PRINT: ISSN 0972-0073 ONLINE: ISSN 2456-6802
Anthropologist, 22(2): 176-184 (2015)
DOI: 10.31901/24566802.2015/22.02.04

Investigating the Development of Theory of Mind: Post Pre-school Children

Tugba Kontas[1] and Lale Cerrah Ozsevgec[2]

[1]Ordu University Vocational High School of Ikizce, Ordu, Turkey
E-mail: tugbakontas@hotmail.com, tugbakontas@odu.edu.tr
[2]Karadeniz Technical University, Fatih Faculty of Education,
Department of Primary Teacher Education, Trabzon, Turkey
E-mail: lalecerrah@yahoo.com

KEYWORDS Theory of Mind. Pre-school. Childhood. Cognitive Development

ABSTRACT This paper is aimed at investigating four children's development of Theory of Mind (ToM) in computation with their social-emotional, cognitive and linguistic developments after their year in pre-school education. In this qualitatively designed research, the case study method has been applied. Data collected from the children, their mothers and their teacher, have been analyzed with the descriptive method. At the end of the research, it can be seen that the children's ToM progressed by at least one level, and one child even progressed by three.The social-emotional, cognitive and linguistic sides of the participating children improved after one year of pre-school education. It is assumed that this progress contributed to the development of children's ToM. Furthermore, the success and failure in the ToM tasks are in evidently related to the demographic characteristics of the children.

INTRODUCTION

In the human brain, there are synapses that transfer feelings, thoughts and actions from one neuron to another. The creation of these synapses is highest in early childhood, and during childhood, there are 700 synapses almost every second.The major portion of brain development is completed by the age of seven. The number of synapses of a six-year-old child is almost equivalent to that of an adult. The formation of these synapses is closely related to the child's life experiences and interaction with his or her environment. In this context, the period of early childhood holds a substantial place in brain development. Positive experiences and environmental factors influence brain development during this period (Bekman et al. 2004). Similarly, in this literature, it is reported that the early years are crucial in the children's cognitive, personal and social development. Moreover, it is indicated that parental neglect of children in early age adversely affects their future lives (ACEV 1999). Therefore, early childhood education is critically important in this respect. Having a grasp of children's mental statements contributes to their success in their pre-school education.

Address for correspondence:
Tugba Kontas
Ordu University Vocational High School of Ikizce,
Ordu, Turkey
Telephone: +90 (452) 371 27 70 / +90 (546) 552 52 33
Fax: +90 (452) 371 27 71
*E-mail:*tugbakontas@hotmail.com,
tugbakontas@odu.edu.tr

Cognitive Development in Early Childhood Education

Senemoglu (2005) identifies cognitive development as a child's perception of his or her environment and the mental activity improvement that contributes to his/her learning. The most familiar research, which investigates children's cognitive development in early childhood, is Piaget's theory of cognitive development. Pigaet says that there is a continuous transition such as balance-imbalance and high-level balance in cognitive development stages, which starts in infancy and is completed in adolescence (Piaget 2004). According to his theory, the early childhood period corresponds to the pre-operational stage. In this stage, children between two to four years old engage in pretend and symbolic play. Symbolic play is considered proof of the children's mental state development. With this kind of play, children can express non-visible things with objects and symbols (Santrock 2011). This also indicates the ability to represent, which holds a significant place in ToM. One hypothese of his theory, proven later to be incorrect by other researchers, is egocentrism. Egocentrism, according to Piaget, is simply the lack of a comprehen-

sion of differences between self-perspective and a perspective of others. Though Piaget says that children leave the stage of egocentrism at the age of seven, studies conducted so far indicate that this may occur earlier (Santrock 2011; Piaget 2004).

The researches on ToM have exposed some findings that support the statements above (Astington and Barriault 2001; Satrock 2012; Perner 1999; Granti 2004; Keceli and Acarlar 2011). A two-year-old baby who talks about themselves, others and feelings, likes and dislikes, can be proof of that statement. Many studies in literature indicate that there is a strong relationship between the children's ability to pretend play and their ability to feel empathy (Saracho 2014).

