To the Graduate Council:

I am submitting herewith a thesis written by Thomas A. Hinkel entitled "Children's Understanding of Television Commercials: A Cognitive Development Study." I recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Communications.

Alan D. Fletcher, Major Professor

We have read this thesis
and recommend its acceptance:

Herbert H. Howard

Dozier C. Cash

Accepted for the Council:

L. Evans Peek
Vice Chancellor
Graduate Studies and Research

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CHILDREN'S UNDERSTANDING OF TELEVISION COMMERCIALS: A COGNITIVE DEVELOPMENT STUDY

A Thesis

Presented for the

Master of Science

Degree

The University of Tennessee, Knoxville

Thomas A. Hinkel

December 1977

1345692

ACKNOWLEDGMENTS

The author is indebted to his committee, Dr. Alan D. Fletcher, Dr. Dozier C. Cade, and Dr. Herbert H. Howard, without whose patience and helpful comments this would not have been possible.

The author would also like to sincerely thank Dr. Donald G. Hileman, Dean, College of Communications and Mr. Richard Joel, Head, Department of Advertising for their personal help and guidance during his program.

Also, a more than special "thank you" goes to Mrs. Opal Lee, Secretary, Department of Advertising, for all the things she has done for the author.

The author would especially like to thank Sr. Colletta, principal of St. Joseph's grade school Cuyahoga Falls, Ohio, the teachers, and the children at St. Joseph's for their cooperation and participation in this study.

And last but far from least, a "thank you" to my family, who has stood behind me through good times and bad.

ABSTRACT

This thesis deals with a subject of growing concern: television advertising directed to children. The study is approached from a cognitive development vantage, a branch of developmental psychology.

The subject is one that has received significant attention only since the early 1970s when Action for Children's Television (ACT) was formed.

The purpose of the study was to determine the levels of cognitive development at which young children could evaluate the purpose of television commercials directed to them.

Cognitive development is broken down into three stages by its two leading figures--Jean Piaget and Jerome Bruner. The stages are broken down thusly: (1) Piaget's sensorimotor period or Bruner's enactive period; (2) Piaget's concrete operational period or Bruner's ikonic period; and, (3) Piaget's period of formal operations or Bruner's symbolic period. Piaget's second stage is broken down into two periods, the first of which he calls the pre-operational period. The second part of the second stage is referred to as the concrete period. This study deals with Piaget's pre-operational, concrete operational and formal operational periods.

Fifty-eight children from a grade school in Cuyahoga Falls, Ohio, were personally interviewed by the author. Grades 1, 3, and 6 were chosen on the assumption that these grades would correspond to the cognitive levels of pre-operational, concrete operational and formal operational, respectively. However, grade 3 split between the

pre-operational and concrete operational stages. Therefore, a fourth grade sample was included to obtain the desired balance of the cognitive stages.

The children were given a Piagetian-based conservation-of-liquid task and a complex verbal task to determine their level of cognitive development. The questionnaire was then administered and the results were tabulated according to the individual child's level of cognitive development. The levels at which children's answers were categorized were based on Ward (1972).

The hypothesis of the study was that before reaching the stage of formal operations, children could not evaluate the purpose of television commercials directed to them.

From the findings obtained in the study it appears that the data support the hypothesis. Children in the pre-operational, and to a large extent the concrete operational, stages were naive in regard to the purpose of television advertising.

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I. INTRODUCTION

Due to the numerous factors related to television advertising directed to children, it is necessary to explain a portion of the complex background as it affects this study.

Background

The question of the effect of advertising on children is not new. More recently, however, the questions concerning children's advertising have become increasingly frequent and demanding.

Yet study of the effects of television advertising on young children is in its infancy compared to other areas of study in the communications arts. Television advertising's effects on young children is a subject that has received significant attention only since the early 1970s when Action for Children's Television (ACT) was formed by a Boston housewife, Mrs. Evelyn Sarson. She was primarily concerned about the possible effects advertising may be having on her children (Broadcasting, November 15, 1971).

ACT wanted 14 hours a week of quality children's TV shows with no commercials within the body of the programs. It was the contention of ACT that television was too effective in influencing youngsters in the 2 to 11 age bracket.

First grade children are found to want nearly everything that is advertising to them (Robertson & Rossiter, 1974). ACT has gone as far as accusing some advertisers of using these young children as surrogate salesmen, encouraging them to tell their parents to buy product "X."

ACT pointed out that "the law has traditionally recognized that children require special attention: forbidding them to purchase alcohol or cigarettes, prohibiting them to enter into contracts, driving automobiles or voting--yet in the world of television a child is treated as an adult from the day he begins watching television as an infant" (Broadcasting, November 15, 1971).

ABC-TV responded, asking some very pointed questions, such as: "Has television been morally delinquent? Has children's television been given a short shrift? Has the industry applied a Band-Aid when surgery was called for?" (Broadcasting, November 15, 1971).

Gross sales to children are estimated to be between $30 to $50 billion. There are probably several million dollars more from adult sales influenced by child pressure. To accomplish this, advertisers spend over $100 million in advertising, the bulk of which goes into television.

Commercials expose and sensitize the child to information about products and services. This information often conflicts with parental teachings on the subject, which sometimes creates confusion in the child. Furthermore, commercials may proffer information about products or services that are at odds with the personal experience of the child with that product or service. The confusion instilled in the child may remain with him long after he clears up the specific instance--"programming" the child to distrust and dislike commercials.

Clearly, television appears to have the potential for playing a very influential role in the lives of young children. This mass communications medium is pervasive, accessible, and attended to by children

of all ages. It makes available information in amounts and varieties well beyond what the child might be expected to obtain from primary groups. In short, it provides a window on a much larger world than children of past centuries had available to them.

But this study is dealing specifically with more than just the omnipresent television. It is dealing specifically with television advertising and its effects on a particular audience--young children. It is because of this audience that special attention should be paid to the subject (Roberts, 1968; Halloran, 1969; Collins, 1970; Leifer, et al., 1971).

Purpose of Study

The purpose of the study is to determine the level of cognitive development at which children can evaluate the purpose of television advertising directed to them. The value of these results would be their application to guidelines in children's advertising. If children, prior to a certain level of cognitive development, cannot evaluate the purpose of television advertising directed to them, then perhaps some form of protection should be afforded to them. This protection may range from alterning the commercials to banning them altogether. If, on the other hand, children at any or all cognitive levels can evaluate advertisements, then children's advertisers should be free to advertise what they want, when they want, and how they want to these children.

Most studies prior to this have been conducted from an age approach. This study will approach the question from a cognitive development vantage.

This study hypothesizes that before a child reaches the cognitive development stage of formal operations, he is incapable of evaluating the purpose of television advertising directed to him and accurately ascertain the truthfulness of advertisements. Necessarily, therefore, this study will discuss in some depth the theories of cognitive development and their application to children's television advertising.

The cognitive development of children is of extreme importance as it pertains to television advertising directed to children. One can easily see why this is so. If the child cannot evaluate the advertisement, the advertisement may be worthless--the results of which may actually prove detrimental to the advertiser.

