

How to Cite

Rusli, D. (2021). The Effect of reading storybooks on the development of theory of mind in preschoolers. *International Journal of Social Sciences*, 4(2), 255-260. <https://doi.org/10.31295/ijss.v4n2.1725>

The Effect of Reading Storybooks on the Development of Theory of Mind in Preschoolers

Devi Rusli

Padang State University, Indonesia

Corresponding author email: devirusli@fip.unp.ac.id

Abstract---The ability of children to predict the mental state of others (theory of mind) is very important in socialization. Reading storybooks can connect children with the views, desires, and beliefs of others. This study aims to determine the effect of reading storybooks on the development of Theory of Mind (ToM) children aged 4-5 years. The measurement of ToM uses the ToM scale developed by Wellman and Liu, and reading a storybook is measured using a questionnaire. The research subjects were 145 children aged 4-5 years (48-71 months, $M = 60.38$, $SD = 5.41$) and their parents. Sampling was done using the purposive sampling technique. Test the research hypothesis using simple regression analysis. The results of the study found that $R = 0.109$, $R^2 = .012$, $p > 0.05$, meaning that reading storybooks did not significantly affect the development of ToM in preschool children.

Keywords---preschooler, reading storybooks, theory-of-mind.

Introduction

A preschooler hides his birthday gift of a robot toy from his parents for fear of being played by his friends. It was true, his friend took his robot and played with it. The child's ability to understand the mental state (eg desires, goals, and beliefs) of others is called the theory of mind (Wellman, 2020). The results of the research by experts found that the theory of mind (hereinafter abbreviated as ToM) was influenced by genetic factors, but some experts also found that ToM was influenced by interactions with the environment such as parenting, siblings, culture, narrative media, and others. This theoretical debate provides an opportunity for researchers to develop ToM research across various cultures (Callaghan et al., 2005; Shahaieian et al., 2011; Wellman & Liu, 2004; Rusli et al., 2020; Rusli et al., 2021; Rusli, 2021). Understanding of the mental situation of oneself and others develops rapidly from 3-5/6 years of age. (Wellman et al., 2001; Callaghan et al., 2005; Slaughter & Perez-Zapata, 2014; Rusli & Nurmina, 2020; Rusli et al., 2021). The development of ToM does not stop at preschool age but continues into adulthood (Hughes, 2016; Wellman, 2018).

False belief (understanding of other people's beliefs that are erroneous or not the same as actual reality) is a single ToM test that was first tested in the research of Wimmer & Perner (1983). Wellman & Liu (2004), developed the ToM test by adding three categories of mental states namely desires, goals and beliefs called the ToM scale. The ToM scale consists of a) diverse desires (DD) which is an understanding of the different desires of others, b) different beliefs (DB) which is an understanding of other people's different beliefs, c) access to knowledge (KA) which is an understanding of knowledge of others based on known information, d) false beliefs (FB) which is an understanding of other people's erroneous beliefs and e) hidden emotions (HE), which is an understanding of other people's hidden emotions. In general, the ToM of children in Western countries such as America, Australia, Italy, and Germany develops from the easiest to the most difficult concepts in the order DD>DB>KA>FB>HE. (Wellman & Liu, 2004; Symons et al., 2005). In contrast to ToM, some children in Asia such as China, Singapore, Hong Kong, and Iran, develop in the order DD>KA>DB>FB>HE (Wellman et al., 2006; Shahaieian et al., 2011). The results of this study open up great opportunities for ToM research across various cultures.

