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I am submitting herewith a dissertation written by Michael S. Fabrizi entitled "A Naturalistic Study of Humor in a Third, Seventh and Eleventh Grade Classroom." I have have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Psychology.

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A NATURALISTIC STUDY OF HUMOR
IN A THIRD, SEVENTH AND
ELEVENTH GRADE CLASSROOM

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ABSTRACT

The present study represents an attempt to describe the natural occurrence of humor produced by students in a third, seventh and eleventh grade classroom. In addition, this study sought to describe relationships among the production of various humorous events and the student's self concept, creativity and tendency to produce other disruptive classroom events besides humor.

In order to provide such descriptions of classroom humor, observational data were collected from 78 school children in grades 3, 7 and 11. Creativity was measured by the Torrance Creativity Tasks--Figural Form A and self concept was measured through scores obtained on the Piers-Harris Children's Self Concept Scales. The final component of the present study included observational data on the frequency of disruptive behaviors which were produced by these 78 students.

Results revealed very few sex differences either in humor production or in humor appreciation. There were several grade differences in the rate of humor production. In general, the frequency of all types of humorous events decreased as grade level increased. Possible explanations and causes for this effect were discussed at length.

An interesting finding revealed that students produced humor while the teacher could not see or hear the event occur more often than they did when the teacher was in position to appreciate and

respond to the humor event. Possible explanations for this effect were discussed at length.

Relationships among humor and creativity were non-meaningful except in the eleventh grade where humorous students tended to be highly creative. With respect to self concept, humorous third and seventh graders tended to think negatively of themselves while no relationship between humor and self concept was found for eleventh graders.

Another significant finding yielded by the present data indicated that students who produced humorous events to which others laughed tended to produce other disruptive classroom behaviors as well. Discussion was made of the implications of this finding for identifying and treating "class clowns".

A factor analysis revealed three distinct aspects of humor--a socially positive component, a socially negative component and a sociability component. These aspects of humor, together with other current findings, suggested that humor is an important aspect of social interaction.

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CHAPTER I

INTRODUCTION

The study of humor dates back to the writings of Plato and Aristotle and continues to be a topic of interest for modern day philosophers and social scientists. Many theories have been proposed concerning the nature and function of humor and humor-related behavior. Recent reviews of humor theories stemming from both philosophical insights and scientific research have appeared in several recent books (e.g. Berlyne, 1969; McGhee, 1971; and Chapman & Foot, 1977).

Since ancient times, humor has been described by many theorists as a hostile weapon aimed at downgrading and humiliating others. According to this point of view, humor serves the purpose of showing one's superiority over another. This was the position of such famous philosophers as Plato, Aristotle and Thomas Hobbes among others. Modern theorists have also seen humor in this negative light (LaFave, 1972; Kubi, 1971).

A more positive view of humor has been espoused by Koestler (1964) who described humor as involving many of the same intellectual processes as occur in other, more serious, types of creative activity. Thus, for Koestler, humor represents the creation of a new idea or viewpoint on life which is accomplished under the emotional ambience served by what he called the self-assertive emotions (i.e., aggression, sexuality, etc). Several educators have also maintained a positive attitude toward humor expression in classroom

settings (Horn, 1972; Gilliland & Mauritsen, 1971 and Walker, 1977). These writers described humor as a lively, stimulating force which increases the desire to learn.

In addition to theories and investigations concerning the function of humor, several studies and theoretical descriptions have appeared regarding the development of humor from infancy to early adulthood. The development of humor has been studied from two perspectives: (a) What processes and factors lead to the production of humor in human beings and (b) What processes and factors aid in developing the ability to appreciate the various forms of humor (e.g. jokes, cartoons, puns). The first perspective is exemplified in studies such as Kubo's (1979) investigation of humor produced by three, four, and five year olds during play periods. Sheppard (1977) provided an example of the second perspective in her investigation of the development of humor appreciation at various age levels. She asked eight, twelve, and sixteen year old youngsters to explain why several cartoons were funny. As might be expected, many other investigators besides Sheppard have also studied children at the various cognitive stages of development proposed by Piaget (e.g. McGhee, 1979; Shultz, 1972).

The study of humor has usually focused upon two separate forms of behavior - laughing and smiling. Both of these behaviors have been accepted as signals for determining that an event was in fact humorous to a target subject. Despite the acceptance of both laughing and smiling as indicators of humor, the patterns associated with these behaviors have been shown to be quite different at

several developmental stages. For example, several investigators have found that laughter develops later in infant life than does smiling (Shirley, 1933; Gesell, 1949). In the case of nursery school children, Kubo (1979) found several differences in the rate of making others laugh or smile and in the frequencies of laughter and smiling responses to events produced by others. Differences in laughter and smiling rates were evident for children at different age levels and of different sexes (Kubo, 1979).

