence of factor age group on raw scores on the TOM 3-nonverbal test is statistically significant ($F=3,73$; $p<0,05$), but the effect size is small ($\eta^2=0,07$).

As the figure 9 shows, with the growth of the age the children's comprehension of the evidentiality grows as well and that helps the performance of the nonverbal TOM task.

Similar results the children show by the TOM 4- nonverbal test. This is shown in the next figure 10.

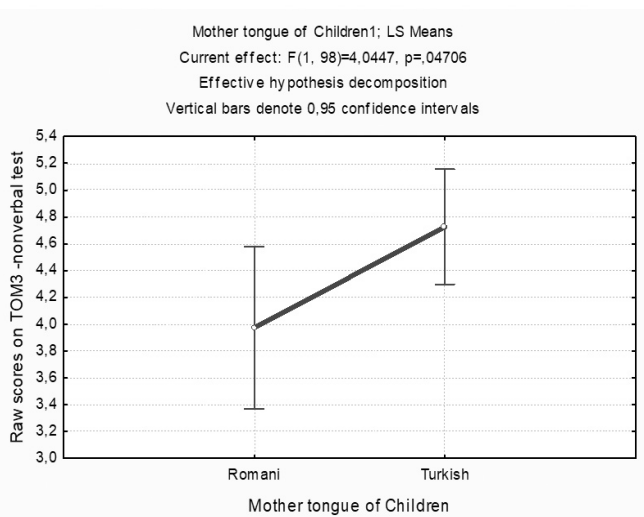


Figure 8. Influence of the mother tongue on raw scores on the TOM 3-nonverbal test

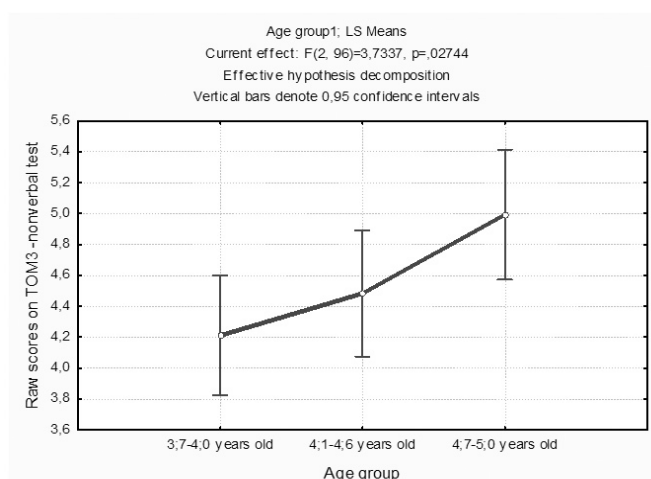


Figure 9. Influence of age group on the raw scores on TOM 3-nonverbal test

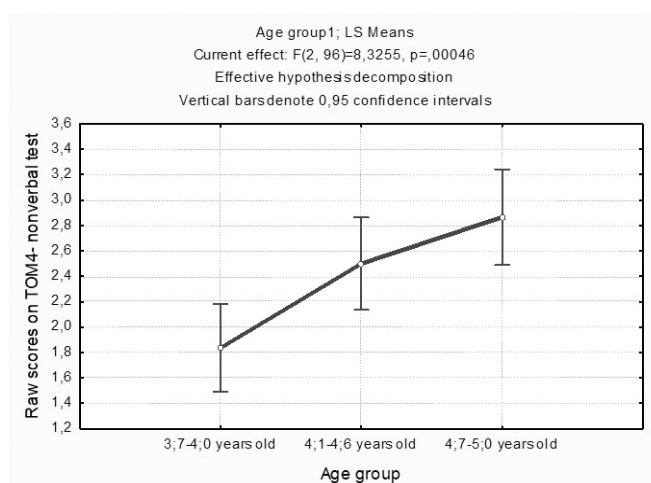


Figure 10. Influence of age group on the raw scores on TOM 4-nonverbal test

Figure 10 shows that in the performance of the TOM 4 nonverbal test with the growth of the age of the children, grows the understanding and performance of the TOM 4 nonverbal test. The differences are statistically significant ($F(2, 96) = 8,3255, p = 0,00046$).

In Bulgarian

The children were tested with the same test in Bulgarian as well. Here I will present the results from the TOM and from the language tests in their second language-Bulgarian.

Theory of Mind tasks

Figure 11 shows the results from TOM 1 test. The influence of the factor age group on the raw scores on the TOM 1 test is statistically significant ($F=6,11; p<0,005$) and the effect size is medium ($\eta^2=12$). Although there are differences between the first two groups - the second groups show lower results the differences are not so big. In generally with the growth of the age the children understand better the TOM test in their second language – Bulgarian.

