Psychology of Language and Communication 2018, Vol. 22, No. 1

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DOI: 10.2478/plc-2018-0020

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"DO YOU REMEMBER GOING TO THE BEACH?": REFERENCES TO INTERNAL STATES IN POLISH AND AMERICAN MOTHER-PRESCHOOLER SHARED NARRATIVES

The present study examined references to cognitive states and emotions in narratives produced by mothers and preschoolers (aged 3 or 5 years) in Polish and American families. Participants were 32 mother-child dyads from Poland and 32 mother-child dyads from the United States. The two samples were matched with regard to child age, child gender, maternal age, and maternal education. The mother-child dyads were asked to tell three personal narratives. The co-constructed narratives were coded for mother and child references to cognitive states and emotions. Polish mothers were found to include significantly more references to cognitive states in their narratives than American mothers. Results also revealed significant correlations between mothers' and children's references to cognitive states across both samples. Related to child development, 5-year-olds produced significantly more tokens in the narratives than 3-year-olds. This study shows that mothers' use of cognitive state terms in shared narratives with their young children differs across two Western cultural contexts. The results of this study are discussed with regard to two themes in developmental psycholinguistics: relations between maternal and child language use, and cross-cultural variation.

Key words: narrative, cognitive states, cross-cultural, preschooler

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Introduction

When parent-child narratives include parent references to internal states such as cognitions and emotions, children develop explicit knowledge structures for these internal phenomena (Taumoepeau & Ruffman, 2006; Thompson, 2006). This aids children in conceptualizing their own and others' inner experiences according to these categories of internal states (Fivush, 1994). Knowledge of vocabulary to refer to internal states (e.g., "know", "think", "sad") can allow the child to share his/her thoughts regarding particular psychological states with others, either within or outside the realm of narrative (Nelson, 2005; Thompson, 2006). Thus, parents' references to internal states in shared narratives with their young children may be a significant aspect of language socialization (Miller & Fung, 2012).

Across several studies, parents' references to internal states, i.e., cognitions, emotions, and desires, in the context of shared picture-book reading, conversations, and shared narratives, have been found to be associated with children's development of theory of mind (e.g., Adrián, Clemente, Villanueva, & Rieffe, 2005; Ensor, Devine, Marks, & Hughes, 2014; Hughes & Devine, 2014; Meins et al., 2002; Ruffman, Slade, & Crowe, 2002; Taumoepeau & Reese, 2013). Theory of mind refers to the ability to understand that others have minds, and that these minds contain beliefs, knowledge, desires, and emotions that may be different from one's own (de Villiers & de Villiers, 2014). Learning words as labels for emotional and cognitive states may assist children in developing theory of mind (de Villiers & de Villiers, 2014), which importantly is correlated with both children's academic achievement and social competence (Astington & Pelletier, 2005; Brown, Donelan-McCall, & Dunn, 1996; Hughes & Devine, 2015; Jenkins & Astington, 2000; Weimer & Guajardo, 2005).

Cross-Cultural Comparisons of References to Internal States in Narratives

A burgeoning literature has examined parents' and/or children's references to a wide variety of types of internal states in the context of narratives across cultural groups. For example, Han, Leichtman, and Wang (1998) examined references to internal states (e.g., emotions, cognitions, preferences, and evaluations) in the personal narratives and story retellings of 4-year-olds and 6-year-olds from the United States, China, and Korea. Children from the United States were found to include more references to preferences and evaluations than children from China and Korea; Chinese children also included significantly more references to preferences than Korean children. Wang and Fivush (2005) found European American mothers were more likely than Chinese mothers to provide explanations for their 3-year-olds' feeling states (e.g., "How did you feel when you couldn't get your head out of the water?", p. 480), in the context of co-constructed personal narratives of emotionally

salient events. Studying Māori and Pakeha mothers in New Zealand, Reese, Hayne, and MacDonald (2008) revealed that Māori mothers included more references to internal physical and physiological states (e.g., "I felt yucky", "I was so happy", p. 118), compared to Pakeha mothers, when relating the child's birth story to the child. Additionally, Reese et al. showed that mothers' inclusion of references to these internal states can vary as a function of type of specific narrative (e.g., relating the child's birth story vs. discussing with the child recent past shared events).

Overall, studies have begun to examine parent and/or child references to internal states cross-culturally, but this area of research is largely unexplored, especially with regard to comparisons across various Western cultures. In one recent study, Tulviste, Tõugu, Keller, Schröder, and De Geer (2016) investigated co-constructed narratives in mothers and their 4-year-olds across four sociocultural contexts, including families from Germany, Sweden, Estonia, and Cameroon. One main finding was that Estonian mothers' past event talk included proportionally more references to mental states (i.e., intentions, thoughts, feelings, and preferences, e.g., "You didn't *want* to go back to the playground", p. 50) compared to the past event talk of Swedish mothers.

Polish vs. American Family Models Related to Internal State References

Polish culture has been described as oriented toward both collectivistic and individualistic ideals (Lubiewska, 2008; Reykowski, 1994), whereas American society tends to be characterized as largely individualistic (Kağitçibaşi, 2005; Kusserow, 2004). In Kağitçibaşi's (2005, 2007) framework of family models, the family model in the United States is predominantly one of independence, whereas the family model in Poland is that of psychological interdependence (Lubiewska, 2008). In the family model of independence, intergenerational independence is valued and the main socialization goals are child uniqueness and autonomy (de Carvalho, Seidl-de-Moura, Martins, & Vieira, 2014). In the psychological interdependence model, there are coexisting collectivistic and individualistic values, and children are valued for emotional closeness, rather than for expected later economic contributions to the family (Kağitçibaşi, 2005; Lubiewska, 2008). Like children in the independent family model, children growing up in psychologically interdependent families are expected to develop autonomy in terms of independent decision-making (de Carvalho et al., 2014).