ToM is very important for human life, the evidence is that experts have found that ToM performance affects individual social competencies such as helping behavior (Imuta et al., 2016; Dunfield, 2014; Hay & Cook, 2007; Hoffman, 2001). ToM also affects friendships and popularity, lying behavior, playing skills, strategies to influence others, and school preparation (Wellman, 2018). Furthermore, the researchers found the effect of ToM on children's

readiness at school, namely (a) circumstances at school (peer acceptance, social maturity, leadership abilities. (Imuta et al., 2016; Peterson et al., 2016). (b) academic achievement (Lecce et al., 2011; Lecce et al., 2014), and learning motivation, namely children like to respond to teacher explanations (Lecce et al., 2014). The results of the study found that the socialization of children with environments such as narrative media supports the development of ToM (Mar et al., 2010; Kidd & Castano, 2013; Kidd et al., 2016). Media stories contain various kinds of social interactions such as conflict, misunderstanding, understanding, and resolution (Kinnebrock & Bilandzic, 2006). Storybooks describe other people's mental states such as feelings, beliefs, misunderstandings, thoughts, and views that are different from story characters so that they are thought to help children understand the mental states of others (Ratner & Olver, 1998; Guajardo & Watson, 2002). Parents who read storybooks to children can stimulate conversations about mental states that improve ToM performance (Symons et al., 2005; Adrian et al., 2005).

Previous research has found the contribution of parents reading storybooks to the development of ToM (Symons et al., 2005; Adrian et al., 2005; Mar et al., 2010; Kidd & Castano, 2013). However, there are differences between the current research and previous research. In the study of Adrian et al. (2005), measuring ToM only used one ToM task, namely the false beliefs task, besides that they did not control the child's age, gender, and parental income of the participants. In Kidd & Castano's (2013), study, the effect of storybooks on ToM was tested on adults. Meanwhile, Wulandini & Handayani (2018), examined the effect of storybooks on ToM in school-age children. The research of Mar et al. (2010), looked at the effect of storybooks on ToM from children's exposure to storybooks based solely on the stories chosen by parents on several titles in the list provided. They do not calculate the number of time children spends using media which is an important indicator in measuring exposure to media (Van Mierlo, 2008). Therefore, in this study, we will look at the effect of storybooks on ToM based on how long (duration and frequency) children's parents read the storybooks they have at home. In addition, research by Mar et al. (2010) only examines the effect of storybook exposure on ToM as a whole. In this study, researchers will look at the influence of parents reading storybooks on the acquisition of each ToM concept.

Method

Subject

Participants were 145 children aged 4-5 years attending kindergarten in West Sumatra. The study also involved parents of children from middle-income economies with incomes starting at IDR 5,000,000-IDR 10,000,000, per month and a minimum of high school education. Parents filled out the willingness to be involved in the research which was stated through informed consent. Participants were obtained by surveying schools that match the criteria and asking the school for biodata of children (Danaei et al., 2020; Dyer et al., 2000).

Theory-of-Mind

ToM was measured using Wellman and Liu's ToM scale adapted in the Indonesian language and culture by Kuntoro, Saraswati, Peterson and Slaughter (Rusli et al., 2020; Rusli et al., 2021). There are five assignments on the ToM scale that are presented in the form of stories to see the understanding of the concept of diverse desire, diverse belief, knowledge access, false belief, and hidden emotion in children. The task consisted of control questions (aimed at understanding the storyline) and target questions (aiming at measuring understanding of each ToM concept). The storytelling is repeated twice if the child has not been able to answer the control questions. The target question cannot be repeated if the child has not been able to answer the question correctly. Children are given a reward in the form of biscuits after they complete the ToM experiment. The maximum ToM experiment was carried out for 10 minutes for each child (Bloom & German, 2000; Knobe, 2005; Haswadi et al., 2018).

Reading storybooks

Reading storybooks by parents is measured by distributing a questionnaire (a list of questions) to parents after the child has finished doing the ToM test. Questionnaires are given in 2 ways, namely manually and via a google form. Questions in the questionnaire include the title of the children's storybook that is read by parents to the child, the frequency and duration of the storybook that is read every day. Parents get a reward for hijab accessories (Kao et al., 2016; Smeets & Bus, 2012).

Result and Discussion

Based on the results of the ToM test (see Table 1), participants answered that ToM developed in the following order diverse desires > diverse beliefs > knowledge access > false beliefs > hidden emotion.