Theory of Mind in Early Childhood

ToM is known as the awareness of self-mental processes and those of others (Santrock 2012). The concept of ToM starts to develop at the pre-school age and ends with the acquisition of the highest level of mental ability between the ages of nine and eleven.

The concept of ToM began with the question by primatologist Premack and Woodroff, "Does the chimpanzee have a Theory of Mind?" A false-belief task was first introduced by a philosopher and conducted by two developmental psychologists, Wimmer and Perner. In the mean time, ToM has become a common field open to primatologists, developmental psychologists, philosophers, neurologists and other kinds of scientists (Doherty 2009).

ToM is one of the base components of the social cognitive. According to Astington and Edward (2010), age has a significant place in the acquisition of ToM. The development of ToM starts with the first order false-belief at the age of four and continues with the second order false belief and reaches the highest point with the faux pas at around the age of ten. It is evaluated via a series of social reasoning tasks of varying difficulty (Stone et al. 1998).

Some factors in the social environment play important roles in brain development as well as in ToM. Both, the act of parents talking to their children about their wishes, feelings and thoughts related to children's behaviours and the children's reactions provide early awareness in children's minds. In addition to this, the development of ToM is positively affected in the case of more than one sibling, pretend-play, talking about past experiences and reading story books (Astington and Edward 2010).

Studies on the Theory of Mind in Early Childhood

Most of the studies conducted in the literature took place with unhealthy groups with the sample population comprising of people with autism, Asperger's syndrome or schizophrenia. Studies of Theory of Mind, especially with the healthy groups, may help determine risk groups in early childhood (Astington and Edward 2010).

Although there are many studies on ToM in early childhood, most of them are not conducted with healthy groups. In this chapter, the literature review will be included with studies conducted with healthy groups in early childhood.

In literature, there are studies that investigate the connections between ToM and executive function. Mullera et al. (2012), when studying two-to-four-year-old children, detected that executive function in early ages can be helpful in predicting the ToM at later ages. ToM and executive control involve the same brain region and there is a strong bond between them (Perner and Lang 1999; Perner et al. 2002).

There exists a significant relationship between ToM and divergent (creative) thinking in the studies of Suddendorf and Fletcher Flinn (1997; 1999) and it continues even if the age and linguistic intelligence are partialled out.

Welman and Liu (2004) aimed to analyze what is accomplished by arranging the ToM tasks in the studies conducted with children aged three to six years old. At the end of the study, it is stated that the children can understand that they may have different wishes. Secondly, they understand that they may have different beliefs. Lastly, after these processes, they understand that they may have false beliefs.

Walker and Murachver (2012) conducted a study, which investigates the relationship between the representation and meta-representation in early childhood. At the end of the study, they found that there exists some evidence, which supports the idea that language and symbolic functions are some of the basic parts of the ToM ability. The ToM ability was determined as a progress in sociability and representational mastery.

Another study examined whether ToM and academic success tend to be affected by indirect criticism. At the end of the analyses, as independent from the linguistic and social abilities, it is stated that the relation between the 3rd year academic success and 1st year ToM mediates 2nd year criticism sensitivity (Lecce et al. 2011).

The literature has been revised, and it is in evident that there are not sufficient studies relevant to how ToM is affected by the pre-school education period. This is a gap in the literature. It is necessary to increase the ToM studies in order to contribute to the pre-school education and to provide guidance to the teachers. More studies need to be conducted to examine the factors that affect the development of ToM in the children from different social backgrounds and how their cognitive states are influenced. Moreover, the literature seems to require more research examining different socio-economic backgrounds (Astington and Edward 2010). To have a grasp of the ToM provides significant benefits such as critical gains in children's development, contributing to the children's collaborative acts and their ability to understand others' intentions and thoughts (Sipal 2008).

This paper will both contribute to the literature by investigating children from different social and cultural backgrounds with the participation of mothers, children and the teacher. In the light of the findings, how pre-school education contributes to the ToM is discussed.

Aim

This paper is particularly aimed at investigating four children's development of ToM in comparison with their social-emotional, cognitive and linguistic developments after their year in pre-school education.