In 2004, Poland became a full member of the European Union. Boski (2006) indicates that a shift toward similarity to other European countries has been balanced by a desire to maintain traditional Polish values, such as strong family and friendship bonds. Many researchers (e.g., Botterill, 2014; Titkow & Duch, 2004; Weijnert & Djumabaeva, 2004) have discussed the strong ties that continue to exist in Polish families, even as society is moving toward

a greater individualistic orientation (Siemieńska, 2010). Polish mother-child relationships have been described as particularly close (Wejnert & Djumabaeva, 2004). Although Polish culture has perhaps become more individualistic in the 21st century, there is suggestion that it is not as individualistic as majority American culture (Forbes, Zhang, Doroszewicz, & Haas, 2009; Oyserman, Coon, & Kemmelmeier, 2002).

Zevenbergen, Haman, and Olszańska (2012) discussed differences in Polish and American mothers' reasons for talking about past events with their preschooler. The study revealed that Polish mothers were significantly more likely than American mothers to indicate in response to an open-ended interview question that they talk with their child about past events to provide emotional support (23% of Polish mothers vs. 2% of American mothers) and explanations (28% vs. 5%) to the child. These findings suggest a potentially greater orientation in Polish families toward psychological interdependence, compared to European American families. Although the relations between family models (Kağitçibaşi, 2007) and specific behaviors of parents and children in co-constructed narratives is complex (Schröder et al., 2013), the results of Zevenbergen et al. (2012) suggested that there may be differences between Polish and American parent-preschooler dyads in their inclusion of internal state references in co-constructed narratives.

Relationships among Mother and Child References to Internal States

Past research has demonstrated a positive relationship between the frequency of parents' and children's references to emotions and cognitive states in narratives, both when measured at the same time and prospectively. For example, Kuebli, Butler, and Fivush (1995) showed that the amount that mothers talked about emotions (i.e., number of emotion terms in co-constructed personal narratives) with their 40-month-old children predicted the amount that their children talked about past emotions at 58 months of age. Studying inclusion of cognitive state language in shared reminiscing, Furrow, Moore, Davidge, and Chiasson (1992) found that mothers' use of mental (i.e., cognitive) terms in conversation with their 2-year-olds (e.g., "think", "know", "pretend", "forget") predicted children's use of mental terms at age 3. Rudek and Haden (2005) showed significant correlations between mothers' and their preschoolers' use of cognitive terms (e.g., "know", "think", "remember") at both 30 and 42 months. In sum, there is some evidence that mothers' talk about internal states predicts their young children's references to cognitions and emotions.

Child Age Related to Parent and Child References to Internal States

The frequency of children's references to internal states (i.e., desires, emotions, cognitions) in shared narratives and conversations has generally been found to increase as the child develops through the preschool years (e.g.,

Berman & Neeman, 1994; Bretherton & Beeghly, 1982; Lai, Lee, & Lee, 2010; Rudek & Haden, 2005). However, Jenkins, Turrell, Kogushi, Lollis, and Ross (2003) found a significantly greater increase in children's references to cognitive states, compared to references to emotions or desires, in family conversations from the early preschool years (i.e., ages 2 - 4) to the later preschool years (i.e., ages 4 - 6). Regarding references to cognitive states in particular, Rudek and Haden (2005) revealed significant increases in the frequency of children's references to cognitive terms (e.g., "know", "think", "remember") from ages 30 to 42 months, when reminiscing with their mothers. In their study of emotion references (e.g., "sad", "cried", "enjoy") in mother-preschooler conversations, Melzi and Fernández (2004) found that 5-year-olds included more emotion words in their conversations than 3-year-olds.

Studying mothers' references to cognitions and emotions when describing a set of pictures to their preschooler, Taumoepeau and Ruffman (2008) found that the frequency of mothers' specific references to "think" and "know" increased as their child aged from 15 to 33 months; mothers' frequency of references to emotions (e.g., "happy", "pleased", "sad") did not change significantly across the same time period. Studying older preschoolers, Adams, Kuebli, Boyle, and Fivush (1995) reported that mothers and fathers used more emotion terms (e.g., "happy", "sad", "cry", "liked") in conversations about past events with their children at 70 months of age than when the children were 40 months of age. Overall, the foregoing literature suggests generally consistent increases in children's references to internal states in conversations and shared narratives over the preschool period, with more variability across study results in the relationship between child age and parents' frequency of references to specific types of internal states.

The Present Study

The present study explored differences between American and Polish middle-class mothers and preschoolers with regard to their inclusion of two types of references to internal states in co-constructed personal narratives: cognitive states and emotions. A comparison between American and Polish families was thought to be potentially informative, given these two groups have somewhat similar origins (i.e., with European roots) but are viewed as having differing emphases relating to child socialization.

