

Teachers' Mental State Talk with Preschoolers: Assessing through Wordless Storybook Narration

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Abstract

Purpose. Rich language experiences during early school years have been linked with preschoolers' multiple development outcomes. The present study explores preschool teachers' use of mental state talk during wordless picture storybook narration. Additionally, it investigates how teachers' years of experience and educational qualification influence the use and variation in mental state talk.

Method. In total, 67 preschool teachers participated in story narration sessions with a group of 4-5 preschoolers, using indigenous wordless picture storybooks. Transcriptions from the audio-recorded storytelling sessions were coded into three mutually exclusive categories of cognition, emotion, and desire of mental state talk.

Results. The findings indicated that preschool teachers vary in frequency with which they use mental state talk. Moreover, the results showed that teachers used more cognitive mental state terms than emotional or desire terms. It revealed that teachers with higher educational qualifications and better teaching experience use more mental state talk as compared to lesser educational qualifications and teaching experiences.

Conclusion. Teachers need to be aware and conscious about the use of words and mental state terms while interacting with the pre-schooler and their contribution to child-related outcomes. It provides direction for policymakers to induct teachers with proper qualifications and experience to interact with the pre-schoolers. The present research is unique in its utilization of indigenous picture storybooks by preschool teachers and it adds to the dearth of work on teachers' mental state talk.

Keywords. *Mental state talk, story narration, preschoolers, preschool teacher, Pakistan, teacher-child interaction.*



Introduction

During the preschool period, children learn numerous skills and abilities that are important for their development (Frye & Moore, 2014). The social interaction of a child with adults and their significant others provides a framework to facilitate the learning and development process; where the role of language input of the significant others with the child is very crucial (Vygotsky, 1987). Research suggested that significant others use a wide variety of mental state words in conversation with children (Dunn, Bretherton, & Munn, 1987; Ensor & Hughes, 2008). The respective mental state talk (MST) is predominantly important for child outcome at an early stage of life (Barnes & Dickinson, 2017; Grazzani, Ornaghi, & Brockmeier, 2016; Ruffman, Puri, Galloway, Su, & Taumoepeau, 2018). MST is defined as the verbal utterances that describe the mental world and cognitive processes of an individual (Misailidi, Papoudi, & Brouzos, 2013). MST could be words that represent thoughts, emotions, desire, and intentions of the individual uttering it and represent the internal state of the individual (Frampton, Perlman, and Jenkins (2009). Therefore, the internal states can be categorized into cognitive terms (think, look, see, decide, believe), emotions (happy, sad, angry), desire terms (hope, want). These are the set of words that explain the contents of one's mind or cognitive processes (Barnes & Dickinson, 2018).

The majority of previous studies generally focused on paternal use of mental state talk while interacting with the child (Baptista et al., 2017; Bekar, Steele, Shahmoon-Shanok, & Steele, 2018; Slaughter, Peterson, & Carpenter, 2009). However, teachers are considered to be extra-familial individuals; they spend significant time with a child and use a diverse range of mental state references that contributes not only to development and learning of a child but also to sensitive and positive child and teacher relationship (King & La Paro, 2015).

Book reading is a context that facilitates interaction between preschoolers and their significant others. Research has identified that reading a book to a child not only contributes to children language development but also yields significant outcomes e.g. literacy skills (Mol, Bus, De Jong, & Smeets, 2008); executive function (Diamond, 2013), Theory of mind (ToM) (Peterson & Slaughter, 2003; Racine, Carpendale, & Turnbull, 2007; Slaughter, Peterson, &

Carpenter, 2008; Symons, Peterson, Slaughter, Roche, & Doyle, 2005), vocabulary growth (Barnes & Dickinson, 2018) and may in return help the children for story comprehension as these language during the storytelling session usually describe talk about mental states when children recognize these talk, they can understand and comprehend the language that describes the story character, motives and actions of the character more efficiently.

