A developmental dissociation between category and function judgements about novel artifacts.

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Introduction

Researchers have increasingly begun to focus on the dual questions of what information is at the core of early artifact representations and to what extent this information changes over development.

Some researchers argue that adults and even young children represent information about an object’s ‘designed function’ (e.g. the use intended by the designer) as central to artifact representation (e.g. Disendruck, Marron & Bloom, 2003; Kenner Nelson, Herron & Morris, 2002; Kemen, 1999).

Others have stressed the importance of shared conventional use (Siegal & Callanan, in press); and non-accidental use (Matan & Carey, 2001).

Whilst other researchers propose that any non-accidental use might form the core property of artifact representations, even those occurring just once by just one social agent (Truxaw, Krasnow, Woods & German, 2006).

Furthermore, German & Johnson (2002) showed a dissociation between deciding the kind to which an item belonged (categorization) versus deciding what an item is for (function judgement).

Aim

The aim of the current two experiments is to provide further evidence for a dissociation between categorizing artifacts versus determining the function of artifacts (German & Johnson, 2002). Two studies investigated the relative importance of information about intended design and current use on judgements about function (Experiment 1) or category (Experiment 2) of novel artifacts.

Experiment 1

Method

Pre-test

30 adults rated the plausibility of candidate functions for 15 line drawings of novel objects. This resulted in 4 test items.

Participants

40 adults (mean age 22-4 years, range 18-23), 40 4-year-olds (mean age 4-5, range 4-0 to 4-9), and 40 6-year-olds (mean age 6-2, range 5-8 to 6-8) were randomly assigned to either a conventional function condition or an idiosyncratic function condition.

A 2 x 3 ANOVA revealed main effects of age group (F(2,120)=13.22, p<0.0001) and age group (F(1,120)=2.58, p=0.05). Analysis of each condition against chance indicated that whilst children were at chance, adults in both conditions assigned functions on the basis of information about design (r(36)=3.40, p<0.001).

Results & Discussion

Materials and Procedure

Conventional Condition: In this condition design was pitted against conventional by telling participants in which novel artifacts were designed by A for X but now used by everybody for Y.

Idiosyncratic Condition: In this condition design was pitted against idiosyncratic function by telling participants stories about artifacts that were designed by A for X but now used by B for Y.

Experimental Dissociation

Figure 1: Mean number of design based judgements for each age group in conventional and idiosyncratic conditions when judging function. A 2 x 3 ANOVA revealed main effects of age group (F(2,120)=13.22, p<0.0001) and age group (F(1,120)=2.58, p=0.05). Analysis of each condition against chance indicated that whilst children were at chance, adults in both conditions assigned functions on the basis of information about design (r(36)=3.40, p<0.001).

General Discussion

Adults

Information about the intentions of an artifact’s maker determines adults’ judgements of both what function an artifact has and what category it belongs to.

Children

• Judgements about artifact function are not the same as judgements of artifact category.
• Children’s judgements of artifact function are influenced by the current goals to which an artifact is put.
• By contrast, children’s judgements of artifact category appear to be sensitive to information about designer’s intentions when those intentions are pitted against the intentions of a single idiosyncratic alternative goal.
• Suggests that children can infer category from designer’s intended goals, just as they infer function from designer’s intended category (Jaswal, 2005).

However, the design → category inference in children appears to be disrupted by information that the current alternative use is shared by many people rather than being idiosyncratic.

References:


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