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Development of Theory of Mind in English-speaking Chinese Singaporean Preschoolers

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Abstract

The current study examines Theory of Mind (ToM) development in English-speaking ethnically Chinese 3- to 6-year-old children raised in Singapore, a country influenced by both eastern and western cultures. All tasks were administered in English. Study 1 investigated the vertical development of ToM in 3- to 6-year-olds (N = 65) with five tasks, including diverse desires, diverse beliefs, knowledge access, content false-belief, and explicit false-belief tasks. Results revealed that like English-speaking preschoolers growing up in the West, English-speaking Chinese Singaporean preschoolers develop the understanding of diverse desires and diverse beliefs earlier than the understanding of knowledge access and false beliefs; however, contrary to previous findings in both the West and East, even 5-year-olds had not fully developed the understanding of false beliefs. Study 2 specifically examined the understanding of beliefs through the appearance-reality, deceptive pointing, false belief, and non-mental states control tasks. Results (N = 127) showed that in terms of the development of beliefs, English-speaking Chinese Singaporean preschoolers develop the understanding of the difference between appearance and reality earlier than deception, the understanding of false beliefs regarding location and content. In addition, Study 2 replicated the findings of Study 1 by showing that even 5 year old English-speaking Chinese Singaporean preschoolers had not fully developed the understanding of false beliefs. Together, these results suggest that the developmental pattern of ToM in English-speaking Chinese Singaporean children is unique, possibly reflecting a mix of East and West, and their unique linguistic experience.

Introduction

Theory of Mind (ToM) is the ability to ascribe mental states such as beliefs, desires, and intentions to oneself and others, and to use these attributions in anticipating the behavior of oneself and others (Premack & Woodruff, 1978; Zelazo, Qu, & Müller, 2005). It includes the understanding of diverse desires (i.e., others can have different desires from oneself), diverse beliefs (i.e., others can have different beliefs about the same event, object, or person from oneself), knowledge-ignorance (i.e., others can have different knowledge about events from oneself), false belief (i.e., others can have beliefs which differ from the truth), appearance-reality (i.e., something looks different from what it really is), and deception (Carlson & Moses, 2001; Flavell, Flavell, & Green, 1983; Wellman & Liu, 2004).

ToM is a necessary core human capacity required for the comprehension of the social environment and the display of socially adequate behavior (Astington & Jenkins, 1995). The development of ToM during preschool years is closely related to preschoolers' social competence (Wellman, Fang, Liu, Zhu, & Liu, 2006), school readiness (Astington & Pelletier, 2005), academic performance (Blair & Razza, 2007), lack of behavioural problems (Fahie & Symons, 2003), and good mental health during later years (Pilowsky, Yirmiya, Arbelle, & Mozes, 2000). Thus, it is important to study the early development of ToM.

Research in the West has documented that the development of ToM follows a sequence. Children first develop the understanding of diverse desires, diverse beliefs, knowledge-ignorance, and then false beliefs (Wellman & Liu, 2004). For instance, by 5 years of age, most children are able to pass false belief tasks which children of younger age fail (Wellman, Cross, & Watson, 2001).

Recent work in the East has found that the development of ToM is universal and cultural-specific at the same time. For example, like their counterparts who grow up in the West, most 5-year-olds who grow up in the East such as in China and Korea have no difficulty with false belief tasks (Oh & Lewis, 2008; Sabbagh et al., 2006). Nevertheless, there are cross-cultural differences. Australian and North American preschoolers devel-

op the understanding of diverse beliefs before knowledge-ignorance (Wellman & Liu, 2004). Contrastingly, Chinese children have an earlier understanding of knowledge-ignorance than diverse beliefs (Wellman, Fang, Liu, Zhu, & Liu, 2006). This is consistent with Lillard's (1998) proposal that cultural variation exists in the development of ToM.

Additionally, language may play a role in the development of ToM as well. For example, in Mandarin Chinese, three verbs can refer to mental states such as thinking. Chinese preschoolers have performed better when the mental verbs were used in the false belief tasks implying that the characters' thinking may be false compared to when the neutral verb was used (Lee, Olson, & Torrance, 1999). Furthermore, bilingual experience may facilitate the development of ToM. For example, Goetz (2003) has found that bilingual 3- to 4-year-old Mandarin-English bilinguals outperformed English monolinguals and Mandarin Chinese monolinguals on the appearance-reality, perspective taking, and false belief tasks.