Findings suggest that children interpret and organize new information in terms of their existing frame of reference. Thus the ability or inability of the advertisement's message to effectively communicate with the child is directly related to what the child brings to the television medium (Piaget, 1929, 1951, 1952; Roberts, 1963). It is on this premise that the study stands.

Proper Evaluation

For the purposes of this study, it is essential that the term "proper evaluation," as used in this thesis, be operationally defined. Therefore, "proper evaluation" will be defined as "more than 50% of any individual cognitive stage of development (e.g., pre-operational) exhibiting a medium level of awareness or above on each of the questions."

Anything less than one-half of the children in any given level

of cognitive development not accurately exhibiting an overall awareness of the question would be unacceptable, the author feels, as it may inaccurately convey an understanding of the question. In the opinion of the author a majority of the children is needed to determine "proper evaluation."

Definition of Terms

Accommodation. Creation of new schemata or the modification of old schemata; make suitable or consistent.

Assimilation. Cognitive process by which the person integrates new perceptual matter or stimulus events into existing schemata or patterns of behavior; take in and incorporate as one's own.

Cognitive development. A coherent process of successive qualitative changes of cognitive structures (schemata), each structure and its concommitant change deriving logically and inevitably from the preceding one; process of knowing, perception.

Concrete operational. Second part of Piaget's second stage of cognitive development--characterized by the child developing the ability to apply logical thought to concrete problems (7-11 years).

Conservation. The conceptualization (schematatization) that the amount or quality of a matter stays the same regardless of any changes in shape or position.

Egocentric. Inability of the child to take the role of or see the viewpoint of another.

Formal operational. Terminal stage of Piaget's levels of cognitive development--characterized by the child becoming able to apply logic to all classes of problems (11 years on).

Ontogenetic. Biological cause of development of an individual organism.

Posited. Assumed as a fact, postulated.

Pre-operational. First part of Piaget's second stage of development--characterized by the development of language and rapid conceptual development (2-7 years).

Schemata. Cognitive structures by which individuals intellectually adapt to and organize their environment; intellectual structures that organize events as they are perceived by the organism into groups according to common characteristics.

Structures. Refers to the inferred organizational properties (schemata) that explain the occurrence of particular behaviors.

II. METHODOLOGY

The plan of study called for a random sample field survey of first, third, fourth, and sixth graders. A Cuyahoga Falls, Ohio, grade school was selected due to its proximity to the author's home.

The purpose of the survey was to (1) determine the level of cognitive development of the children (as posited by Jean Piaget, 1952), and (2) ascertain their evaluation of television advertising as a function of the level of cognitive development.

For this purpose, a questionnaire was developed based on Ward (1972). It contained directed, open-ended questions. Specific tests were included to determine the level of cognitive development of each child. The order of the questions should have no bearing on the study. The plan called for the questionnaire to be administered through tape recorded personal interviews with the author.

The analysis of the data will be in accordance with the characteristic abilities and inabilities discussed in the cognitive development stages detailed in the Review of Literature section.

Research Design

A comparative one-shot non-experimental research plan was employed as detailed in Figure 1.

Hypothesis

H_1: Before reaching the stage of formal operations, children are incapable of evaluating the purpose of television advertising directed to them.

	t1	t2	t3
P1a	--	--	M1-2
P2a	--	--	M1-2
P3a	--	--	M1-2
P4a	--	--	M1-2

Legend

P1 = all children in St. Joseph's first grade

P1a = random sample of P1, N=15

P2 = all children in St. Joseph's third grade

P2a = random sample of P2, N=16

P3 = all children in St. Joseph's fourth grade

P3a = random sample of P3, N=10

P4 = all children in St. Joseph's sixth grade

P4a = random sample of P4, N=17

M1 = level of cognitive development

M2 = ability to evaluate television advertising

t3 = Fall, 1977

Figure 1. Notational design.

Data Gathering

As stated previously, students' responses were to be tape recorded by the researcher during oral interviews. However, when the first three children were reluctant to speak into the microphone, the tape recorder was then eliminated and written transcriptions of the children's answers were therefore made.

The interviews were conducted in a classroom at St. Joseph's school. The interviews were conducted individually in order not to bias the results as a consequence of the children listening to the opinions of their peers express their opinions. The interviews, after allowing for a short period in which the interviewer tried to make the child feel at ease, lasted an average of 10 minutes each.

Each child was given a Piagetian-based conservation-of-liquid task (see page 19) to determine the level of cognitive development, followed by a complex verbal task for the higher development child. The questions asked are listed in the Appendix.

The study originally was to consist of 15 children each from grades 1, 3, and 6. They were chosen on the assumption that each of the grades would correspond to the levels of the pre-operational, concrete operational and formal operational child, respectively. However, it was discovered at the third grade level that a split existed between the pre-operational and concrete operational stages. Therefore, to achieve the desired balance of children at the various stages, an additional 10 interviews were conducted with fourth grade children. In addition, two extra sixth grade children were interviewed. The children were randomly selected by the individual teachers of each class at each grade level.

The names of the children were not known. The majority of the children were from middle-class socioeconomic backgrounds and varied intellectual levels. The ratio of boys to girls varied and any possible differences of results were not tabulated.

Limitations of Study

In conducting personal interviews, there is always the possibility that the interviewer will bias the results in an effort to obtain results that support his hypothesis. Being aware of this possibility, all possible efforts were made by the author to insure objectivity in his study.

However, it is possible that the interviewer may have misunderstood an answer given by a child and was thus categorized differently. For this reason, if the author wasn't sure how to classify a response, he asked the child to elaborate on his answer.

There was also a time limitation. If more time had been available to the author, more children in more schools would have been interviewed. Since the study was confined to one grade school in Cuyahoga Falls, Ohio, the external validity is affected by this geographic limitation. Therefore, the results of this study reflect the population studied only.

III. REVIEW OF LITERATURE

The purpose of the study is to determine the level of cognitive development at which children can evaluate the purpose of television advertising directed to them. Therefore, the literature review will concentrate on (1) developing a working knowledge of the theories of cognitive development; and (2) studies related to television advertising and children.

Guidelines

Concerning the realm of television advertising to children, voluntary self-regulatory guidelines were instituted in July, 1972, by the Association of National Advertisers (ANA) and June, 1975, by the National Advertising Division, Council of Better Business Bureaus. Both sets of codes were introduced, at least partly, as a counteractive measure against the demands of ACT. (ACT has published reports for the Federal Trade Commission and the Federal Communications Commission. However, these reports were not available to the author.)

In 1975, the National Association of Broadcasters (NAB) code, also reacting to growing social concern over television advertising to children, warned the advertising industry to remember the lack of sophistication and maturity of their potential customers. Fantasy, the NAB emphasized, should not be used to stimulate unreasonable performance expectations from any product.

It was also in 1975 that Louis Engman, chairman of the Federal Trade Commission called for still more study of the dissemination of

television advertising and children's exposure. He cited the fact that a large audience of children during the family viewing period were not protected by anything that had been done so far. Only one of the top television programs in terms of the number of children viewers was in the group of Saturday morning programs which came under the NAB's children's advertising rules.

Effects

The term effects covers a broad range of consequences. Effects may be direct (as when a child takes something from the advertisement) or indirect (as when time spent with television precludes time spent on other activities). They may be immediate (e.g., emotional arousal or gratification of needs during or closely following exposure) or long term (e.g., facts, behaviors, or attitudes learned from the medium and operative long after exposure) (Roberts, 1973).

