Predicting How People Feel: Ownership Matters for Preschoolers

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Abstract

Ownership is central in our thinking about other people and objects. We consider ownership when deciding whether we are permitted to use an object and when predicting how owners would feel if their property was lost or broken. Recognizing and understanding ownership is not just evident in adults. Even young children appreciate ownership and its consequences. In this experiment, we show that children aged three years (N = 40) predict that an individual would be sadder when her property went missing than when someone else's property went missing. These findings show that young children have a rich appreciation of ownership, and grasp relations between ownership and psychological states.

Keywords: cognitive development; social development; children; emotion; ownership; developmental psychology

Introduction

Our emotions often depend on ownership. We are upset when our property is damaged or broken; we are elated when we find lost belongings; and we are angry when our objects are used by others without permission. Knowing how ownership provokes emotions is important because it allows us to anticipate people's emotional reactions when situations occur involving their property. For example, we would predict that our neighbour will be angry and upset after his car is stolen, and that he would be sad if we lost a tool he let us borrow. These examples highlight an important role of ownership in social cognition: We use ownership to predict and understand the subjective states of other people.

Young children understand how basic emotions are caused. However, it is unknown whether children appreciate the effect of ownership on emotions. When told scenarios in which a character experiences a positive or negative outcome, children as young as 3 can predict when the character will feel happy, sad, and angry (Borke, 1971). For example, 3-year-olds can correctly predict that a character eating a favorite snack will be happy, and that a character who is not permitted to play will feel sad (Borke, 1971). Similarly, children aged 2-years and older can predict that a character whose desires are fulfilled will feel happy, and those whose desires are not obtained will be unhappy (Stein & Levine, 1989; Wellman & Bartsch, 1988; Wellman & Woolley, 1990).

When examining children's understanding of the causes of emotions, some studies have asked children scenarios concerning ownership of property (Arsenio, 1988; Borke, 1971). However, these studies did not *manipulate* ownership. For example, children were asked to imagine their cookie had been eaten by someone else, or that one of their toys was broken (Brody & Harrison, 1987). Additionally, scenarios requiring children to judge another's emotions involved ownership, such as predicting how a child would feel after the child's toy had been stolen (Arsenio, 1988). However, because the relationship between ownership and emotions has not been directly examined, it is possible that children would have been able to correctly infer emotions even if ownership information had not been provided. For instance, perhaps a child would have been upset simply because the toy he was playing with was taken away or broken, but not because the boy was the owner of the toy. Likewise it is possible that children would have deemed the character as sad when a cookie was eaten by someone else- not because the cookie belonged to someone in particular, but because the person who ate the cookie experienced a positive outcome of the situation (i.e., enjoying the cookie) while others did not.

Beginning between 3- and 4-years of age, children can also generate explanations of emotions, such as happiness, sadness, anger, surprise, and fear (Denham & Zoller, 1991; Harris et al., 1987; Russell & Widen, 2002; Strayer, 196; Widen & Russell, 2004; see also Fabes et al., 1991). While later at 7-years-old and beyond, children can explain the causes of more complex emotions such as jealousy, pride, guilt, shame, and embarrassment (Harris et al. 1987; Widen & Russell, 2010).

When explaining the causes of emotions, children's explanations have included the concept of ownership. To explain why people feel happy, sad, and angry, preschoolers refer to materials and the ownership of goods (Fabes et al., 1991; Strayer, 1986; Widen & Russell, 2002; Widen & Russell, 2004). For example, when asked to explain the cause of a peer's spontaneous emotion, children offer explanations such as, "He's mad because she took his toy" (Fabes et al., 1991) and the child is happy because he was

given a new bike (Strayer, 1986). Although children's explanations of emotions include aspects of ownership, these responses were often grouped under broader categories, such as material goods which do not only focus on owned objects (Fabes et al., 1991; Stayer, 1986). For example, the "material goods" category could include any interactions with an object or property. Because of this, it is unknown in what ways or how often children directly infer ownership as the cause of emotions.

