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ABSTRACT

Highlighting pertinent research in the area of young children's development of humor, this paper reviews four areas from a cognitive-developmental perspective: (1) humor as a cognitive process, (2) humor and the developmental process, (3) research on young children's humor, and (4) humor and early childhood education. First, the structural properties of incongruity and resolution are discussed in terms of the forms that humor can take as a cognitive process. The stages involved in humor processing are examined in relation to the structure of humor and the cognitive status of the recipient. Secondly, humor is viewed as a developmental process which reflects underlying cognitive changes. General cognitive prerequisites for incongruity humor are defined and the stage at which young children first are capable of understanding comic incongruity is identified. Thirdly, research is reviewed and findings summarized in the areas of laughter-provoking situations, cognitive mastery, moderately novel humor stimuli, and structural aspects of humor. Lastly, the role of humor in four areas of early childhood education are explained: humor as a motivating factor; the value of humor in spontaneous play activities; the role of humor in the learning process; and the types of humor most appropriate for young children. Examples of children's jokes, riddles, etc. are used to illustrate important concepts throughout the paper. An 11-page reference list is appended. (DST)

CHILDREN'S HUMOR:

A COGNITIVE-DEVELOPMENTAL PERSPECTIVE

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Children's Humor: A Cognitive-Developmental Perspective

Children demonstrate their knowledge in a variety of contexts. Cognitive psychologists, who believe that much of what children do reflects their thinking, have extended this concept to the realm of humor.

Like play, humor is of enormous importance to young children. Those who observe preschool children for any period of time conclude that young children find a great many things humorous; preschoolers are generally described as being easily amused. But not all things found humorous by young children are equally amusing to adults. It is perplexing to adults, at times, that children find certain events amusing while adults consider them "silly," "nonsense," or nonhumorous. The opposite also holds true: Young children do not always understand and appreciate "adult" humor. In attempting to understand how children's concepts of humor differ from those of adults, researchers have concluded that the development of humor parallels and is dependent upon the development of cognition.

HUMOR AS A COGNITIVE PROCESS

Structure of Humor

Humor that appeals to older children and adults may take many forms (jokes, riddles, or cartoons), but most forms of humor are based on structural properties believed to be universal (Berlyne, 1969; Jacobs, 1964; McGhee, 1972b; Rothbart, 1976; Shultz, 1972). These properties have been identified as <u>incongruity</u> and <u>resolution</u> (McGhee, 1979, Rothbart & Pien, 1977; Shultz, 1976; Suls, 1972).

Incongruity in humor results when there is a discrepancy between the punchline and the body of the joke (Nerhardt, 1976; Shultz, 1972) and a violation of expectancies (Shultz, 1972, 1976). Jokes, cartoons, and riddles are deliberately constructed to trick or deceive the listener and to generate incongruity (Eysenck, 1942; Suls, 1977). The following riddle is an example:

How do you catch a rabbit?

Stand behind a bush and make a noise like a carrot.

(Gerler, 1975, p. 6)

In attempting to answer the initial question in the above riddle, the recipient of humor probably would contemplate a rabbit trap or some other device used to lure wild animals into captivity. Upon hearing the punchline, the recipient's expectations would not be confirmed, and a brief period of cognitive uncertainty would exist. As Shultz (1976) summarizes:

> Incongruity is usually defined as a conflict between what is expected and what actually occurs in the joke. It is a concept which accounts well for the most obvious structural feature of jokes, the surprisingness of the punchline (p. 12).

Humor is not experienced until the recipient discovers a comic relationship between the body and the punchline of the joke. This final phase of the humor experience has been described as resolution (Berlyne, 1969; Jones, 1970; Pien & Rothbart, 1976; Shultz, 1972; Suls, 1972). Shultz (1976) defines resolution as a "more subtle aspect of jokes which renders incongruity meaningful or appropriate by resolving or explaining it" (p. 13). Within this context, humor is defined as a problem-solving task in which a solution is required before a joke is fully understood.

Process of Humor

The process of resolving comic incongruity has been examined in relation to the structure of humor and the cognitive status of the recipient. Both approaches assume that appreciation of intended humor is contingent upon comprehension of the joking relationship and the underlying cognitive concepts on which the humor is based.

In the first stage of humor processing, the recipient must identify an incongruity in the structure of the joke. Consider the following example:

> Mother Mouse was taking her children for a stroll. Suddenly a large cat appeared in their path. Mother Mouse shouted, "Bow-wow-wow!" and the cat scurried away. "You see, my children," Mother Mouse said, "it pays to learn a second language" (Gerler, 1975, p. 12)

In the above story, humor is based on violations of the concepts of "people," "animals," and "human language." A basic notion of people includes such human activities as taking a walk, speaking to other people, or learning a second language. In the context of the joke, these human abilities have been attributed to animals. In addition, various onomatopoeic terms (imitation of natural sounds) are classified as different language systems ("bow-wow-wow" versus "squeak squeak"). In order to identify these comic incongruities, a child first must have acquired the basic underlying concepts of people, animals, and language systems.

In the second stage of humor processing, the recipient must engage in resolving the major discrepant elements discovered in the first stage. In order to establish a joking relationship between the above incongruities, the recipient must playfully assume that the frightened cat was led to

believe the mouse was really a dog because it could bark and that "barking" represents a foreign language. When this joking relationship is discovered, the intended humor is understood, appreciated, and usually followed by smiling or laughter. The humor experience culminates in the resolution of discrepant elements.

