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Descrições Emocionais e Comportamentais de Eventos por Crianças Pré-Escolares

Article

Preschool Children's Emotional and Behavioral Descriptions of Events[1]

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Abstract: Preschool-aged children already show interest in other people's mental states. The goal of the present research was to investigate if this interest is reflected on four to six year-old children's preferences for either emotional or behavioral descriptions of events, and whether there is a correlation between those preferences and their emotion understanding. Thirty seven children (21 girls and 16 boys) were asked to describe four different movie scenes and their understanding of emotions was assessed. The results revealed an effect of age on the frequency of emotional descriptions, $F(2, 34) = 6.7$, $p < 0.01$, as well as a correlation between the frequency of emotional descriptions and participants' level of emotion understanding ($r = 0.55$, $p < 0.001$). These results are consistent with evidence suggesting an increase in the spontaneous production of emotion terms in the preschool years.

Keywords: social cognition, emotional development, preschool students

Descrições Emocionais e Comportamentais de Eventos por Crianças Pré-Escolares

Resumo: Crianças em idade pré-escolar já se interessam pelos estados mentais alheios. O presente estudo teve por objetivo investigar se o interesse por estados mentais alheios se reflete nas preferências de crianças entre quatro e seis anos de idade por descrições emocionais e/ou comportamentais de eventos e se há correlação entre essas preferências e sua compreensão emocional. Trinta e sete crianças (21 meninas e 16 meninos) foram solicitadas a descrever quatro cenas de filmes e foram avaliadas quanto à compreensão de emoções. Os resultados revelaram um efeito de idade para a frequência de descrições emocionais, $F(2, 34) = 6,7$, $p < 0,01$, bem como uma correlação entre a frequência de descrições emocionais e o nível de compreensão emocional dos participantes, ($r = 0,55$, $p < 0,001$). Esses dados são consistentes com evidências de um aumento na produção espontânea de termos emocionais no período pré-escolar.

Palavras-chave: cognição social, desenvolvimento emocional, pré-escolares

Descripciones Emocionales y Factuales de Eventos por Niños Preescolares

Resumen: Niños en edad preescolar se encuentran interesados en los estados mentales ajenos. El objetivo del presente estudio fue investigar si este interés se refleja en la tendencia de los niños de cuatro a seis años a describir eventos en términos emocionales o de comportamiento, y si hay correlácion entre estas preferencias y la comprensión emocional de los niños. A 37 niños (21 niñas y 16 niños) se les pidió que describieran escenas de cuatro películas y se evaluó la comprensión de las emociones. Los resultados revelaron un efecto de la edad sobre la frecuencia de las descripciones emocionales F(2, 34) = 6,7, p < 0,01 y una correlación entre la frecuencia de las descripciones emocionales y el nivel de comprensión de las emociones por los participantes (r = 0,55, p < 0,001). Estos datos son consistentes con evidencias del aumento en la producción espontánea de términos emocionales en el período preescolar.

Palabras clave: cognición social, desarrollo emocional, pre escolares

Many developmental psychologists share the view that, during early childhood, children focus more on external aspects of human actions, and gradually become more attentive to their internal aspects, like intentions and emotions (Piaget, 1966). Theory of Mind studies, however, have demonstrated that, far earlier than Piaget imagined, children are interested in other people's mental states and explain human behavior based on their interpretation of these states (Harris, 2006; Wellman, 1990; Wimmer & Perner, 1983).

Studies on infants' perceptual skills (Woodward, 1998, 2009) have shown that children are already capable of understanding some aspects of intentional action even before they present significant gains in language. Woodward (1998), for example, observed that six-month-old infants looked long at an object that was being pulled by a human hand, but not when it was being pulled by a mechanic claw. These results suggest that children at that age already distinguish between human beings and inanimate objects and seem to prefer actions performed by human agents.

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In more recent studies using the visual habituation paradigm (Woodward, 2005, 2009), infants were habituated to an event during which a hand tried to reach an object (a ball, for example) that was lying next to another object (a teddy bear, for example). Next, objects' position was reversed and infants participated in two types of test trials. On the first type of trial, the hand made the same movement in the same direction, thus reaching a new object (the teddy bear); on the second, the hand moved in a new direction, but reached the same object as in the previous phase (the ball). Even five-month-old infants looked longer at the event that included a change in intention (first block of test trials) than at the event on the second block of test trials, which included only physical change.