The results of the children from TOM 2, TOM 3 nonverbal and TOM 4 nonverbal tests are not statistically significant. The children understand these tests equally good and there are no statistical differences between the age groups.

Language tasks

The same language tasks used for mother tongue testing were translated into Bulgarian and the children were tested with them as well. Here are the results from the language tests.

Wh-Questions

The results from the wh-question test in Bulgarian are presented in the next figure 12.

Interestingly, the children from both ethnic groups perform the wh-questions test almost at the same level. There are no statistically significant differences in the knowledge of the age and ethnic groups. The statistically significant differences are between the first and third age groups. The Turkish children are slightly better than the Roma children, the differences are not statistically different.

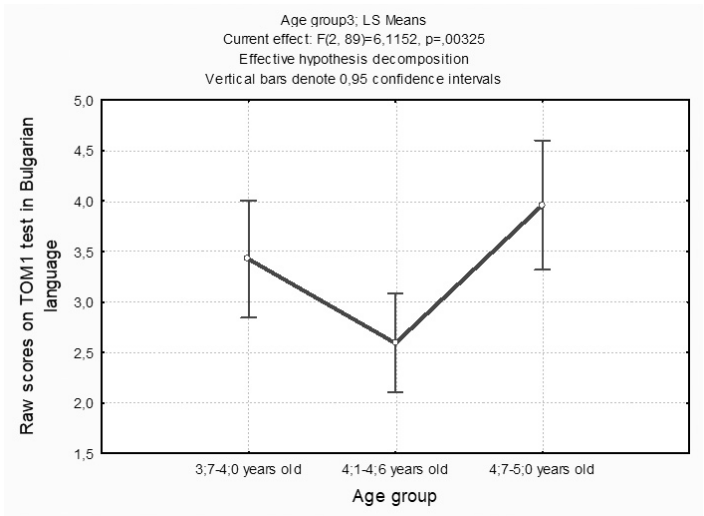


Figure 11. Influence of age group on the raw scores on TOM 1 test in Bulgarian

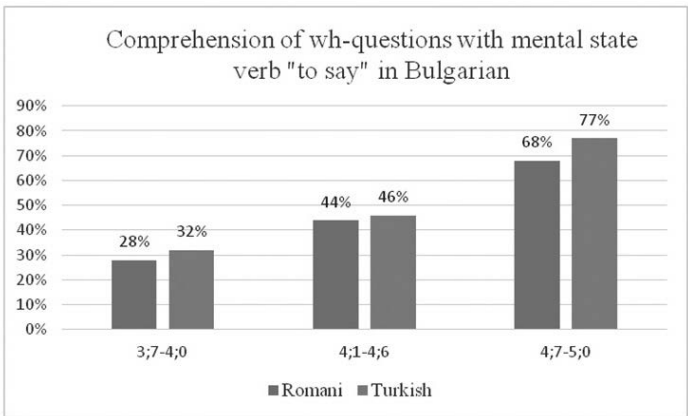


Figure 12. Comprehension of wh-questions in Bulgarian

Evidentiality

The results from the evidentiality task in Bulgarian language are shown in Figure 13.

In the performance of this test again the Turkish children show better results, but the differences are not statistically significant. The differences are only statistically different between the first and third age group. As can be seen around the age of 5 years the children from both ethnic groups have almost the same level of knowledge regarding this language category.

Influence of the performance of Language tests on TOM test

The influence of the factor comprehension of wh-questions in Bulgarian on the raw scores on the TOM 1, TOM 2 and TOM 3-nonverbal test is not statistically significant; nor is the influence of the factor age group on raw scores on the TOM 1, TOM 2 and TOM 3-nonverbal test statistically significant. However, the influence of the factor comprehension of wh-questions in Bulgarian on the raw scores on the TOM 4-nonverbal test is statistically sig-