Shultz (1970/1971, 1972) contends that the recipient of humor must employ specific strategies in order to resolve cognitive incongruity. Resolution types commonly used in children's cartoons are shared characteristic (incongruous elements share some crucial characteristic), physical analysis (physical factors establish a joking relationship), motivational conflict (characters involved in humorous situations exhibit conflicting motive states), participant misapprehension (incongruity is explained in light of some mistake or misunderstanding), and personal deviance (one of the characters displays eccentric behavior).

Suls (1972, 1977) has proposed that the recipients of humor engage in another type of problem-solving strategy. He states that the recipient tries to identify a cognitive rule that reconciles the incongruous elements within the confines of the joke. Suls explains that, by retrieving a cognitive rule and determining how it has been violated, the recipient is able to consider the parts of the joke "congruous." The following example used by Suls (1972) demonstrates rule violation:

> Fat Ethel sat down at the lunch counter and ordered a whole fruit cake.
>
> "Shall I cut it into four or eight pieces?" said the waitress.
>
> "Four," said Ethel, "I'm on a diet." (p. 83)

The cognitive violation the recipient must detect in order to appreciate the above humor is substitution of the rule of number value

(increase in number constitutes an increase in the total amount) for the rule of conservation of quantity (the quantity of the cake remains the same whether cut into four or eight pieces).

According to cognitive theorists, humor is constructed by the individual (Fry & Allen, 1975; Keith-Spiegel, 1972; McGhee, 1979; Wilson, 1927). The process of humor in this view can be defined as

> the interaction between the recipient and some structural aspect of the stimulus. . . . [During the course of] assimilating the humor stimulus into existing cognitive structures, a joke, cartoon, or riddle can be understood and appreciated (Goldstein, Harman, McGhee, & Karasik, 1975, p. 60).

Existing cognitive structures therefore play a major role in the comprehension of humor. As will be discussed in the next section, cognitive theorists also have delineated the origins and development of humor as it relates to the development of thought.

HUMOR AND THE DEVELOPMENTAL PROCESS

Humor has been viewed as a developmental process that reflects underlying cognitive changes. Theorists have attempted to define the general cognitive prerequisites for incongruity humor and the stage at which young children first are capable of understanding comic incongruity.

Origins of Incongruity Humor

Most humor theorists agree that humor is a response to the perception of incongruity. Theorists disagree, however, in their explanation of the cognitive processing necessary for a humor response to occur and in their interpretation of the onset of incongruity humor within the developmental sequence (McGhee, 1979; Pien & Rothbart, 1980; Shultz, 1976).

Shultz (1976) has proposed that appreciation of pure incongruity in humor coincides with the onset of preoperational thought at about 18 to 24 months of age. During this period, the child becomes capable of symbolic representation (Piaget, 1962), which Shultz defines as "self-constructed incongruity." When children pretend that an object is something other than what it really is, they create "an incongruous relationship between the object and the scheme applied to it; the object is inappropriate to the scheme and the scheme is inappropriate to the object" (Shultz, 1976, p. 23).

The cognitive prerequisites for incongruity humor, according to Shultz, are the acquisition of symbolic play capacities and the ability to create and perceive incongruity as a violation of expectancies. Since they cannot form specific expectations about future events, presymbolic children are capable of perceiving only novel or expected events as humorous (Shultz, 1976). Shultz and others have proposed that an incongruous stimulus is cognitively more complex than one that is novel (Charlesworth, 1969; Rothbart, 1977) and is beyond the cognitive capacity of infants.

Like Shultz, McGhee (1971a, 1977c, 1979) has proposed that the onset of humor occurs with the acquisition of symbolic play capacities. However, McGhee (1971a) argues that incongruities do not become associated with humor until the child has acquired the capacity for conceptual thought. The acquisition of concepts occurs as the child's thought becomes more stabilized through a process Piaget termed "equilibration." Others have described this period of stabilized thought as "cognitive mastery" (Jones, 1970; Kris, 1938; McGhee, 1974a, 1977c; Wolfenstein, 1953, 1954). Because the child's mental structures are more stable, "there are fewer situations that will throw the new structures into disequilibrium" (Brainerd, 1978, p. 20). What results is a sense of confidence in one's own knowledge about

objects or events. It is this sense of confidence or conceptual mastery that allows the child to view a humor situation as inappropriate and a "play on reality" (McGhee, 1979). McGhee (1972a, 1979) has termed this playful mental disposition "fantasy-assimilation." During fantasy-assimilation, the individual incorporates a humorous event without accommodating or altering existing cognitive structures to fit the novel aspects of the stimulus. Comic incongruity, like play, is experienced at the "assimilatory stage of cognitive functioning" (Piaget, 1962). According to McGhee, fantasy-assimilation plays a key role in generating the humor response. Young children develop the ability to fantasy-assimilate events around the third year of life.

McGhee (1974a) has stated that Shultz's prerequisites for incongruity humor are insufficient for a true humor response, arguing that, prior to conceptual mastery, children who have developed representational thought may experience a primitive form of humor "simply by assimilating an event into the 'wrong' schema" (p. 722). According to McGhee's view, incongruity must not simply be perceived as misexpected or different from prior experience, but must also be viewed as inconsistent with previously developed mental structures. McGhee further asserts that the cognitive prerequisites for incongruity humor are the acquisition of symbolic play capacities, conceptual thought and cognitive mastery, and the ability to contemplate incongruity as fantasy. Other theorists disagree with McGhee's position. Pien & Rothbart (1980) have argued that the capacity for symbolic play as defined by Piaget (1962), Shultz (1976), and McGhee (1979) is not necessary for the humor experience to occur.