In an effort to determine what they thought were the effects of television commercials on their children, a national sample of 442 mothers was taken by the Association of National Advertisers (Advertising Age, September 9, 1974). Forty-three percent of the sample thought television commercials were having "bad effects" on their children, while a slightly smaller percentage--41%--saw some "good effects."

Among the reasons why parents reacted so adversely to commercials beamed toward their offspring included: (1) children always want what they see (27%); (2) advertising claims are false and fail to meet children's expectations (15%); and (3) television ads are silly, stupid, scary and in poor taste (7%). (See also Feldman & Wolf, 1974.)

Contrasted with a previous study conducted in 1971 by the ANA,

mothers were concerned that television was planting a desire for things that kids don't need (8%), and tended to make their progeny more extravagant (7%).

Mentioned as good effects of television advertising to children: (1) allows them to see what's on the market and try new things (19%); (2) provides awareness of products (18%); (3) useful information (11%); (4) education (10%); and (5) entertainment (10%).

Other studies devoted to various facets of behavior presumably influenced by television viewing, show that television advertising appears to encourage the development of questionable consumer values (Donohue, 1975).

Theories of Cognitive Development

At the risk of oversimplification, cognitive processing may be described as learning new things in the context of the old (Case, 1974; Roberts, 1963).

There are two leading figures in the study of cognitive development, Jean Piaget and Jerome Bruner. Both posit three major stages through which the child's intelligence passes (Piaget, 1952; Bruner, 1964), although most developmental psychologists agree that there is an ontogenetic pattern to the child's cognitive operations (Kuhn & Angelov, 1976; Elkind, 1967, 1974; Flavell, 1963; Dudek & Dyer, 1972; Wallach, 1963).

The three major stages are: (1) Piaget's sensorimotor period or Bruner's enactive period; (2) Piaget's concrete operational period or Bruner's ikonic period, and (3) Piaget's period of formal operations or Bruner's symbolic period (see Table 1).

TABLE 1

LEVELS OF COGNITIVE DEVELOPMENT

	Piaget	Bruner
I	sensorimotor	enactive
II	concrete operational a. pre-operational b. concrete	ikonic
III	formal operational	symbolic

During the first stage, which lasts until approximately the age of 18 months, the child's dominant relational operation is active. He touches, grasps, shakes, developing the concept of object as constant and distinct from self.

The second stage extends approximately from 18 months to 11 or 12 years. This stage is broken into two periods. During the first half (Piaget's pre-operational--until about age 7), the child develops the capacity to engage in symbolic representation of concrete objects, discovering that certain objects can stand for others. During the latter half of the second stage, he develops the capacity to perform certain basic logical operations on these concrete representations.

It is only during the third stage that children become capable of engaging in propositional thinkings, of moving from the real to the possible, from the concrete to the abstract (Piaget, 1952; Bruner, 1964. For a more expanded explanation of the stages see Flavell, 1963; Elkind, 1974).

According to Piaget (1969), the child develops different representations of reality as he matures--a figurative model of the world and an operational model.

The figurative model is based on predispositions to perceive and act in certain ways. When a child sees something he wants, for example, he is able to put out his hand and pick it up. After dropping the toy several times, he tends to expect the toy to fall whenever he drops it.

The operational model is based on reality testing and logical processes that he can apply to the world in consistent relationship to each other. For example, to see if objects really do fall when dropped a very young child tests the idea by dropping a plate, a spoon, or more toys.

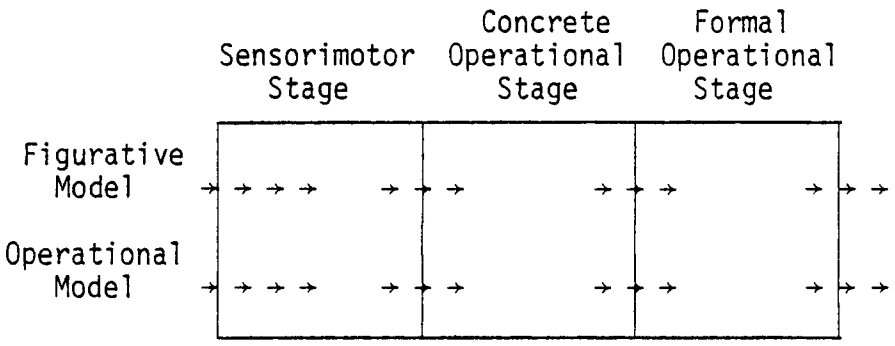
Development of the mind, according to Piaget, requires an integration of figurative and operational skills. That is, the child begins to correlate what he perceives with what he finds to be logically true as he matures.

Arriving at such a balance is not easy, for the figurative and operational models often conflict with each other. As the child matures, he develops a figurative model of what he perceives, which causes him to develop certain habits of observation. The resulting impressions may differ from impressions acquired through his operational skills.

When the child discovers the conflict between figurative and operational processes, he intuitively realizes that he must interrelate both ways of acquiring information from the world. He discovers intuitively that figurative impressions can be misleading and that he

must continually test and retest his impressions of the world by applying his operational skills. Eventually, he largely reconciles the conflict between the figurative and operational processes and becomes skillful in using both ways to extract imformation from the world (Bever, et al., 1975).

The result is a 2 x 3 matrix, the three principal stages of cognitive development being transversed by the figurative and operational models.



Abilities and Inabilities of Cognitive Stages

It is necessary to begin this section with an explanation and examples of the cognitive abilities and principally the inabilities of the child during the concrete operational and formal operational states.

Basically, the pre-operational child is egocentric with respect to representations. First and foremost, the child repeatedly demonstrates the relative inability to take the role of the other person; that is, to see his own viewpoint as one of many and try to coordinate it. Also, the tendency to center his attention on a single striking feature of an object and neglect other important features, thereby distorting his reasoning, is another factor in pre-operational thought.

But perhaps the single most important characteristic of pre-operational thought is its irreversibility; i.e., the inability to travel along a cognitive route (pursue a series of reasoning, follow a series of transformations, etc.) and then reverse direction to find the original premise. This can be seen in the many experiments done in the area of conservation of liquids as well as solids (Elkind, 1967, 1974; Bruner, et al., 1966; Flavell, 1963).

In the transition to concrete operations, the rigid, static, irreversible structures begin to become more flexible, "decentral," and above all reversible. The child begins to extend his thought beyond mere reality to the "possible," and this is the main advance in the concrete stage.

But there are some limitations to the concrete operational state. First, the concrete operations are concrete, i.e., extremely rigid and inflexible. The starting point for concrete operations is still the real rather than the potential. In addition, the concrete operational child is unable to accommodate and assimilate the various properties of height, weight, area, etc., at the same time; i.e., he is unable to deal with multidimensional thought.

Turning to the formal operational stage, the single most important property concerns the real vs. the possible. Unlike the concrete operational child, the child now begins to solve a problem by trying to consider all the possible solutions and then determining which of the possible solutions holds true for the problem. Reality is thus conceived as a subset of the "possibles"; "is" is seen as a portion of the "might be" totality (Piaget, 1929, 1951, 1952, 1954, 1958; Inhelder & Piaget, 1958).

