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Conceptualising and assessing young children's knowledge of television advertising within a framework of implicit and explicit knowledge.

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Abstract

Developmental psychology has come a long way since Piaget proposed the first major theory of cognitive development. Although he laid much of the groundwork for understanding children's thinking, Piaget's notion of age-related stages has largely been refuted. Surprisingly, however, much of the literature concerning children's understanding of TV advertising is still couched in Piagetian terms, frequently in an attempt to identify the age at which children understand a particular aspect of advertising. In this paper we argue for the utility of more recent theories of development in furthering understanding of the nature of children's knowledge about television advertising. The models of Karmiloff-Smith (1992) and Siegler (1996) are discussed, providing a valid alternative to older age-stage models of development and placing more emphasis on non-verbal representations and cognitive variability. In the past an over-reliance on children's verbal responses may have led to an underestimation of what children really know. In this paper we argue that children can have knowledge that they are unable to articulate and that 'ways of knowing' is a more appropriate framework than 'age of knowing'. The study described investigated 73 children's understanding of the advocacy nature of messages produced for the purposes of self-promotion and for advertising. The findings suggest that, although young children may show a lack of understanding in their verbal responses, the use of non-verbal measures can reveal some implicit understanding in children from 4 years of age.

Introduction

Attempts to explain how children's understanding of television develops have been dominated by one theoretical approach. This approach, drawing largely on the work of Piaget, assumes a one-to-one matching between a child's age and stage of cognitive development. Thus, as a child develops, age-related increases in cognitive ability are posited to occur. This has led to attempts to identify the cognitive abilities required to understand the medium of television and then to state the age at which these emerge. Consequently we are told that at four years old children can distinguish between advertisements and programmes (Levin, Petros & Petrella, 1982). Some eight years-olds, understand the persuasive intent in advertising (Macklin, 1987; Doubleday & Droege, 1993, Oates et al., 2002) and by 12 years old children have lower trust of advertisers and can become discriminating and sceptical consumers of persuasive messages (Bjurstrom, 1994; Edling 1999). One can appreciate the need for an age-related model if the aim is to set a cut-off point, such as one below which advertisements cannot be aimed at children. In Sweden, for example, a decision to ban adverts aimed at children under 12 was based on research by Bjurstrom (1994) and there is now a debate in the UK about adopting a similar ban. Other researchers (Kline, 1995; Kunkel & Roberts, 1991), however, have shown that many children understand the selling purpose of advertisements before they are twelve. This is not unusual. Studies that try to ascertain the age at which a child has a certain understanding frequently arrive at different conclusions. This is often due to individual differences and also the use of different methodologies; one method might reveal a lack of knowledge in children of a certain age, whilst a different task seems to show the opposite. This paper addresses the ways in which different methodologies 'tap' different kinds of knowledge in children, and the importance of finding ways to access all that the child knows.

Why ages and stages?

Apart from the contradictory findings produced by many studies, one must also question the theoretical foundations of studies that aim to reveal age-related cognitions. Can knowledge be absent at one age and suddenly appear at the next? Stage theories are based on the notion that development is discontinuous and that there are sudden age-related shifts in knowledge. Alternative theories view development as a gradual restructuring of earlier knowledge and emphasise the continuity of the underlying process of change. Thus the second aim of this paper is to deal with children's 'ways of knowing' and the notion of cognitive variability.

Siegler (1996) criticises the way many depictions of children's development rely upon the staircase metaphor. These approaches (most closely identified with Piagetian and neo-Piagetian approaches) describe children as thinking in a particular way for a given period (a 'tread' on the staircase in the model) until, suddenly, their thinking takes a shift upwards (the stair's riser) and they think at a different, higher level until the next shift upwards, and so on. The problem with this approach is that its conclusions are based on data averaged over subjects and individual behaviour is not accounted for. More importantly, it portrays cognition as less variable than it actually is. At any age or in any domain, Siegler argues, children will have a number of different ways of thinking about a particular problem and the past two decades have seen a rise in studies showing cognitive variability in children's learning of a variety of concepts (e.g. Geary & Brown, 1991 for arithmetic; Kuhn & Phelps, 1982; Schauble, 1990 for scientific reasoning; Siegler & McGilly, 1989 for time telling; Pine & Lufkin 2002 for problem solving; Leonard, Rowan, Morris & Fey, 1982 for language).