Related to possible cultural differences in mother and child references to cognitive states and emotions, two competing hypotheses were suggested. First, it could be hypothesized that Polish mothers, with goals of providing emotional support and explanations when discussing past events with their preschoolers (Zevenbergen et al., 2012), might make references to emotions and cognitive states more frequently than American mothers. Moreover, a cultural framework of psychological interdependence in the Polish families could arguably predict a high frequency of mother and child discussion of emotions and cognitive

states. On the other hand, Han et al. (1998), comparing personal and story retelling narratives in 4-year-olds and 6-year-olds from independent (e.g., the United States) and interdependent (e.g., China) cultural contexts, found that children from the United States included more overall references to internal states (i.e., emotions, cognitions, preferences, and evaluations) in their narratives than children from China. The study conducted by Han et al. supports the hypothesis that the American dyads would include more references to cognitive states and emotions in their co-constructed narratives than the Polish dyads, in view of the relatively stronger emphasis on individualism found in American versus Polish culture (Forbes et al., 2009; Oyserman et al., 2002). Given these two hypotheses predict opposing results, data analyses related to family cultural background were exploratory. Another research question related to the relationship between mother and child references to cognitive states and emotions in the co-constructed narratives. It was expected that the frequency of mothers' references to cognitive states and emotions would be positively correlated with the frequency of their preschoolers' references (e.g., Rudek & Haden, 2005). As a last hypothesis, it was anticipated that child age would be positively correlated with mother and child references to cognitive states and emotions for this age group, given the extant research in this area (e.g., Adams et al., 1995; Rudek & Haden, 2005).

English and Polish are genetically and structurally different. English is a Germanic language with fixed word order and highly reduced inflection (Aarts, 2011), while Polish is a Slavic language with free word order and rich inflection (Grzegorczykowa, Laskowski, & Wróbel, 1998). As a result and what is relevant for the present study, words (lexemes) in Polish may occur in speech in many different inflected forms depending on tense, grammatical number, gender and person for verbs, and depending on grammatical case and number for nouns and adjectives. In the present study, we were interested in lexemes per se and not in their different infected forms. When counting word types, we did not distinguish between different forms of one lexeme (e.g., an inflected Polish word "myślałaś": past tense, second person female, singular for "myśleć" – "to think" was treated as one with others forms of the lexeme "myśleć", like "myślimy": present tense, first person, plural). In this way we leveled out potential differences in our results due to the richer inflectional morphology in Polish.

No published studies to date have investigated Polish parent-child personal narratives. There are studies of Polish children's narrative development, including the seminal work of Bokus (1992, 1998, 2004; Shugar, Bokus, & Smogorzewska, 2013; see also Kielar-Turska, 1999; Rytel, 1996; Smoczyńska, 1992; Weist, Atanassova, Wysocka, & Pawlak, 1999), but none have focused on preschoolers' personal narratives. Thus, this study aimed to add to the literature on Polish preschoolers' narratives, as well as to investigate

the factors of child age and cultural background as possible predictors of child and mother references to emotions and cognitive states in shared personal narratives.

Method

Participants

Study participants were 64 mother-child dyads (i.e., 32 from the United States and 32 from Poland). To reduce the risk of confounding variables, the samples were purposely matched with regard to child age and gender, and mother education. In each cultural group, 50% of the children were 3-year-olds and 50% were 5-year-olds. There was no significant difference in age between the American children (M = 52.38 months, SD = 10.32 months) and the Polish children (M = 53.93 months, SD = 12.80 months), $p > .60$. One-half of each child age sample was male. In the American sample, 52% of the children were first-born or only children; in the Polish sample, 50% were first-born or only children. The racial background of the children in the American sample was 88% European American, 3% Asian American and 9% biracial. All of the children in the American sample were reported by their mothers to be currently mono-lingual English speakers. The single Asian American child in the sample was adopted from South Korea at age 11 months. Her adoptive mother reported that the child has only ever spoken English. One of the European American children was adopted from Russia at the age of 17 months, and was reported to have spoken a few words of Russian at the time of her adoption. All of the children in the Polish sample were mono-lingual Polish speakers. One child in the American sample was described by his/her mother as having auditory difficulties. Four children in the American sample were described as having language articulation problems; however, no child in either sample was described as having language delays or was reported to have any diagnosis related to language problems.

There was no significant difference between the American mothers (M = 36.59 years, SD = 5.29 years) and the Polish mothers (M = 34.41 years, SD = 4.31 years) with regard to age, $p > .07$. In the American sample of mothers, 97% of the sample was European American; one mother in the American sample considered herself biracial. All of the mothers in the American sample were born in the United States and characterized themselves as mono-lingual English speakers. All of the mothers in the Polish sample were born in Poland and were native speakers of Polish. A Mann-Whitney U test revealed no significant differences across the two cultural groups of mothers with regard to maternal education, U = 407.50, $p > .16$. The sample was constrained to mothers who had completed at least two years of post-secondary education. The average level of maternal education in both cultural samples was 1-2 years of post-baccalaureate

education. In the American sample, 53% of the mothers worked full-time; in the Polish sample, 47% of the mothers worked full-time. This difference was not statistically significant, $\chi^2(1) = .25$, $p > .62$. There was no significant difference between the American mothers ($M = 2.25$, $SD = .84$) and the Polish mothers ($M = 2.22$, $SD = .94$) in the number of children they had, $p > .89$. In both samples, 6% of the mothers were single parents; in each of the other cases, the father lived in the household with the mother and child. Thus, it can be assumed that the samples were well matched in terms of demographic factors. A summary of these descriptive data for the two samples is presented in Table 1.