These aforementioned studies from maternal use of story picture book narration give direction to the current study and undoubtedly verify that mothers are the most significant to the preschoolers. However, teachers are also the foremost storytelling agents for the children (Ziv, Smadja, & Aram, 2014) and contribute significantly to child development. There is dearth of research that examines how teacher employ mental state with preschoolers. Previous researches assessed teachers' mental state talk during regular teaching practice (King & La Paro, 2015; Pelletier, 1996); naturalistic observation (Frampton et al., 2009), and storybook narration (Barnes & Dickinson, 2018; Misailidi et al., 2013). The present study aimed to explore the teachers employ mental state talk with preschoolers while narrating a picture book.. Wordless picture storybooks will help the storyteller to attribute their mental state words to the story character and engage the preschooler.

In Asian countries such as Pakistan, there is a dearth of research that covers the significance of teacher positive interaction and mental state language in early childhood specifically mental state language. The positive teacher interactions are of great importance as they may lead to more mental state terms. Recent researches examined the use of mental state talk in classroom settings suggested that teacher who maintains significant positive interaction with preschoolers use mental state talk more frequently (Frampton et al., 2009).

The main objective of the present research is to explore the Pakistani teachers employ mental state talk while narrating a wordless storybook to the preschoolers. In Pakistan, preschools are usually based on activity-based learning. Book reading and storytelling is the activity that is practiced in Pakistani preschools on regular basis.

Following previous studies (Baptista et al., 2017; LaBounty, Wellman, Olson, Lagattuta, & Liu, 2008) the present research utilizes the method of wordless picture books. Based on the previous work (King & La Paro, 2015; Misailidi et al., 2013) the present study explores the variance in the frequency with which teacher employ mental state talk and differences in specific type (cognition, emotion, desire) of mental state terms teachers use while utilizing wordless picture storybooks. Furthermore, the current study aimed to see whether there are any differences in the use of mental state talk among teachers with different teaching experiences. The current study also aimed at exploring the differences present in the educational qualification of preschoolers' teachers based on previous research which suggested an association between formal education of caregivers and mental state talk (McElwain, Booth-LaForce, & Wu, 2011).

Based on previous research which suggested an association between formal education of caregivers and mental state talk; the current study also investigated the differences present in the educational qualification of preschoolers' teachers.

Method

Participants. For the present study, participants were 67 preschool teachers, who were involved with learning and teaching of 3-6-year-old pre-schoolers. All teachers were females with a mean age of 30.80 ($S.D=4.40$) and worked at a full-day preschool. The sample included 23 schools both public ($n=8$) and private ($n=15$) schools, with the majority of pre-schooler represented low to middle-income families of the urban city of Rawalpindi. Teachers' education ranged from 14 years to 16 years. The recruited teachers varied in their teaching experience. A total of 41.8 % ($n=28$) of teachers had up to 2 years of teaching experience, and 41.3% ($n=27$) had more than 2.1 to 4 years of experience, and 17.9 % ($n=12$) up to 4 years of experience. 41.8% ($n=28$) participants had 14 years of educational qualification and 58.2% ($n=39$) participants had 16 and above years of educational qualification.

Measure

Mental state talk of teachers was assessed using wordless picture storybooks namely *Where Is Amma* (Nayar, 2010), *Raima and Rehan* (Nayar, 2017), and *The Garbage Monster* (Nazar, 2010).

These picture storybooks were modified and validated by (Toor & Hanif, 2020) by omitting the text from the storybooks to make them wordless picture storybooks to fulfill the purpose of the study. The process of selection and modification of storybooks followed the Subject Matter Experts (SME) review on the content of the storybooks, which not only contain rich references about mental state but also storybooks that deliver explicit and elaborative information about the mental state process of story character. Further, that engages the pre-schoolers and has cultural relevance. The face and content validity of the storybooks were also established. The selected storybooks were similar in terms of length and have a common feature that all storybooks have a main character that helps a teacher to elicit explicit information of the mental state process of that story character. These storybooks were used to have indigenous storybooks as a measure for the assessment of mental state talk of teachers and other significant others to use with preschoolers. The picture storybooks were new to all the teachers and pre-schoolers for the purpose to see how unfamiliar wordless picture storybooks generate complex mental states during the story narration session.