As detailed earlier, certain classifications of periods of ontogenetic change are said to exist. Tests on the actual existence of these periods support the notion of an irreversible succession of stage progression and indicate that conceptual spans increase with age (Thomas, 1972; Dudek & Dyer, 1972; Webb, 1974). But caution should be taken against a literal identification of stage with age as the given ranges are only approximates (Flavell, 1963).

It is necessary to first distinguish between the roles of an adult and those of a child. For the purposes of this study an adult will be defined in the cognitive development sense as having achieved formal operations, the child as "pre-formal operations."

Essentially, the experiences of childhood are incompatible with the schemata of the adult. It is no wonder, then, that the adult cannot recall them. The events, activities, and emotions of childhood were assimilated in a way that is no longer open. Years of sophisticating accommodation have made it as impossible to remember our own childhood as to fully understand anyone else's (Neisser in Bruner, et al., 1966).

As a society grows more complex in its technology and division of labor, two changes necessarily occur. First, the knowledge and skill within the culture come increasingly to exceed the amount that any one individual can know. Almost inevitably, then, there develops a sharp disjunction between the worlds of the child and those of the adult (Bruner, et al., 1966; Reese, 1973).

In more evolved technical societies, then, the very nature of the learning situation requires a contingent dialogue between adult and

child, for once it is out of the task context in which learning occurs directly, one can no longer point or "let the situation carry the meaning" (Bruner, et al., 1968). For the child is "absorbing" knowledge in a world which is dependent upon experiences and is based on a constructed model of reality--a concept that can only be partially tested (Piaget, 1976).

But most things are not initially a part of one's experience or model of reality. Yet intellectual functioning, in its dynamic aspect, is also characterized by the invariant processes of assimilation and accommodation (Piaget, 1952; Flavell, 1963; Elkind, 1974). Accommodatory acts are continually being extended to new and different features. To the extent that a newly accommodated-to feature can fit somewhere in the existing meaning structure, it will be assimilated. Once assimilated, however, it tends to change the structure to some degree and, through this change, make possible further accommodatory extensions.

So far the broad, general premise basic to the study has been established. Therefore the study will now shift to the specific cognitive proposition. The construct of conservation is especially useful for this purpose.

Conservation may be defined as permanence across apparent change (Flavell, 1963). The classic experiment is one in which there are two containers holding the same amount of liquid. The liquid in one beaker is then poured into a beaker of a different shape and the child is asked if there is still the same amount of liquid. If the second beaker is thinner, the child will usually say there is more because the liquid

liquid level is higher, while if the beaker is wider the child will ordinarily respond that there is less liquid because of the lower level (Bruner, et al., 1966). For Piaget's subjects, conservation of matter seems to become common at 8-10 years of age, of weight at 10-21, and of volume only at 12 years of age and after (Flavell, 1963).

Palermo (1973) and Bruner and Kenney (1976) discuss the cognitive development by which children come to understand the concepts of "more" and "less," "full" and empty." In two experiments the findings of M. Donaldson and G. Balfour (1969) were replicated and it was observed that even at age 7 some subjects had not yet differentiated these terms. Other findings indicate that the understanding of proportions does not develop until about the formal operational period, at about age of 11 or 12 (Chapman, 1975). Perhaps the findings might be extended to include the semantically related synonyms "just" and "only." (See also Holland & Palermo, 1975; Brush, 1976.)

Overton and Jackson (1973) found that very young children, up to age 8, pretending to use various common objects in action sequences appropriate to the objects, would have difficulty performing the actual desired action. In addition, children before formal operations are unable to attribute the effect and ability needed to perform certain tasks (Karabenick & Heller, 1976).

But what really sets adults apart from children is their logical ability. Basically, it has been found that children cannot reason logically if some items are used as the defining criteria (O'Brien & Shapiro, 1968), but can reason logically if other items are used as the criteria.

Application to Advertising

Children 12 years and younger constitute one-quarter of the U.S. population. Studies show that they spend more time watching television than they do in school (Bever, et al., 1975).

Children, it is argued, are just not aware of what is being asked of them by the large volume of commercials beamed their way. Children are being urged to ask their parents to buy this, buy that, at times apparently indiscriminately (Frideres, 1973; Ward & Wackman, 1972; Berey & Pollay, 1968).

A re-examination of Piaget's concrete operational period from an advertising viewpoint, starting with the transition from pre-operational to the concrete operations stage, is called for here.

At the ages of 5-6, children lack the experience to verify their figurative impressions and their cognitive skills (Collins, 1970) to exact information from advertising, and therefore are somewhat vulnerable to misleading advertising, and the majority are not even able to distinguish what a commercial is (Ward, 1972). Further distinguishing this age group is the child's lack of understanding of why commercials are shown. Robertson and Rossiter (1974) found that children 5-6 years old are incapable of determining persuasive intent and are therefore extremely susceptible to misleading advertising.

Children 5-6 years of age are incapable of putting themselves in another's place and as such are less discriminating toward the various visual stimuli presented by way of television commercials (Ward & Wackman, 1973; Flavell, 1970). In addition, these children have trouble following material that is not extremely clear and concrete

(Rust & Watkins, 1975). These findings are consistent with the abilities and inabilities dealt with earlier.

In addition, another study has reported that two-thirds of the children in a first-grade class were found to trust all commercials and nearly half of the children responded that they want virtually all of the products they see advertised (Robertson & Rossiter, 1974).

Turning to the 7-11-year olds, the child now is developed into the concrete operational period (Piaget, 1952). He is now capable of decentration but as yet incapable of reasoning from the real to the abstract.

A majority of children in this age group are able to specify clear principles about what advertising should and should not do. Yet despite their ability to articulate fair principles of advertising in the abstract, many 9- and 10-year olds admitted that they could not really evaluate advertising. "Advertisers can fake well," they said (Bever, et al., 1975).

At this age level, children are not yet able to discern the purpose of commercials, exhibiting a moderate awareness--"to make people buy things" (Ward, 1972). This attribution of persuasion is primarily dependent on age and this maturational development influences cognitive and attitudinal defenses (Robertson & Rossiter, 1974; Rossiter & Robertson, 1974). Children were not sure whether the commercial was misleading, but most felt they often had been misled by advertising claims and eventually concluded that all advertising is misleading (Bever, et al., 1975).

On the whole, 7-10-year olds show tension and anger over their

inability to cope effectively with what they believe to be misleading advertising. This hostility reflects an unsatisfactory resolution of conflict in previous years. The frustration children of this age feel in dealing with misleading advertising reflects the conflict they are experiencing between their strong figurative impressions of the world and their limited operational powers. They are aware that people intentionally deceive each other but are not always able to tell when; they are won over by products that appear to be very attractive but that prove to be nearly worthless.

In summary, from 7-9, children attempt with great difficulty and little success to integrate advertising into their lives; at age 10, they resolve the conflict temporarily through an overgeneralization that all advertising is misleading (Bever, et al., p. 115).

Yet being able to discern misleading advertising should not be considered the sole criterion of proper evaluation of advertisements. Children also have been found incapable of dealing with the persuasive intent of advertising, among other things.