Evidence also exists that infants between nine and eighteen months already have different expectations of a person's intent or action, depending on the apparent emotional state (Barna & Legerstee, 2005; Meltzoff, 1995). More specifically, they expect that someone who seems happy when observing an object will approach it, while someone who seems to feel disgust or aversion toward it will take distance. Many researchers argue that these skills are important precursors to a theory of mind (Legerstee, 2005).

These results also reveal that infants present an initial understanding that both actions and emotions can be directed at a given object. Researchers argue that these skills are important precursors of a theory of mind (Legerstee) and serve as the basis for a more explicit understanding of mental states which emerges at the end of the preschool period (Legerstee, 2005; Low, 2010). It seems that "infants come *prepared* to interact with people" (Barna & Legerstee, 2005, p. 65, authors' italics) and, that, from early on, they are attentive to contextual information that facilitates the task of inferring other people's mental states.

Based on this evidence, it is possible to infer that preschool children may prefer "mentalistic" descriptions, that is, descriptions that include mental states (e.g., intentions, emotions or beliefs) of action agents over "behavioral" descriptions of human actions. Lillard and Flavell (1990) found support for this hypothesis. In their study, three-year-old participants looked at three pictures of a child performing an action but his facial expression could not be seen (a boy was drawn from the back and the picture showed him cleaning milk spilt on the floor). Participants were presented with twelve different sets of pictures. The experimenter described one of the three pictures to the child in behavioral terms (e.g., "He is cleaning up the milk he spilt") and another using mental states (e.g. "He is sad because he spilt milk"). Next, the child was asked to describe the third picture. The authors found that, in most trials (58%), participants preferred to describe the actions in terms of mental states (e.g., "He is sad because he spilt milk") than to describe them in behavioral terms.

In a replication of this study, Youngstrom and Goodman (2001) observed the same trend in children between ages three and three years and eleven months. This preference for mentalistic descriptions was present for pictures illustrating children's actions (60.8%) as well as for pictures of adults (63.1%).

Both of these studies suggest that preschool children tend to describe actions in mentalistic terms. It is possible that, as they develop and gain a more sophisticated understanding of mental states, these concepts become cognitively more available, increasing their propensity to use mentalistic descriptions of human actions. In the two studies mentioned, mentalistic and behavioral descriptions were considered mutually exclusive. In spontaneous linguistic productions, however, mentalistic descriptions can be used in tandem with behavioral descriptions (e.g., "He is holding his mother's hand because he's afraid of the dog"). Therefore, in the present study, a more flexible method (without a model) was adopted, allowing the child to refer to one or more aspects in the same response. References to emotions, behaviors and to both aspects were treated as distinct variables, which can be related to age or emotion understanding differently.

A second innovative aspect of the present research was the use of video scenes instead of pictures, showing events during which changes in the characters' emotional states occurred. Although the pictures used in the previous studies illustrated events/actions (e.g., a child taking a book from the bookcase), the use of dynamic scenes involving social interactions resemble more closely the events children experience and describe in natural situations. Moreover, while previous studies investigated different mental states (e.g., thinking, choosing, wanting), the present study focuses on emotional descriptions.

The aim of the present study was to investigate whether four to six year-old children's interest in other people's mental states is reflected in their preferences for emotional and/or behavioral descriptions of events, and whether there is a correlation between those preferences and their emotion understanding. As the ability to identify emotions and their causes has been related to positive outcomes for children, including greater social preference (Denham, McKinley, Couchoud & Holt, 1990) and a more sophisticated moral reasoning (Lane, Wellman, Olson, LaBounty & Kerr, 2010), the results of this study can be relevant for the planning of interventions aimed at promoting emotional development in preschoolers.

Method

Participants

Thirty-seven preschool children participated in the study and were divided in three age groups with the following mean ages: 3.9 years ($SD = 0.21$, $n = 12$); 4.8 years ($SD = 0.22$, $n = 15$) and 6 years ($DP = 0,35$, $n = 10$). The youngest group consisted of six boys ($M = 3.84$, $SD = 0.19$) and five girls ($M = 3.96$, $SD = 0.21$); the group with a mean age of 4.8 years included ten boys ($M = 4.90$, $SD = 0.20$) and five girls ($M = 4.71$, $SD = 0.22$) and the group of 6 years was comprised of two boys ($M = 5.7$, $SD = 0.41$) and eight girls ($M = 6.12$, $SD = 0.31$). Children were recruited from a public university daycare center located in a medium-sized city in the state of São Paulo.

Instruments

Preference for emotional or behavioral descriptions of events. Elaborated by Pavarini and Souza (2010), the procedure consisted of presenting to children, individually, two short videos showing child actors, which were edited from two commercial feature films. Each video showed a scene during which the main character expressed joy, followed by another during which the apparent emotion was sadness. The movies were presented in random order for each age group.