Thus, in relation to children's thinking about television advertising, we must begin to question the idea that this progresses in distinct stages, with more sophisticated ideas appearing at certain ages. An alternative approach proposes that children of all ages may be capable of thinking in a number of different ways about this concept, with some ways of thinking being more explicit than others. Siegler (1996) prefers to view development as a series of overlapping waves, where one way of thinking may be at its peak but another one, or more, may be slowly rising up to the surface ready to emerge. The aim of researchers should be to identify those ways and their respective influences.

Karmiloff-Smith, Siegler and models of cognitive variability

In Siegler's overlapping waves model development is characterised by cognitive variability rather than age-related stages. This paper supports his view that multiple ways of thinking can co-exist in the child's mind, but aims to show that not all of these will be overt or evident in children's verbal responses. In terms of understanding children's thinking in any domain therefore, and including their understanding of television, this poses a methodological dilemma for the researcher. One particular reason that earlier studies have been inconclusive is an over-reliance on children's verbal responses. Recent research has shown that the knowledge children can express in their verbal responses may just be a part of what they know non-verbally (Pine & Messer, 1999; Pine & Lufkin, 2002).

Since Karmiloff-Smith (1992) published her work outlining the Representational Redescription (RR) model of cognitive development, there has been a growing awareness of the limitations of relying on children's verbal responses. The RR model posits that much of children's knowledge is represented in an implicit format, which cannot be explained verbally or even consciously accessed by the child. Yet this knowledge can, and does, influence the child's thinking and behaviour. Furthermore, with representational redescription, non-verbal implicit knowledge (Level I in the model) is gradually made explicit as it is redescribed through levels E1, E2 and E3. As Karmiloff-Smith says, this is a departure from traditional views of children's knowledge, "In the developmental literature, when children cannot report on some aspect of their cognition it is often implied that the knowledge is somehow absent (i.e., not represented at all). The RR model postulates something different: that the knowledge is represented internally but still in the I or E1 format, neither of which is accessible to verbal report. The end state is that the same information is re-represented at several different levels of explicitness." (Karmiloff-Smith, 1992, pp.59).

Importance of non-verbal as well as verbal measures of children's knowledge

Developmental psychologists have come to recognise the enormous potential of non-verbal measures for telling us more about what the child knows. For example Alibali & Goldin Meadow (1993) found that children's gestures reveal more about their mathematical knowledge than their verbal responses. Studies examining children's knowledge of balance have endorsed the significance of gesture-speech mismatches for cognitive development (Pine & Lufkin, 2002). Furthermore, Clements & Perner (1994) found that children's eye gaze showed the correct response to a theory of mind task, even though the child gave an incorrect verbal response. When exploring children's understanding of television advertising, therefore, it is important to go beyond children's verbal responses and see if other knowledge can be tapped by non-verbal means. In this way we can begin to build up a more complete picture of children's understanding, how it changes and develops, rather than draw simple conclusions such as 'by age n the child understands x'. To date, only a handful of studies (e.g. Donohue et al.1980; Macklin, 1983) investigating this phenomenon have employed such measures.

This paper presents some preliminary findings in which we explore children's understanding of the positive bias in promotional messages using both traditional measures, such as asking a child to give a verbal response, and also a non-verbal measure. According to the RR model explicit knowledge need not always be verbalisable and Karmiloff-Smith's explicit levels E1 and E2 do not allow for verbal report. It is only when knowledge has been redescribed to a linguistic code, at Level E3, that it is verbalisable. Within the model, however, implicit knowledge is not verbalisable, thus we make a distinction in this paper between what the child knows implicitly but cannot express and what s/he knows explicitly and is able to articulate. If representations are unitary and stable at a particular age we should expect the same knowledge to be elicited by both non-verbal and verbal measures. However if, as is proposed here, verbal measures underestimate what the child knows, we can expect non-verbal measures to reveal knowledge not expressed in the child's verbal responses. This study investigates the extent to which young children are unable to understand the advocacy nature of self-promotion and televised commercial messages, employing an explicit, verbal measure and an implicit, non-verbal measure.