In addition, there are factors which can be used as predictors of children's cognitive defenses to television advertising (Rossiter & Robertson, 1974). Age, grade, and parental education were all found to be statistically significant ($p < .001$) predictors of cognitive defenses.

In their study of first, third, and fifth graders, Rossiter and Robertson found that the first graders revealed very low cognitive sophistication vis-a-vis commercials. By the third grade, attitudinal defenses were still the most effective, but the cognitive defenses were

beginning to assume more importance. By the fifth grade, however, cognitive defenses were found to be the only protective screen. Rossiter and Robertson concluded that cognition appears to be a higher order construct than attitude (Rossiter & Robertson, 1974, p. 143).

Furthermore, in a controlled laboratory experiment, Resnick and Stern (1977) found that a child is more likely to choose a brand that he has seen advertised on television over another previously unknown brand that he has not seen advertised. The study dealt with second, third, and fourth graders.

IV. FINDINGS OF STUDY

In an effort to make the findings of the study as understandable as possible, tables were used throughout this section. This allows for comparison across categories and cross-reference within categories to be made much easier.

Composition of the Sample

Data in Table 2 represent the composition of the sample as determined by the author in the oral interviews of the children at St. Joseph's School.

TABLE 2

COMPOSITION OF THE SAMPLE

Grade	Cognitive Development		
	Pre-operational	Concrete	Formal
1	14	1	0
3	8	8	0
4	3	6	1
6	0	3	14

Grades 1, 3, and 6 were initially chosen to reflect the three stages of cognitive development. One can see that the first grade accurately reflects the expected situation, the pre-operational stage. However, the third grade split 50-50 between the pre-operational and

concrete operational stages. Therefore, the fourth grade portion of the sample was included. Here the division was more of what was expected. By the sixth grade, though, the children were again at the expected level of development. The slight variations in the composition of the sample are not rare. The ages (and corresponding grades in school) at which the children attain the various levels are only approximates. Piaget, for example, found that children in a small town in the Swiss Alps were about two years behind the children who lived in Geneva.

Findings by Question

Table 3 categorizes the children's answers to the question, "What is a television commercial?"

TABLE 3

LEVEL OF AWARENESS OF "WHAT A TELEVISION COMMERCIAL IS" BY GRADE

Levels of Awareness	Grade 1	3	4	6	Total
Low	93%	31%	40%	23%	47%
Medium	7%	69%	40%	59%	45%
High	0%	0%	20%	18%	9%
	100%	100%	100%	100%	100%
n =	(15)	(16)	(10)	(17)	(58)

Basing the subsequent levels on Ward (1972), the children's responses break down into three levels of awareness. Low awareness answers are categorized as those exhibiting confused perceptions, based on coincidental reasoning or affect. Medium awareness answers exhibit judgment based on reality of object or person portrayed. High awareness answers exhibit judgment based on an understanding of the nature of sponsorship and awareness of the selling motives.

In accordance with the hypothesis, that children before the cognitive level of formal operations children cannot evaluate the purpose of television advertising directed to them, the study went further than Ward by including the levels of cognitive development of the children whose answers fell into each specific level.

One can see by the breakdown of grade (Table 3) that the first grade children clearly had little notion of the purpose of commercials. The third graders showed improvement over the first graders, but none exhibited a high level of awareness. By the fourth grade, however, the split between the stages shows some students in the high level of awareness. Even at the sixth grade, though, few exhibited a high level of awareness. However, one can easily see a distinct trend from low to high awareness with the advancing grades.

Table 4 categorizes the types of responses received to the question, "What is a television commercial?"

Low awareness answers typically explain commercials as part of the show or a break in the show. Medium awareness answers indicate at least a minimal understanding of advertising's purpose. High awareness responses were so designated only if the child exhibited an understanding of the selling motives of advertising or of the concept of sponsorship.

TABLE 4

TYPES OF RESPONSES: "WHAT IS A TELEVISION COMMERCIAL?"

Type of Responses	n	% of Total
Low Awareness Responses		
--specific product category	1	2
--"part of the show"	4	7
--interrupts show	9	16
--don't know or no answer	13	22
	27	47%
Medium Awareness Responses		
--advertises things	18	31
--tells about products available	8	14
	26	45%
High Awareness Responses		
--tries to get people to buy products	4	7
--sponsors show	1	2
	5	9%
Totals	58	100%

Table 5 considers the various levels of cognitive development vis-à-vis the level of awareness.

TABLE 5

LEVEL OF AWARENESS OF "WHAT A COMMERCIAL IS" BY LEVEL OF COGNITIVE DEVELOPMENT

	Awareness					
	Low	n	Medium	n	High	n
Pre-operational	60%	15	40%	10	0%	0
Concrete	39%	7	44%	8	17%	3
Formal	33%	5	53%	8	13%	2

In the low awareness responses, the breakdown of cognitive development stages reveals that 60% of the children were in the pre-operational stage of development, 39% in the concrete stage, and only 33% in the formal operational stage of development.

The medium awareness responses were broken down by developmental stages thusly: 40% were from the pre-operational children and 44% and 53% from children in the concrete and formal operational stages.

By the high awareness stage, though, there were no pre-operational children, 60% were concrete and 40% formal operational children.

In considering what is proper evaluation, one must consider the level of awareness as it relates to the cognitive stage of development. Of all the children listed as pre-operational children, 60% responded with answers considered low awareness. The remaining 40% of the pre-operational children were classified as having medium awareness. No pre-operational children were classified as high awareness.

Of those children in the concrete stage of development, 39% responded with low awareness answers, 44% medium awareness, and 17% high awareness.

Those in the formal operational stage of development were categorized thusly: 33% responded with low awareness answers, 53% medium awareness, and 13% high awareness.

Table 6 indicates that the understanding of the purpose of television commercials increases with the higher grades. As in question 1, the first graders had little or no idea why commercials are shown on television. The third graders, as well, showed little comprehension of their purpose. By the fourth grade, however, half of the children

TABLE 6

LEVEL OF AWARENESS OF "WHY COMMERCIALS ARE SHOWN" BY GRADE

Level of Awareness	Grade 1	3	4	6	Total
Low	100%	88%	50%	41%	71%
Medium	0	12%	50%	47%	26%
High	0	0	0	12%	3%
	100%	100%	100%	100%	100%
n =	(15)	(16)	(10)	(17)	(58)

exhibited at least a medium level of awareness. It was only by the sixth grade that children demonstrated a high level of awareness and understanding.

Table 7 indicates the types of responses received to the question, "Why are commercials shown on television?" Typical Level 1 responses include, "to help you" or "let you know what's at the store." Level 2 responses show a moderate level of understanding, i.e., that they're shown "to make people buy things" or "to sell products." Only two of the children questioned demonstrated a knowledge and basic understanding of the selling motives and sponsorship of a particular program.

Table 8 examines the relationships between the levels of awareness by the children and their respective level of cognitive development.

Breaking down, for cross-reference, the levels of cognitive development, 88% of the pre-operational children responded with low

TABLE 7

TYPES OF RESPONSES: "WHY ARE COMMERCIALS SHOWN ON TELEVISION?"