The main character was female in one video and male in the other. The video with the female character (duration of 2 min 10 s) showed the story of a girl, Caren, cheering for her mare, Sonia, in a horse race. In the first scene, the mare outstrips all of her competitors and finishes first. In the next scene, however, the animal is involved in an accident in the race track and the girl runs to find out what happened. The video of the male character (2 min 50 s), in turn, showed the story of a boy, Willie, on his birthday party. In the first scene, he gets different gifts, including a puppy. Next, however, the father says he is taking the puppy back to the shop and tells Willie he cannot keep it.

After watching each of the four scenes, each child was asked: "What is happening in the story?". If the child referred to the characters' actions or some aspect of the situation (e.g., "Willie got a puppy for his birthday"), the experimenter then asked, (1) "How is the boy/girl in the movie feeling?". If the child answered the first question by referring to the character's emotion (e.g., "Willie got happy"), the experimenter continued asking: "Why is he (emotional state)?". A third possibility was that the child could answer the question by referring to situational/behavioral aspects as well as emotional states (e.g. "Willie's happy because he got a puppy").

After each series of questions, the experimenter asked the child to report how (s)he was feeling him/herself. In addition, after each video, participants were asked to make up an ending for the story. Data on these questions were used to assess children's empathy and pro-social motivation (for data analysis, cf. Pavarini & Souza, 2010).

Children's scores were calculated based on their responses to the question "What is happening in the story?" (1). Answers to the questions: "How is the boy/girl in the movie feeling?" and "Why is (s)he (emotional state)?" were used as control measures, which helped us to check whether all children were actually capable of identifying both the characters' actions and emotions when questioned directly. All participating children were capable of identifying both aspects, which suggests that we measured children's preference for one description or the other, and not their understanding of the story or the characters' emotions.

Each of children's answers to the question "What is happening in the story?" was scored separately for each of the following target categories: reference to emotion, reference to action, and reference to emotion and action in the same response. For the *action* category, children received a score of 0 (no reference to the characters' actions or any aspects of the situation) or 1 (at least one reference) on each response. The same score was used for the *emotion* category: a score of 0 indicated that no reference was made to emotion, and a score of 1 indicated that at least one reference was made to emotion or any other mental state. Only two children alluded to other mental states: "The boy *loved* the dog" and "Sonia... *wanted* to win". Both answers received a score of 1, as they are references to mental states and not to behavioral descriptions. The same rule was applied to scores in the *emotion + action* category, that is, 1 point was given when the child referred to both aspects and 0 when (s)he referred to none or only one of them.

Therefore, if the child answered "Sonia is winning the race", for example, s(he) would receive a score of 0 in the *emotion* category, 1 in the *action* category and 0 in the *emotion + action* category. If the answer were "Caren got happy", the child would receive 1 point in the *emotion* category, 0 in the *action* category and 0 in the *emotion + action* one. Now, if the answer were "Caren is happy because Sonia is winning", 1 point would be attributed to all categories. As the procedure consisted of four scenes, a child's maximum score in each category was 4 points.

Emotion understanding. Two tasks from Wellman and Liu's Scale of Theory of Mind (2004) were used. The tasks were translated by the authors and a few adaptations were made (for example, puppets and illustrative figures were used), given the evidence that the use of such resources reduces the cognitive demands of the task and facilitates understanding of the target questions (Domingues & Maluf, 2008). Although research on theory of mind has made significant progress in recent years (Maluf, Gallo-Penna, & Santos, 2011; Sperb & Maluf, 2008), there is no record of a validation study of this scale for the Brazilian population.

The first (belief-emotion task) was used to assess whether a child would be able to correctly identify the emotion of an individual with a false belief. The task consisted of a short interaction between the child, the researcher and a puppet (interpreted by the latter). Each child was introduced to the puppet, called Zé, and a box of cereal. Zé went out "to play" and the experimenter opened the box in front of the child and realized that, in fact, the box contained pebbles instead of cereal. Next, the experimenter closed the box and Zé came back for a "lunch break". The child was then asked to identify the belief ("What does Zé think is inside the box?"; "Does Zé know that there are pebbles in there?") and the emotion of the puppet before opening the box ("So, how does Zé feel when he receives the box? Happy or sad?"). Next, the box was opened and the child was asked: "How does Zé feel after looking inside? Happy or sad?". The score for this task ranged from 0 to 2. One point was attributed if the child identified the character's belief correctly, and another point if the child answered correctly both questions about the puppet's emotions.