Participants in the American sample were recruited through newspaper advertisements and letters sent home to children attending preschool and child care centers in cities and towns surrounding the city of Buffalo, New York. Participants in the Polish sample were recruited through preschools and child care centers located in several suburban districts surrounding Warsaw. Snowball sampling was also used for the Polish sample (Neuman, 1997).

Table 1. Demographic Information for the Polish and American Samples

Variable	Polish	American
Child Data		
Age in Months	53.93	52.38
Percent of Sample Male	50%	50%
Percent of Sample with Developmental Challenges		
Speech (i.e., Language Articulation)	0%	13%
Language	0%	0%
Auditory	0%	3%
Vision	0%	0%
Mother Data		
Mean Age in Years	34.41	36.59
Percent with Post-Baccalaureate Education	84%	72%
Percent Working Full-Time	47%	53%
Percent Single Parent	6%	6%
Mean Number of Children in Family	2.22	2.25

Note: Child developmental challenges were reported by the mother on the Demographic Questionnaire.

Materials

A 29-item questionnaire (i.e., titled, "Demographic Information") was developed for use in the study. The measure assessed child and parent demographic variables such as age, gender, household composition, racial identity, country of origin, preferred language use, education, work status, and family income. The parent was also asked to report if the child "had

been identified as having difficulties" in any of the following developmental areas: hearing, vision, speech, or language.

The Demographic Information questionnaire, recruitment letters, consent materials, and verbal instructions to study participants were written initially in English by the first author (mono-lingual English-speaking) and translated into Polish by the second author (bilingual Polish-English speaker). They were then back-translated into English by a bilingual Polish-English speaker not associated with the project. The first two authors discussed and resolved any discrepancies in the back-translations.

The narratives were recorded using a digital audio-recorder (SONY MZ-RH910) and two microphones (Audio-Technica PRO-44).

Procedure

Ethical approvals for the study were obtained from relevant Institutional Review Boards in both countries (for the American sample from the State University of New York at Fredonia Human Subjects Review Committee; for the Polish sample from Komisja Etyki Badań Naukowych (Research Ethics Committee) at the Faculty of Psychology, University of Warsaw) with clear indication of the comparative nature of the study in each case. Before participating in the study, mothers signed an informed consent form and the child completed an assent form.

Although data for this study were collected as part of a broader investigation of parent-child co-constructed narratives and child language development (see Haman, Zevenbergen, Andrus, & Chmielewska, 2009; Zevenbergen et al., 2012; Zevenbergen, Holmes, Haman, Whiteford, & Thielges, 2016),[1] the foregoing procedures were the first thing that the families experienced when meeting with the researchers. To help the family become accustomed to the audio equipment used in the study, the mother and child were first asked to "just talk as [they] would at home" for approximately 5 min. The researcher was outside the room during this recording of spontaneous conversation. Next, the mother and child were asked to "tell three stories about something that happened to [them] both recently," with the researcher present in the room. This approach was based on the procedures used by Melzi (2000). The mother and child were told to "go on to the next story", until three stories in total were told. The role of the researcher was

[1] The data for this study were collected as part of a broader cross-cultural study of parent-child co-constructed narratives and child language development. Haman et al. (2009) describes the results of data that were collected regarding American and Polish preschoolers' coining of new words using derivation and compounding. The child participants in this study were a subset of the group included in Haman et al. (2009). Zevenbergen et al. (2012) focuses on American and Polish mothers' beliefs regarding parent-child narratives in a sample of 85 mothers; the participants in the present study were a subset of those included in Zevenbergen et al. (2012). Last, Zevenbergen et al. (2016) examines American mothers' use of two types of questions (information requests and "yes/no" questions) and two types of confirmation (praise and repetition) in the co-constructed narratives with their preschoolers, using the same sample of American mothers as in the present study.

to count the number of stories (i.e., to ensure that at least three were told) and to answer any questions, but not to introduce any content to the stories or provide any feedback regarding the stories. This procedure was successful in obtaining at least three stories from each dyad. If the mother-child dyad appeared to be finished telling a story, but was not moving on to a new narrative, the researcher asked, "Is there anything else either of you would like to tell me about that story?" After the narratives were recorded, the mother provided demographic and child developmental status information through the Demographic Questionnaire. In most cases, data were collected at the participants' homes. For the American sample, all verbal and written communications with participants were in English, and for the Polish sample, all verbal and written communications were in Polish.

Data Transcription and Coding

The narratives were transcribed verbatim using the CHAT transcription format (MacWhinney, 2000). The first author and undergraduate research assistants transcribed the American data, which was entirely in English, and a master's-level bilingual Polish-English student transcribed the Polish data, which was entirely in Polish. In all cases, the transcripts were checked for accuracy by a research assistant fluent in the speakers' native language. For each dyad, the three narratives comprised one speech sample. For 16 of the dyads, there was at least one instance of an individual proposing a topic for a shared narrative, but the partner did not wish to talk about that particular past event. For example, one American mother said, "What else have we done together recently? Swimming in our pool maybe?" The child followed with, "Oh, let's tell about my ears pierced." These "abandoned stories" were not included in the set of three analyzed narratives for each dyad.