Level	n	% of Total
Level I		
--help or inform you	12	21
--entertainment or for a break	5	9
--miscellaneous	2	3
--don't know or no answer	22	38
	41	71
Level II		
--make people buy things	9	16
--sell products	6	10
	15	26
Level III		
--get people to buy plus an understanding of the notion of sponsorship	2	3
TOTALS	58	100%

TABLE 8

UNDERSTANDING OF WHY COMMERCIALS ARE SHOWN BY LEVEL OF COGNITIVE DEVELOPMENT

	n	Level I	n	Level II	n	Level III
pre-operational	22	88%	3	12%	0	0%
concrete	13	72%	5	28%	0	0%
formal	6	40%	7	47%	2	13%

awareness answers. The remaining 12% gave medium awareness responses.

Seventy-two percent of the "concrete" children were classified in Level 1 with the remaining 28% in Level 2. None of the pre-operational or concrete operational children exhibited a high awareness of why commercials are shown on television.

Of the formal operational children, 40% were categorized in Level 1, 47% in Level 2, and 3% in Level 3. Only children in the formal operational stage of development demonstrated a high awareness.

These findings are primarily consistent with the present thesis. It would be expected that pre-operational children, with their high degree of centration (ego-centrism), would be unable to perceive that advertising could be directed to anyone other than themselves. Characteristic of their thinking would be that everything is done for their benefit. In their own unique way, they see advertisements as solely for their purposes and enjoyment.

Consistent with their previously discussed abilities, the concrete operational children, on the other hand, know that not all advertisements are directed to them but are not sure of the reasons why advertisers might advertise.

Only the formal operational children, who can deal in the realm of possibles and possibilities, could perceive the reasons for advertising on television.

With its basis in question 2 (Why are commercials shown on television?) this question gives the children a cue--that advertising does try to do something. This cue is most likely responsible for the increase in higher levels of differentiation exhibited by children in

all of the grades. For example, the pre-operational children exhibited an increase of 13% with the cue.

Data in Table 9 show that even with the cue more than two-thirds of the third graders still did not demonstrate a high awareness.

TABLE 9

LEVEL OF AWARENESS OF "WHAT COMMERCIALS TRY TO DO" BY GRADE

Level of Differentiation*	Grade 1	3	4	6	Total
I	87%	69	0	0	41
II	13%	31	100	100	59
	100	100	100	100	100
n =	(15)	(16)	(10)	(17)	(58)

*I = differentiation based on affect or coincidental reasoning.

II= differentiation based on reality.

By the fourth grade, though, 100% of the children accurately described the intent of commercials. It is interesting to note that the one grade difference (between the third and fourth grade) accounted for a difference of 69% in an accurate understanding of what commercials try to do.

The overwhelming response to the question, "What do commercials try to do?" (Table 10) was that "commercials get you to buy things (stuff)." As in the other questions, the majority of the first graders could not even answer the question.

TABLE 10

TYPES OF RESPONSES: "WHAT DO COMMERCIALS TRY TO DO?"

Level	n	% of Total
Level I		
--help you	6	10
--miscellaneous	7	12
--don't know or no answer	9	16
	22	38
Level II		
--get you to buy things	34	59
--get you to go to their store and interested in their products	2	3
	36	62
TOTALS	58	100%

A look at Table 11 reveals some interesting facts.

TABLE 11

UNDERSTANDING OF "WHAT COMMERCIALS TRY TO DO" BY LEVEL OF COGNITIVE DEVELOPMENT

	n	Level I	n	Level II
pre-operational	15	60%	10	40%
concrete	9	50%	9	50%
formal	0	0%	15	100%

Sixty percent of the pre-operational children demonstrated a low awareness, with the remaining 40% in Level 2. The interesting

statistics reveal that only 50% of the concrete operational children exhibited a complete understanding of what commercials try to do. In response to "Why are commercials shown on television?," 28% of the concrete operational children demonstrated a medium level of awareness (no concrete child exhibited a high awareness). Even with the additional cue, the Level 2 responses to this question only rose to 50%--an increase of 22%. What makes this figure stand out even more is the fact that all of the formal operational children, given the same cue, exhibited a basic understanding of what commercials try to do. This represents an increase of 40% over the same categories for the formal operational children.

Data in Table 12 indicate a clear distinction between children of earlier and later school grades in the degree of discrimination between programs and commercials.

TABLE 12

PROGRAM-COMMERCIAL DIFFERENTIATION BY GRADE

Level of Differentiation*	Grade 1	3	4	6	Total
I	100	88	70	24	69
II	0	12	30	76	31
	100	100	100	100	100
	n = (15)	(16)	(10)	(17)	(58)

*I = differentiation based on affect or coincidental reasoning.

II=differentiation based on reality.

The levels of differentiation are broken down into two categories to indicate high and low levels of awareness. Level 1 responses (low awareness or discrimination) describe answers based on coincidental reasoning ("they come on after the show") or affect ("commercials are short, programs are long"). Level 2 responses indicate more complex discrimination ("programs tell a story, commercials get you to buy things").

Broken down by grade, one can see that it is not until the sixth grade that a majority of children can actually distinguish between a program and a commercial. As late as the fourth grade more than two-thirds of the children still exhibited a low level of differentiation.

Table 13 gives you the types of responses received to the question of program-commercial discrimination.

TABLE 13

TYPES OF RESPONSES: "WHAT IS THE DIFFERENCE BETWEEN A TV PROGRAM AND A TV COMMERCIAL?"

Level	n	% of Total
Level I		
--commercials short, program long	16	28
--before or after show	2	3
--miscellaneous	9	16
--don't know or no answer	13	22
	40	69
Level II		
--program tells a story, or	12	21
--program entertains, and	2	3
--commercials sell	4	7
	18	31
TOTALS	58	100

Younger children particularly explained the difference as a function of length ("commercials short, programs long"). Only children in the sixth grade could consistently and accurately differentiate the two ("program could be fiction or non-fiction, the commercial sells you something"). A typical fourth-grade response was, "Programs are on schedule, commercials aren't." Sixty percent of the first graders couldn't even answer the question.

The data in Table 14 continue to further point out the gap in the abilities of the children in the different levels of cognitive development.

TABLE 14

AWARENESS OF PROGRAM-COMMERCIAL DIFFERENTIATION BY LEVEL OF COGNITIVE DEVELOPMENT

	n	Level I	n	Level II
pre-operational	24	96%	1	4%
concrete	12	67%	6	33%
formal	4	27%	11	73%

Of those in the pre-operational stage of development, 96% responded with low awareness answers. Only 4% of the pre-operational children could differentiate between a program and a commercial. Two-thirds of the children in the concrete operational stage of development still could not accurately discriminate between a program and a commercial. By the formal operational stage, however, nearly three-fourths

of the children exhibited a high awareness of the difference, explaining commercials in terms of their function ("to sell you things") and programs as stories.

The data in Table 14 are critical in assessing the individual development stage's ability to evaluate television advertising. These data magnify the clear distinction between a concrete and formal operational child.

Approximately equal percentages of children in the concrete and formal stages of development exhibited accurate notions of "what a commercial is," but it is more essential to also be able to distinguish between something they can define (the TV commercial) and a program. The child may have acquired his/her definition of a commercial from any number of sources (e.g., "Mommy, what's a commercial?") and can be easily memorized and repeated. It would seem that the distinction between a program and a commercial, on the other hand, would have to be understood in order to explain it satisfactorily to the interviewer to be classified as high awareness.