The second task (apparent-real emotion task) assessed whether the child understood that an individual seemed to feel one emotion (for example, joy), when (s)he actually felt another emotion (for example, sadness). The researcher presented cards with pictures to the children while telling the story of a boy, João, who was with a group of friends when Rosinha made a joke "that made João look silly". All other friends started to laugh, except João, who did not like the joke. The experimenter would then say that João did not want to show what he was feeling, otherwise children would call him a crybaby, so he "tried to hide how he felt". The researcher then asked some control questions to check their understanding of the story, followed by the key questions: (1) How does João truly and really feel inside, when Rosinha made the joke? Did he feel happy, more or less or sad? Why?; and (2) How did João seem to feel on the outside? What was his face showing? Happy, more or less or sad? Why?". When the child was able to discriminate the character's real and apparent emotions, (s)he received one point. If (s)he was unable to make the distinction, that is, if (s)he gave incorrect answers or if the justification was not in line with the distinction between the two emotions, no point was attributed. A general emotion understanding score (between 0 and 3 points) was calculated by adding up the scores for both tasks.

Procedure

Data collection. Individual sessions of approximately 20 minutes were held with the participants to assess their preference for emotional or behavioral event descriptions. The first author collected data in a room at the day care center children attended. Tasks were presented in a random order.

Data analysis. The following statistical analyses were conducted: (a) Analysis of Variance (ANOVA) to test for a possible effect of age on the use of emotional and behavioral descriptions, and (b) Pearson's correlation tests to test for possible associations between the type of description adopted by children and their level of emotion understanding.

Ethical Considerations

The present research was approved by the Ethics Review Board for Research on Human Beings at *Universidade Federal de São Carlos* (Study Number 161/2006) and we followed the ethical guidelines for research involving human beings.

Results

Mean scores for references to emotion, action and emotion *plus* action are shown in Figure 1. The results did not reveal a significant effect of age on the number of references to the characters' action, $F(2, 34) = 0.89$, $p = 0.42$. However, a significant effect was found for emotion, $F(2, 34) = 6.71$, $p < 0.01$, and *post-hoc* analyses revealed that children from the younger group (Mean age of 3.9) made less references

to the characters' emotions than children in the other groups ($p < 0.01$). Also, an age effect was observed on the number of answers referring to action and emotion simultaneously, $F(2, 34) = 6.82$, $p < 0.01$. *Post-hoc* analyses indicated that six-year-old children made more reference to both aspects simultaneously than children in the younger group ($p < 0.01$) and in the group with a mean age of 4.8 years ($p < 0.05$).
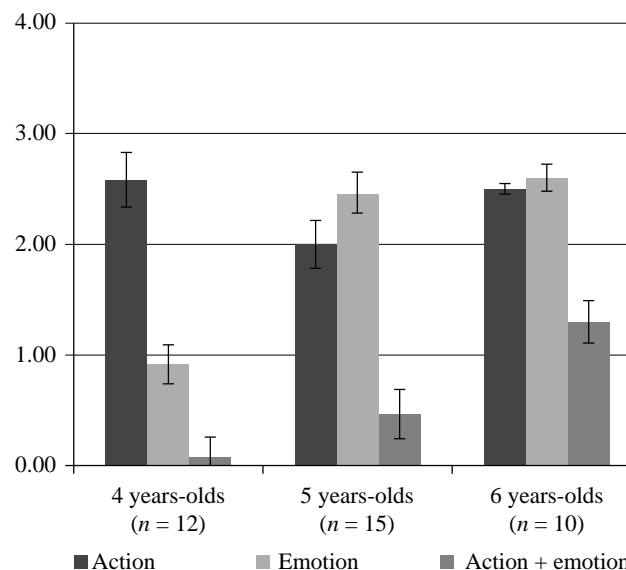

Figure 1. Mean number of references to action, emotion and emotion *plus* action across age.

With regard to emotion understanding (scores ranging from 0 to 3 points), for the youngest age group, the mean score was 0.67 ($SD = 0.89$), 2.13 ($SD = 0.99$) for the second group and 2.80 for the six-year-old group ($SD = 0.42$). Children's total score on theory-of-mind tasks was significantly correlated with the frequency of emotional descriptions ($r = 0.55$, $p < 0.001$) and descriptions using both properties ($r = 0.41$, $p < 0.05$). The number of descriptions referring to the characters' actions, however, was not correlated with children's performance on theory-of-mind tasks ($r = - 0.19$, $p = 0.43$).