Ownership has also been overlooked in accounts of how young children predict emotions. Some accounts claim that children predict emotions by learning scripts about the kinds of events that lead to various emotions (Gove & Keating, 1979; Hughes, Tingle, Sawin, 1981; Widen & Russell, 2010, 2011). For example, 3-year-olds predict that happiness follows from positive events (e.g., receiving a favorite snack) and that sadness follows from negative events (e.g., not being allowed to play; e.g., Borke, 1971). Other accounts claim that children predict the causes of emotions by considering people's mental states, such as their goals, desires, and beliefs (Wellman & Bartsch, 1988; Wellman & Woolley, 1990). However, ownership is not specifically referenced in either theory. Thus, if children do consider ownership when reasoning about emotions, this may require revision or expansion of these theories.

The current experiment seeks to examine children's understanding of the direct causal impact ownership has on a person's emotional state. The current experiment explores 3-year-olds' ability to predict that individuals are more upset when an object they own (compared to an object owned by someone else) goes missing.

Experiment 1

Methods

Participants. Forty 3-year-olds participated (M = 3;5; range = 3;0 to 3;11 years; 19 males; 21 females). One additional child was excluded from analysis for failing to successfully complete the training task.

Materials and Procedure. *Training*. First, children were introduced to a simple emotion scale displaying a sad face, a happy face, and a "just okay" face which showed no emotion (see Figure 1). The experimenter pointed at each face and labelled it in a fixed order (e.g., "This face is happy. This face is sad and this face is just ok."). To be included in the experiment, children were first required to pass comprehension questions by correctly indicating the appropriate faces (e.g., "Which one is sad? Which one is just ok? Which one is happy?").

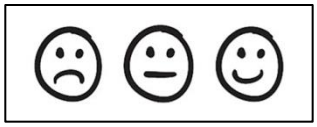

Figure 1. Emotion scale used in the training task

Test. After the participants were familiarized with the scale, they were told a story about a girl who was at a park with her teddy bear. The girl placed her teddy bear on a bench which also had someone else's teddy bear on it. After the girl placed her bear on the bench, she left to play. When she returned, she discovered that one of the bears was missing. For half of the participants, the girl's bear was missing, and for the other participants the other person's bear was missing. The emotion scale was then shown and the children were asked how the girl felt. Once children indicated an emotion, the story continued and the girl discovered the bear's locations were reversed (e.g., if the girl's bear went missing first, it was now present and the other bear was missing). Children were again shown the emotion scale and asked to indicate how the girl felt. Below is the script; text varying between conditions appears in brackets:

> Look here is a girl and she is at the park. And look this is her teddy bear. It belongs to her. She wants to go and play so she puts her teddy bear on the bench. And look! There is another teddy bear on the bench. This teddy bear belongs to someone else. *Which one is the girl's bear?* Now the girl goes to play on the slide. She comes back and look! The [girl's/other] bear is gone! But the [other/girl's] bear is there. *How does the girl feel?* Now the girl goes to play on the swings and she comes back. And look! The [other/girl's] bear is gone! But the [girl's/other] bear is there. *How does the girl feel?*

To ensure children were not relying on visual cues to judge the girl's emotion, the girl was presented facing backwards and her face was not shown. Before the girl left to play, children were asked a comprehension question inquiring which bear belonged to the girl. Two children failed the comprehension question but provided the correct response after the story and question were repeated.

Results

Children's responses indicating the girl was happy received a score of 1. Responses indicating sadness were scored -1. All other responses (e.g., "I don't know"), including choices of the neutral emotion, were given a score of 0.

Scores were entered into a 2 x 2 ANOVA with the trial-type as a within-subjects factor and trial-order as a between subjects factor. This analysis found a main effect of trial-type, $F(1,38) = 15.23$, $p < .001$, $\eta_p^2 = .29$, with children indicating that the girl was sadder when her bear was missing than when the other bear was missing. There was no

effect of trial-order, $F(1,38) = 0.53$, $p = .473$, and no trial-type by trial-order interaction, $F(1,38) = 1.92$, $p = .174$.

Follow-up analyses examined whether scores in each trial-type departed from the chance score of 0. When the girl's bear was missing (and the other bear present), scores were lower than expected by chance (M score = -0.30, SD = .88), $t(39) = -2.15$, $p = .038$. When the other bear was missing (and the girl's bear present), scores were greater than expected by chance (M score = 0.48, SD = .78), $t(39) = 3.83$, $p < .001$ (see Figure 2). In sum, children identified the girl as happy when the other bear was missing and her bear was present, but as sad in the reverse scenario.