The purpose of the present introduction is to summarize current psychological theories and empirical research related to the nature and function of humor in school children and of the variables associated with the production and appreciation of humor in school children. This review was guided by three major issues that pervade current research on humor: (a) Is humor primarily hostile in nature and thus non-productive and perhaps even disruptive to classroom settings? (b) Are there differences in humor production and appreciation at three different age levels; (c) Do patterns of laughing and smiling for both productive and responsive modes of humor differ across age levels and sexes?

Current Theories of Children's Humor

The major theory of humor at the beginning of the present century was that proposed by psychoanalytic theory. This might explain why most of the research on humor in the early 1900's was related to psychoanalytic conceptions of humor. At present, the psychoanalytic approach remains influential though its influence appears to be

waning (McGhee, 1979). As time progressed, research on humor became influenced by other psychological theories. In the 1930's gestalt theory provided a major impetus for humor research (e.g. Maier, 1932). Several present theories of humor have been partially influenced by Gestalt theory (Berlyne, 1969). At present, however, major emphasis has shifted to the social interactional and cognitive developmental aspects of humor. In the following review, we will examine all of these theories in turn, beginning with the early psychoanalytic and gestalt conceptualizations of humor and then progressing to more modern theories of humor which currently dominate the literature.

Psychoanalytic Theories

Sigmund Freud produced two major statements on humor: Jokes and Their Relation to the Unconscious (1905) and Humor (1928). Freud's initial work on humor dealt primarily with joke telling. According to Freud (1905), jokes were subject to unconscious revision just prior to when the funny thought became conscious. Hence, jokes often appear "off the cuff" and spontaneous.

The main emphasis of Freud's second work on humor (1928) focused on distinguishing between humor, wit, and comedy. For Freud, humor allowed the person to express important feelings of pleasure freely, while wit allowed the expression of repressed feelings through the outlet of laughter (Kline, 1977). The comic, on the other hand, provided the laughter with pleasure by allowing expression of his underlying motives and ideas about the world.

According to Freud, pleasure derived from wit stems from a temporary "saving in inhibition". He divided wit into two types: tendentious and harmless. In tendentious wit, a normally repressed sexual or aggressive urge is released in a socially appropriate form - the joke. Harmless wit delivers pleasure from its relaxing of the rational, calculated trappings of the normally functioning ego, and temporarily allows expression of frivolous, nonsensical thoughts and ideas.

In most circumstances, humor serves to transform the expression of strong negative emotions into lighthearted and less serious expressions of emotion. This observation led Freud to conclude that humor represents a savings in feeling. Thus, humor gives pleasure by "making light" of an otherwise serious and less pleasant situation.

A savings in ideation or thought produces pleasure for the comic. Almost all comic forms have in common the property of providing a contrast between something which is serious in nature and something which is inconsequential. Thus, painting a silly moustache on the faces of world leaders at a conference would produce laughter because of the contrast provided by the foolish moustaches on "powerful" men who are discussing serious topics.

As we have seen, the three types of humor described by Freud serve to economize the use of psychic energy thus producing feelings of pleasure and satisfaction. Laughter and smiling represent the discharge of superfluous energy which is released in

response to humorous events. The three types of humor also represent the human desire to recapture the carefree happiness experienced during childhood, when psychic energy expenditure was relatively small.

Kline (1972) has stated several hypotheses which have been derived from Freud's view of humor: (a) those who find aggressive jokes funniest have repressed feelings of aggression; (b) those who find sexual jokes funniest will be those whose sexuality is normally repressed; (c) those whose main defensive mechanism is repression and who have a strong superego will tend not to laugh at jokes; (d) those who use wit often will tend to have powerful unconscious aggressive instincts. In his review of the research designed to test these hypotheses, Kline (1972) concluded that moderate support exists for each of them, although none of them have as yet been proven. He also stated that most research to date has studied college populations and expressed the need for theories and research on children and adolescents.