Table 1
Child ToM acquisition

No.	ToM Task	Correct Answer (%)
1.	DD	143 (99%)
2.	DB	140 (97%)
3.	KA	130 (90%)
4.	FB	92 (63%)
5.	HE	66 (46%)

Based on the results of the storybook questionnaire analysis (see Table 2), participants answered that most parents read storybooks to their children less than 7 hours per week. Only 2 participants were read storybooks by their parents more than 35 hours per week.

Table 2
Storybooks read

No	Duration per week	Number of participants
1.	Never	18
2.	≤ 7 hours	91
3.	≤ 14 hours	32
4.	≤ 28 hours	2
5.	≥ 35 hours	2
	Total	145

This study aims to examine the effect of storybooks on the development of ToM in preschool children by using simple regression with the SPSS program. The results of data analysis showed that story books had no effect on the development of ToM with $R^2 = .012$, $p > 0.05$. The results of the regression analysis of the influence of storybooks on ToM can be seen through the following table:

Table 3
Regression analysis of the effect of reading storybooks on ToM

Variable	B	SE B	β	t	P
Reading Storybooks	0.148	0.113	0.109	1.308	0.193

$R^2 = .012$ N =145, $p > 0.05$)

Based on Table 3, it is known that the storybook has an insignificant regression coefficient ($\beta = 0.109$, $P > 0.05$). Thus, the intensity of reading storybooks has no significant effect on the development of ToM in preschool children. This study also examines the effect of storybooks on the acquisition of the concept of ToM (DD, DB, KA, FB, and HE) using the SPSS logistic regression analysis program. The results (see Table 4) show that storybooks do not affect all ToM concepts.

Table 4
Logistic regression analysis of the effect of storybooks on the ToM concept

Media	DD	DB	KA	FB	HE
Storybook	$p = .995$	$p = .056$	$p = .176$	$p = .665$	$p = .986$

Note:* $p < 0.05$

Based on the results of the ToM test, it shows that the ToM of preschool children develops in the order DD>DB>KA>FB>HE. This sequence of ToM development follows the ToM development of children from western countries such as the US, Australia, Italy, and Germany. The order of development of ToM is also the same as that of children in several provinces in Indonesia such as Depok, Java, and Sumatra (Kuntoro et al., 2013; Kuntoro et al., 2017; Rusli & Nurmina, 2020; Rusli et al., 2021). There is a phenomenon that not all children in western countries show the same sequence of ToM development, as well as the development of ToM in Asian children. This phenomenon becomes a great opportunity for ToM research in the future. This study aims to answer the question of whether parents who read storybooks affect children's ToM acquisition. The results of statistical regression analysis showed that parents who read storybooks did not significantly affect the development of ToM. The results of the logistic regression analysis showed that reading a storybook did not affect all ToM concepts. Based on the results of this study, it can be concluded that reading storybooks to preschoolers is not sufficient as a predictor of ToM performance.

The results of this study are the same as the previous research conducted by Peskin & Astington (2004), where the media exposure of storybooks through parents, teachers, and research assistants could not increase children's understanding of mental states. The reason is that it is suspected that the storybooks read by parents to children in this study used more picture books (popular fiction) such as comics than literary fiction books. Literary fiction books influence ToM more significantly than popular fiction (Kidd & Castano, 2013). Social information in literary fiction books can facilitate understanding the concept of ToM such as perceiving feelings and events experienced by characters in storybooks (Byom & Mutlu, 2013). Literary fiction contains the language of literary fiction containing a mental state that evokes emotions and intellectuals (Nurgiantoro, 2018). In addition, according to Wulandini & Handayani (2018), storybooks about knowledge in this study do not include books that can facilitate children's ToM because non-fiction books aim to acquire natural, social science, and so on. Therefore, for further research, consider including a list of literary fiction books only as books read by parents to stimulate the development of ToM.