A cognitive ability often cited as a pre-requisite for children to understand the persuasive messages in advertising is the ability to self-promote. This ability 'presupposes an understanding of social interaction, that is, that the behaviour and mental states of each interactant are... a function of the behaviour and mental states of another' (Bennett & Yeeles, 1990). Thus the role of self-promotion is to induce in another person a belief about oneself, clearly analogous to the promotional messages of advertisers. Aloise-Young (1993) performed a study in which children were asked to give information about themselves in order to be picked for a team. Children from 8 years upwards were able to self-promote, i.e., they recognised the importance of presenting themselves in a positive light and of holding back any negative information. Younger children, however, failed to do this and described both their good and bad points. As a result of these findings it has been suggested (Young, 1986) that young children cannot understand that there is a bias in advertisers' messages, or that advertisements present only positive and withhold negative qualities about the product being advertised. We set out to test this in a study where children aged from 4 to 10 years had to positively self-promote in order to be picked for a special treat. In this case the treat was looking after a baby rabbit the teacher had brought in to school. This investigated the children's understanding of the need to present only positive information about themselves, analogous to the advocacy messages of advertisements. The study measures the children's verbal responses but a non-verbal measure is also included to see if children have implicit understanding of what the process of self-promotion involves. It is hypothesised that older children will be better at producing self-promotional statements (the explicit measure) than younger children, but younger children will be just as good at recognising the appropriateness of promotional statements (the non-verbal, implicit measure). Furthermore, to relate the task more specifically to advertising, the children are also asked to judge certain statements about advertised products, rating how likely they think characters in advertisements would be to say them. As children under 8 have been characterised as not understanding the persuasive nature of television advertisements, one might expect the youngest subjects to judge a negative statement as being just as appropriate as a positive statement. However, by employing non-verbal measures (i.e., rating the statements using a pictorial scale) we hypothesise that younger children will show implicit understanding of the bias in advertisements and be able to recognise the appropriateness of the positive statement and the inappropriateness of the negative statement for advertising purposes. Thus, overall, it is hypothesised that there will be age differences on the verbal task, but not on the non-verbal task.

Method

Participants

Seventy-three children participated from three age groups:

4 to 5 year olds, $n = 30$, ($M = 4.71$ years, $sd = 3.6$ months) 16 females and 14 males

6 to 7 year olds, $n = 17$, ($M = 6.94$ years, $sd = 2.9$ months). 5 females and 12 males

8 to 10 year olds, $n = 26$, ($M = 9.17$ years, $sd = 5.1$ months) 10 females and 16 males

Participants were recruited from a school in Hertfordshire, U. K., and were predominately white and all English speaking.

Materials

A script was created by the experimenter to be read out to the participants. A Panasonic tape recorder and data record sheets were used to record all participants' responses. Stills were created from television advertisements shown in between popular after-school children's programmes (Sugar Puffs, Coco Pops and Golden Nuggets). These particular products were chosen due to their frequent presence on commercial children's television in England and the appeal of the cartoon images to the age groups involved in the present study. A smiley face rating scale was used to provide children with a choice when answering questions about the statements. This scale was adapted from that used by Roedder, Sternthal and Calder (1983) to measure children's attitude-behaviour consistency with regard to a television commercial and found to be a reliable measure of children's thoughts and beliefs (Roedder et al, 1983). The 7-face rating scale was reduced to 3 faces to make it more suitable for the youngest children in this study.