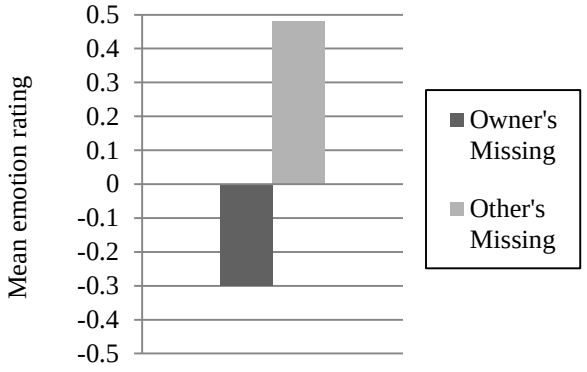

Figure 2. Children's mean emotion ratings of how the character feels upon learning hers or someone else's property is missing

Discussion

In this experiment, we found that preschoolers understand basic causal relations between ownership and emotions. Specifically, children considered the potential loss of property in their predictions of emotions. Three-year-olds appreciate that owners are sad when their property is missing but do not show the same negative emotional response when the missing object belongs to another person. It might seem puzzling that children predicted that the character would be happy when the other object was missing. However, rather than enjoying someone else's misfortune, children may have based the prediction on the character's relief that her own property was present.

These are the first findings to show that children appreciate how ownership influences people's emotions. Previous research hinted at this with findings that children sometimes refer to property and ownership in their explanations of emotions (Fabes et al., 1991; Strayer, 1986; Widen & Russell, 2002), and because researchers sometimes mentioned ownership in the scenarios told to children when asking them to predict emotions (Arsenio, 1988; Borke, 1971, Brody & Harrison, 1987). However, although the concept of ownership was present in these previous studies, the causal relationship between emotions and ownership was unknown because ownership was not directly manipulated.

The present research highlights the novel role of ownership in children's developing social cognition. Previous research on ownership in children has focused on their understanding of the normative and moral implications of ownership. For instance, this research has shown that preschoolers appreciate that non-owners should not deprive owners of their property (Rossano, Rakoczy, & Tomasello, 2011), and that owners typically have priority over non-owners in deciding how their property may be used (Kim & Kalish, 2009; Neary & Friedman, 2014). The current findings, in contrast, reveal that children use ownership to predict and understand other people's subjective states. Specifically, we showed that very young children use ownership to predict emotions. In our study, children differentiated between how people feel about events that impact their own property and property belonging to others. This extends our understanding of *how* children predict emotions.

These findings are also important because they suggest that children are sensitive to when other people are deprived of their property. This finding is broadly consistent with previous findings showing that 3-year-olds are sensitive to other people's ownership rights (e.g., Rossano et al., 2011; for a review see Nancekivell, Van de Vondervoort, & Friedman, 2013), though some studies have found that children this age are more concerned with their own ownership rights (Kanngiesser & Hood, 2014). The findings likewise raise questions about the developmental relation between understanding of ownership and understanding of emotions. Perhaps young children's developing notions of ownership rights depend on their ability to predict the emotional consequences of depriving people of their property. For example, predicting the girl would be sad if her property went missing may help children acknowledge ownership rights and the relation between owners and their objects.

Future Directions

The current experiment examined whether children appreciate that owners will be sad when their property is missing. However this is one possible event of what could happen to objects we own. Future research could investigate children's predictions of how owners feel when other events occur with their property. For example, research could examine children's predictions of how owners feel when their property is used by someone else without permission. Given that we looked at the basic emotions of happiness and sadness, future research could also explore children's understanding of the connections between ownership and other more complex social emotions, such as envy. Likewise, future research could compare predictions about the emotional consequences of ownership with predictions about other relations to objects, like temporary possession.

Furthermore, our research explored one causal direction involving children's understanding of how ownership impacts emotions; yet the reverse relationship also exists. Emotions can be used as cues to infer ownership. For example, if there was a broken coffee cup on the ground, we would probably infer that the person in the room who is upset is the owner of the cup. Examining children's understanding of the bidirectional relations between ownership and emotions (e.g., using ownership to predict emotions, and considering emotions when inferring ownership) would provide greater insight into the development of these abilities needed for successful social interactions.

Acknowledgments

This work was funded by a grant from the Social Sciences and Humanities Research Council of Canada awarded to OF.

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