The first extension of psychoanalytic theory to child humor was accomplished by Wolfenstein (1953; 1955). According to her position, children are motivated to produce humor as a means of reducing stress and of relieving feelings of frustration. Through the use of humor and fantasy, children escape the anxieties and pressures of childhood by picturing stressful experiences as absurd. Fantasy allows for the fulfillment of wishes without deluding the child from the realities of life. According to Wolfenstein, children recognize that fantasy is play and not real. However,

children cannot distinguish when others, especially adults, are engaging in fantasy. For this reason, children do not respond to adult humor until they have gained a certain level of mastery and competence in their environment. Mastery over the environment is obtained by introjecting society's restrictions on sexual and hostile impulses.

The importance of mastery and competence has also been stressed by Kris (1938) in his analysis of children's humor. According to Kris, a child will view another's movements as humorous only after the first child has mastered those same movements. Similarly, the child must have obtained the necessary cognitive abilities to see humor in another's mistaken verbalizations or ideas. Grotjahn (1957) has also stressed the importance of mastery for humor appreciation. The child appreciates and responds to another's motoric actions only after having mastered those actions. This explains why children often laugh when another child trips and falls over an object.

Criticisms of the psychoanalytic viewpoint on humor have been virtually identical to those leveled against psychoanalytic theory in general. Hence, opponents of this view have pointed to the theory's inability to be tested directly through scientific experiments (Kline, 1972). Opponents have also pointed to the lack of conclusive research support for psychoanalytic hypotheses (McGhee, 1979). Despite these criticisms, a recent reviewer of psychological theories of humor called psychoanalytic theory the most influential theory of humor which has thus far been proposed (McGhee, 1979).

The psychoanalytic approach has generated more research than any other theory. While this theory is mainly concerned with adults, several ideas have been postulated about children. The major idea has been that children appreciate humor to the extent that events which carry potential for being funny have already been mastered. A second important idea stemming from this approach has been the hypothesis that children's humor provides an escape from problems which are inevitable during development.

Gestalt Theory

The Gestalt school of psychology has been indirectly responsible for influencing several theories of humor. The first theorist to develop a theory based on Gestalt principles was Maier (1932). Maier postulated that the meaning of the "elements" which make up a joke depend upon the figure in which the elements are embedded. So, when one finally sees the meaning and makes sense of a joke, the elements are now seen in a new light as compared with the perception of the elements when the joke was not as yet comprehended.

Maier also saw objectivity, or the lack of it, as an important feature of joke comprehension. One's attitude or "emotional set" toward a given humor situation will influence the person's appreciation and understanding of the joke. If one is emotionally involved in a situation which is unrelated to the humor event, then his interpretation will differ from the case where the individual's emotional set is geared toward the content of the joke. Hence,

racial jokes are responded to differently by different racial and ethnic groups.

Bateson (1953) extended Maier's theory by comparing the comprehension and appreciation of a joke to the reversal of a figure-ground pattern. Several years later Bateson (1969) postulated that jokes serve to draw attention to certain elements in order to prevent us from focusing on other elements. The punchline of a joke creates this sudden figure-ground shift.

Gestalt theory has greatly influenced the work of cognitive theorists who are concerned with understanding the role of cognitive development in humor production and appreciation. This influence can be seen in the cognitive-developmental theory espoused by Shultz (1976). He proposed that humor consists of a series of paradoxes which is resolved upon delivery of the punchline. For Shultz, the essence of humor lies in the perception and resolution of incongruity. In a later section, we shall examine Shultz's theory as a developmental explanation of humor.

Arousal Theory

Borrowing concepts from psychoanalytic and gestalt theories of humor, Berlyne (1960) proposed an arousal theory of humor. From this point of view, humor situations can be seen as either arousal raising or arousal lowering. Berlyne (1969) observed that in most humor situations "there is a period of puzzlement, discomfiture, or even annoyance, which suddenly gives way to clarity, reassurance, or levity" (p.806). According to this view, laughter occurs under two

conditions: when arousal occurs and this surge of feeling is rewarding, and when a decrease in arousal is rewarding because conditions of high arousal were aversive. In both cases, dissipation of left-over energy results in laughter. Thus, when a person is frightened by another who suddenly grabs him from behind, the person experiences high levels of arousal characterized by such emotions as fear, bewilderment, and anxiety. When the person sees that it is his friend, the person is relieved, arousal decreases, and he may laugh as a result of this decrease. It can be seen from this brief description of arousal theory that the concept of surplus energy resulting in laughter was derived from psychoanalytic theory and the idea of humor situations presenting puzzlement at first, followed by resolution, was derived from Gestalt theory.