Design

An experimental mixed subjects design was employed. Every participant took part in all conditions (within subjects factor) with age as the between subjects factor. The experiment was divided into three parts:

Explicit self-promotion: The dependent variable was the explicit self-promotional statement provided by the participant (positive statement, negative statement or irrelevant statement). It was hypothesised that explicit selective self-promotion would improve with age.

Implicit self-promotion: The dependent variable was the children's rating of the appropriateness of the statements from two hypothetical children (positive or negative) and whether the participant judged that the child would be selected by the teacher (yes or no). It was hypothesised that implicit self-promotion would differ less according to age.

Advert promotion: Three advertisement stills were used to assess the children's understanding of the promotional intent of television advertising. Three statements were presented for each advertisement (positive, negative and neutral). The dependent variable was the score on the rating scale the participant gave to each statement (smiley face, neutral face or unhappy face), depending on the likelihood that the character in the still would say the particular statement in an advert.

Procedure

After class introductions each child was interviewed by the experimenter in a quiet area away from the classroom.

Explicit self-promotion task: The experimenter introduced the first task by saying, "Imagine that a new teacher comes into your classroom to take your class one day. The teacher has a lovely white baby rabbit and says that she is going to choose just one child from the class, and that child will be able to take care of the rabbit that day. As the teacher doesn't know the children in your class, she asks children to tell her one thing

about themselves. It can be anything they like. Then from what each child has told her she will choose which child will look after the baby rabbit". The children were then asked if they would like to have been the child chosen (to confirm that children viewed this as a positive event). All children agreed that this was something that they would like to be chosen for; therefore no children were excluded from participating. The children were then asked, "What one thing would you tell the teacher about yourself?" and their response was recorded.

Implicit self-promotion task: Next the child was asked to listen to statements that other children might have told a teacher in response to the above question.

A summarized version of the rabbit story was repeated and the participant heard two responses that the hypothetical children had given the teacher: "One little girl said ' I am very good at looking after things' Do you think this little girl would have been chosen?"

Then, "One little girl said ' I forget to do things' Do you think this little girl would have been chosen to look after the rabbit from what she said?" The children indicated how appropriate they thought each statement was by pointing to a face on the rating scale. It was explained to the children "A smiley face means you think that child would have been chosen. The middle face means she might have been or you're not sure. The sad face means you don't think that child would have been chosen".

Advertising task: Three advert stills featuring prominent characters and the product were shown to the participants and their familiarity with them was confirmed. As the child looked at each one, three statements were read out, a positive statement, a neutral one and a negative one. The smiley face rating scale was explained to the children and they were asked, after each statement, to indicate how likely they thought the character in the advert would be to say it. This scale was also used for the child to indicate how much they liked the product. Examples of the statements used are (Positive) "Cereal X is really tasty", (Neutral) "Cereal X is eaten for breakfast" and (Negative) "Cereal X is more expensive than some other cereals".

Results

Explicit self-promotion.

The ability to explicitly self promote was measured by the production of a positive self-promotion statement after hearing the story about the rabbit. The children's responses were coded as either positive self-promotion (e.g. 'I am a good helper'), negative (e.g. 'I am messy') or irrelevant responses (e.g. 'I have two brothers'). The number of children in each age group who provided each response type to the story about the rabbit can be seen in Table 1.

Table 1: Frequencies of types of self-promotion statements produced across age groups.

Age group (years)	Positive self promotion	Negative statement	Nothing/not relevant
4-5 n = 30	8 (26%)	2 (7%)	20 (67%)
6-7 n = 17	12 (71%)	1 (6%)	4 (23%)
8-10 n = 26	20 (77%)	4 (15%)	2 (8%)

From Table 1 it can be seen that more of the 6-7 (71%) and 8-10 year old children (77%) produced positive self-promotional statements and the 8-10 year olds produced far fewer irrelevant statements (just 7%). In contrast, in the 4-5 year-olds group only 26% produced self-promotional statements and 67% mentioned negative or irrelevant information. Chi square analysis found a reliable association between age and type of statements produced, $\chi^2(4, N=73) = 23.36, p < .01$. Chi square analysis of the distribution of responses within each age group found these differed significantly from chance at age 4-5, $\chi^2(2, n=30) = 16.38, p < .01$, age 6-7, $\chi^2(2, n=17) = 11.41, p < .01$ and at age 8-10, $\chi^2(2, n=26) = 22.46, p < .01$. Thus children aged 6 and over produced reliably more positive self-promotion statements, whilst those in the youngest age group produced reliably more from the Nothing/Irrelevant category. This supports the hypothesis that there would be an age effect in the ability to explicitly self-promote.