Another factor that is thought to influence it is that the storybooks in this study include a list of imported books that adopt a western culture that is different from the cultural values of children in Indonesia (Inoue et al., 2006; Sun et al., 2010). It is estimated that the stories adapted from western culture are not by the social context, making it difficult for children to relate stories in mental situations of everyday life. Researchers say that narrative media such as storybooks can support the acquisition of ToM if the stories contained in them describe a social context and contain many sentences describing mental states (Dyer et al., 2000). That is, the selection of storybooks that are appropriate to everyday social contexts is very important so that children can imagine the events and emotions of the characters being told so that the ToM mechanism occurs. In addition, parents' answers to the storybook exposure questionnaire need to be synchronized with the collection of books the child has at home (Smith et al., 2016; Barkin et al., 2017).

The limitation of this study is that the study did not see how much information about mental situations is contained in storybooks so that the storybooks in this study did not facilitate the acquisition of children's ToM. This study also does not explore children's understanding of social interactions in storybooks read by parents, for example knowing the production of mental state words or mental state conversations that occur during storytelling. According to Wulandini & Handayani (2018), the storybook information in the questionnaire is not arranged by genre because not all storybooks can lead children to understand the mental states of others.

Conclusion

Based on the explanation of the conclusions and discussions described above, the researcher suggests further research to explore information about the genre of storybooks that contain and stimulate mental situations, for example researching literary fiction books that have been proven to affect ToM in preschool children. Further researchers also need to know the conversation between parents and children about the mental state during storytelling with the experimental method, not enough with the self-report method.

Acknowledgments

The researcher expresses high appreciation and thanks to Lembaga Penelitian dan Pengabdian Masyarakat (LP2M) Padang State University, West Sumatra which has financed this research with contract number: 660/UN35.13/LT/2021.