Because research has shown that the valence of narrative content can be related to the types of emotion and cognitive-state references included within the narrative (Lagattuta & Wellman, 2002), the content of each narrative was categorized as positive/neutral or negative, following the work of Reese (Harley & Reese, 1999; E. Reese, personal communication, October 12, 2011). The first and second authors evaluated each of the American narratives, and the second and third authors reviewed each of the Polish narratives. The percent agreement for the categorizations in the American data was 98%. For the Polish data, the percent agreement was 96%. In cases of discrepancy in coding the valence of individual narratives (i.e. there were six discrepancies across the 192 narratives), a third evaluator from each language group, blind to the goals of the study, evaluated the narratives. These coders' evaluations for these narratives served as final decisions for these six cases.

The authors developed a coding system for direct references to cognitive states and emotions in parent-child narratives, based on Bretherton and Beeghly (1982). The references were all single lexemes, mostly single words

(e.g., "think", "know", "afraid"), but in a few cases could include more than one word (e.g., "to pay attention"). The coding system included two categories: cognitive state (COG) and emotion (EMO). Examples of cognition-related references included "to believe", "to know", "to think", and "to remember." Examples of emotion references included "sad", "happy", "afraid", and "upset." As described above, when counting word types, we did not distinguish between different forms of one lexeme. The full set of words used in the coding system, i.e., all lexemes included across the Polish and American English data sets, is presented in the Appendix in English. A master's-level bilingual Polish-English student translated the coding system into Polish.

The authors followed the work of Taumoepeau and colleagues (i.e., Taumoepeau & Reese, 2013; Taumoepeau & Ruffman, 2006) in coding all instances of these internal references, not just "genuine" terms. There has been argument in the literature that some internal state references (e.g., "You know what?") may be experienced as having only pragmatic, conversational meaning, and should not be counted in coding schemes as true instances of internal state references (Shatz, Wellman, & Silber, 1983). On the other hand, such conversational references may constitute models and practice of internal states language (Jenkins et al., 2003). Thus, in our coding of the data set, we counted each instance of the two categories of internal state references, except for cases in which the adult or child repeated him or herself (e.g., in cases of verbal dysfluency, following CHAT transcription conventions). As an example of the use of the coding system, one American mother said, "Oh I bet you were not happy about that." This utterance would be coded as including one reference to COG (i.e., "bet") and one reference to EMO (i.e., "happy"). Mother and child utterances that were clearly unrelated to the narrative task were excluded from coding considerations. Importantly, each internal state reference was evaluated in the context of surrounding utterances. For example, "I see" was counted as a cognitive-state reference if it clearly was equivalent to "I understand", but not if it was related to vision.

The first author coded all of the American data; the master's-level bilingual Polish-English student coded all of the Polish data. The second author (i.e., a bilingual Polish-English speaker) coded one-quarter of the data from both cultural samples to demonstrate reliability of the coding system. Intra-class correlation analyses revealed adequate reliability (M = .97, range = .96 -.99) in the coding of the two categories across both samples. For each participating study dyad, the total number of instances of maternal COG and EMO were summed, as well as the total number of child COG and EMO. In cases where two researchers coded a particular dyad's set of three shared narratives, coding judgments for that dyad from one of the researchers were randomly selected for inclusion in the data set. As only one-quarter of the data were coded by

more than one researcher, the researchers did not want to have final coding judgments developed through consensus for one-quarter of the data and independent coding judgments for the remaining three-quarters of the data. The total number of mother words (i.e., tokens) and the total number of child tokens were also calculated through CLAN (Computerized Language Analysis; MacWhinney, 2000) for each participating dyad. As all utterances were considered to be part of the dyadic verbal interaction, the token count for each individual included all words that were part of the three narratives for each dyad.

Results

Narrative Content

In both samples, the narratives produced by the dyads were predominantly positive or neutral in content (94% in both samples). Most of the stories told by the dyads across both samples were related to vacations and activities with family or friends (e.g., visiting a swimming pool, cooking together, attending a birthday party). In each group, only six of the individual narratives were evaluated as negative in content. These narratives described instances such as the death of a great-grandparent or pet, or a child injury.

Amount of Maternal and Child Talk – General Analyses

A two-way analysis of variance (ANOVA) was conducted to determine if the total amount of mother talk (i.e., mother tokens) varied as a function of cultural background or child age. The interaction between cultural background and child age was significant, $F(1, 60) = 6.46$, $p = .014$. However, post-hoc analyses, using Tukey HSD tests, revealed no significant contrasts. There were no significant main effects of cultural background or child age, all $ps > .40$.

ANOVA was also used to determine if the total amount of child talk (i.e., child tokens) varied as a function of the two independent variables of cultural background or child age. There was a main effect of child age, $F(1, 60) = 7.23$, $p = .009$. This effect was found to be in the medium range, $d = .65$ (Cohen, 1992). The 5-year-olds produced significantly more tokens ($M = 317.72$, $SD = 187.41$), than the 3-year-olds ($M = 209.75$, $SD = 121.70$). The interaction between child age and cultural background, and the main effect of cultural background, were not significant (all $ps > .94$).

Maternal References to Cognitive States and Emotions

Differences in mothers' inclusion of references to cognitive states and emotions, as a function of cultural background and child age, were analyzed. Both raw data (i.e., the number of references within each coding category), and proportional data (i.e., the proportion of references within each coding category to all words produced by the speaker) were analyzed (Minami, 1994).

This latter set of analyses accounted for differences in length across narratives, and permitted closer consideration of speakers' relative emphasis on particular types of references. Significant findings were further investigated with regard to the specific lexemes used by the particular groups.