Noticeably, with globalization and wide information exchange, it is almost impossible to find a country with only one pure traditional culture. Indeed, traditional western and eastern practices are often mixed in today's modern societies. To further investigate the impact of culture and language on the development of ToM, the current study recruited children from a country with extremely mixed cultures. Singapore, with its blend of eastern and western cultural influences, provides a unique setting for exploring this cross-cultural question of child development. This Southeast Asian country emphasizes traditional cultures such as Confucianism, but includes western popular culture. It uses English, Chinese Mandarin, Malay, and Tamil as its official languages, but features British institutions. Traditional holidays of all ethnicities are celebrated together with Christmas and Easter Sunday. Thus, Singaporean English-speaking Chinese children constitute a distinctive sample through which to study the early development of cognitive and social abilities.

Study 1 aimed to illustrate the ToM development trajectory of English-speaking Chinese Singaporean preschoolers. Study 2 specifically examined the development of beliefs through the appearance-reality, deceptive pointing, false belief, and non-mental states control tasks.

Study 1

Methodology

Participants. Sixty-five English-speaking Chinese Singaporean 3- to 6-year-olds (3-year-olds: $N = 28$; $M = 41.6$ months, $SD = 4.1$, *Range*: 36 – 47; 15 girls; 4-year-olds: $N = 21$; $M = 54.1$ months, $SD = 3.2$, *Range*: 48 – 59; 12 girls; 5-year-olds: $N = 16$; $M = 64.4$ months, $SD = 4.0$, *Range*: 60 – 71; 9 girls) were recruited from local daycare centers. In all cases, parents were provided with a written description of the experiment, and they granted informed consent allowing their children to participate.

Measures. Theory of Mind Tasks (Wellman & Liu, 2004):

Diverse desires task. It requires children to identify that other people have different desires from their own about the same objects. Children are told that John likes a snack different from the children's preference and then asked which snack John would choose.

Diverse beliefs task. It asks children to identify that other people have different beliefs from the children's about the same object. Children are told that Linda thinks her cat is hidden in a place different from what the children believe and then asked where Linda would look for her cat.

Knowledge access task. It requires children to acknowledge that other people, who do not see what is in a box, do not know what is in the box. Children are shown what is hidden inside a box and then are asked whether Mary would know what is inside the box given that she has never seen inside the box before.

Contents false belief task. It is about children's understanding that other people's beliefs about what is in a container can be false. Children are shown a cookie box but are shown that it is a car inside the box instead of cookies. Then children are asked what Peter would think is inside the box given that Peter has never seen inside the box.

Explicit false belief task. It asks children to predict how a person will search if the person's beliefs are false. Children are told that Tom's candy is in his bag, however, Tom thinks that his candy is in his drawer.

Then children are asked to predict where Tom would look for the candy.

Puppets, toy figurines, and other props were used to demonstrate situations and remind children of the response options. In each story, two questions were asked: a target question about the protagonist's mental state or behaviour and a contrast or control question about the reality or another person's state. To pass a task, participants had to answer both questions correctly.

There were three control tasks:

Peabody Picture Vocabulary Test, Fourth Edition (PPVT-IV; Dunn & Dunn, 2006). This is an individually administered and un-timed receptive vocabulary measure. Four pictures were presented at one time on a computer screen and children were asked to point to the one which best represents the meaning of a stimulus word presented orally.

Digit span Task (Davis & Pratt, 1996). This is a short-term memory measure. Participants were asked to repeat a set of numbers after the experimenter. Each number was spaced one-second apart.

Dimensional Change Card Sort (DCCS; Frye, Zelazo & Palfai, 1995). This is a measure of executive function. Participants were given two target cards which differed on two dimensions, each placed in front of a tray. They were asked to sort six cards according to one dimension, either color or shape, then sort another six cards by the other dimension. The order of the dimensions was counterbalanced between participants.

Procedure. The participants were tested individually in a quiet classroom in their daycare centre by a trained adult experimenter. Each child was administered all nine tasks in a single session which lasted approximately 50 minutes. The test order was the PPVT-IV, two ToM tasks, digit span, another two ToM tasks, the DCCS and the remaining ToM task. The order in which the ToM tasks were presented was counterbalanced between children.

Results

Preliminary analysis did not show any significant gender or DCCS dimension difference, so data were combined. See Table 1 for the summary of performance.