Procedure

Teachers were recruited from 23 public and private schools. The schools were contacted for permission to assess teachers' mental state talk in their respective schools. From each school, a list of teachers who were teaching to pre-schoolers was collected from the school administration, and teachers were randomly selected from the list. The teachers who gave consent to participate and audiotape the session were included in the study. The demographic information was obtained from the teachers prior to the story narration session. Random selection of the group of 4-5 pre-schoolers was made from each teacher's class, the informed consent form was sent to each pre-schoolers parents/ guardians through the school administration. Only those pre-schoolers were involved in the study whose parents gave consent for participation. Teachers were asked to involve in a storytelling session with the pre-schoolers in a quiet room. They were asked to read a wordless picture story to their group of 4-5 pre-schoolers independently.

The assignment of the three books was counterbalanced among the teachers of the same school, referring to the practice that three storybooks were randomly assigned to teachers within the same school.

The teacher story narration session with the pre-schooler was audiotaped and transcribed. The transcribed interaction was coded to assess the mental state talk employed by the teachers during the story narration session.

Mental State Talk Coding. First, the sum of words in teachers’ narratives was counted. This reflects the word count or the verbosity of the teacher. During the story narration, the verbosity represents the tendency of the teacher to express them comprehensively. Following the previous studies (Baptista et al., 2017; Bartsch & Wellman, 1995; Jenkins, Turrell, Kogushi, Lollis, & Ross, 2003) the mental state talk from the verbosity was then coded into one of the three exclusive categories, named as cognition, emotions, and desire. The talk that was used for conversational reasons e.g. ‘I have no idea’ and teachers’ own repetition of words or conversation were not coded and considered as one term or reference.

Cognitive terms. Cognitive talk is comprised of the words and terms that describe the knowledge, thoughts, or terms pertaining to cognitive processes of the third person, listener, or the speaker e.g. “cat thinks Amma (mom) is gone”. This category includes terms like remember, think, know, forget, guess, understand, believe, wonder, etc.

Emotional terms. This refers to the various emotional states of an individual. Following previous studies (e.g. Dunn et al., 1987; Jenkins et al., 2003) all the variety of terms sad, happy, afraid, angry, excited, love, fun, glad, hurt, surprise, etc. (e.g. Raima & Rehan were sad).

Desire terms. The mental category of desire terms included hope, want, wish and care. These terms capture the individual desires and goals e.g. the monster wants to go further reflects want terms, I wish Ami (mother) comes back soon, reflects the wish of the narrator. As in Shatz, Wellman, and Silber (1983), desire and emotion utterances were differentiated, in part, because emotion terms often have a more well-defined behavioral manifestation.

Interrater Reliability of the Coded Mental State Talk. Interrater reliability was evaluated for the coded mental state talk of the teachers on three categories; by calculating Cohen Kappa value for 50 percent ($n=34$) of the teacher story narration session; which was coded independently by two trained rates. The Cohen kappa value for three types of mental state talk was .82, .80, and .81 for cognitive, emotions, and desire terms respectively, which is more than substantial.

Results

To observe the variation in how teacher employ mental state words, descriptive analysis was carried out. Table 1 shows that preschool teachers use mental state terms in their story narration session. The mean number of teacher’s mental state terms was 69.10. There found to be differences among the categories of mental state talk employed by the teachers with the pre-schoolers. Teachers use more cognitive talk as compared to emotional and desire talk. Also, there was a significant variation in the total frequency of mental state talk among teachers while narrating a story; the range was from 42 to 118 mental state references.

Table 1.
Descriptive Statistics for Teachers’ Mental State Talk on Wordless Picture Story Books (N=67)

<i>Variable</i>	<i>Frequency</i>		<i>Range</i>	
	<i>M</i>	<i>SD</i>	<i>Minimum</i>	<i>Maximum</i>
Total word count				
Cognitive term	54.88	13.821	29	99
Emotion term	10.64	3.49	3	19
Desire term	3.63	1.98	0	9
Total MST	69.10	14.93	42	118

MST =Mental state talk

To examine the differences in the type of mental state talk (cognition, emotion, desire) employed by teachers while narrating a story across the year of experience, ANOVA was performed see Table 2. Mean differences in groups showed that teachers with teaching experience of above 4 years across overall more MST ($M=12.08$; $CI=.21$, 23.95) and specifically on cognitive terms ($M=12.08$; $CI=.21$, 23.95) were found to be significantly different from the other two groups i.e. teachers with up to 2 years and teachers with 2 to 4 years of experience.