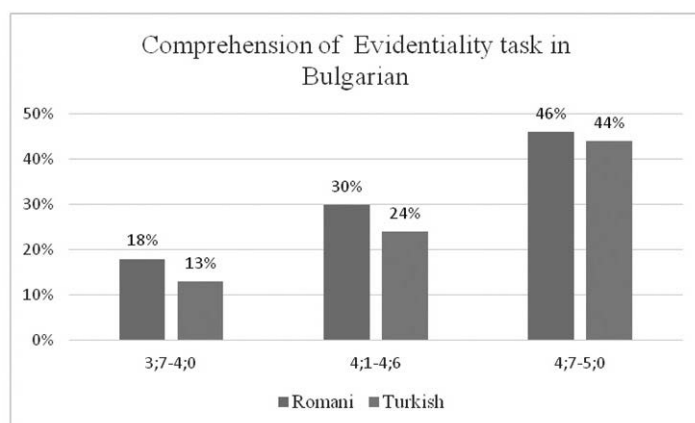


Figure 13. Comprehension of Evidentiality task in Bulgarian

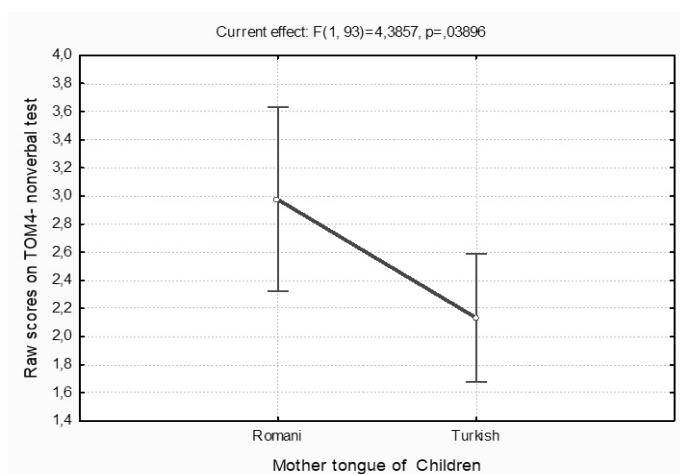


Figure 14. Influence of the factor mother tongue of children on TOM4-nonverbal test

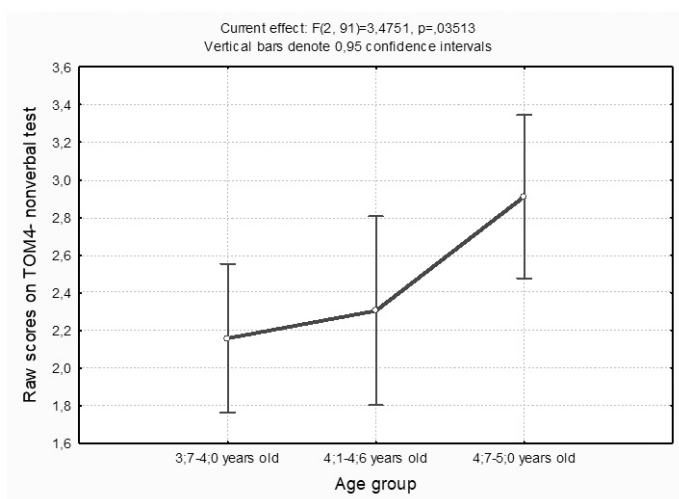


Figure 15. Influence of the factor age group on the raw scores on the TOM 4-nonverbal test in Bulgarian

nificant ($F=7.95$; $p<0.006$). The effect size is small ($\eta^2=0.08$).

The influence of the factor comprehension of evidentiality in Bulgarian language on the raw scores on TOM 1, TOM 2 and TOM 3-nonverbal tests in Bulgarian is not statistically significant. However, there is an influence of the factor mother tongue of the children on the TOM 4-nonverbal test – the differences are statistically significant ($F=4.38$; $p<0.05$). The effect size is small ($\eta^2=0.04$). This can be seen from Figure 14.

The influence of the factor age group on the raw scores on TOM 1, TOM 2 and TOM 3-nonverbal tests in Bulgarian is not statistically significant either, but there is a statistical differences in the influence of the factor age group on the raw scores on the TOM 4-nonverbal test in Bulgarian ($F=3.47$; $p<0.05$). The effect size is small ($\eta^2=0.07$). Figure 15 shows the findings.

DISCUSSION

All the research findings provide a basis for the following discussion.

The children perform better the tests in their mother tongue than in Bulgarian. The

Roma children are better in performing TOM 1 test in Romani. The comprehension of the wh-questions influences the performance of the TOM 1 test. However, the Turkish children are better in performing the TOM 3-nonverbal test in Turkish. In the performance of the TOM 4-nonverbal test, there is an influence of the mother tongue and the Roma children show better results in performing this particular test. Age plays an important role in the performance of the TOM 1 and TOM 4-nonverbal tests.

In the evidentiality test and its influence on the performance of the TOM tests, the following trends are observed. The mother tongue influences the performance of the TOM 3-nonverbal test and the Turkish children are better than Roma children. The comprehension of evidentiality test in the mother tongue plays an important role in the performance of the TOM 1, TOM 3-nonverbal and TOM 4-nonverbal tests. Age plays a statistically significant role in the performance of the TOM 3-nonverbal and TOM 4-nonverbal tests.