A cross-tabulation of age group and ToM tasks employed in Study 1 was conducted to determine the passing rate for each task in each age group. Separate *t*-test was conducted to determine if participants in each age group performed above the chance level, $p = .50$ for each ToM task. Children in all age groups performed below chance level on the two false belief tasks.

Kruskal-Wallis tests were then conducted to evaluate differences among the three age groups on ToM task performances. Corrected for tied ranks, the tests were significant for the diverse beliefs and knowledge-ignorance tasks. Follow-up Mann-Whitney U tests were conducted to evaluate pairwise differences among the three age groups, using the Bonferroni approach to control Type I error rates across tests. Results indicated that 5-year-olds, $U = 89.0$, $z = -2.46$, $p = .014$, and 4-year-olds, $U = 83.5$, $z = -3.08$, $p = .002$, performed significantly better than 3-year-olds on the knowledge-ignorance task. Five-year-olds also performed significantly better than 3-year-olds on the diverse belief task, $U = 104.0$, $z = -2.43$, $p = .015$.

ANOVA analyses were conducted to evaluate differences among the three age groups on the PPVT, Digit Span and the DCCS task performances. Significant age improvement appeared on the performance of the DCCS. Post-hoc LSD tests were conducted and results revealed that 5-year-olds performed significantly better than 3-year-olds on the DCCS post-switch trials, $p < .001$.

Table 1
Descriptive Statistics for Theory of Mind and Control Tasks as a Function of Age.

	3-year-olds	4-year-olds	5-year-olds	Age difference
		Theory of mind tasks		
Diverse desires (*Percentage passing)*	77.8*	72.2*	93.8*	$X^2 = 2.61$, $p = .27$
Diverse beliefs (*Percentage passing)*	66.7*	88.9*	100.0*	$X^2 = 6.96$, $p = .03$
Knowledge-ignorance (*Percentage passing)*	22.2^	69.2*	100.0*	$X^2 = 10.70$, $p = .005$
Content false belief (*Percentage passing)*	3.7^	23.0^	28.6^	$X^2 = 3.63$, $p = .16$
Explicit false belief (*Percentage passing)*	0.0^	29.4^	12.5^	$X^2 = 2.79$, $p = .25$
		Control tasks		
Peabody Picture Vocabulary (*SD; Range*)	86.04 (19.19; 48-131)	84.05 (24.00; 48-134)	86.60 (7.61; 74-100)	$F = .10$, $p = .91$
Digit span (*SD; Range*)	3.00 (1.46; 1.5-5.0)	3.67 (1.03; 2.5-6.0)	4.12 (0.74; 2.5-5.5)	$F = 2.69$, $p = .08$
Dimensional Change Card Sorting: # of correct trials during post-switch (*SD; Range)*	1.79 (2.59; 0-6)	3.31 (3.03; 0-6)	5.25 (2.05; 0-6)	$F = 9.20$, $p < .001$

Note: *performance was above chance level (.5) at $p < .05$ level; ^performance was below chance level at $p < .05$ level.

To determine if the understanding of ToM concepts occurred sequentially, a Friedman Test was used to rank the mean score of each ToM concept. A significant rank-order was revealed, $\chi^2 = 48.2$, $p < .001$. Follow-up Wilcoxon Signed Rank tests were conducted to evaluate pairwise comparisons between participants' understanding of ToM concepts. It revealed that understanding of knowledge-ignorance developed significantly later than that of diverse desires, $z = -3.14$, $p = .002$ and diverse beliefs, $z = -3.53$, $p < .001$. Understanding of content false belief occurred significantly later than that of knowledge-ignorance, $z = -2.71$, $p = .007$.

These results indicate that in English-speaking Chinese Singaporean preschoolers, ToM develops in the following sequence: diverse desires, diverse beliefs, knowledge ignorance, content false belief, and explicit false belief.

Discussion

Results revealed that like English-speaking North American and Australian preschoolers but unlike Mandarin-speaking Chinese preschoolers (Wellman & Liu, 2004; Wellman et al., 2006), English-speaking Chinese Singaporean preschoolers develop an understanding of diverse beliefs before knowledge-ignorance. This implies that when advancing beyond understanding of desires, English-speaking Chinese Singaporean children first have an appreciation of how two people can have differing views about the same situation then have some sense of how one can be knowledgeable or ignorant.