Table 2.
Mean differences on Mental State Talk across Teacher Year of Experience (N=67)

Variables	0 – 2 years (n= 28)		2.1 – 4 years (n=27)		4 and above years (n=12)		F	p	Groups	MD (I-J)	η^2
	M	SD	M	SD	M	SD					
MST	65.92	8.89	67.67	13.16	79.75	24.08	4.18	.02	4and above years>0-2 years	13.8*	0.115
									4and above years>2.1 – 4 years	12.1*	
Cognitive	51.32	8.47	53.44	11.75	66.42	21.47	6.06	.00	4and above years>0-2 years	15.1*	0.159
									4and above years>2.1 – 4 years	12.9*	
Emotion	11.07	3.51	10.41	3.88	9.92	2.71	.52	.59	N/A		
Desire	3.54	2.08	3.81	2.07	3.42	1.62	.21	.81	N/A		

Note. MST= Mental state talk

The analysis was also carried out to see the effect of educational qualification on the use of mental state talk. Results indicated that more qualified teachers use more mental state talk as compared to less qualified teachers (see Table 3). Further, there found to be no relationship between teachers' use of mental state talk and the type of school ($r = -.114$) teachers are employed in.

Table 3.
Mean Differences on Teachers' Educational Qualification on Mental State Talk (N=67).

Variables	14 Years Education (n=28)		16 Years and above Education (n=39)		t	P	95% CI		Cohen's d
	M	SD	M	SD			LL	UL	
Cognitive	48.39	8.68	59.54	14.99	-3.53	.00	17.46	4.83	-0.87
Emotion	11.50	3.32	9.95	3.52	1.82	.07	-.15	3.25	N/A
Desire	3.93	1.94	3.41	2.01	1.06	.29	-.46	1.49	N/A

Note. MST= Mental State Talk

Discussion

The present study explored the mental state talk employed by preschool teachers during picture book narration. Moreover, it aimed to see whether teacher teaching experience and educational qualification contribute towards their usage and type of mental state talk during storybook narration. The present research is a preliminary study, which explored the phenomenon of teachers' mental state talk in Pakistan and suggests further investigation on a broader level.

Consistent with previous findings (Misailidi et al., 2013; J. Pelletier & Astington, 2004) the present results indicated that Pakistani preschool teachers use mental state talk in their storytelling session. Furthermore, the study highlighted that teachers' frequency of mental state talk and the categories (cognition, emotions, and desire) vary while narrating picture storybooks to pre-schoolers.

Taking direction from studies conducted on mothers (e.g. Bozbiyik, 2016; Hutchins, Bond, Silliman, & Bryant, 2009; Meins et al., 2002) the possible explanation for the variation in the mental state talk with the pre-schoolers could be the presence of certain characteristic possessed by individuals (e.g. mind-mindedness, individual with the simplest epistemologies, interactions of silenced knowers). Furthermore, the variability in teachers' mental state talk may associated with teachers' differences in their readiness to use intentional stance when narrating a story to pre-schooler (Dennett as cited in Misailidi et al., 2013).

Of the three independent categories of mental state talk, cognitive terms were employed most frequently by the preschool teachers. These findings are consistent with the previous research findings which employed the method of story narration using picture storybooks (Misailidi et al., 2013) and naturalistic observation (Pelletier, 1994). It can be inferred from these studies that teachers are prone to use more cognitive terms as compared to other terms when talking to pre-schoolers, especially when narrating a story that requires terms e.g. Look, see, etc. to get the attention of the pre-schooler. Cognitive terms contribute to pre-schoolers outcomes; studies from maternal mental state talk suggested that maternal cognitive mental state talk is related to the theory of mind development (Adrián, Clemente, & Villanueva, 2007; Barreto, Osório, Baptista, Fearon, & Martins, 2018; Bozbiyik, 2016). These studies from maternal mental state talk direct that teachers' mental state talk particularly cognitive terms may contribute to the Theory of mind especially in countries like Pakistan where pre-schoolers are more often exposed to teachers' mental state talk than their other significant others.