In contrast to Shultz, Pien and Rothbart (1980) argue that children are able to recognize incongruities as violations of expectations prior to

the acquisition of symbolic play capacities. The authors point out, however, that the "cognitive expectancies" of infants are qualitatively different from those of young children in later stages of development (see Bower, 1971; Bower, Broughton, & Moore, 1971). Because expectancies are related to (and are the result of) previously formed mental structures such as object concept, it is reasonable to assume that the mode of incongruity enjoyed by infants plays an important role in facilitating the humor response. For example, infants might show pleasure when encountering a familiar object that has been altered but would not respond to incongruities based on violations of language rules. The authors argue that infants and young children may find real-life incongruities, such as a person wearing a large hat or unusual clothing, amusing. Pien and Rothbart therefore conclude that all that is necessary for experiencing humor is the ability to detect incongruities per se and the capacity for "playful" or ludic (Piaget, 1962) assimilation of incongruous events.

The major theorists cited above differ in their operational definitions of comic incongruity and in their interpretations of the degree of comprehension necessary for a child to perceive an incongruous event as humorous. Theorists have recently argued that a uniform definition of incongruity is necessary for researchers investigating the development of humor (McGhee & Chapman, 1980; Nerhardt, 1977). As McGhee and Chapman summarize:

> Play, incongruity and arousal fluctuations undoubtedly have a central role in the earliest forms of humor, just as they are central to humor generally (Berlyne, 1972). The main issue for future consideration seems to be whether these must be combined with the make-believe activities which accompany symbolic

> thinking to produce humor, or whether they are sufficient to produce humor perceptions before the onset of symbolic capacities . . . In speculating about the origins of humor, we might benefit by distinguishing between mis-expected and unexpected events, between active and passive expectations regarding an event, and between the child's level of awareness of the unusualness of the event. (1980, p. 283-284)

In further determining a young child's "level of awareness," humor comprehension may be defined as the resolution of incongruous elements (i.e., the discovery of a joking relationship between these elements). Developmental changes concerning the nature of incongruity and the resolution process will be reviewed in the following section.

Stages of Humor Development

Comic incongruity may be presented visually, verbally, or in both modes and may be represented by objects, behavior, social norms, or language. Linguistic ambiguity has received the most attention in studies of children's humor. One reason may be that language is predominantly a rule-oriented system and is most suitable for humor based on the violation of rules (Shultz & Robillard, 1980). The most common forms of linguistic ambiguity (corresponding to the child's developing metalinguistic knowledge) are lexical, phonological, syntatical surface structure, and deep structure. The type of incongruity found humorous by children of various ages corresponds to general trends in cognitive development. McGhee (1979) has delineated the development of incongruity-based humor from its origins early in the second year to its more abstract form in middle childhood. Each of his developmental stages corresponds to a specific cognitive acquisition as defined by Piaget (1950, 1952, 1962).

According to McGhee's model, the first forms of humor responses occur during the second year of life, with the onset of symbolic play. During this stage, children playfully manipulate objects and images with actions known to be at odds with reality. Piaget (1962) provides an example of early humor in describing his daughter's playful manipulation of concrete symbols.

> [Jacqueline] saw a cloth whose fringed edges vaguely recalled those of her pillow; she seized it, held a fold of it in her right hand, sucked the thumb of the same hand and lay down on her side, laughing hard. She kept her eyes open, but blinked from time to time as if she were alluding to closed eyes. (p. 96)

Jacqueline, at the age of 15 months, thus experienced pleasure by playfully using a cloth as if it were a pillow.

The ability to perceive action-object-image discrepancy as humorous is based on the capacity to engage in playful forms of activity and to recognize the inappropriateness of an action toward an object. Incongruities at this stage are exclusively self-initiated. McGhee suggests that very young children are much more confident that an incongruity is improbable when they themselves construct it. It is only when children have gained sufficient cognitive mastery over their environment that they may fantasy-assimilate humorous stimuli introduced by others.

Toward the end of the second year, the child's developing language competency is employed in a second form of symbolic play, the inaccurate labeling of objects and events. During this stage, humor is perceived in the absence of action towards objects and is based primarily on verbal statements or inaccurate descriptions of actions or objects. Humorous

incongruities characteristic of this stage consist of inappropriate naming of objects readily understood by the child (e.g., calling a dog a cat or a boy a girl). Such image manipulation and name-change humor usually lasts through the late preschool years. By the age of 3, the child begins to show an interest in humor introduced by others in the presence of strong play signals. As a result, humor experiences become socially oriented as children share them with their peers or adults.

During the third stage of humor development, McGhee suggests that the child's capacity for incongruity humor is enhanced with the development of conceptual thought. Between the ages of 3 and 4, the child begins to organize objects and events sharing key characteristics. Incongruity-based humor occurs when one or more aspects of a given class concept are violated. According to McGhee, distortions of essential characteristics (such as a cat with two heads or no fur) are likely to be funny, whereas distortions of nonessential characteristics (such as a cat with red fur) are not found humorous. This stage in the development of humor continues until the age of 6 or 7. Humor at this level may be experienced visually (seeing a cat with two heads in a cartoon), verbally (hearing another person describe a cat with two heads), or mentally (imagining to oneself a cat with two heads).