Furthermore, results showed that most Singaporean preschoolers had difficulty with the content and location false belief tasks. These contradict to the previous finding that most monolingual children in the West and the East by age 5 pass these false belief tasks (Carlson & Moses, 2001; Sabbagh et al., 2006; Wellman et al., 2001), and bilingual children develop false belief faster than monolingual children (Goetz, 2003). Thus, Study 2 further investigated this issue with four tasks on the understanding of beliefs in English-speaking Chinese

Singaporean children.

Study 2

In Study 2, four ToM tasks were used: an appearance-reality task – form and color versions, a deceptive pointing task – 2 trials, a location false belief task – standard and explicit versions, and a content false belief task – self and other versions.

Method

Participants. One hundred and twenty-seven English-speaking Chinese preschoolers (3-year-olds: N = 42; M age = 43.5 months, *Range*: 36 – 47 months, SD = 2.7; 21 were girls; 4-year-olds: N = 53; M age = 52.8 months, *Range*: 48 – 59 months, SD = 3.8; 27 were girls; 5-year-olds: N = 32; M age = 64.6 months, *Range*: 60 – 71 months, SD = 3.7; 17 were girls) were recruited from Singaporean local daycare centres. In all cases, parents were provided with a written description of the experiment, and they granted informed consent allowing their children to participate.

Measures. Theory of Mind Tasks (Carlson & Moses, 2001):

Appearance-reality (Flavell et al., 1983). Two versions were used. In the identity version, children were shown a piece of sponge which looked like a rock. In the color version, children were shown a green paper clip in a red glass, which appeared to be black instead of green. In each version, children were asked how the object appeared, and what the object was in reality. Children were credited with passing if they answered both questions accurately.

Deceptive pointing (Carlson & Moses, 2001). Children were shown two opaque containers (one yellow and one red) and a marble. The experimenter put the marble in one of the containers (counterbalanced between children) and demonstrated the marble's location by pointing to the container. Then children were asked to place the marble in the other container and to show the experimenter the location of the marble by pointing to the container. After this warm-up, Experimenter 2 left. The children were asked to put the marble in one container. Experimenter 1 encouraged the children to play a trick by pointing so the other experimenter would not find the marble. Then Experimenter 2 returned and asked, "*Where is the marble?*" Children's responses were marked as pointing decisively or not. Then Experimenter 1 left the room and the children were encouraged to trick Experimenter 1 instead.

Location false belief. It measures whether children understand that other people's beliefs can be incorrect. In the standard version (Wimmer & Perner, 1983), children were told a story about two puppets, Barnie and Elmo. Barnie and Elmo played with two blocks, then Barnie (the two puppets were counterbalanced between children) needed to go home for lunch, so Barnie put the blocks in a blue container and left. Then Elmo wanted to play more blocks, so he took out the blocks and played. After a while, Elmo needed to go home for lunch too. He put the blocks in a white container and left. Now Barnie came back and wanted to play with the blocks. Children were asked the false belief question, "*Where does Barnie think the blocks are?*" and the reality question, "*Where are the blocks really?*" Children were credited with passing if they answered both belief and reality questions accurately. The explicit version (Wellman & Bartsch, 1988) is similar to the one used in Study 1.

Contents false belief (Gopnik & Astington, 1988). This task is similar to the one used in Study 1.

In addition to the three control tasks used in Study 1, there were two more control tasks:

The Non-mental states location task (Carlson & Moses, 2001) measures children's ability to understand the change of physical location. Children were asked to put a block inside a blue box, then to put the block inside a green box. Children were asked, "*Now where is the block?*" Then children were asked, "*When we first put the block in a box, before we moved it, where was it then? Was it in this box [green] box or this box [blue]?*" Children were scored a pass if they answered both questions correctly.

The Non-mental states content task (Carlson & Moses, 2001) measures children's ability to understand the change of physical content. Children were shown a box containing a marble. Then children were asked to take out the marble and put a toy fish inside the box. Then the box was closed. Children were asked, "*Now what is inside?*" Then children were asked, "*When I first showed you the box, before we opened it, what was inside it*

then? Was there a marble inside or was there a fish inside?" Children were scored a pass if they answered both questions correctly.

Procedure. The procedure was similar to that of Study 1, except that the test order was: the PPVT, standard location false belief, the non-mental states content, appearance-reality, digit span, content false belief, explicit location false belief, card sorting, deceive pointing, and the non-mental states location.