References

- Adrian, J. E., Clemente, R. A., Villanueva, L., & Rieffe, C. (2005). Parent-child picture-book reading, mothers' mental state language and children's theory of mind. *Journal of child language*, 32(3), 673-686.
- Barkin, S. L., Lamichhane, A. P., Banda, J. A., JaKa, M. M., Buchowski, M. S., Evenson, K. R., ... & Stevens, J. (2017). Parent's physical activity associated with preschooler activity in underserved populations. *American journal of preventive medicine*, 52(4), 424-432. <https://doi.org/10.1016/j.amepre.2016.11.017>
- Bloom, P., & German, T. P. (2000). Two reasons to abandon the false belief task as a test of theory of mind. *Cognition*, 77(1), B25-B31. [https://doi.org/10.1016/S0010-0277\(00\)00096-2](https://doi.org/10.1016/S0010-0277(00)00096-2)
- Byom, L. J., & Mutlu, B. (2013). Theory of mind: Mechanisms, methods, and new directions. *Frontiers in human neuroscience*, 7, 413.
- Callaghan, T., Rochat, P., Lillard, A., Claux, M. L., Odden, H., Itakura, S., ... & Singh, S. (2005). Synchrony in the onset of mental-state reasoning: Evidence from five cultures. *Psychological Science*, 16(5), 378-384.
- Danaei, D., Jamali, H. R., Mansourian, Y., & Rastegarpour, H. (2020). Comparing reading comprehension between children reading augmented reality and print storybooks. *Computers & Education*, 153, 103900. <https://doi.org/10.1016/j.compedu.2020.103900>
- Dunfield, K. A. (2014). A construct divided: prosocial behavior as helping, sharing, and comforting subtypes. *Frontiers in psychology*, 5, 958.
- Dyer, J. R., Shatz, M., & Wellman, H. M. (2000). Young children's storybooks as a source of mental state information. *Cognitive Development*, 15(1), 17-37.
- Dyer, J. R., Shatz, M., & Wellman, H. M. (2000). Young children's storybooks as a source of mental state information. *Cognitive Development*, 15(1), 17-37. [https://doi.org/10.1016/S0885-2014\(00\)00017-4](https://doi.org/10.1016/S0885-2014(00)00017-4)
- Guajardo, N. R., & Watson, A. C. (2002). Narrative discourse and theory of mind development. *The Journal of Genetic Psychology*, 163(3), 305-325.
- Haswadi, M., Syarifudin, S., & Rusdiawan, R. (2018). Children Phonological Acquisition for 3 to 5-Year-Olds. *International Journal of Linguistics, Literature and Culture (IJLLC)*, 4(1), 16-21.
- Hay, D. F., & Cook, K. V. (2007). The transformation of prosocial behavior from infancy to childhood.
- Hoffman, M. L. (2001). *Empathy and moral development: Implications for caring and justice*. Cambridge University Press.
- Hughes, C. (2016). Theory of mind grows up: Reflections on new research on theory of mind in middle childhood and adolescence.
- Imuta, K., Henry, J. D., Slaughter, V., Selcuk, B., & Ruffman, T. (2016). Theory of mind and prosocial behavior in childhood: A meta-analytic review. *Developmental psychology*, 52(8), 1192.
- Inoue, Y., Yamada, K., & Kanba, S. (2006). Deficit in theory of mind is a risk for relapse of major depression. *Journal of affective disorders*, 95(1-3), 125-127. <https://doi.org/10.1016/j.jad.2006.04.018>
- Kao, G. Y. M., Tsai, C. C., Liu, C. Y., & Yang, C. H. (2016). The effects of high/low interactive electronic storybooks on elementary school students' reading motivation, story comprehension and chromatics concepts. *Computers & Education*, 100, 56-70. <https://doi.org/10.1016/j.compedu.2016.04.013>
- Kidd, D. C., & Castano, E. (2013). Reading literary fiction improves theory of mind. *Science*, 342(6156), 377-380.
- Kidd, D., Ongis, M., & Castano, E. (2016). On literary fiction and its effects on theory of mind. *Scientific Study of Literature*, 6(1), 42-58.
- Kinnebrock, S., & Bilandzic, H. (2006). How to make a story work: Introducing the concept of narrativity into narrative persuasion.
- Knobe, J. (2005). Theory of mind and moral cognition: Exploring the connections. *Trends in cognitive sciences*, 9(8), 357-359. <https://doi.org/10.1016/j.tics.2005.06.011>
- Kuntoro, I. A., Saraswati, L., Peterson, C., & Slaughter, V. (2013). Micro-cultural influences on theory of mind development: A comparative study of middle-class and pemulung children in Jakarta, Indonesia. *International Journal of Behavioral Development*, 37(3), 266-273.
- Kuntoro, I. A., Peterson, C. C., & Slaughter, V. (2017). Culture, parenting, and children's theory of mind development in Indonesia. *Journal of Cross-Cultural Psychology*, 48, 1389- 1409
- 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(3), 313-331.
- Lecce, S., Caputi, M., & Pagnin, A. (2014). Long-term effect of theory of mind on school achievement: The role of sensitivity to criticism. *European Journal of Developmental Psychology*, 11(3), 305-318.
- Mar, R. A., Tackett, J. L., & Moore, C. (2010). Exposure to media and theory-of-mind development in preschoolers. *Cognitive Development*, 25(1), 69-78.
- Nurgiantoro, B. (2018). *Sastra anak: pengantar pemahaman dunia anak*. UGM PRESS..
- Peskin, J., & Astington, J. W. (2004). The effects of adding metacognitive language to story texts. *Cognitive development*, 19(2), 253-273.