METHODOLOGY

Research Design

In this qualitatively designed article, the case study method has been applied. In the case study, incidents are clearly described in detail. This method aims to acquire data focusing on an incident, phenomenon, situation, individual or groups (Ekiz 2009).

Research Working Group

Four children (aged 48-60 months), attending a kindergarten in Ordu City for one year, participated in the paper. Two of the children are male and the other two are female. To make it more ethical, the children's real names are not used in the paper; instead, they are referred to as C1, C2, C3 and C4. Social-demographic characteristics of the children differ from each other. One of the participating children, C4, studied under inclusive education because of his linguistic deficits. C4 certificated by RAM (Counselleing and Research Center) as needing a special education. His mental development is behind those of his age group. The data relative to the participants is presented in Table 1.

Data Collection Instruments and Procedure

Objective assessment forms for 36-72-month-old children were used in order to monitor the children's progress in development areas through pre-school education. These forms were applied at the beginning and at the end of the children's pre-school education.

After one year of pre-school education, interview forms were filled out in order to determine the mothers' opinions about their children's

Table 1: Social-demographic characteristics of the participating children

	Mothere ducation status	*Father education status*	*Family status*	*Other family members*	*Siblings*	*Child row*	*Economic status*	*Age*
C1	Bachelor's degree	Bachelor's degree	Together	N/A	2	1st	High	4 years
C2	Primary school	Secondary school	Together	Present	5	4th	Medium	3 years 8 months
C3	Primary school	Secondary school	Together	N/A	3	2nd	Low	4 years 5 months
C4	Illiterate	Illiterate	Divorced	Present	3	2nd	Low	4 years 8 months

progress. Experts in the field approved these interview forms.

In order to detect ToM, first order false belief, second order false belief and faux pas tasks were conducted as data collecting tools (Baron-Cohen et al. 1985).

First Order False Belief Task

The aim of this task is to see whether the child understands that there may be other beliefs and thoughts different from his/hers. There is a Sally-Anne paradigm below (Baron-Cohen et al. 1985):

"There were two doll protagonists, Sally and Anne. First, researchers checked that the children knew which doll was which (Naming Question). Sally first placed a marble into her basket. Then she left the scene, and the marble was transferred by Anne and hidden in her box. Then, when Sally returned, the experimenter asked the critical Belief Question: "Where will Sally look for her marble?" If the children point to the previous location of the marble, then they pass the Belief Question by appreciating the doll's now false belief. If, however, they point to the marble's current location, then they fail the question by not taking into account the doll's belief. These conclusions are warranted if two control questions are answered correctly: "Where is the marble really?" (Reality Question) and "Where was the marble in the beginning?" (Memory Question)

Second Order False Belief Task

Stone and others developed second order false belief tasks in 1998. These tasks are much more complex than the first order false belief tasks. In the second order false belief tasks, the person is expected to attribute the other person's attribution in the paradigm. There is a Martha and Oliver Paradigm paradigm below (Stone et al. 1998).

"Martha and Oliver are sitting in the kitchen, talking. Oliver is eating cookies. First the researchers checked that the subjects could correctly identify Martha and Oliver in the pictures. Oliver gets up and leaves the room. Martha closes the box of cookies and puts them away in a cabinet. While he is outside of the room, Oliver looks back through the keyhole and sees Martha moving the cookies. Martha goes back and sits down. Then Oliver opens the door.

Belief question: Where does Martha think that Oliver thinks the cookies are? (Correct answer: on the table)

Reality question: Where are the cookies? (In the cabinet)

Memory question: Where were the cookies in the beginning? (On the table)

Inference question: Where would there be cookie crumbs? (On the table, on the floor)" (Stone et al.1998).

Faux pas

Faux pas tasks include complex structures such as metaphor and irony.It is the highest-level task of the ToM. It simply includes expressing the state, which has been aroused inside the audience by a non-straight meaning. There is a paradigm below to exemplify the situation.