Results

Preliminary analysis did not show any significant gender or DCCS dimension differences, so data were combined. See Table 2 for the summary of performances.

Between the two non-mental states control tasks, separate Kruskal-Wallis tests showed that the age improvement was only significant with the non-mental states content task. Additionally, 3-year-olds', 4-year-olds' and 5-year-olds' performances on the non-mental states content task were significantly below chance. The performances on the non-mental states location task were at chance level for children in all age groups.

Among the four beliefs tasks, separate Kruskal-Wallis tests showed that age improvement was significant on appearance-reality color, deceptive pointing, and content false belief other, but not on the remaining tasks. Additionally, only 5-year-olds' performances on appearance-reality color and deceptive pointing task were significantly above chance. Four-year-olds' performance on appearance-reality color were at chance level. The performances on the remaining tasks were below chance level for children in all age groups.

Separate composite scores of appearance-reality, deceptive pointing, location false belief, and content false belief were calculated by summarizing the performance of the two subtests. A Friedman Test was used to rank the mean score of each ToM concept. A significant rank-order was revealed, $\chi^2 = 4.87$, $p < .01$. Follow-up Wilcoxon Signed Rank tests were conducted to evaluate pairwise comparisons between participants' understanding of ToM concepts. The results revealed that the performance on appearance-reality was significantly better than those of the rest of tasks; the performance on deceptive pointing was similar to that of location false belief $z = 1.45$, $p = .15$, which was significantly better than that of content false belief $z = 3.57$, $p < .01$.

These results indicate that the understanding of beliefs in English-speaking Chinese Singaporean preschoolers develop in the following sequence: the difference between appearance and reality, deception, false beliefs regarding location, and then false beliefs regarding content. Additionally, the verbal instruction used in false belief tasks, though without tapping into mental states, was also demanding for these children.

Table 2
Descriptive Statistics for Theory of Mind and Control Tasks as a Function of Age.

	3-year-olds	4-year-olds	5-year-olds	Age difference
		Theory of mind task		
Appearance-reality (*Percentage passing*):				
color	26.2^	50.9	75.0*	$X^2 = 17.34$, $p < .01$
identity	12.8^	30.8^	34.4^	$X^2 = 5.26$, $p = .07$
Deceptive pointing (*Percentage passing*)				
1	7.9^	23.1^	53.3	$X^2 = 18.43$, $p < .01$
2	13.2^	34.6^	56.7*	$X^2 = 14.35$, $p < .01$
False belief location: (*Percentage passing*)				
standard	11.9^	22.6^	31.3^	$X^2 = 4.13$, $p = .13$
explicit	28.9^	15.4^	23.3^	$X^2 = 2.43$, $p = .30$
False belief content: (*Percentage passing*)				
self	2.6^	1.9^	10.3^	$X^2 = 3.59$, $p = .17$
other	7.9^	5.8^	34.5^	$X^2 = 14.54$, $p < .01$
		Control tasks		
Peabody Picture Vocabulary (*SD; Range*)	78.3 (15.4; 60-120)	87.5 (16.4; 53-121)	83.9 (13.7; 41-110)	$F = 3.90$, $p = .02$
Digit span (*SD; Range*)	4.0 (1.1; 2-6)	4.5 (1.0; 3-6)	5.3 (1.1; 3-6)	$F = 13.64$, $p < .01$
Card Sorting: # of correct trials during post-switch (*SD; Range)*	4 (1.0; 0-3)	1.3 (1.4; 0-3)	2.2 (1.2; 0-3)	$F = 19.19$, $p < .01$
Non-mental state (*Percentage passing*):				
Location	42.1	38.5	60.0*	$X^2 = 3.72$, $p = .16$
Content	7.1^	18.9^	31.3^	$X^2 = 7.10$, $p = .03$

Note: *performance was above chance level (.5) at $p < .05$ level; ^performance was below chance level at $p < .05$ level.

Separate Spearman correlation tests showed that children's performance on appearance-reality and deceptive pointing tasks were significantly correlated with their PPVT scores $r = .30$, $p = .01$; $r = .22$, $p = .02$, with their digit span $r = .35$, $p < .01$; $r = .28$, $p = .02$, and with their performance during the post-switch of card sorting $r = .39$, $p < .01$; $r = .32$, $p < .01$. There was no such pattern between PPVT scores, digit span, card sorting, and the performance on the other ToM tasks.