In performance of the tests in Bulgarian, the children showed the following results. In the relations between the comprehension of

the wh-questions and the TOM tests, age is an important factor only in the performance of the TOM1 test. Between the groups, there are statistically significant differences. However, there is no influence of the comprehension of wh-questions on the TOM 1, TOM 2, TOM 3- nonverbal tests in Bulgarian. In the performance of the TOM 4-nonverbal test there is an influence of the factor mother tongue of the children on the performance of the test. The Roma children are better than the Turkish children. In the performance of this Test together with the knowledge of wh-questions influence plays also the age groups. With the growth of the age the children perform better and the differences between the age groups are statistically significant.

Regarding the relation between the evidentiality tests and the TOM tests in Bulgarian, although the children with Romani as mother tongue show better results in the performance of the evidentiality test influence on the raw scores on TOM 1, TOM 2 and TOM 3-nonverbal tests in Bulgarian is not statistically significant. There is however an influence on the TOM 4-nonverbal test. In the performance of this test, the age factor plays an important role. The comprehension of the evidentiality in Bulgarian influenced the performance of the TOM 4 non-verbal test in Bulgarian.

CONCLUSIONS

In conclusion, it is possible to state that the goal of the study has been achieved.

The first hypotheses that the knowledge of some grammatical categories could be a factor which helps bilingual children better to understand the Theory of Mind is partly fulfilled. The knowledge of the wh-questions and the evidentiality as a grammatical category in the mother tongue of the children help them to understand some of the verbal and non-verbal TOM tests.

The second hypotheses regarding the structure of the languages which the bilingual children use and how much they facilitate the early understanding of the False Belief tasks is also partly answers. In the study was

not found the trend that the Romani speaking children being speakers of Romani and having knowledge of wh-questions or evidentiality in their mother tongue helps them to understand all verbal and nonverbal tests. The same is valid for Turkish children having Turkish as a mother tongue.

The hypothesis that the low level of Bulgarian as L2 proficiency makes difficult to understand the Theory of Mind tasks is confirmed also partly. In most of the cases the poor knowledge of the language tests does not help to understand most of the False belief tasks in Bulgarian. The children showed positive results only by one nonverbal test.

The last hypothesis that the residence of the children is a factor for understanding of the Theory of Mind task is not confirmed. Both group of bilingual children bilingual show similar trends and that does not depend on their place of residence.

In some cultures, where the oral tradition plays a strong role in the cognitive and language development of the children, such as in Roma culture, it seems the classic Theory of Mind tests are not very appropriate or of much assistance. In this case is more appropriate to use culturally appropriate test specific for that culture.

Why the language development is so important for the understanding of False Belief tasks in early bilingual children?

According to some psychologist, the comprehension of complements predicts children's performance on false-belief tasks (de Villiers & Pyers, 2002). De Villiers and de Villiers (2000) argue that the acquisition of the syntactic ability to understand sentential complements underlies the development of false-belief understanding. In particular, the verb *say*, which provides overt evidence for the falsity of the complement in cases where what is said is known to be untrue, may bootstrap an understanding of complements for *think*, because *say* and *think* are used in the same discourse context. The language development is directly connected with the development of the Theory of Mind (Astington and

Baird, 2005), but it seems that by bilingual children not all language categories facilitate the understanding of the False-believe tasks and respectively the development of the Theory of Mind. The Theory of Mind development is important for the children's social understanding of mental processes and that helps the child to get prepared for literacy process in primary classes.