During the first three stages of humor development, the child appreciates explicit humor based on concrete situations. The child's social knowledge can now be applied to humorous situations in which the child's concepts of social norms are violated. Children at this stage may laugh at a person who speaks a foreign language, eats with chopsticks, or wears a native costume. Linguistic humor found appealing by young children is primarily based on phonological ambiguity (Shultz & Pilon, 1973).

Children during this stage may spend countless hours creating nonsense words (e.g., "itsy," "bitsy," "witsy," "mitsy," etc.) and develop an appreciation of books based on phonological variation, such as Dr. Seuss's Cat in the Hat.

McGhee suggests that the fourth stage of humor occurs with the onset of concrete-operational thinking around the age of 7 or 8, when children perceive humor in abstract expectancy violations based on the relationships between events rather than in end states or outcomes of events. A new source of incongruity is found in behavioral inconsistencies and linguistic ambiguity. Humor based on logical and illogical thought patterns appears to develop sequentially during this stage. Logical incongruity is recognized first in the form of ambiguous word meanings and next in humor containing nonlexical (conceptual) ambiguities based on behavioral expectations (Whitt & Prentice, 1977).

Behavioral inconsistencies represent a more abstract form of incongruity and are not based on visual discrepancies. Rather, these inconsistencies are based on hidden or implied meanings that require concrete-operational thought processes. McGhee (1979) cites the following joke as an example of humor based on behavioral incongruity:

> "Well, I see you have a new dog. I thought you didn't like dogs."
>
> "I don't! But my mother bought a lot of dog soap on sale, so we had to get a dog to use it up." (p. 77)

In order to discover the implied meaning contained in the above humor, the child must be capable of mentally inverting ideas, a process Piaget (1969) has defined as "reversibility." Reversibility also is required in order to comprehend humor based on linguistic ambiguity. The following joke, made famous by the late comedian W. C. Fields, illustrates this point:

(Announcer) "Mr. Fields, do you believe in clubs for young people?"

(W. C. Fields) "Only when kindness fails."

(Shultz, 1976, p. 13)

In order to understand the joking relationship, the recipient of humor must understand and compare the double meaning of the word "club," a process that requires a "mental replay" and reorganization of events.

The ability to detect various forms of linguistic ambiguity is mastered between the ages of 6 and 12. Following mastery of phonological ambiguity around the age of 12, lexical ambiguity and finally surface structure and deep structure ambiguities are understood (Kessel, 1970; Shultz & Horibe, 1974; Shultz & Pilon, 1973).

RESEARCH ON YOUNG CHILDREN'S HUMOR

Laughter-Provoking Situations

To date, researchers have focused primarily on young children's humor preferences, their responses to various humor stimuli (e.g., smiling and laughter), and their productive humor. Prior to 1970, studies of preschool children lacked any theoretical orientation. Most early studies were designed to explore conditions that would elicit laughter. Nursery school children were most often observed during unstructured, "free play" sessions. Researchers found that mirth responses occurred frequently during children's motor activity (Ames, 1949; Ding & Jersild, 1932; Enders, 1927; Gregg, 1928; Jones, 1926; Kenderdine, 1931; St. Clair-Hester, 1924; Wilson, 1931). A more recent study of preschool children found that gross physical-motor actions precipitated glee in group situations (Sherman, 1975).

Several other factors listed as prominent in the study of young children's laughter included the following observations:

1. Preschool children exhibited wide individual differences in their humor preferences (Brackett, 1934).
2. Surprise was found to be an important ingredient of humor most enjoyed by young children (Justin, 1932; St. Clair-Hester, 1924).
3. As children grew older, they laughed at a greater variety of things (Justin, 1932; Perl, 1933), particularly instances involving pretense, recognition of oddities, teasing, recognition of one's own predicament, violation of convention, plays on words, and absurdities (Wilson, 1931).

Two studies of preschool children have provided a more global account of early forms of humor than those discussed above. Justin (1932), in an unusual experimental study, presented 3- through 6-year-old children with a variety of laughter-provoking situations. The author found that laughter was associated with

1. surprise (such as encountering an empty jack-in-the-box);
2. superiority and degradation (such as seeing the experimenter deliberately missing a chair and falling on the floor);
3. incongruity and contrast situations (for example, viewing a picture of a cow playing a piano);
4. social smiling (as might occur when observing the experimenter discuss the weather while smiling and laughing);
5. relief from strain (as might be experienced after having been asked to walk on a line drawn on the floor while holding a small umbrella and a potato on a spoon);
6. play situations (such as having the experimenter read nonsense verse and introduce various toys).

One important finding of the Justin study was that, as age increased, incongruity played a more important role in preschool children's humor. This finding supports the hypothesis of McGhee (1974a, 1977b, 1979), who has proposed that the development of conceptual thought capacities allows children to perceive a greater number of things as incongruous and potentially humorous.