Rothbart (1973) extended arousal theory to include humor in children. She proposed that laughter occurs under conditions of heightened tension where fear and anxiety are usually unwarranted reactions to the situation. For example, a child may be momentarily frightened when the "jack in the box" springs forward but will quickly realize fear is unwarranted and may respond with laughter. A different version of this theory was proposed by Sroufe and Waters (1976), who asserted that an increase in tension which is followed by a sudden decrease produces laughter and smiling. Sroufe and Waters also made a distinction between laughter and smiling - "laughter requires a greater and typically more rapid build-up of tension" (Sroufe & Waters, 1976, p. 178). An initial appraisal process occurs in the face of discrepant situations, followed by a

decision based on context and stimulus discrepancy as to whether the individual should laugh, smile, or respond in some other manner.

As mentioned earlier, a great deal of controversy exists in the area of humor research concerning the issue of whether laughter and smiling are the same behavior differing only in intensity or whether they represent two different behaviors (McGhee, 1979). Tomkins (1962), an arousal theorist, attempted to resolve this controversy by proposing a theory based primarily on the physiological mechanisms operating during periods of laughing and smiling. According to Tomkins, "Laughter is activated in the same way as the smile except that the general density of stimulation which is suddenly reduced begins at a higher level in the case of laughter compared with the smile" (Tomkins, 1962, p. 370). Hence, one starts out with a higher level of stimulation for laughter than for smiling. Both laughter and smiling result from the sudden reduction of neural stimulation; the reduction occurs from a higher level in the case of laughter.

Tomkins, Berlyne, and other arousal theorists have approached an explanation of humor from a quasi-physiological point of view; hence, these theorists have argued that physiological changes are necessary for humorous behaviors to occur. In this connection, they have specified arousal mechanisms as the specific physiological changes which result in laughter and smiling responses. Arousal increases and reaches its peak when the punchline of the joke is delivered, which is followed by the pleasurable experience of a sudden decrease in arousal.

Cognitive - Developmental Theories of Humor

Most cognitive theories of humor were influenced by the writings of Jean Piaget (1962). In Play, Dreams, and Imitation (1962), Piaget dealt with humor indirectly but at the same time provided the basis for a more specific approach to humor. Piaget observed two types of laughter in the children he studied. The first type occurred when a child encountered something which was novel and required some effort (partial accommodation) in order to be assimilated. The child derived pleasure from the mastering or assimilation of the new experience. The second type of laughter occurred during fantasy assimilation, which Piaget (1962) termed symbolic play. For this type of humor, the child was aware that an event was incompatible with his or her cognitive system but nonetheless attempted to assimilate the event. To accomplish this, the child must have a high level of mastery over the event and must also pretend the event possesses certain characteristics while realizing the event does not in fact possess such qualities. During this assimilation process, the incongruity between the event and the child's cognitive awareness leads to experiencing the event as humorous.

Several cognitive theorists have proposed that humor can best be understood on a reality-fantasy dimension (Piaget, 1962; Shultz, 1976; McGhee, 1979). Once a child has grasped the meaning and features of his or her "real" world he or she is then ready to

explore and experiment with events which are incongruous to that world as seen by the child. Based on this premise, Shultz (1972) proposed a two-stage model for the experience of humor in children. In the first stage, humor was defined by reactions to unresolved, or unassimilated, incongruity. This is the dominant form of children's humor until age six when the second developmental stage emerges. In the second stage, children see humor in situations where incongruities are resolved. Shultz (1974) has presented research evidence which supports his incongruity-resolution theory of humor.

Cognitive theorists do not agree as to when the transition occurs between appreciation of simple incongruities and appreciation of resolvable incongruities (McGhee, 1979). Disagreements also have occurred on the issue concerning the relative importance of the perception of incongruity and its resolution for the appreciation of humor versus the importance of developmental changes in general (c.f. McGhee, 1979). It has been proposed that humor appreciation develops as the child matures regardless of the particular cognitive abilities involved.

Theories of Humor As A Means of Social Interaction

The theories described thus far have all dealt with humor from the perspective of an individual child. In this section, several theories will be presented which focus on the individual as a social being who interacts with others on a regular basis. During the normal course of social interaction, humor events often occur.

Theories which focus on the function of humor in social interaction are discussed below.

Kane, Suls, and Tedeschi (1977) have postulated that humor serves as an instrument of social influence. According to these theorists, humor can be used to claim or disclaim responsibility for one's actions, reveal one's courage, or relieve one's state of embarrassment. Humor serves such a variety of purposes in social interaction because it can be interpreted in several different ways at the same time. If the producer wishes to retract a humorous message, he need only indicate that "it was only a joke".