Summary

It appears clear from the responses to the questions that an understanding of commercials is lacking in very young children. One might infer that if they cannot distinguish advertisements from programs, they probably cannot defend themselves from the persuasive intent of commercials or distinguish between accurate and misleading advertising. In most cases, the very young children believe that all advertisements tell the truth. It might even be pertinent to ask if these children can distinguish between truth and mere puffery.

Children in the higher grades, though, appear to develop the cognitive defenses necessary to evaluate television advertisements.

It is a different matter, on the other hand, to have grasped an understanding of why commercials are shown on television. Data in response to this question point to the fact that children before the stage of formal operations cannot accurately state the purpose of commercials.

In summation, children in the pre-operational stage of development, and to a large extent the concrete operational stage, are naive in regard to television advertising.

It is really only once the child has reached the stage of formal operations that children know why commercials are shown on television and what commercials try to do.

V. CONCLUSION

The results of the study support the hypothesis: that before reaching the stage of formal operations, children cannot evaluate the purpose of television advertising directed to them.

Approximately equal percentages of concrete and formal operational children exhibited a medium or high awareness of "What a commercial is": 61% of the concrete children to 67% of the formal operational children. The real support for the thesis comes in the answers to questions 2, 3, and 4 in which the formal operational children exhibited a much better awareness than the concrete operational children.

Only 28% of the concrete operational children exhibited a medium awareness of "Why commercials are shown," as compared with 60% of the formal operational children--more than twice as much as the concrete children.

In demonstrating a knowledge of "What commercials try to do," again, the formal operational children double the percentage of concrete operational children--100% to 50%.

Finally, in regards to the degree of program-commercial differentiation, the formal operational children more than doubled the percentage of concrete operational children exhibiting an accurate awareness.

As was detailed earlier, proper evaluation was to be regarded as having been attained if more than 50% of the children in any given stage of cognitive development demonstrated at least a medium awareness of each individual category.

In this study the only time the concrete operational children exceeded this level was in answering the first question, "What is a television commercial?" In the rest of the cases the only time they came close was in trying to identify "what commercials try to do," when exactly 50% exhibited an accurate awareness.

On the other hand, the formal operational children exceeded the level in all of the cases. It appears clear from the data collected in this study that the majority of children before the stage of formal operations cannot evaluate television advertising directed to them.

In testifying before the Federal Trade Commission in November, 1971, Ward and Wackman (Broadcasting, November 15, 1971) said the research connected with television advertising to children could be used to justify either side of the issue because none of it was comprehensive enough to cover all of the variables that are involved.

That was 1971. Today, in 1977, it is the opinion of the author that the situation has not undergone a metamorphosis of any significance. Basically, the questions that were begging for answers then are still found wanting.

The logical social policy question emerging from this research is whether children deserve some form of special protection from the effects of television advertising.

As discussed, the attribution needed in most of the cases does not develop until the stage of formal operations. Of course, this study alone should not be considered conclusive, but if through additional studies the results obtained correlate with those of this study, a consistent conclusion would be that television advertising directed

to children should be restricted not only in amount but in content as well.

Future Research

The results from this study, in conjunction with the discussion in the Review of Literature concerning the information processing skills that children of different ages develop, documents that these skills do not enable children to evaluate television advertising directed to them. However, the relatively few quantitative and the rare qualitative studies still render these results tenuous.

The danger signals need to be weighed carefully, though, within broader studies to determine how much maturation time a child actually needs to master the skills necessary to interpret advertising.

It is the considered opinion of the author that any study of children's advertising taken solely from a cognitive development vantage or an attributional theory vantage or a learning theory vantage, etc., will be insufficient. To be truly broad enough to cover the scope of children's advertising, the study should be conducted from a multi-variate position.

Yet this study is useful in that it leads to further questions: Do television commercials directed to children have any harmful effects? What should be the responsibility of the advertiser in this matter? Who will conduct the research and draw the conclusions? Who will have the final say? These are but a few of the germane problems facing the industry as well as the public.

Findings suggest that children's responses to commercials may

be related to stages in cognitive growth, but this is far from a foregone conclusion. Much research is needed in this area as the ramifications and implications of this subtle and complex issue warn of a long road ahead.

Although the furor created earlier in the decade on the subject has diminished somewhat, and the amount of available research and literature has increased--the sheer amount of work to be done is staggering.

BIBLIOGRAPHY

BIBLIOGRAPHY

ANA finds mothers are split on effects of television commercials. Advertising Age, September 9, 1974.

Banks, S. Public policy on ads to children. Journal of Advertising Research, 1975, 15(4), 7-12.

Barry, T. E., & Hansen, R. W. How race affects children's tv commercials. Journal of Advertising Research, 1973, 13(5), 63-67.

Barry, T. E., & Sheikh, A. A. Race as a dimension in children's tv advertising: The need for more research. Journal of Advertising, 1977, 6(3), 5-10.

Berey, L. A., & Pollay, R. W. The influencing role of the child in family decision making. Journal of Marketing Research, 1968, 5, 70-72.

Bever, T. C., Smith, M. L., Bengen, B., & Johnson, T. G. TV ads can distort outlook of some young. Harvard Business Review, November-December 1975, pp. 109-120.

Blatt, J. L., & Ward, S. A cognitive development study of children's reactions to advertising. Effects of TV Advertising on Children and Adolescents. Cambridge, Mass.: MSI, 1971.

Bruner, J. S. The cause of cognitive growth. American Psychologist, 1964, 19, 1-15.

Bruner, J. S., & Kenney, H. J. On relational concepts. In Bruner, et al. (Eds.), Studies in cognitive growth. New York: John Wiley and Sons, 1966.

Bruner, O., & Greenfield, et al. Studies in cognitive growth. New York: John Wiley and Sons, 1966.

Brush, L. T. Children's meanings of "more." Journal of Child Language, 1976, 3(2).

Case, R. Structures and strictures: Some functional limitations on the course of cognitive growth. Cognitive Psychology, 1974, 6(4), 544-573.

Chandler, M. J., Greenspan, S., & Barenbaum, C. Judgements of intentionality in response to videotaped and verbally presented moral dilemmas: The medium is the message. Child Development, 1973, 44(2), 315-320.

Chapman, R. H. The development of children's understanding of proportions. Child Development, 1975, 46(1), 141-148.

Christopher, M. ANA guidelines for kids' tv will reveal increased social awareness. Advertising Age, July 3, 1972.

Collins, W. A. Learning of media content: A developmental study. Child Development, 1970, 41(4), 1133-1142.

Denney, D. R. Modifications of children's information processing behaviors through learning: A review of the literature. Child Study Journal, 1973. (Monograph 1-3)

Donohue, T. R. Effects of communication on black children. Journal of Advertising Research, 1975, 15(6), 41-47.

Dudek, S. Z., & Dyer, G. B. A longitudinal study of Piaget's developmental stages and the concept of regression. Journal of Personality Assessment, 1972, 36(4), 380-389.

Elkind, D. Piaget's conservation problems. Child Development, 1967, 38, 15-27.