Discussion

The results of the present study revealed that our older children (between five and six years of age) were more likely to use descriptions including references both to characters' emotions and behavior when compared to the youngest group ($M = 3.9$ years). No age effect was found, however, on the number of behavioral descriptions alone. The results also suggest that both emotional descriptions and descriptions referring to emotion and action simultaneously were positively correlated with children's level of emotion understanding, which was not true for references to action.

These results are consistent with the Theory of Mind literature, which suggests that, during the preschool period, vocabulary related to emotions expands considerably. In addition, at the end of the preschool period, children also talk about emotions more frequently and in a more complex manner (Fabes, Eisenberg, Hanish & Spinrad, 2001; Wellman, Harris, Banerjee & Sinclair, 1995). This evidence, based on the analysis of children's spontaneous linguistic productions, is in line with data from experimental studies, indicating that their understanding of emotions and processing of facial expressions becomes more elaborate during the preschool period (Gosselin, 2005; Pons, Harris & de Rosnay, 2004; Widen & Russell, 2008). It is possible that, as children gain an increasingly sophisticated understanding of the human mind, their concepts or schemes of emotions become cognitively more available. Therefore, it is understandable that children also become gradually more prone to paying attention to people's emotional states when they are asked to observe and describe events.

Answers including references to both concepts simultaneously (emotion and action) reveal a trend toward attempting to establish cause-and-effect relations between behaviors and emotions (e.g., "the boy is sad *because* his father took away his dog"). A more sophisticated emotion understanding provides a more solid knowledge base (i.e. a "theory of emotions") that allows children to spontaneously formulate hypotheses about external causes that can elicit different emotional states. Starting at five years of age, for example, children demonstrate a more elaborate theory about the agents that elicit emotions, including personality traits as possible psychological motives (Yuill & Pearson, 1998). The manner in which children describe themselves and their peers becomes more complex and is accompanied by their improved ability to identify how other people's behavior can vary over time and across situations (Leahy, 1976).

In fact, a theory of mind is not restricted to an ability to identify mental states, but also refers to the understanding of how these states are interrelated, on the one hand, and how they relate to human behavior, on the other (Carpendale & Lewis, 2006). Children can present not only different levels of skills to theorize about the relation between behavior and mental states, but they also may differ in their propensity to do so (i.e. differences in motivation). In the present study, the group of older children, who presented a more elaborate theory of mind, also seemed to have greater motivation to explore theories underlying other people's emotional states.

Although it is logical to think that a more sophisticated theory of mind makes children more prone to describing events using more mentalistic language, the relation may be bidirectional. Differential attention to other people's emotional states when observing events may also drive the development of a more sophisticated emotion understanding. In fact, the spontaneous use of mental terms by five to seven-year-old children while reading a book seems to predict better performance in theory of mind tasks (Symons, Peterson, Slaughter, Roche & Doyle, 2005). Nonetheless, longitudinal or experimental studies should further investigate the factors that can inhibit or promote the motivation to identify and theorize about other people's mental states.

One of these factors seems to be the nature of the relationship with the target person. For example, there seems to be inhibition of the motivation to theorize about mental states when the target is someone who is disliked (O'Connor & Hirsch, 1999). These results are relevant given that a greater disposition to identify emotions and emotional causes of behavior seems to be an essential part of social competency in childhood. Fabes et al. (2001), for example, analyzed preschool children's use of emotional terms in naturalistic observations of interactions with their peers. Their results revealed that a larger vocabulary, more references to other people's emotions and use of this vocabulary for social functions are predictors of greater social preference. It is possible, therefore, that individual differences in the use of emotional and/or behavioral event descriptions reveal differences in several aspects of children's social adjustment.

Conclusion

Our results suggest that, during the preschool period, children become more prone to describing events by referring to the emotional states of the people involved and, later, more prone to integrating behavioral and emotional descriptions. This second pattern reveals a *functional* use of theory of mind: the child not only recognizes one and/or another aspect in a given situation, but also identifies a causal relation between mental state and behavior (e.g., "Willie is happy *because* he got a puppy"). In addition, the present study suggests that these changes are associated with a more elaborate understanding of emotions and how emotional states are related to human beliefs and actions.

Although these results represent an important contribution to research on social cognitive development in Brazil, some limitations ought to be considered, particularly the limited sample size, the cross-sectional design and the correlational nature of the investigation. These facts limit the generalization of our results and the possibility of establishing cause-and-effect relations among variables. Our study, however, provides guidelines for future investigations. In particular, future studies should explore preferences for emotional and/or behavioral descriptions, using longitudinal designs and multiple methods, as well as the implications of these preferences for children's social functioning.

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