REFERENCES

1. **Alshahrani, A.** (2017). Effect of bilingualism on the development of cognitive processes among children. *Arab World English Journal*, 8 (4), 451-466, DOI: <https://dx.doi.org/10.24093/awej/vol8no4.31>
2. **Anderson, J. et al.** (2017). The language and social background questionnaire: assessing degree of bilingualism in a diverse population. *Behaviour Research Methods*, 50, DOI: 10.3758/s13428-017-0867-9
3. **Astington, J. (ed.)** (2000). *Minds in the Making*. Malden: Blackwell Publisher.
4. **Astington, J.** (1993). *The child's discovery of the mind*. Cambridge: Harvard University Press.
5. **Astington, J. and Baird, J.** (2005). *Why language matters for Theory of Mind*. Oxford: Oxford University Press.
6. **Bartsch, K. and H. Wellman** (1995). *Children talk about the mind*. Oxford: Oxford University Press.
7. **Berguno, G. & Bowler, D.** (2004). Communicative Interactions, Knowledge of a Second Language, and Theory of Mind in Young Children, *The Journal of Genetic Psychology*, 165:3, 293-309, DOI: 10.3200/GNTP.165.3.293-309
8. **de Preez, P.** (1991). *A science of mind*. London: Academic Press.
9. **de Villiers, J. and de Villiers, P.** (2000) Linguistic determinism and the understanding of false beliefs. In P. Mitchell & K. J. Riggs (Eds.), *Children's reasoning and the mind* (pp. 191-228). Hove, UK: Psychology Press.
10. **de Villiers, J. & Pyers, J.** (2002). Complements to cognition: A longitudinal study of the relationship between complex syntax and false-belief understanding. *Cognitive Development*, 17, 1037-1060.
11. **Doherty, M.** (2009). *Theory of Mind. How children understand the Others' Thoughts and Feelings*. Hove: Psychology Press.
12. **Dunn, J.** (1995). Mindreading and Social Relationship. In: Bennett, M. (ed.) *Developmental Psychology*. Philadelphia: Psychology Press, pp. 55-71.
13. **Dunn, J.** (1988). *The beginnings of social understanding*. Cambridge: Harvard University Press.
14. **Ekiert, Monika.** (2005). *The bilingual brain. Teachers College, Columbia University Working Papers in TESOL & Applied Linguistics* 3(2). Retrieved April 6, 2020 from <http://journals.tclibrary.org/index.php/tesol/article/view/31>.
15. **Goetz, P.** (2003). The effect of bilingualism on the theory of mind development. *Bilingualism: Language and Cognition*, 6 (1), 1-15.
16. **Carpendale, J. and Ch. Lewis** (2006). *How children develop social understanding*. Malden: Blackwell.
17. **Carpendale, J. and U. Muller (eds)** (2004). *Social interaction and the development of knowledge*. Mahwah: Lawrence Erlbaum Associates, Publishers.
18. **Carpendale, J., Ch. Lewis and U. Muller** (2018). *The development of children's thinking. Its social and communicative foundations*. London: SAGE Publications
19. **Cho, I.** (2020). The Relationship between Theory of Mind and Executive Function: Are They Two Facets of the Same Process or Two Distinct Processes?. Electronic Thesis and Dissertation Repository. 6810. <https://ir.lib.uwo.ca/etd/6810>
20. **Grosjean, F.** (2013). Bilingualism: A short introduction. In Grosjean, F. & Li, P. (Eds.), *The psycholinguistics of bilingualism* (5-25). Malden, MA: Wiley-Blackwell.
21. **Kobayashi, Ch. et al.** (2006). Cultural and linguistic influence on neural bases of 'Theory of Mind': An fMRI study with Japanese bilinguals. *Brain and Language*, 98 (2), 210-220.
22. **Kyuchukov, H.** (2020). Are the Mental State Verbs Important for Roma Children's Understanding of False Belief Task. *Psycholinguistics*, 27(1), pp. 181-194.
23. **Kyuchukov, H.** (2010). Cognitive Development and Theory of Mind in Bilingual Children. In: *B. Bokus (ed.) Studies in the Psychology of Language and Communication*. Warsaw: Matrix, pp. 211-225.
24. **Kyuchukov, H. and de Villiers, J.** (2009). Theory of Mind and Evidentiality in Romani-Bulgarian Bilingual children. *Psychology of Language and Communication*, 13(2), pp. 21-34.
25. **Kyuchukov, H.** (2016). Bilingualism and cross-cultural study of language and cognitive development. *Psycholinguistics/ Психолінгвістика*, 20 (1), pp. 154-161
26. **Piaget, J.** (1926). *The language and thought of the child*. London: Kegan Paul.
27. **Piaget, J.** (1928). *Judgement and reasoning in the child*. London: Kegan Paul.
28. **Piaget, J.** (1929). *The child's conception of the world*. London: Kegan Paul
29. **Perner, J.** (1995). Theory of Mind. In: Bennett, M. (ed.) *Developmental Psychology*. Philadelphia: Psychology Press, pp. 205-230.
30. **Perner, J. and M. Aichhorn** (2008). Theory of mind, language and temporoparietal junction mystery. *Trends in Cognitive Science*, 12(4), 123-126.

32. **Sabourin, L. et al.** (2016). Language processing in bilinguals. Evidence from lexical organization and cognitive control. *EUROSLA Yearbook*, 16 (1), 1-24 <https://doi.org/10.1075/eurosla.16.01sab>
33. **Schroeder, S.** (2018). Do bilinguals have an advantage in Theory of Mind? A meta-analysis. *Frontiers in Communication*, 3:36 doi: 10.3389/fcomm.2018.00036

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