In their discussion of the social functions of humor, Kane, Suls, and Tedeschi (1977) present several purposes humor can serve because of its ambiguous message. These purposes include:

(a) self-disclosure, (b) decommitment, (c) face-saving, (d) ingratiation. Thus, humor serves as a safe way to self-disclose on matters which may be embarrassing or tenuous in nature and thus may need to be retracted at a later time. Producers of humor also seek laughter responses from others in order to transform a situation into a non-serious one, or as a means of confirming acceptance of the producer's message.

The anthropologist Hammond (1964) sees humor as serving three functions: conflict, control, and communication. Communication-humor serves to voice grievances and allow opportunity for objection without unnecessary tension or aggression. As control, the producer of humor can shame his listener into a desired course of action, whereas as a form of catharsis, humor allows for the release of

hostility and aggression without necessarily jeopardizing friendly social relations. In this latter regard, Hammond concurs with the modern psychoanalytic thesis that humor serves as a means for indirect expression of latent hostility (O'Connell, 1960).

Views on the function of humor in social interaction provide an important addition to theories which focus on reactions to humor. Social interaction theories of humor present the view that the purposes and functions of the humor producer may determine reactions to humorous events. Thus, intrapsychic forces and level of cognitive development may not be the only relevant factors in understanding humor appreciation.

Summary

Each of the major contemporary theories of humor reviewed above has provided explanations for some, but not all, aspects of humor. More specifically, none of these theories has encompassed the following aspects of humor: (a) Explanations for both the production and the appreciation of humor; (b) Conclusions about whether laughing and smiling responses are similar or quite different; (c) Explanations for the meaning of the various forms of humor events (e.g. jokes, puns, witty comments, put-downs) in different social contexts (person-to-person, groups of various kinds, monologues, etc.). Despite a failure to provide an all-encompassing theory of humor, the theories discussed dealt with several important aspects of humor.

Psychoanalytic theories of humor have focused primarily on the individual and his or her inner dynamics which lead to laughter in certain situations. The content of the humor event interacts with the person's psychodynamics in ways which produce laughter under certain conditions. This approach was sensitive to individual differences and has proved useful in therapy (Wolfenstein, 1954). Unfortunately, psychoanalytic theorists have focused primarily on humor appreciation, largely to the exclusion of humor production, and they have not addressed the laughter-smiling issue. Psychoanalytic theories have also not specifically addressed the social functions of humor.

Arousal theory has described humor from a motivational-physiological perspective. The various arousal theorists have attempted to explicate certain physiological conditions in which tension was eventually reduced as an ideal setting for humor. Theorists such as Berlyne and Tomkins have also attempted to differentiate laughter and smiling. A major shortcoming of this approach involves the failure to explain functions of humor production and responses to humor in specific social situations.

Cognitive-Developmental theories of humor have attempted to establish age ranges at which certain types of humor are best appreciated. Although there is disagreement on exactly when transitions occur in the ability to appreciate the various humor forms, the general ranges and overall approach appear to be valid. This group of humor theories, however, fails to deal appreciably with humor production and/or with the social functions of humor.

Social Interaction theories focused on the individual as a social being who communicates with other individuals in the world. These theories tend to focus on the producer of humor as a major influence on the way events will be interpreted. Specific predictions were made on interpretations and meanings of humor in certain social situations. The issue of differences between laughing and smiling was not addressed by any of the social interaction theories of humor.

Research Findings on Humor in School-Aged Children

In comparison to studies on adults, research on children's humor during the school years has been limited in focus and volume. A review of studies conducted on various aspects of humor in school-aged children will be presented in the following sections. This review will focus on the following specific areas of research concerning children's humor: (a) Investigations on the relationships between humor and creativity; (b) Research on personality variables associated with humor; (c) Sex differences in children's humor; (d) Age differences in children's humor.

Humor and Creativity

Although disagreement exists among theorists as to the exact definition of creativity, the most commonly accepted view is that creativity involves divergent thinking which leads to an abundance of unique ideas (Guilford, 1959; Torrance, 1965). Koestler (1964)

has provided a detailed description of the creative act according to which, there are many varieties of creative thinking, all of which share the same mental process he calls "bisociation". The bisociative process involves "the perceiving of a situation or idea in two self-consistent but habitually incompatible frames of reference" (Koestler, 1964, p. 67). This type of divergent thinking allows one to perceive similarities between two domains of thought which have never before seemed to share any meaningful relationship. For Koestler, the creative person has a greater number of such insights than a less creative person would have.