In a more recent study designed to assess the relation of humor episodes to ongoing play activities, Groch (1974) found that humor is not a unitary trait but rather has multiple aspects. Three- and 4-year-old subjects most often produced their own humor in the form of silliness, clowning, teasing, word play, and absurdity during unstructured activities such as free play. Responsive humor predominated during more structured activities (such as cooking or story experience), which provided unexpected or surprising events. Both the Justin and Groch studies of preschool children's humor preferences support the findings of others who suggest that young children are very playful and find a great many things humorous in association with their past experiences and their present play activities. These studies also suggest that preschool children enjoy comic incongruities that are physically represented in some way, a position taken by McGhee (1971b, 1971c, 1972a, 1979).

Humor and Cognitive Mastery

A preliminary condition to experiencing the comic is cognitive mastery (Jones, 1970; Kris, 1938; McGhee, 1974a, 1977a; Wolfenstein, 1953, 1954). Cognitive mastery is attained when an individual's knowledge has become stable enough so that it can be used simply for fun (Athey, 1977). The greater the level of knowledge or cognitive mastery of the concepts underlying the humorous situation, the greater the probability of fantasy-

assimilation (McGhee, 1972a, 1977b). Cognitive mastery results in confidence about the improbability or impossibility of the humorous events occurring as depicted.

Drawing upon Piagetian concepts to assess the cognitive status of the humor recipient, researchers have investigated qualitative changes in children's problem-solving abilities. This approach has allowed researchers to predict a child's potential for understanding humor based on violations of these concepts. For example, Rothbart (1976) presented 4½- to 6-year-olds with a Piagetian conservation of liquid quantity demonstration and told them that they were about to see a trick. Younger nonconservers of liquid quantity actually believed a trick was performed by the experimenter when water poured from a short, wide jar into a tall, thin jar appeared to "turn a little water into a lot of water." Results indicated that nonconservers showed greater appreciation because their expectations were not met. In a test designed to match stimulus to schema, McGhee (1976) presented jokes to children in first through fifth grades. The humor depicted was derived from violation of conservation of mass and weight principles. Results indicated a curvilinear relationship between appreciation of humor and level of development of conservation skills.

Using more composite measures, McGhee (1971a, 1971c) initiated a series of studies in order to investigate the cognitive antecedents of humor. Operational thought and the ability to give interpretive (as opposed to descriptive) explanations of humor were found to be an important factor for 7-year-old boys in comprehending incongruity (as opposed to novelty) humor. Novelty humor consisted of physically discrepant events, whereas incongruity humor was based on violations occurring at an abstract, nonperceptual level. McGhee concluded that the ability to explain more

abstract incongruity depends upon the use of logic and reversible thought capacities. Younger, preoperational subjects had difficulty in decentering from perceptual characteristics of cartoons and gave more descriptive explanations. In other studies, the acquisition of concrete-operational thought also was found to be related to children's ability to detect hidden meanings of ambiguity (Shultz & Bloom, 1976) and the ability to create a joking relationship (McGhee, 1974b).

Several researchers have investigated the structure and content of humor preferred by children. Wolfenstein (1953, 1954) suggested that the types of jokes told by schoolchildren were associated with their knowledge of the structure of various forms of humor. She found that, around the age of 6, children were able to retell jokes accurately, including essential structural components of the joke format. Park (1972) also investigated children's humor preferences. Kindergarten through eighth grade subjects told their favorite riddles, which then were analyzed according to a Piagetian framework. The author concluded that riddles were cognitive structures by which children organize their environment in terms of causal, logical, and psychological relations. Like Wolfenstein's subjects, children progressed from a precursor stage of creating riddles to representing traditional forms. A similar stage was described by Sutton-Smith (1976) in a study of riddles collected from first- and second-grade children. "Pre-riddles," accounting for a third of the jokes told by the subjects, consisted of pure incongruity (i.e., a puzzling question with an arbitrary, unresolvable answer).

Developmental differences were noted in a study of children's humor preferences conducted by Athey (1977). Ninety percent of the humor contributed by 5-year-olds consisted of incongruous movement, established

images, and the location and use of objects. The author concluded that these were schemes that had been sufficiently well-assimilated by this age group. Older children presented more complex riddles and puns, which required multiple classification skills in order to be resolved. Humor development also was linked to broader areas of personality development.

The relationship between level of moral development (Piaget, 1932) and children's appreciation of humor based on intentional or unintentional damaging outcomes was examined by McGhee (1974c). The results indicated that, while "heteronomous" children found stories with highly damaging outcomes funny, "autonomous" children appreciated these stories only when the damage occurred unintentionally. Moral development (as outlined by Kohlberg, 1963, 1968) was related to children's explanations of humor (Sheppard, 1977). Development shifts emerged as 8- to 16-year-old children progressed from a "pre-explanatory" level, to statements of rule based on simple recognition of incongruity, to a universal interpretation of events. Other studies of young children have shown that sex-role mastery (McGhee & Grodzitsky, 1973; Wolfenstein, 1954) and degree of self-concept (Petry, 1978) were associated with variations in the comprehension of incongruity humor.

Mastery played an important role in creative humor in a study of 2- to 5½-year-old children. Garvey (1977) examined the language play of pre-schoolers as they interacted with their peers. Children engaged in verbal play by distorting normal articulation (such as trying to speak with their lips spread apart or speaking in a squeaky voice). Other variations of speech play involved the repetition and variation of newly learned language structures, phonological properties of nonsense syllables and words, and sentence patterns. Garvey concluded that "as soon as a child has learned

how something is supposed to be, then turning it upside down or distorting it in some way becomes a source of fun" (p. 38).