- Peterson, C., Slaughter, V., Moore, C., & Wellman, H. M. (2016). Peer social skills and theory of mind in children with autism, deafness, or typical development. *Developmental psychology*, 52(1), 46.
- Ratner, N. K., & Olver, R. R. (1998). Reading a tale of deception, learning a theory of mind?. *Early Childhood Research Quarterly*, 13(2), 219-239.
- Rusli, D., Nurmina. (2020). Pengaruh Gaya Pengasuhan Autonomy dan Conformity Terhadap Perolehan Theory-of-Mind pada Anak Prasekolah di Sumatera Barat. *J. RAP Ris. Aktual Psikol. Univ. Negeri Padang* 11, 113–127.
- Rusli, D., Kuntoro, I. A., Handayani, E., & Arben, A. (2020). The influence of individualism and collectivism parenting on theory-of-mind acquisition in children aged 3–5. *International Journal of Psychosocial Rehabilitation*, 24(9), 3053-3063.
- Rusli, D., Ariani, D. N., & Nurmina. (2021). The Movies On Television On Theory-OfMind Acquisition In Preschoolers. *International Journal of Health & Medical Sciences*, 4(1), 44-49. <https://doi.org/10.31295/>.
- Rusli, D., Nurmina, N., & Ariani, D. N. (2021). Pengaruh Intensitas Menonton Film Di Youtube Terhadap Theory-Of-Mind Anak Usia 4-5 Tahun. *Psychopolitan: Jurnal Psikologi*, 4(2), 143-150.
- Rusli, D. (2021). Pengaruh Budaya Terhadap Perkembangan Theory-of-Mind Anak-Anak Di Sumatera. *Jurnal RAP (Riset Aktual Psikologi) Universitas Negeri Padang*, 12 (1) 36-47 DOI : <https://doi.org/10.24036/rapun.v12i1.112241>
- Shahaeian, A., Peterson, C. C., Slaughter, V., & Wellman, H. M. (2011). Culture and the sequence of steps in theory of mind development. *Developmental psychology*, 47(5), 1239.
- Slaughter, V., & Perez-Zapata, D. (2014). Cultural variations in the development of mind reading. *Child Development Perspectives*, 8(4), 237-241.
- Smeets, D. J., & Bus, A. G. (2012). Interactive electronic storybooks for kindergartners to promote vocabulary growth. *Journal of experimental child psychology*, 112(1), 36-55. <https://doi.org/10.1016/j.jecp.2011.12.003>
- Smith, J. D., Woodhouse, S. S., Clark, C. A., & Skowron, E. A. (2016). Attachment status and mother–preschooler parasympathetic response to the strange situation procedure. *Biological psychology*, 114, 39-48. <https://doi.org/10.1016/j.biopsycho.2015.12.008>
- Sun, S. H., Zhu, Y. C., Shih, C. L., Lin, C. H., & Wu, S. K. (2010). Development and initial validation of the preschooler gross motor quality scale. *Research in developmental disabilities*, 31(6), 1187-1196. <https://doi.org/10.1016/j.ridd.2010.08.002>
- Symons, D. K., Peterson, C. C., Slaughter, V., Roche, J., & Doyle, E. (2005). Theory of mind and mental state discourse during book reading and story-telling tasks. *British journal of developmental psychology*, 23(1), 81-102.
- Van Mierlo, J. (2008). How to measure television exposure from a contents-received point of view? The use of different measures of television exposure in cultivation research.
- Wellman, H. (2020). *Reading minds: How childhood teaches us to understand people*. Oxford University Press, USA.
- Wellman, H. M. (2018). Theory of mind: The state of the art. *European Journal of Developmental Psychology*, 15(6), 728-755.
- Wellman, H. M., & Liu, D. (2004). Scaling of theory-of-mind tasks. *Child development*, 75(2), 523-541.
- Wellman, H. M., Cross, D., & Watson, J. (2001). Meta-analysis of theory-of-mind development: The truth about false belief. *Child development*, 72(3), 655-684.
- Wellman, H. M., Fang, F., Liu, D., Zhu, L., & Liu, G. (2006). Scaling of theory-of-mind understandings in Chinese children. *Psychological science*, 17(12), 1075-1081.
- Wimmer, H., & Perner, J. (1983). Beliefs about beliefs: Representation and constraining function of wrong beliefs in young children's understanding of deception. *Cognition*, 13(1), 103-128.
- Wulandini, I. A., & Handayani, E. (2018). The effect of literary fiction on school-aged children's Theory of Mind (ToM). *Diversity in unity: Perspectives from psychology and behavioral sciences*, 159-166.