"Jeanette bought her friend, Anne, a crystal bowl for a wedding gift. Anne had a big wedding and there were a lot of presents to keep track of. About a year later, Jeanette was over one night at Anne's for dinner. Jeanette dropped a wine bottle by accident on the crystal bowl and the bowl shattered. "I'm really sorry. I've broken the bowl," said Jeanette. "Don't worry," said Anne. "I never liked it anyway. Someone gave it to me for my wedding."

Did anyone say something they shouldn't have said or said something awkward?

If yes, ask:

Who said something they shouldn't have said or something awkward?

Why shouldn't he/she have said it or why was it awkward?

Why do you think he/she said it?

Did Anne remember that Jeannette had given her the bowl?

How do you think Jeanette felt?

Control question:In the story, what did Jeanette give Anne for her wedding?

How did the bowl break?" (Stone et al. 1998).

These tasks were conducted twice: at the beginning and at the end of the pre-school education. Theoretical scenarios, converted into the animations when taken into consideration the age of the children, were put into practice to evaluate the children's ToM. The questions above were asked to the children at the end of each cartoon designed for a specific task. The children's responses to the questions were classified as true or false. The children who gave three

correct answers were categorized as "Pass" and those who couldn't were categorized as "Fail".

Data Analysis

A detailed data analysis of the research subject with a small number of children was the aim. In this respect, triangulation was applied in order to raise the reliability of the data. The teacher kept observation records monitoring the children throughout the year. The mothers of the children were asked to answer these questions in order to evaluate the developmental areas after one year of pre-school education: "What kind of improvements took place in linguistic, mental and social areas of your child after one year of pre-school education?"The descriptive method was put into place to analyze the data collected from the teachers and parents.

FINDINGS

The children's social, linguistic and cognitive developments, which took place through the first months of the paper, are presented in Table 2. These findings were acquired by sticking to the outcomes (O) and the indicators of the curriculum. The outcomes, related to the ToM, were chosen from the acquisition and evaluation form.

As seen in Table 2, O4, O6 and O8, which especially have to do with the social and emotional areas are closely related to the Theory of Mind, were not developed at the beginning of the pre-school education. It was seen in the outcomes that the children (C), who display normal progress at the beginning of the pre-school education, had a parallel graphic in respect with those outcomes. C4, the one who studied inclusive education, seemed to lack any of those outcomes. Thus, his progress was beyond those of his age group.

At the Beginning of the Pre-school Education: First Order False Beliefs Tasks

None of the children who were given the first order false belief tasks at the beginning of the pre-school education were successful. They were given two separate tasks in order to evaluate their progress in first order false beliefs. The first one was an unexpected location (Sally and Anne) trial with the help of a cartoon. The second was an unexpected context trial and authentic materials were used (play dough box-crayons). The same results were acquired at the end of the two trials. All of the children failed these false belief attribution tasks. The findings are represented in Table 3.

At the end of one year of pre-school education, C1 mastered all of the objectives except O3. C2 and C3 could not master the more complex objectives, which require social abilities, and C4 mastered the objectives, which require basic comprehension and attention abilities, but he could

Table 2: Children's developmental attributes at the beginning of the pre-school education

		C1	*C2*	*C3*	*C4*
Cognitive	O1 S/he pays attention to object/situation/case	✓	✓		
	O3 S/he recalls what s/he comprehended	✓	✓	✓	
	O19 S/he creates solution to the problem situations				
	O17 S/he establishes cause and effect relationships				
Lingustic	O5 S/he uses the language to interact	✓	✓		
	O6 S/he improves vocabulary				
	O7 S/he understands what s/he watched and listened	✓	✓	✓	
	O8 S/he expresses what s/he watched and listened through various ways			✓	
Social and Emotional	O1 S/he introduces self aspects.	✓	✓		
	O3 S/he expresses self using creative ways				
	O4 S/he explains others's feelings in respect to a situation or event				
	O5 S/he appropriately displays negative feelings related to an event or situation	✓	✓		
	O6 S/he defends his/her and others rights				
	O8 S/he respects for diversity				
	O16 S/he explains that individuals have various roles and missions in the society				
	O17 S/he solves problems with others				

not master the objectives, which require social abilities.