The present study also examined the differences in employment of teachers' mental state talk due to different years of teaching experience. The results revealed that teachers' experience with the pre-schoolers are significantly associated to the overall use of mental state talk while narrating the story to pre-schoolers. Teachers with more teaching experience utilize mental state talk frequently. This may be because experienced teachers have employed more mental state references across a number of setting e.g. in conversation, book reading, storytelling, giving instructions. Previous literature (e.g. King & La Paro, 2015) revealed the association between years of experience and mental state talk.

Nevertheless, it showed that with the increase of teaching experience the teacher uses lesser perception terms as they employ different strategies or verbal instructions to catch the attention of the child. Teachers' years of experience with the pre-schoolers is of great importance; it is related to several significant outcomes e.g. language development of a child (Kontos & Fiene, 1987); pre-schoolers learning (Barnett, 2003) and provide high quality of classroom learning environment (Zhang, 2014).

The present research also explored the teachers' mental state talk across their education qualification, which suggested that teachers with more educational qualification utilize more mental state talk than teachers with lesser years of educational qualification. Previous researches supported the idea that teachers' educational qualification and formal degrees are associated with the frequency of mental state terms with which they communicate with pre-schoolers. According to recent studies (e.g. Burchinal, Cryer, Clifford, & Howes, 2002; McElwain et al., 2011), the formal education of the caregivers and their sensitivity is associated with the mental state talk they employ in conversation. Moreover, it suggested that for the expression of mental state talk not only the years of educational qualification are important but also the quality with the teach interact with the child.

The current study showed teacher variation in mental state talk, also it showed that all the teachers in the study used mental state talk in their storytelling session. In past (J. P. Pelletier, 1996) showed contradictory results demonstrating that not all teachers use mental state talk. One of the possible reasons for the different results from the present study might be the methodological approach; where mental state talk was assessed during instruction time and the current study utilized the picture story narration. According to previous studies (e.g. Misailidi et al., 2013; Symons et al., 2005) picture story narration may be one of the methods which call for teachers' use of mental state talk.

Limitation

Although the present research has the strength, to use indigenous picture storybooks to explore the mental state talk of Pakistani pre-schoolers and opens an avenue for future researchers. However, it has few limitations.

The current study explored the phenomenon using wordless storybook narration; it is recommended that future researches should also explore the phenomenon during naturalistic observation of teacher-child interaction in the classroom. As teacher-child interaction is a bidirectional phenomenon, future research should include shared storybook reading activity.

Furthermore, the context and situation where pre-schooler and teachers interact are very important. However, it was not considered in the present study rather it focused only on the storytelling session. Additionally, pre-schoolers' characteristics such as age, gender, and socioeconomic status may also effect the teachers' frequency to employ mental state talk; therefore future researchers should consider these variables while measuring the mental state talk of the teachers. Likewise, teachers' characteristics such as mind-mindedness, monthly income, their professional training or growth could contribute to the frequency with which teachers' express mental state terms while interacting with the pre-schooler, hence should also be investigated in future

Moreover, taking into account the structure of preschools in Pakistan, both in the public and private sector, a great deal of variation exists in the criteria of hiring the preschool teachers, the physical environment, and the number of students. Therefore future studies should also explore the association between mental state talk and school type (public or private).

Conclusion

In conclusion, the current study added to the scarcity of researches conducted on teachers' mental state talk and would be very useful for educators and preschools programs in Pakistan. In a country like Pakistan, there is no uniformity in policy for inducting and training teachers at the preschool level, especially in the private sector. The current research provides direction for policymakers to induct teachers with proper qualification and experience to interact with the pre-schoolers. The research indicated that teachers need to be aware and conscious about the use of words and mental state terms while interacting with the pre-schooler and their contribution to child-related outcomes.

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Ethics and Consent to Approval

Inform consent was taken before data collection. Confidentiality of all data was ensured, further the participant had the right to withdraw.

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Conflicts of interest

The authors declare that they have no conflict of interest.

Authors' Contribution

Conceptualization and Methodology: [HKT, RH]; Formal analysis, investigation, writing - original draft preparation: [HKT]; Writing - review and editing: [HKT] ; Supervision: [RH]. All authors read and approved the final manuscript.

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