Implicit self-promotion

Implicit understanding of self-promotion was measured by the response to whether a hypothetical child would be chosen or not chosen for the task, based on the children's ratings of the self-promotional statements provided. Significantly more children in all age groups recognised that the statement 'I'm very good at looking after things' would be more likely to result in the child being chosen to care for the rabbit. Chi square analysis of the overall distribution of 'agrees/disagrees' responses and age was found to differ reliably from chance, $\chi^2(2, N=73) = 7.09, p < .01$. As Table 2 indicates, there were far more 'agrees' than 'disagrees' responses. A chi square analysis of the 'agrees' responses across age groups found no reliable difference $\chi^2(2, n=69) = 3.74$. Therefore, 4-5 year olds were just as likely as 6-7 and 8-10 year olds to recognise the positive self-promotional statement as appropriate.

Table 2: Frequencies of choice of a positive self-promotional statement for a desirable task by children in each age group:

Age group:	4-5 n = 30	6-7 n = 17	8-10 n = 26
Agrees	30	17	22
Disagrees	0	0	4

Similarly, reliably more children across all age groups disagreed that the statement 'I forget to do things' would result in the child being chosen to care for the rabbit. $\chi^2(2, N=73) = 7.69, p < .05$ (see Table 3).

Table 3: Frequencies of choice of a negative self-promotional statement for a desirable task by children in each age group:

Age group:	4-5 years n = 30	6-7 years n = 17	8-10 years n = 26
Agrees	5	0	0
Disagrees	25	17	26

Thus, as hypothesised, no age differences were found in the children's ability to implicitly understand self-promotion.

Advertising task

For the measure of children's understanding of promotional messages conveyed in television advertising, all three different advertisements were analysed separately in the first instance. Children were asked, for each advertisement, to rate the likelihood that the character in that advertisement would say a positive, neutral and negative statement. For each of the positive statements there was a preference to agree with the statement at all ages, Chi square analyses on each statement and in each age group were significant ($p = < .05$). Disagreement with each of the negative statements was also significant for every age group ($p = < .01$). Neutral statements, as would be expected, produced mixed responses and were not analysed.

The children's ratings given to the statements (positive, neutral and negative) were averaged to give a mean score, for each age group, for the number of times a positive response was made to a positive statement (i.e., each time a child agreed that the character would be likely to make the positive statement). As Table 4 shows, on more than 2 out of the 3 occasions, children agreed that the positive statement would be said. There was no significant difference according to age; younger children were just as likely as older children to judge the positive statement as appropriate.

Similarly, on more than 2 out of the 3 occasions, children from all age groups disagreed that the character in the advertisement would say the negative statement, with children from the 4-5 year age group being just as good at recognising the inappropriateness of the negative statement as older children.

Table 4: Mean number of times children in each age group agreed that positive statements would be said by characters in advertisements.

Age group	Mean number of times 'Agree' response given to positive statements	Standard Deviation	Mean number of times 'disagree' response given to negative statements	Standard Deviation
4 – 5 n = 30	2.6	.56	2.5	0.73
6 – 7 n = 17	2.18	1.19	2.47	0.72
8 – 10 n = 26	2.46	.76	3.0	0.0

Discussion

Children's self-promotion ability has often been linked with their ability to understand that people sometimes try to induce in others a positive belief about themselves. Previous studies had found that children under the age of eight are unable to select only positive information about themselves for purposes of self-promotion (Aloise-Young, 1993). Our findings show this ability can be present before the age of 8, as 71% of the 6 to 7 years

olds were able to produce a positive self-promotional statement. However, it was less evident in the youngest age group, with only 26 % of children aged four to five years able to produce a self-promotional statement. This suggests that, as hypothesised, the ability to explicitly self-promote increases with age.