The principal analysis was a MANOVA with cultural background and child age as the independent variables, and two dependent variables (i.e., maternal inclusion of COG and EMO). The analysis showed a significant main effect for cultural background, Wilks' λ, F (2, 59) = .87, p = .017. Post-hoc comparisons, using a set of Tukey HSD tests, revealed that Polish mothers (M = 21.53, SD = 15.34) included a significantly greater number of references to cognitive states than American mothers (M = 12.25, SD = 9.65), p = .004, d = .68. There were no significant differences between Polish mothers (M = 4.97, SD = 4.57) and American mothers (M = 4.44, SD = 4.20) in number of references to emotion, $p > .63$. Results revealed no significant main effect of child age, $p > .09$.

As was done with the raw data, a MANOVA was conducted with the proportional data. The pattern of results was similar to that found with the raw data. The MANOVA revealed a significant main effect of cultural background, Wilks' λ, F (2, 59) = .90, $p < .05$. Post-hoc analyses, using Tukey HSD tests, showed that Polish mothers (M = 2.21%, SD = 1.04%) included proportionally more references to cognitive states than American mothers (M = 1.61%, SD = .91%), p = .02, d = .59. There was no significant differences between the Polish mothers (M = .71%, SD = .61%) and American mothers (M = .67%, SD = .53%) in use of EMO, when the proportional data were analyzed, $p > .80$. The main effect of child age was also non-significant, $p > .30$.

Maternal References to Cognitive States and Emotions

As analyses on both the raw and proportional data revealed that the Polish mothers included more COG in their narratives compared to the American mothers, the researchers sought to study further the mothers' use of specific cognitive state references.

American mothers included 392 references to cognitive states (i.e., in tokens) in the narratives. Of this total, 24 different lexemes were used. This number sums across word forms, which vary only in verb tense or aspect, and across singular and plural forms of the same noun. The most common lexemes used by the American mothers were: "to remember" (token frequency = 221; 56% of all cognitive references), "to think" (token frequency = 62; 16%), "to know" (token frequency = 57; 15%), "to see" (token frequency = 11; 3%), and "to forget" (token frequency = 10; 3%).

Mothers in the Polish sample included a total of 689 cognitive state references (i.e., in tokens) in their shared narratives. Of this total, 44 different lexemes were used. This number sums across word forms which vary only in verb tense, verbs which vary in aspect (i.e., using stem alternations),

reflexive and non-reflexive forms of the same verb, adjectives which vary in grammatical gender (based on the characteristics of nouns they modify), comparative (e.g., superlative) forms of adjectives, grammatical case forms, and singular and plural forms of the same noun. Thus, the overall difference between American and Polish mothers' use of COG may not be attributed to the greater variability of forms in Polish words (which reflects this language's characteristics). The most common cognition-related lexemes used by the Polish mothers were: "pamiętać" / "to remember" (token frequency = 292; 42% of all cognitive references), "wiedzieć" / "to know" (token frequency = 166; 24%), "myśleć" / "to think" (token frequency = 36; 5%), "znaczyć" / "to mean" (token frequency = 25; 4%), "ciekawy" / "interesting" (token frequency = 20; 3%) "przypominać" / "to recall" (token frequency = 19; 3%), "wymyślać" / "to invent" (token frequency = 16; 2%), and "uczyć" / "to learn" or "to teach" (token frequency = 12; 2%).

Child References to Cognitive States and Emotions

Differences in children's inclusion of references to specific internal states in their narratives, as a function of cultural background and child age, were analyzed using 2-way MANOVA and two dependent variables (i.e., child's inclusion of COG and EMO). Both raw data (i.e., the number of references within each coding category), and proportional data (i.e., the proportion of references within each coding category to all words produced by the speaker) were analyzed.

MANOVA revealed no significant main effects; the interaction between child age and cultural background was also non-significant (all *ps* > .09). When the proportional data were used in a 2-way MANOVA, the results were similar. The interaction was non-significant, as were each of the main effects (all *ps* > .08). Means and standard deviations for the mother and child internal states data, as a function of child age and cultural background, are included in Table 2.

Correlations between Mothers' and Children's References to Cognitive States and Emotions

Pearson product-moment correlation analyses were conducted to assess if maternal references to the two types of internal states were correlated with their children's use of such references. Analyses were conducted on each cultural group separately, as the cultural groups differed in their frequency of mothers' inclusion of COG. In the Polish group, maternal COG was significantly correlated with child COG, $r(32) = .64$, $p < .001$. In the American group, maternal COG was also significantly correlated with child COG, $r(32) = .63$, $p < .001$. For the American dyads, maternal COG and maternal EMO were also significantly correlated, $r(32) = .39$, $p = .03$. A summary of the intercorrelations is presented in Table 3.