After One Year of Pre-school Education: First Order False Belief Task

All of the children but C4 seemed to overcome the first order false belief tasks at the end of the year of pre-school education. Both results from unexpected location trials and unexpected context trials were consistent. Furthermore, the outcomes that they gained through the pre-school education period and the results acquired from the first order false belief tasks seemed to support each other.

After One Year of Pre-school Education: Second Order False Belief Task

Only C1 and C2 succeeded more complex second order false belief tasks. C3 understood the paradigm and the questions but he found it hard to attribute someone else's thoughts about a third party. So, C3 failed the second order false belief task. C4, because of his language disorder and incompetence in mental development, found it difficult to understand the questions, so he failed the task.

After One Year of Pre-school Education: Faux Pas Tasks

C1 succeeded in the most complex ToM task, faux pas, while others failed. Though C2, C3 and C4 were expected to fail when their age group was taken into consideration, C1's success was above this expectation. The results are given in Table 4.

C1's mother (M) stated that her child acquired complex linguistic and cognitive abilities such as the "comment," "cause-effect" and "explana-

Table 3: Children's developmental characteritics at the end of the pre-school education

		C1	*C2*	*C3*	*C4*
Cognitive	O1 S/he pays attention to object/situation/case	✓	✓		✓
	O3 S/he recalls what s/he comprehended	✓	✓	✓	
	O19 S/he creates solution to the problem situations	✓	✓	✓	
	O17 S/he establishes cause and effect relationships	✓	✓	✓	
Lingustic	O5 S/he uses the language to interact	✓		✓	
	O6 S/he improves vocabulary	✓		✓	
	O7 S/he understands what s/he watched and listened	✓		✓	✓
	O8 S/he expresses what s/he watched and listened through various ways	✓		✓	
Social and Emotional	O1 S/he introduces self aspects	✓			
	O3 S/he expresses self using creative ways				
	O4 S/he explains others feelings in respect to a situation or event	✓			
	O5 S/he appropriately displays negative feelings related to an event or situation	✓			
	O6 S/he defends his/her and others rights	✓			
	O8 S/he respects for diversity	✓			
	O16 S/he explains that individuals have various roles and missions in the society	✓			
	O17 S/he solves problems with others	✓			

Table 4: Mothers's opinions after one year of pre-school education

		M1	*M2*	*M3*	*M4*
Cognitive Development	Concept acquiring	✓	✓	✓	
	Cause-effect relationship	✓			
	Attention and perception				✓
	Perception and curiousity		✓		
Social and Emotional Development	Self-confidence and presentability	✓	✓		
	Sociability	✓	✓		✓
	Adaptation			✓	✓
	Obeying the rules			✓	
Linguistic Development	Self-expression	✓	✓		
	Explanation and comment	✓		✓	
	Language to interact		✓		
	Comprehension of what s/he listened				✓

tion." C4's mothers mentioned more basic abilities. The mothers' opinions seemed to parallel their children's success in ToM and developmental characteristics after one year of pre-school education. The results are given in Table 5.

It seemed that C2's success in the second-degree false belief task might have been caused by the number of her siblings. Additionally, C1's family education status and her pre-school education can be interpreted as the main factors in her success in ToM3.

DISCUSSION

At the end of the research, it was seen that the children's ToM progressed one level, and one child even progressed by three levels. The children's development in social and cognitive proficiencies in the school environment under the one-year observation positively affected their ToM. This finding displays a similarity with the view that ToM is at the centre of the Social-Cognitive ability (Astington and Edward 2010).

The success and failure in these ToM tasks are obviously related to the demographic characteristics of the children. Therefore, this leads to the outcome that a social environment is effective in ToM development. The ToM ability was determined as a progress in sociability and representational mastery (Walker and Murachver 2012). The data extracted from this paper seems to support the literature. A positive relation seems to exist between the parents' education status and ToM development. Additionally, according to the findings, children's socio-economic status has a positive effect on ToM development.