Discussion

Study 2 replicated the findings of Study 1 and showed that English-speaking Chinese preschoolers developed the understanding of beliefs relatively slower than other ToM tasks. Unlike their counterparts growing up in western and eastern countries such as the US and China, most 5-year-olds in the current study failed the false beliefs tasks (Sabbagh et al., 2006).

These results are contrary to Goetz's (2003) findings which showed that bilingual 3- to 4-year-old Mandarin-English bilinguals outperformed English monolinguals and Mandarin Chinese monolinguals on the appearance-reality, perspective taking, and false belief tasks. For example, among 4-year-olds, 44% of Chinese monolinguals, 50% of English monolinguals, and 55% of bilinguals passed content false belief task, which were much higher than the passing rate of Singaporean 4-year-olds. Such differences may be due to several factors. First, in Goetz's study, the bilingual children whose PPVT scores were below 64 (i.e., the lowest score of the monolingual children) were removed from the final analysis. So the PPVT scores of the bilingual children in her study were much higher than those of the current sample. Nevertheless, the passing rates of the

current participants did not improve significantly after the children who had low PPVT were removed from the analysis. For example, the passing rate of content false belief task was 4.2% for the self version and 12.7% for the other version. Second, the verbal demands embedded in the instruction may partially interfere with the Singaporean bilingual children's performance, as shown by their relatively low performance on the non-mental states task. However, the passing rates did not improve fundamentally after the children who failed the non-mental states tasks were removed from the analysis. For example, the passing rate of content false belief task was 8.3% for the self version and 16.7% for the other version. Third, the linguistic experience is different in these two samples. The bilingual children in Goetz's study were recruited in the US and these children mainly spoke Mandarin at home and English at school. They may have more experience in code-switching than code-mixing. During code switching, bilinguals need to constantly suppress the irrelevant language and activate the appropriate language. During code mixing, bilinguals do not need to inhibit any language. It is possible that code-switching experience can improve the development of inhibitory control in bilingual children whereas code-mixing experience cannot. However, the children in Singapore have more experience in code-mixing because most Singaporeans are bilingual if not trilingual. Hence there is no need for children to inhibit one language while using the other language. It is possible the code-mixing instead of code-switching experience influences the development of Singaporean preschoolers. Furthermore, the unique mixture of eastern and western cultures may also play a role. Further investigation is needed.

General Discussion

The ToM development in Singaporean preschoolers is unique. Although their sequence of ToM development is similar to that of North American preschoolers, Singaporean preschoolers gain understanding of false beliefs later than the preschoolers who grow up in relatively pure western or eastern culture.

The relatively slower ToM development in Singaporean preschoolers may be explained by differences in cultural practices such as parenting style. Singaporean children who are directly told what their parents want or believe have a better understanding of others' beliefs and thinking (Qu, Koh, Wu, Hon, & Ng, 2009). Possibly these children may have more exposure to ToM-relevant experiences such as identifying discrepancies between their own and others' beliefs than their peers.

Additionally, Singaporean preschoolers' unique bilingual experience may also influence their understanding and development of mental states. Goetz (2003) proposed that compared to monolinguals, bilingual children are advanced in inhibitory control, metalinguistic understanding, and sensitivity to sociolinguistic interactions with interlocutors. It is unclear whether such advantages only exist in the bilinguals who grow up among monolinguals and constantly engage in code-switching instead of code-mixing. Whether English-speaking Chinese Singaporean preschoolers who grow up among bilinguals and constantly engage in code-mixing have any of these advantages over monolinguals deserves further examination.

Conclusion

The current studies have shown that like English-speaking preschoolers growing up in the West, English-speaking Chinese Singaporean preschoolers develop the understanding of diverse desires and diverse beliefs earlier than the understanding of knowledge access and beliefs. In terms of the development of beliefs, English-speaking Chinese Singaporean preschoolers develop the understanding of the difference between appearance and reality, deception earlier than the understanding of false beliefs regarding location and content. Contrary to previous findings in both the West and East, even 5-year-olds had not fully developed the understanding of false beliefs. Together, these results suggest that the developmental pattern of ToM in English-speaking Chinese Singaporean children is unique, possibly reflecting a mix of East and West, and their unique linguistic experience.

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