Table 2. Mean Maternal and Child References to Internal States as a Function of Cultural Background and Child Age

	M-COG	M-EMO	C-COG	C-EMO
		American Raw Data		
3-year-olds	11.94 (10.70)	5.50 (4.55)	5.13 (7.29)	.63 (.96)
5-year-olds	12.56 (8.80)	3.38 (3.65)	5.31 (4.66)	1.75 (2.14)
		American Proportional Data		
3-year-olds	1.33 (.81)	.71 (.47)	2.23 (2.84)	.25 (.37)
5-year-olds	1.91 (.93)	.63 (.60)	1.63 (.97)	.54 (.67)
		Polish Raw Data		
3-year-olds	16.31 (13.89)	4.88 (5.29)	5.38 (3.46)	1.13 (1.20)
5-year-olds	26.75 (15.35)	5.06 (3.89)	8.56 (6.70)	1.00 (1.32)
		Polish Proportional Data		
3-year-olds	2.17 (1.23)	.80 (.80)	2.98 (2.06)	1.06 (2.23)
5-year-olds	2.26 (.84)	.61 (.43)	3.11 (2.10)	.35 (.48)

Note: Standard deviations are included in parentheses following means. Data in the proportional section refer to the total number of speaker instances of a specific type of internal state or communication reference, divided by total speaker talk (i.e., tokens), as a percentage of 100. M-COG = maternal references to cognition. M-EMO = maternal references to emotion. C-COG = child references to cognition. C-EMO = child references to emotion.

Table 3. Summary of Intercorrelations for Maternal and Child References to Internal States as a Function of Cultural Background

Category	1	2	3	4
1. M-COG	__	.12	.64**	.15
2. M-EMO	.39*	__	.21	.32
3. C-COG	.63**	.23	__	.23
4. C-EMO	.18	.20	.17	__

Note: Intercorrelations for Polish participants (n = 32) are presented above the dashes and intercorrelations for American participants (n = 32) are presented below the dashes. M-COG = maternal references to cognitive states. M-EMO = maternal references to emotion. C-COG = child references to cognitive states. C-EMO = child references to emotion.
*$p < .05$. **$p < .001$.

Discussion

A main finding of this study was that Polish mothers included more references to cognitive states in their shared narratives than American mothers. The same results were obtained when raw data were analyzed and when analyses accounting for the total amount of maternal speech within the narratives (i.e., using proportional data) were performed. The effect sizes (Cohen, 1992) associated with these contrasts were found to be in the medium

range. The specific references most frequently used were similar across the cultural groups (e.g., "to remember" / "pamiętać", "to think" / "myśleć", "to know" / "wiedzieć"); however, the Polish mothers included references to cognitive states 1.76 times more frequently than American mothers. Word diversity was also much higher for the Polish mothers than for the American mothers, even when the number of different words was calculated conservatively (e.g., counting Polish words that varied only in inflection form as one lexeme). Importantly, the Polish and American mothers' contributions to the co-constructed narratives with their preschoolers did not differ significantly in the total number of words. Thus, the significant difference between Polish and American mothers' inclusion of references to cognitive states in their shared narratives with their preschoolers appears to be robust.

Maternal references to cognitive states may be aimed at helping children to understand the shared responsibility of both parties in a co-constructed narrative. As described by Wang, Koh, and Song (2015), in a narrative interaction, "parents may provide multiple ways for children to participate, including telling stories around the child, telling stories about the child, and telling stories with the child" (pp. 92 – 93). For example, asking the child to *remember* part of a story may result in the child contributing more to the shared narrative. As parents of preschoolers are often the directors of the narratives when parents and preschoolers talk together about shared events (Fivush, 2007; Minami, 1994), parents may use cognitive states language (e.g., "Can you *think* of one really big thing we did this past weekend?", "I *wonder* why we were so warm") to help children learn that their contributions to stories are expected and welcomed. It is possible that the Polish mothers may have been more oriented toward having their preschoolers truly share the narratives than were the American mothers. This may relate to a stronger interdependent orientation in Polish families, compared to American families (Zevenbergen et al., 2012). Studying Latino families and European American families, Carmiol and Sparks (2014) discuss a possible link between value placed on the child contributing to shared family reminiscing and a relatively more interdependent cultural orientation. The results of our study are consistent with the conceptualization of Polish culture as one of psychological interdependence (Kağitçibaşi, 2013; Lubiewska, 2008), in which individuals are socialized to be high in agency (i.e., prepared for independent achievement) but also to have close personal relationships with others.

Zevenbergen et al. (2012) found that Polish mothers (i.e., a sample which included the mothers in the present study) were significantly more likely than American mothers to indicate that they talk with their child about past events to provide explanations to the child. "Providing explanations" is a context in which references to cognitive states are likely to occur. For example, one mother in her narrative said, "Oh, we did go to the beach on your birthday because I always *think* it's a good idea to go to the beach on your birthday."

Thus, the finding of Polish mothers' frequent references to cognitive states in their shared narratives is consistent with the interview results of Zevenbergen et al. (2012).

Child age was found to predict the amount of child speech in the narratives, with significantly more child tokens produced by 5-year-olds than 3-year-olds. This development-related finding concurs with the results of many other studies in the field (Han et al., 1998; Lai et al., 2010; Melzi & Fernández, 2004). No significant main effects of child age on maternal or child use of specific internal state references were found. These non-significant findings may be at least partly attributed to the large amount of variability among children in each age group, i.e., the standard deviations were often close in value to the means, as seen in Table 2.

This study is the first cross-cultural investigation of patterns of intercorrelations among parent and child references to internal states. Significant positive correlations were found between mothers' inclusion of cognitive state references and children's inclusion of cognitive state references, in both cultural groups. These results support the work of Rudek and Haden (2005) and Furrow et al. (1992), which also found significant correlations between mothers' and preschoolers' references to cognitive states in shared narratives. It is important to note that an instance of one partner's use of an internal state reference may be a newly introduced reference, or it may be a repetition of the other individual's reference within that particular interaction (Adrián et al., 2005; Welch-Ross, 1997). This caveat notwithstanding, preschoolers in the present study were gaining practice with use of cognitive state references in narratives.