The creation of humor, according to Koestler, involves the same type of "bisociative" thinking as do scientific, artistic, or other forms of creative thinking. In order for the person to create a joke, however, an object or event must be seen outside of its normal context to reveal an unexpected or unusual relationship with other objects or events within the situation. The creative thinker with the capacity for bisociative thinking would seem to have an advantage in creating humor since he or she normally sees objects and events in a wide variety of relationships with the environment. Hence, it would appear that creative persons have the capacity for producing humor frequently in a wide variety of situations. Although studies evaluating this relationship have been rare, the small amount of research which has attempted to study relationships between humor and creativity have generally found such an association in school-aged children.

Perhaps the most famous and most influential study concerning the relationship between humor and creativity in children was conducted by Getzels and Jackson (1962). These researchers studied two special groups of sixth-twelfth grade students -- high IQ and high creative. To determine which variables differentiated the two student groups, Getzels and Jackson provided descriptions of thirteen hypothetical children (e.g. "Here is the student who is the quietest one in the whole school") and asked each subject to rank order the hypothetical children on three different criteria: (a) Traits needed for success; (b) Traits admired by teachers; (c) Traits students found most desirable.

Results indicated that the high IQ group admired the same traits which they felt teachers admired and which, they felt, would lead to success. The high creative group did not admire the same traits which they felt would lead to success and were admired by teachers. Thus, both groups agreed on which traits were admired by teachers and lead to success, but not what they themselves find desirable. In fact, the largest disagreement between these groups was found for the hypothetical description -- "Here is the student with the best sense of humor in the school". This trait was ranked ninth, on the average, for the high IQ group and third for the high creative students. Thus, the creative group felt a sense of humor was a highly desirable trait.

Another task presented to subjects in Getzels and Jackson's (1962) study involved telling a story about pictures presented with short captions. Stories produced by the high creative group were

markedly different from those produced by the high IQ group in the following content areas: unexpected endings, humor, incongruities, playfulness, and violence. These characteristics were found more often in stories told by the high creative group. These same characteristics were found in pictures drawn by high creative students.

The hypothesis that humor and creativity are related in school children finds further support from findings reported by Weisberg and Springer (1961). These investigators analyzed psychiatric interviews with 32 fourth graders and their parents along with the students' protocols on the verbal form of the Torrance Creativity Scales. Results of the parent interviews indicated that lack of parental dominance over the child as well as parental acceptance of "childish" behavior were related to high scores on the creativity test ($r=.61$, $P<.01$). For the child interviews, the following characteristics were related to high creativity scores: (a) sense of humor; (b) strength of self-image; (c) ease of early recall. Again, humor was found to be related to measures of creativity.

Lieberman (1977) studied the relationship between humor and creativity in kindergarten children. Her measures included a teacher's rating scale on playfulness and three short creativity tasks. The playfulness scale utilized a five point scale to measure the following categories of behavior: (a) physical spontaneity; (b) social spontaneity; (c) cognitive spontaneity; (d) manifest joy; (e) sense of humor. The various creativity tasks yielded three measures

of creative ability: (a) fluency (number of responses); (b) flexibility (number of different response categories); (c) originality (number of unique responses). Correlational analyses revealed statistically significant relationships between the three measures of creativity and each of the behavior ratings. Included among these significant relationships were associations between the creativity measures and the ratings of sense of humor.

Hauck and Thomas (1972) studied relationships between creativity scores obtained from the Torrance Creativity Scales and peer nominations of humorous students in the fourth, fifth and sixth grades. Peer nominations correlated highly with three creativity measures: (a) fluency; (b) flexibility; (c) originality.

A study reported by Singer and Rummo (1973) also found relationships between humor and creativity and examined these relationships for sex differences. Subjects were caucasian, middle-class kindergarten students. Creativity was measured by a series of tasks developed by Wallach and Kogan (1965). Teachers rated students on fifteen categories of behavior including sense of humor and playful attitude. Singer and Rummo looked at males and females with high creative ability. Boys who were high in creative ability were also rated high on sense of humor and playful attitude. However, girls who were highly creative were rated very low on sense of humor and playful attitude.

This review of studies on the relationships between humor and creativity has revealed consistent reports of meaningful relationships between these variables. Relationships were found when

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This review of studies on the relationships between humor and creativity has revealed consistent reports of meaningful relationships between these variables. Relationships were found when creativity was measured by standardized tests and humor was measured by either teacher ratings or peer nominations. Relationships were also found between scores on creativity tests and samples of verbal output obtained in response to picture stimuli and in response to

hostility. Hence, he concluded that humor is positively related with self-concept and that children with low self-concepts display humorous episodes having hostile connotations.