The cognitive-developmental studies presented in this section indicate that a high level of mastery over the cognitive elements constituting a humorous situation are essential for the comprehension and appreciation of humor. Studies also have shown that Piagetian concepts provide both theoretical direction and a systematic approach in assessing the cognitive characteristics of humor stimuli and the developmental level of children participating in humor experiments.

Moderately Novel Humor Stimuli

Researchers have applied the theories of Piaget and White to explain motivational and affective aspects of humor. Piaget (1952) postulated that moderately novel stimuli generate maximal intellectual stimulation. White (1959) introduced the "effectance motivation" concept, arguing that organisms are intrinsically motivated and seek to master their environment, deriving immense pleasure from their competence. In humor, this pleasure is derived when incongruous elements are resolved. Applying White's theory to their studies, Zigler, Levine, and Gould (1966, 1967) found that pleasure was greatest when humor stimuli were congruent with the cognitive structure of the child (i.e., when humor was in the moderately difficult range of the difficulty dimension). They referred to this process as the "cognitive congruency principle." McGhee and Eisele (1973) presented Piagetian tasks to subjects functioning at various levels of operational thought. First-grade conservers of mass gave the highest appreciation ratings; a drop in scores occurred for nonconservers and more cognitively advanced subjects.

McGhee (1976) further refined the cognitive congruency model. The author presented humor stimuli based upon violations of specific conceptual acquisitions to children varying in the degree of (or the length of time since) acquisition of conservation and class inclusion concepts. Results indicated that appreciation of related humor was greatest soon after concepts were acquired. Nonconservers and subjects who had mastered the concepts several years earlier showed less appreciation. Another study found correlations between mastery of more general thought capacities (such as acquisition of concrete operational thought) and children's heightened enjoyment of humor (Whitt & Prentice, 1977).

Studies of the cognitive congruency principle presented in this section provide evidence that humor depends on cognitive mastery "new enough to be interesting; old enough to be firm" (Blos, 1979). Findings of these studies emphasize the importance of establishing a "match" (Hunt, 1965) between the cognitive resources of the subject and the cognitive demand features of the humor stimulus (Brodzinsky & Rightmyer, 1980; McGhee, 1977a; Shultz & Zigler, 1970).

Structural Aspects of Humor

Researchers have examined incongruity and resolution components separately to determine their role in young children's comprehension of humor. In one of his earlier studies, Shultz (1970/1971, 1972) found that, when grade school children were unable to discover the critical incongruity in cartoon humor, they invented one and attempted to resolve it, thus supporting the hypothesis that a recipient of humor must consider both incongruity and resolution information in order to appreciate a joke fully.

Researchers have tested children's appreciation of either incongruity or resolution by eliminating one of these components from the humorous content. Schultz (1974) and Shultz and Horibe (1974) presented 6-, 8-, 10-, and 12-year-old children with a series of original, resolution-removed, and incongruity-removed riddles and verbal jokes based on linguistic ambiguity. Results indicated that children under the age of 8 did not appreciate the resolvable nature of incongruities. The author considered these findings evidence for a developmental theory of humor, suggesting an early stage involving comprehension of pure, unresolved incongruity followed by a later stage of preference for resolvable incongruity. A similar study conducted by Sutton-Smith (1976) found that appreciation of pure incongruity shifted to appreciation of resolvable incongruity between the ages of 6 and 8. None of the studies cited above, however, provided a cognitive match for younger subjects, as had been proposed by McGhee (1977a) and others.

In the studies he reported, Shultz (1974) found that 6-year-old children had particular difficulty detecting hidden meanings in humorous content. The ability to detect hidden meanings requires previous knowledge that words have dual meanings. In addition, the ability to comprehend double meanings is dependent upon "the capacity to reverse ideas, simultaneously entertain contradictory hypotheses, and understand the implied" (Blos, 1979, p. 39), capacities that do not appear until the age of 7 or 8. Studies have shown that humor based on hidden meanings is not comprehended or appreciated until the onset of concrete-operational thought, which occurs well beyond the preschool years. Shultz's conclusion that young children are not capable of resolving comic incongruity may be applicable only to certain types of humor. Other researchers have found

evidence that young children are capable of resolving humorous incongruity when the joking relationship is dependent upon cognitive structures already acquired by the children.

Pien and Rothbart (1976) have argued that Shultz could not generalize his findings because his studies were based on language-based humor and did not use developmentally appropriate stimulus materials. These investigators tested Shultz's model by using explicit content that did not require comprehension of linguistic ambiguity. Specifically, they presented preschool subjects with both original and resolution-removed versions of cartoons selected from children's books and magazines. One cartoon was presented showing several dogs sitting in front of a television set. This cartoon was followed by two captions: "A boy says to his mother, 'They're watching a dog food commercial'" (original version) or "A boy says to his mother, 'They're watching a commercial'" (resolution-removed version). The 4- and 5-year-old subjects found the original version funnier than the resolution-removed version. The authors concluded that preschool children are capable of appreciating resolvable incongruities when presented with "simple, age appropriate stimulus materials" (p. 968).

In a study of children's comprehension and appreciation of storybook humor, Klein (1983) found that kindergarten children fully comprehended and were able to resolve comic incongruity, thus supporting the hypothesis of Pien and Rothbart (1976). The issue of how and whether preschool children utilize the resolvable aspects of incongruity humor needs further examination. Studies designed to match the cognitive characteristics of humor stimuli with the developmental level of the recipient would help researchers examine young children's understanding of the joking relationship.

