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Knowing or Not Knowing: Children's Concept of 'Having Life'

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Introduction

Knowledge development in children has long been investigated. Generally two main streams of thoughts have evolved. One approach suggests that knowledge is built up in a progressive manner based on some underlying principles which can be modified by experiences (Murphy & Medin, 1985). Alternatively, a pragmatic-shift approach argues that restructuring in concept structure is common in development (Kitcher, 1988). When certain amount of experience cannot be accommodated into the existing knowledge structure, restructuring is necessary. However, experimental support for the latter approach mostly focuses on the performance of children of different ages which makes it difficult to differentiate whether the performance difference is due to a progressive incremental of the knowledge or a restructured concept structure. The present study tried to provide an alternative method in examining the pragmatic-shift approach which illustrated that children at the same age could perform qualitatively different in mastering the concept of 'having life'.

Methodology

The literatures generally agree that children know that only living things drink or need watering and what entities drink or need watering (Inagaki & Hatano, 1996). Yet children could not make use of these in explaining why an object has life in many other studies (Carey, 1985). By arousing children's attention to these premises before requiring them to explain whether a set of objects has life, children were expected to generate more correct explanations compared to those who did not have the prior exposure to the premises.

Participants

Each group of 30 three-, four-, and five-year-old children whose mother tongue is Cantonese were recruited from the kindergartens on Hong Kong Island. An equal gender ratio in each age group was kept. Equal number of children in each group was randomly assigned to a premise condition and a control condition.

Materials

Six A4 size photographs were prepared. They showed a car, a watch, a toy monkey, a tree, a flower and a cat.

Procedure

In the premise condition, each child was firstly asked, in a quiet room, about the premise as follow: 'Peter believes that only living things drink and need watering but John believes

only non-living things do so. Which one do you think is correct?' Afterward, six photos were sequentially shown to the child. He or she was asked to explain whether the shown object drank and had life. The procedure was identical for the control condition except that the premise was not mentioned.

Results and Discussion

The correctness of the explanations was judged by two adults rates. Each correct explanation was coded as '1' otherwise '0'. In the control condition, the younger the child was, the lesser the correct explanations were generated ($\chi^2=11.459$, $p<0.01$). Yet no difference in the correctness of the explanations in the premise condition was found across age groups ($\chi^2=5.291$, $p=0.071$). Also, three-year-old children in premise condition performed better than the five-year-old children in the control condition (see Table 1). It suggested that the failure of young children in explaining the concept of 'having life' was not probably due to the inadequacy of the relevant information but an immature structure which ineffectively assigned the significance (or weightings) of different pieces of information. By directing children's attention to the relevant information that they had already known, correct explanation could be easily generated. By improving the traditional methodology, the results support the pragmatic-shift account in explaining the development of concept structure.

Table 1: Percentage of correct justifications across conditions.

	Premise condition	Control condition
Age 3	95.7%	7.4%
Age 4	100%	50.7%
Age 5	95.4%	54.6%

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