Waterman (1973) presented film segments from "Laugh-In" to seven to twelve-year-old "normal" boys and to nine to eleven-year-old boys with behavior problems. Normal children produced the full range of smiling and laughter responses while children with behavior problems were more likely to demonstrate full-blown episodes of laughter. These findings led Waterman to speculate that children with behavior problems tend to respond less often and more innapropriately to humor events.

Gidynsky (1972) provided preadolescent boys with several types of humorous stimuli and asked them to rate each stimulus on its humorous quality. The youngsters were measured on anxiety concerning peer rejection based on sociometric ratings and questionnaire responses. Gidynsky found that children who were highly anxious about peer rejection rated all types of humor presented as being funnier than did less anxious children. This finding provides support for Wolfenstein's (1954) hypothesis that children use humor to cope with anxiety. According to Gidynsky's findings, anxious children show more appreciation for humor and thus humor may serve as an outlet for anxiety in such children.

Sex Differences

The limited evidence on sex differences in children's humor suggests that boys produce more verbal humor than girls beginning at

age six (McGhee, 1976). Thus, six year olds are beginning to display the same sex differences in humor production which have been found in adults (Peterson, 1980; McGhee, 1976). Sex differences in humor production have generally not been found in children during the preschool years (Kubo, 1979; Brackett, 1933). These same patterns have been found for humor appreciation across age levels: sex differences generally do not exist during the preschool years (Kubo, 1979) but beginning at age six, boys laugh more while girls smile more than boys (Chapman, 1972; McGhee, 1974); adult males also appear to laugh more than females, and the opposite is true for smiling (Levine, 1978).

Several researchers have found humor produced by males aged six through the adult years to be more hostile than humor produced by females of corresponding age level (Groch, 1974; McGhee, 1976). King and King (1973) have found that boys prefer aggressive cartoons more so than girls at age five.

Smith, Foot, and Chapman (1977) observed seven and eight year old boys and girls who listened to humorous tapes or watched cartoons alone, in pairs, or in triads. In these situations, girls tended to smile and look at their companions more than did boys. In a similar study, Foot, Smith, and Chapman (1977) found that placing a friend to watch cartoons in the same room increased smiling in girls and increased laughter in boys. When children watched cartoons with peers of the opposite sex, girls reciprocated boys' laughter more often than boys reciprocated girls' laughter (Foot & Chapman, 1976). Within this mixed-sex context, boys tended to laugh

the same amount regardless of whether their companion was male or female. Girls, on the other hand, both smiled and laughed more with boys than with girls (Foot & Chapman, 1976).

It seems, then, that girls are more prone to smiling whereas boys laugh more. However, girls show the capacity to increase laughter when others are laughing, especially when boys are present. This is consistent with findings that girls have a stronger desire to gain social approval than boys (Crandall, Crandall, & Katkorsky, 1965). Studies have also shown that boys aged six and older produce humor more frequently than girls (Chapman & Speck, 1977; McGhee, 1977). The general patterns of sex difference in humor production and appreciation by children aged six and older are consistent with patterns found for adult humor (Peterson, 1980; Scogin & Pollio, 1980). Sex differences in humor production and appreciation appear to develop after age six.

Age Differences

The favorite form of humor in the elementary school years is the riddle. Riddles are first understood in the first or second grade and remain popular until about the fifth grade (Sutton-Smith, 1975). First graders tend to memorize and repeat riddles before full comprehension of riddles takes place during the second grade (McGhee, 1974; Wolfenstein, 1954). Children in grades three, four, and five seem to appreciate riddles the most, perhaps because cognitive changes have taken place during the second and third grades that enable the full comprehension of riddles. Riddle comprehension

seems to require the reclassification of a word, letter, etc., in a different manner from that which was originally presented (Sutton-Smith, 1975). Cognitive abilities associated with such reclassifications develop during the first and second grades (McGhee, 1979).

After the age of ten or eleven, children become bored with riddles and prefer jokes with more sophisticated meanings. At this age level, humor begins to take on a more spontaneous, creative character. Hence, the adolescent tends to relate humorous anecdotes rather than regurgitate riddles memorized from repeated exposure. Several investigators have demonstrated that comprehension of cartoons or jokes is greater as children grow older (McGhee, 1975; Shultz, 1974; Whitt & Prentice, 1977). As might be expected, children's explanations of humorous stimuli grow increasingly similar to those of adults as they get older.