SUMMARY OF RELATED RESEARCH

Researchers have attempted to demonstrate the role of cognitive factors in children's comprehension and appreciation of humor. There is general agreement that cognitive level is significantly related to the child's understanding of the joking relationship. Empirical studies of children's humor suggest that

1. The degree of cognitive conflict generated by a humor stimulus plays an important role in determining the child's comprehension and appreciation of humor in both early and late stages of development.
2. Humor preferred by young children is concrete and based on the violations of expectancies that children have developed through previous experience. Logic plays no part in preoperational children's understanding of incongruity humor.
3. Humor parallels general patterns of language development. Humor based on more advanced forms of linguistic ambiguity is beyond the cognitive capacity of preschool children.
4. The element of surprise is an important ingredient in young children's humor.
5. Children enjoy humor that is consistent with their intellectual capacities. In order to match stimulus to schema, researchers have established a link between the cognitive resources of the subject and the cognitive demand features of the humor stimulus.
6. Piagetian concepts provide a theoretical framework in which to assess the developmental level of the recipient of humor and to create humor stimuli based on violations of concepts.

7. Incongruity and resolution are essential components of the humor of adults and older children. Recent studies have shown that children as young as 4 or 5 appreciate the resolvable aspects of incongruity humor when the humor stimulus is appropriate to their age and developmental level.

The classroom is an ideal environment in which to observe children's spontaneous humor experiences. Groch's (1974) naturalistic study of preschool children provides a model for studies of productive and responsive humor. In further exploring young children's perceptions of "funniness" (i.e., comic incongruity), researchers need to investigate the types of physical incongruities found humorous by preschoolers, particularly in the context of ongoing play activities. Future studies might address the following questions: How do children create humorous incongruities at the water table, the block area, or at a sand box? What do young children understand about the structure of humor (i.e., does their humor include the elements of incongruity, surprise, or resolution)? and, How soon after mastery do young children use their knowledge to create comic incongruity?

Analysis of humor created by adults for young children also warrants further investigation. Studies designed to evaluate the appropriateness of humor in children's literature and television programs would provide further information about the importance of a "cognitive match" between the cognitive demand features of the humor stimulus and the cognitive status of the humor recipient.

HUMOR AND EARLY CHILDHOOD EDUCATION

Laughter is a common sound in early childhood classrooms and places where young children congregate. Research suggests that humorous episodes enjoyed or created by children are not simply a source of entertainment but are also a means of cognitive stimulation. Research further suggests that the origins and development of humor are contingent upon the development of general thought processes.

The role humor plays in the developmental process is receiving increasing attention. Child development textbooks and reference books now include discussions of cognitive humor (e.g., Fein, 1978, Schickedanz, Schickedanz, & Forsyth, 1982; Wolman, 1977). Entire books review general humor research (e.g., Chapman & Foot, 1976, 1977; Goldstein & McGhee, 1972; McGhee & Goldstein, 1983) as well as research on young children's humor comprehension and appreciation (e.g., McGhee, 1979; McGhee & Chapman, 1980). Humor as a cognitive process is also of interest to early childhood educators. Four areas that warrant further investigation are (a) humor as a motivating factor, (b) the value of humor in spontaneous play activities, (c) the role of humor in the learning process, and (d) the types of humor most appreciated by young children.

Humor as a Motivating Factor

Humor has been observed to be an important factor in children's preferences. When young children are given a choice in selecting humorous versus nonhumorous materials, they more often choose the former. Illustrating this point, researchers found that humor was a highly appealing factor in children's selection of television programs (Brown & Bryant, 1983; Zillman & Bryant, 1983). Producers of children's educational

programs (such as Sesame Street and the Electric Company) have employed humor in order to facilitate learning. Researchers have suggested that the interspersion of humorous stimuli in television programs increases children's attention span and intellectual curiosity (Zillman & Bryant, 1983).

Humor also was found to be a motivating factor in children's storybook preferences (e.g., Abrahamson, 1980; Fleischman, 1976; Tibetts, 1973). One explanation for the highly appealing nature of humorous stimuli is the element of surprise. In both humorous television programs and humorous literature, children are presented with moderately novel misexpected situations. Theorists have stated that misexpected events (i.e., those events that violate expectancies) generate greater epistemic curiosity (Charlesworth, 1969; Rothbart, 1977, Shultz, 1976). The appealing nature of humor might also be explained in light of the fact that young children have a lower threshold for humor and tend to be play-oriented--in other words, they are more often in a playful frame of mind than older children and adults (McGhee, 1979). Humor, as a form of play, provides children opportunities for playful manipulation of the real world.

During the course of sharing humor with young children, adults attempt to test children's comprehension of humorous material. This task may affect motivation if children are asked to be objective about the humorous episodes they enjoy. For example, children do not experience any problems responding when asked, "What's so funny?" However, studies have shown that young children cannot explain <u>why</u> a particular humorous stimulus is funny. Interpreting humorous content is difficult because the limited language competencies and analytical skills of young children prevent them from explaining the basis for humor (McGhee, 1971a, 1971b, 1974b, 1977a;

Pien & Rothbart, 1976). Requiring the child to analyze humorous content may decrease the child's motivation by creating a less "playful" atmosphere.