This age effect was less apparent with the implicit understanding of promotional statements. When asked about the likelihood of a hypothetical child being chosen for the desirable task (caring for the rabbit) based on the statements produced, no difference was found in the children's ability to recognise the appropriateness of positive, or the inappropriateness of negative, statements. This suggests that children as young as four have a good understanding of what it means to produce a positively biased statement for a specific goal. They also understand, just as well as older children, that failure to withhold negative information will not achieve the desired goal, as indicated by their disagreeing with the appropriateness of a negative statement. We related this ability to the processing of information from advertisements, where an advertiser's message is advocacy and omits any negative information. This was tested by asking children whether a character in an advertisement would ever say a particular statement, for example one with a positive or negative bias. Children of all ages were able to recognise that a character would be likely to say something positive and unlikely to say something negative about the product. If young children are really unaware of the bias in advertisers' messages, as is sometimes claimed, one would have expected them to judge the likelihood of negative and positive information similarly. This was not the case as children from all age groups were reliably more likely to agree that a positive statement, or disagree that a negative statement, would be said by the character in the advertisement. Thus we conclude that, in terms of children's understanding of the bias in persuasive messages, implicit awareness is present at age 4 – 5 years but this is not explicit until children reach the age of around 6 or 7.

From these findings we tentatively suggest that, in an over concern with discovering the age at which children show understanding of the different aspects of advertising, researchers may have been missing one of the important features of cognitive development. Knowledge emerges gradually and in multi-representational formats (Karmiloff-Smith, 1992; Siegler, 1996). Therefore studies that characterise the way children know about a concept at different ages, rather than just if they know about it, will be far more fruitful in furthering our understanding. The findings discussed here are a first step towards acknowledging that approach. With self-promotion, both implicit/non-verbal and explicit/verbal measures were obtained confirming that, explicit understanding lags behind implicit understanding. Consequently, by the time a child is articulating awareness of a concept, that concept has been emerging gradually in their mind for some time, possibly a number of years. By the use of simple non-verbal measures, e.g., recognition tasks, ratings tasks, gestures, eye gaze, speech hesitations etc. researchers can tap into knowledge long before it becomes represented verbally. This is important because implicit representations can influence the child attitudes, thinking and behaviour just as much as explicit representations, the child just won't be able to tell us about them.

Age-stage studies have, in the past, produced some seemingly contradictory findings about the age at which particular abilities emerge. Consequently, the picture concerning children's understanding of the concept of TV advertising has been far from clear (see also Pine & Nash, 2002). However, within a framework of implicit and explicit knowledge, discrepant findings are less problematic. By clarifying the way in which a

child has understanding (whether verbal or non-verbal) it is possible to see how different types of knowledge emerge at different times. In a wide range of cognitive tasks implicit knowledge precedes explicit knowledge and thus the age of acquisition varies with the type of knowledge being measured. For example, understanding the positive bias in promotional messages has been said not to develop until around 8 years old. Our study showed that, in fact, 6–7 year olds demonstrate that they have explicit understanding of it. Furthermore, children as young as 4 and 5 years old also had implicit awareness equal to that of 8–10 year olds.

But we do not present these findings as a definitive account of when certain types of knowledge are acquired since that would produce the age-related descriptions that we have advocated avoidance of. As with any studies, this investigation would benefit from wider replication and some methodological improvements. However, the message from this paper is not so much when but how these abilities develop, i.e. the notion of knowledge emerging from a non-verbal to a verbal representational format. Studies investigating children's development in a number of cognitive domains consistently find that implicit knowledge precedes explicit knowledge. The findings reported here suggest that children's developing understanding of television advertising may be no exception.

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