Several limitations of this study must be noted. First, this study investigated only personal narratives of shared events. Studying Peruvian preschoolers and their mothers, Fernández and Melzi (2008) found that both mothers and children were more likely to include references to internal states (i.e., affective states, intentions, obligations, cognitive states, sensory perceptions, and physiological states) when sharing a wordless picture book compared to when producing a shared personal narrative. The results of our study may have been different had other contexts (e.g., shared picture-book reading, conversations occurring during free play) been examined. Second, the mothers in this study were highly educated and from relatively affluent economic circumstances. Burger and Miller (1999) provide an excellent example of how mothers' references to emotion may vary as a function of economic class, even within the same cultural group. Close consideration of the relationship between socioeconomic status and parents' speech to children (e.g., Rowe, 2018) suggests that the results of this study should not be extrapolated to all socioeconomic groups in the United States and Poland. Third, we did not assess the extent to which the mothers in the study subscribed to values within the independent, interdependent, and psychological interdependent family models (Kağitçibaşi,

2013). More evidence needs to be accrued regarding current family models in Poland, as well as in the United States.

Another limitation is that the study's goals did not include investigation of many other factors which may also be important in predicting parent and preschooler references to cognitive states and emotions in narratives, including child gender (e.g., Adams et al., 1995; Han et al., 1998; Kuebli et al., 1995; Melzi & Fernández, 2004), parent gender (e.g., Fivush, Brotman, Buckner, & Goodman, 2000; Leaper, Anderson, & Sanders, 1998), exposure to digital media (Vulchanova, Baggio, Cangelosi, & Smith, 2017), child attention abilities (Baptista et al., 2017; Bird, Reese, & Tripp, 2006), attachment security (Farrar, Fasig, & Welch-Ross, 1997; Laible, 2004; Oppenheim & Koren-Karie, 2009), and family structure (e.g., Jenkins & Astington, 1996; Tamis-LeMonda, Baumwell, & Cabrera, 2013). In this study, child and parent gender, parent education, and family size were matched across the two samples, but it is unknown if there were confounding factors which covaried systematically with cultural context and would call into question the conclusions drawn from this study's results.

These limitations notwithstanding, this study is the first examination of references to internal states included in Polish mother-preschooler personal narratives. The results showed that Polish mothers were significantly more likely to include references to cognitive states than American mothers when talking with their child about past shared events. However, in both cultural contexts, children's and mothers' inclusion of cognitive state references in the narratives were significantly correlated. Overall, these findings contribute to the literature on cross-cultural variation in parent and child use of internal state references in shared narratives.

The study findings relate conceptually to the growing literature regarding narrative-focused interventions for children from diverse sociocultural backgrounds (e.g., Cleveland & Morris, 2014; Leech, Wei, Harring, & Rowe, 2018; Peterson, Jesso, & McCabe, 1999; Reese, Leyva, Sparks, & Grolnick, 2010; Taumoepeau & Reese, 2013), including children with developmental challenges (Spencer, Kaijan, Peterson, & Bilyk, 2013). These interventions have been aimed at enhancing children's development of narrative and other emergent literacy skills. Future studies may consider how such interventions could include training adults in purposeful discussion of emotions and cognitive states in the contexts of personal narratives, story retellings, or picture book reading, in order to facilitate the development of children's empathy and theory of mind (e.g., Doan & Wang, 2010; Peskin & Astington, 2004; Symons, Peterson, Slaughter, Roche, & Doyle, 2005). How children may be optimally socialized in these socio-cognitive skills during the early childhood years likely varies across cultural contexts and child developmental status, and bears future research.

Acknowledgement

Funding source: United States National Academy of Sciences Twinning Program; internal grant (BST) Faculty of Psychology, University of Warsaw; Media Rodzina Publishing House

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Appendix

Cognitive (COG) and Emotional State (EMO) References Included in Coding System Across Polish and American Data

COG references: absent-minded, to agree [i.e., believe similarly], to be bored, to believe, to bet, [i.e., to guess], bored, boring, to cheat, to choose, to come up with, to count, to deceive, to decide, to disagree [i.e., not believe similarly], to discover [i.e., to learn], to dream, fake, to familiarize, to figure [i.e., to believe], to find out [i.e., learn about], to focus [i.e., attention], to forget, to go with [i.e., decide], to guess, to hope, idea, interesting, to know, to learn, to lie, to look forward [i.e., anticipate], to make up [i.e., to create in one's mind], to mean, memorial, memory, to mistake [i.e., believe erroneously], to pay attention, to pick [i.e., to choose], to pick up [i.e., to learn], to pretend, to put on [i.e., to trick], to recall, to remember, to remind, to see [i.e., to understand], to seem, smart [i.e., relating to intelligence], to suppose, to suspect, to teach, to think, to trick, to understand, to unlearn, to wonder

EMO references: to adore, afraid, anger, annoyed, ashamed, bad [mood], beloved, brave, to calm down, to care, delighted, discouraged, distress, to enjoy, excite, envy, frightened, furious, glad, good [mood], grief, happy, jealous, fear, to feel bad, to like, to love, mad, mean, merry, proud, relaxed, sad, scared, scary, shame, shy, sorry, stress, to surprise, terrified, to tolerate, upset, worry