Humor and Spontaneous Play

Humor has been defined as a form of play behavior (Berlyne, 1969; McGhee, 1979, 1983). The capacity to engage in playful behavior (and humor is considered a highly pleasurable form of play) develops naturally; it is not something that is "taught." Adults who guide children's learning can facilitate humor production by creating a nonthreatening environment where playful forms of behavior are encouraged and by providing children with opportunities to construct (or encounter) incongruities during the course of their daily activities. Adults who are receptive to humor enjoyed by young children and who themselves are humorous create an atmosphere conductive to experimentation and discovery.

During the course of "playing" (e.g., make-believe play), children create incongruities they know to be at odds with reality. A similar situation occurs when children create humorous incongruities. Objects, images, or words are deliberately distorted in violation of concepts or social rules (e.g., creating nonsense words). Children find the creation of comic incongruities pleasurable after they have mastered the underlying concepts and rules that are the basis for incongruity. Humor production therefore can be viewed as a means of exercising and adapting to newly acquired knowledge. In humor, pleasure is derived from the child's understanding of the impossibility or the absurdity of the comic incongruity.

Children generate comic incongruities during dramatic play episodes, painting sessions, or puppet shows. Misexpected, incongruous situations

are encountered during ongoing classroom activities such as storytelling or cooking sessions. Adults can provide further opportunities for children to encounter incongruous situations by structuring activities that deliberately introduce misexpected events. For example, young children who are given cornstarch in place of flour to mix with water, or in another experiment are given various sizes of wires with which to blow bubbles, are quite surprised and delighted at the results.

Role of Humor in the Learning Process

Humor is believed to facilitate learning in the following ways:

1. Humor is a form of play for young children and is a natural medium through which they can expand their understanding of the world.
2. Humor is highly pleasurable and is associated with cognitive mastery.
3. Humor provides children with problem-solving situations. In the context of a joke, riddle, humorous story, or cartoon, children must resolve incongruity in order to establish a joking relationship.
4. Humor promotes divergent thinking, a characteristic of creativity; in order to establish a joking relationship, the child must discover or create unique associations among ideas.
5. Humor provides the child with an opportunity to learn rules. Humor has a basic structure that children discover when "playing jokes" on others (humor is based on the element of surprise) or telling riddles (a punchline is logically related to the body of the joke).

These guidelines are easily applied to classroom activities. Teachers may provide a variety of humorous storybooks for reading activities. These

may include traditional story structures as well as poetry. In order to introduce young children to more structured forms of humor, teachers might present simple books of jokes, riddles, and cartoons that contain the elements of incongruity and resolution. Although younger children will not master these formats until the age of 7 or 8, they become interested in jokes and riddles because their older brothers, sisters, or friends are interested in them. Exposing children to more advanced forms of humor allows them to learn about the structure and rules for humor (e.g., a joke contains a body and a punchline and both are logically related within the context of the joke).

Types of Humor Appropriate for Young Children

Children exhibit preferences for humor that reflect their developmental levels. For example, an interest in riddles appears between the ages of 6 and 8 years. It is during this period that operational thought processes are acquired and allow the child to mentally reverse ideas. Preoperational children (i.e., preschoolers) would not enjoy or be capable of understanding riddles. Similarly, jokes that contain double meanings (puns) or implied meanings (based on illogical behavior) would not be comprehended by young children.

Research has shown that young children are perceptually oriented and enjoy concrete humor. Much of the humor portrayed in children's television programs is based on physical incongruities. However, more sophisticated forms of humor also appear on children's programs, perhaps to appeal to a wider audience, including adults. These forms may be too complex to be cognitively challenging to young viewers. Children's literature also contains a wide range of humorous material. Books that emphasize more

complex forms of linguistic ambiguity or illogical behavior are more appropriate for children who are at the concrete-operational level of development. For example, Amelia Bedelia (by Peggy Parish) is a story about a girl who takes things literally when she reads a recipe book and is told to "dress a turkey." Young children may laugh at the sight of a turkey wearing a dress but will likely fail to understand the character's inability to consider several interpretations of the term "dress." In The Man Who Didn't Wash His Dishes (by Phyllis Krasilovsky), a gentleman creates problems by refusing to wash his dishes. The man substitutes other available kitchen utensils such as flowerpots and ashtrays until he eventually exhausts his household supplies. He solves his dilemma by taking all his "dirty dishes" outside on a rainy day and resolves never to postpone his daily chores again. Preschoolers usually do not appreciate the man's eccentric behavior and take his actions seriously.

Books depicting physical incongruities are more appealing to preschoolers. In the story Where Can An Elephant Hide? (by David McPhail) an elephant tries to avoid being detected by two approaching hunters by imitating the behavior of various jungle animals--a tiger, monkey, and a baboon--then by covering itself with parrot feathers. This story, not surprisingly, was a favorite choice of young children in a national survey conducted by the International Reading Association (1980).

Adults who select or create humorous materials for children can play an important role in selecting humor that is developmentally appropriate for younger recipients. By assessing the developmental level of children and the cognitive content of humorous stimuli, adults can develop guidelines for the selection of books, television programs, and other sources of humorous incongruity. Adults can judge the appropriateness of humor

stimuli by the mirth response of the recipient; children, like adults, appreciate what they understand. Although the manifestation of humor is the same for recipients of all ages, the underlying thought processes are qualitatively different.

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