Elkind, D. Children and adolescents: Interpretive essays on Jean Piaget (2nd ed.). New York: Oxford University Press, 1974.

Engman, L. Need more study of ads children view. Advertising Age, May 26, 1975.

Feldman, S., & Wolf, A. What's wrong with children's commercials? Journal of Advertising Research, 1974, 14(1), 39-43.

Flavell, J. H. The developmental psychology of Jean Piaget. Princeton: Van Nostrand, 1963.

Flavell, J. H. Concept development. In P. H. Mussen, Carmichael's Manual of Children's Psychology, (3rd ed., Vol. 1). New York: John Wiley and Sons, 1970.

Frideres, J. S. Advertising, buying patterns and children. Journal of Advertising Research, 1973, 13(1), 34-36.

FTC explores children and advertising. Broadcasting, November 15, 1971.

Halfner, J. E. The perception of deception in tv advertising: An exploratory investigation. Dissertation Abstracts International, 1973, 33(10-A), pp. 5350-5351.

Holland, V. M., & Palermo, D. S. On learning "less": Language and cognitive development. Child Development, 1975, 46(2), 437-443.

Inhelder, B., & Piaget, J. The growth of logical thinking from childhood to adolescence. New York: Basic Books, 1958.

Inhelder, B., & Piaget, J. The early growth of logic in the child. New York: Norton & Company, Inc., 1969.

Karabenick, J. D., & Heller, K. A. A developmental study of effort and ability attributions. Developmental Psychology, 1976, 12(6), 559-560.

Kobasigawa, A. Utilization of retrieval cues by children in recall. Child Development, 1974, 45(1), 127-134.

Kuhn, D. Mechanisms of change in the development of cognitive structures. Child Development, 1972, 43(3), 833-844.

Kuhn, D., & Angelov, J. An experimental study of the development of formal operational thought. Child Development, 1976, 47(3), 697-706.

Melody, W. H., & Ehrlich, W. Children's tv commercials: The vanishing policy options. Journal of Communication, 1974, 24(4), 113-125.

NAB unit has set guides for kid-aimed ads. Advertising Age, June 23, 1975.

New guidelines for children's ads. Broadcasting, June 23, 1975.

O'Brien, T. C., & Shapiro, B. J. The development of logical thinking in children. American Educational Research Journal, 1968, 5(4), 531-542.

Overton, W., & Jackson, J. P. The representation of imagined objects in action sequences: A developmental study. Child Development, 1973, 44(2), 309-314.

Palermo, D. S. More about less: A study of language comprehension. Journal of Verbal Learning and Verbal Behavior, 1973, 12(2), 211-221.

Piaget, J. The child's conception of the world. New York: Harcourt, Brace, 1929.

Piaget, J. Play, dreams, and imitation in childhood. New York: Norton, 1951.

Piaget, J. The origins of intelligence in children. New York: International University Press, 1952.

Piaget, J. The construction of reality in the child. New York: Basic Books, 1954.

Piaget, J. Principal factors determining intellectual evolution from childhood to adult life. In E. L. Hartley & R. E. Hartley (Eds.), Outside readings in psychology. New York: Crowell, 1958.

Piaget, J. The mechanisms of perception. New York: Basic Books, 1969.

Piaget, J. The child and reality. Baltimore, Md.: Penguin, 1976.

Piaget, J., & Inhelder, B. The psychology of the child. New York: Basic Books, 1969.

Pulaski, M. A. S. Understanding Piaget: An introduction to children's cognitive development. New York: Harper & Row Publishers, Inc., 1971.

Reese, H. W. (Ed.). Advances in child development and behavior: VIII. New York: Academic Press, 1973.

Resnick, A., & Stern, B. L. Children's television advertising and brand choice: A laboratory experiment. Journal of Advertising, 1977, 6(3), 11-17.

Roberts, D. F. Communication and children: A developmental approach. In W. Schramm & I. Pool (Eds.), Handbook of Communication. Chicago: Rand McNally Publishing Company, 1973.

Robertson, T. S., & Rossiter, J. R. Children and communication persuasion: An attribution theory analysis. Journal of Consumer Research, 1974, 1(1), 13-20.

Rossiter, J. R., & Robertson, T. S. Children's tv commercials: Testing the defenses. Journal of Communication, 1974, 24(4), 137-145.

Rust, L., & Watkins, T. A. Children's commercials: Creative development. Journal of Advertising Research, 1975, 15(5), 21-29.

Sheikh, A. A., Prasad, V. K., & Rao, T. R. Children's tv commercials: A review of research. Journal of Communication, 1974, 24(4), 126-136.

Thomas, E. C. Conceptual development in young children. Psychology, 1972, 9(1).

Three years later: Mothers remain split over television commercials. Broadcasting, September 9, 1974.

TV ads not normally disruptive to children's development, Banks maintains. Advertising Age, November 15, 1971.

TV and the tyke: FCC starts push for some answers. Broadcasting, September 11, 1972.

Wadsworth, B. J. Piaget's theory of cognitive development. New York: David McKay, Inc., 1971

Wallach, M. A. Research on children's thinking. In H. W. Stevenson (Ed.), Child psychology, Part I. Chicago: National Society for the Study of Education, pp. 236-276.

Ward, S. Children's reaction to commercials. Journal of Advertising Research, 1972, 12(2), 37-45.

Ward, S., & Wackman, D. B. Children's purchase influence attempts and parental yielding. Journal of Marketing Research, 1972, 9, 316-319.

Ward, S., & Wackman, D. B. Children's information processing of tv advertising. In P. Clarke (Ed.), New models for mass communication research. Beverly Hills, Ca.: Sage, 1973.

Wartella, E., & Ettemea, J. S. A cognitive development study of children's attention to television commercials. Communication Research, 1974, 1(1), 69-88.

Watching children who watch ads. Broadcasting, July 26, 1971.

Webb, R. A. Concrete and formal operations in very bright 6 to 11 year olds. Human Development, 1974, 17(4), 292-300.

Wells, W. D. Communicating with children. Journal of Advertising Research, 1965, 5, 2-14.

Winick, C. L., Williamson, S., & Winick, M. Children's tv commercials: A content analysis. New York: Pralger Publishers, 1973.

APPENDIX

INTERVIEW

Conservation of liquid task: See page 19.

Complex verbal task: If "x" is greater than "y," and "y" is greater than "z," is "z" greater than or less than "x?"

Questionnaire

(1) What is a television commercial?

(2) Why are commercials shown on television?

(3) What do commercials try to do?

(4) What is the difference between a television commercial and a television program?

VITA

The author was born in Medina, Ohio, on March 9, 1953. He attended private parochial grade school and high school in Cuyahoga Falls, Ohio, graduating from Walsh Jesuit High School in June, 1971. The author attended the University of Akron (Ohio) and was graduated with a Bachelor of Science in Business Administration, major in Marketing, in December, 1975. He entered the Master's program at The University of Tennessee, Knoxville, in September, 1976, and was graduated with a Master of Science in Communications in December, 1977. He majored in Advertising and minored in Journalism. While attending The University of Tennessee, Knoxville, the author held a Graduate Assistantship in the Advertising Department from January, 1977, to December, 1977. He was also a member of the Advertising Club and the college chapter of the American Advertising Federation.