For example, living in a divorced illiterate family, coming from a low social economic background increased the child's (C4) disadvantages when compared with his age group. His incompetency in all developmental areas, especially in language, may be the result of these disadvantages. Consequently, the failure in ToM development could have been sourced from both social-demographic and developmental disadvantages.Children with developmental disabilities have problems, especially with their language skills. This situation negatively affects children, especially their social life (Diken 2014). In literature, there has been some evidence, which supports the idea, that language is one of the base parts of the ToM ability (Walker and Murachver 2012).

The studies at the time of acquiring ToM indicated that ToM usually takes place at the beginning of age four, while age three seems coincidental (Granti 2004; Keceli and Acarlar 2011). In light of these findings, the children who display a regular development and have no disadvantages are observed to succeed in ToM at the expected age. Positive experiences, crucial for

Table 5: Children's general status at the beginning and end of the year of pre-school education

		C1	*C2*	*C3*	*C4*
Socio-demographic Characteristics	Mother education status	Bachelor's Degree	Primary School	Primary School	Illiterate
	Father education status	Bachelor's Degree	Secondary School	Secondary School	Illiterate
	Family status	Together	Together	Together	Divorced
	Siblings	2	5	3	3
	Child row	1st	4th	2nd	2nd
	Economic status	High	Medium	Low	Low
The Beginning of Insufficient	Cognitive D	Sufficient	Sufficient	Improvable	
Pre-school Insufficient	Social-Emotional D	Improvable	Improvable	Improvable	
Insufficient	Lingustic D	Sufficient	Improvable	Sufficient	
Education	ToM 1st	×	×	×	×
1 Year After Pre-school Improvable	Cognitive D	Prominent	Sufficient	Sufficient	
Education Insufficient	Social-Emotional D	Prominent	Sufficient	Sufficient	
Insufficient	Lingustic D	Prominent	Sufficient	Sufficient	
	ToM 1st	✓	✓	✓	×
	ToM 2nd	✓	✓	×	×
	ToM 3rd	✓	×	×	×

development in early childhood, positively affect ToM (Astington and Barrialut 2001). The findings of the paper seem to support this opinion.

When the children's disadvantages increase, their failures in ToM increase. On the other hand, while their positive experiences increase, their success in ToM increases. Children start to talk about themselves and others with their rapidly developing language skill. They begin to make sense of their own and other's feelings. All of these play important roles in ToM development (Astington and Barrialut 2001). Again, the findings of the paper seem to support this view.

CONCLUSION

The children who displayed regular progress at the beginning of the pre-school education were observed to fail to master the objectives, which are crucial to understanding others' feelings about an event or situation. That is why they could not overcome the first order false belief tasks. These parallels can be explained by pre-school education contributing to the ToM abilities.

RECOMMENDATIONS

This paper has been conducted with a small group. This may limit the generalization of the findings. Engaging in further studies conducted with larger groups and for a longer time is suggested. Based on the findings of the studies, it is suggested that various activities may be put into action in order to support the ToM in pre-school education. Families may be educated to support the children's development. Children should be supported in terms of their language, socio-economic status, emotionally and with regards to their cognitive areas in early childhood, which is crucial for the development of ToM.

LIMITATIONS

The most important limitation of the study is the number of participants in the study group. Another limitation is that the study was conducted with the children who attended pre-school education for only one year.

REFERENCES

Acev 1999. 7 Cok Gec! Erken Cocukluk Egitiminin Onemi Uzerine Dusunceler ve Oneriler. Istanbul: ACEV. From <http://www.acev.org/kaynaklarimiz/arastirmalarimiz-ve yayinlarimiz> (Retrieved on 20 May 2014).

Astington JW, Barriault T 2001. Children's theory of mind: How young children come to understand that people have thoughts and feelings. *Infants and Young Children,* 13(3): 1-12.

Astington JW, Edward MJ 2010. The Development of Theory of Mind in Early Childhood. Encyclopedia on Early Childhood Development. Canada. From <http://www.child-encyclopedia.com/documents/Astington-EdwardANGxp.pdf> (Retrieved on 13 March 2014).

Baron-Cohen S, Leslie MA, Frith U 1985. Does the Autistic Child have a "Theory of Mind?" *Cognition,* 21: 37-46. From <http://autismtruths.org/pdf/3.%20Does%20the%20autistic%20child%20 have %20a%20theory%20of%20mind_SBC.pdf> (Retrieved on 12 August 2012).

Bekman S, Corapci NS, Ozdemir A, Kizir A, Erman C 2004. Anne Destek Programi (ADP), ACEV, Istanbul. From <http://www.acev.org/kaynaklarimiz/arastirmalarimiz-ve-yayinlarimiz> (Retrieved on 20 May 2014).

Diken O 2014. Pragmatic language skills of children with developmental disabilities: A descriptive and relational study in Turkey. *Eurasian Journal of Educational Research,* 55: 109-122.

Doherty MJ 2009. *Theory of Mind: Understand Others' Thoughts and Feelings*. Canada: Psycology Press. ISBN 0-203-92990-X

Ekiz D 2009. *Bilimsel Arastirma Yontemleri.* Expanded 2nd Edition. Ankara: Ani Publishing. ISBN 9944-474-75-4.

Granti T 2004. *The Relationship between Metacognitive Vocabulary* and *Theory of Mind Development.* Master Thesis in Art Psychology, Unpublished. Istanbul: Bogazici Unversity.

Keceli Kaysili B, Acarlar F 2011. The development of theory of mind according to false belief performance of children ages 3 to 5. *Educational Sciences: Theory* and *Practice,* 11(4): 1821-1826.

Lecce S, Caputi M, Hughes C 2011. Does sensitivity to criticism mediate the relationship between theory of mind and academic achievement? *Journal of Experimental Child Psychology,* 110(2011): 313-331.

Mullera U, Liebermann-Finestoneb DP, Carpendalec JIM, Hammondc SI, Bibokc MB 2012. Knowing minds, controlling actions: the developmental relations between theory of mind and executive function from 2 to 4 years of age. *Journal of Experimental Child Psychology,* 111(2): 331–348.

Perner J 1999. Theory of Mind Developmental Psychology: Achievements and Prospects. Hove, East Sussex: Psychology Press. From <http://www.ucd.ie/artspgs/langevo/ThoMbenettom.doc.> (Retrieved on 28 May 2014).

Perner J, Lang B 1999. Development of theory of mind and executive function. *Trends in Cognitive Sciences,* 3(9): 337-344.

Perner J, Lang B, Kloo D 2002. Theory of mind and self-control: More than a common problem of inhibition. *Child Development,* 73(3): 752–767.

Piaget J 2004. *Cocukta Zihinsel Gelisim.* (Translation Ed.) Husen Portakal. Istanbul: Cem Publishing.

Santrock JW 2011. *Yasam Boyu Gelisim*. (Translation Ed.) Galip Yuksel. 13th Edition. Ankara: Nobel Akademy Publishing, ISBN: 978-605-133-152-2.

Saracho ON 2014. Theory of mind: Understanding young children's pretence and mental states. *Early Child Development and Care*, 184(8): 1281-1294.

Senemoglu N 2012. *Gelisim Ogrenme ve Ogretim Kuramdan Uygulamaya*. 21st Edition. Turkey: Pegem Akademy Publishing. ISBN: 978-605-5885-96-0.

Stone VE, Baron-Cohen S, Knight RT 1998. Frontal Lobe Contributions to Theory of Mind. *Journal of Cognitive Neuroscience*, 10: 640-656.

Suddenford T, Fletcher-Flin CM 1997. Theory of mind and origin of divergent thinking. *Journal of Creative Behavior*, 31(3): 169-179.

Suddendorf T, Fletcher-Flinn CM 1999. Children's divergent thinking improves when they understand false beliefs. *Creativity Research Journal*, 12(2): 115-128.

Sipal RF 2008. *A Study on the Investigation of Executive Functions of 4th,5th,6thGrade Deaf Students With and Without Pre-school Special Education Experience in Terms of Theory of Mind.* PhD Thesis, Unpublished. Ankara: Haccetepe University.

Walker FR, Murachver T 2012. Representation and theory of mind development. *Developmental Psychology,* 48(2): 509-520.

Welman HM, Liu D 2004. Scaling of theory-of-mind tasks. *Child Development*, 75(2): 523-541.