Unlike comprehension, appreciation of various humor forms as indicated by laughter and smiling responses does not appear to be a clear function of age level. Researchers have reported that humor appreciation decreases with age (Brodzinsky, 1977; Shultz, 1974), increases with age (McGhee, 1974), or is not related to age (McGhee, 1976). Joke complexity and individual preferences are at least two factors which have contributed to the inconsistencies reported in the literature (McGhee, 1979).

As this review on age differences in humor has suggested, the research on this issue has been sketchy and has focused primarily on which humor forms are best understood and appreciated at certain age

levels. The clearest finding which has emerged is that humor comprehension increases as age increases. Age trends in humor production and appreciation have yet to be clearly specified for school-aged children.

Definition of a Problem and a Proposed Solution

As can be seen from the discussion of humor theories and humor research presented in preceeding sections, large gaps exist in our understanding of children's humor. Most theories of humor (Psychoanalytic, Gestalt, Arousal) focus primarily on adult humor and barely discuss humor in children; hence, cognitive developmental theories currently dominate as explanations of humor in children (McGhee, 1979). While cognitive development must play an important role in children's humor, theories and research studies are needed which also focus on emotional and social aspects of humor in children. Such a comprehensive theory would provide descriptions of the relative functions of social, cognitive, and emotional factors in children's humor, as well as provide details on how these factors interact with one another.

Research on social, emotional, and cognitive aspects of humor in school-aged children has been a clearly neglected area. The lack of sufficient research on this age population is probably a result of the lack of theoretical proposals concerning humor in school-aged children. Since the dominant theories have been the cognitive developmental and psychoanalytic models, much of the research on school children has studied either the development of

cognitive functions which affect humor production and appreciation or the psychodynamic forces within students which influence their production and appreciation of humor. Given the lack of theories dealing with humor in school-age children, it would seem advantageous, and perhaps necessary, for research on this age group to start at a descriptive level. By describing humorous occurrences in classrooms, a foundation may be laid for theories of humor in school children.

The review of humor research on school-aged children has failed to produce even one naturalistic study in which patterns of student humor production and appreciation were observed. Thus far, teacher ratings, peer nominations, and laboratory humor tasks have dominated in studies on humor in school children. The present study was designed to fill the gap which exists in our understanding of school children's humor by observing students in their classroom environments.

Studies which have attempted to determine the function of humor in the classroom are also quite rare and limited in scope. Curran (1972) and Neuman (1972) set out to study the reinforcing properties of humor in the classroom. Since humor is generally conceptualized as a pleasurable experience, these investigators hypothesized that humor would be useful in facilitating learning. Surprisingly, both investigators found no significant differences in retention of class material as a function of whether or not cartoons were presented as learning aids. While these studies represent potentially useful

applications of humor research, they do not shed much light on humorous events as they occur in the classroom.

The potential usefulness of humor in the classroom has been speculated upon by several educators. Gilliland and Mauritsen (1971) have asserted that humor provides "spice" to learning and can be used to stimulate student learning. Horn (1972) called humor "a saving grace" and has encouraged teachers to say and do funny things in the classroom. Welker (1976) sees humor as "an attention getter" and encourages teachers to laugh along with students in appropriate situations. Each of these educators has written about the possible usefulness of teacher produced humor; none of them has ever speculated on student produced humor and its relationships to, and with, other aspects of student behavior. The present study does focus on students, both as producers and as appreciators of humor. Teachers are also of interest in the current study in so far as the type of teacher reactions to humor were concerned. The major purpose was to describe students' humor and then to describe relationships between behavioral measures of humor and creativity, self-concept, and other classroom behaviors (such as on-task, peer interaction, and teacher interaction behavior).

The review of research concerning relationships between humor and creativity also reveals the need for studies containing observational measures of humor. Investigators in this area have measured humor through teacher ratings and laboratory tasks, observational humor data are missing at present. Hence, the current

study sought to determine the relationships, if any, between observational measures of humor and several creativity measures. In addition, another "personality" characteristic - self-concept, was also measured and studied for relationships with observational humor data. Hence, the current study attempted to add to our understanding of certain emotional characteristics which are associated with humor.

More specifically, the present study was guided by and sought answers to the following set of questions: (a) Are there differences in rates and characteristics of humor production and appreciation among male and female school children in grades three, seven, and eleven? (b) What relationships are there (if any) between various combinations of humor styles and humor types with other classroom behaviors including on-task, disruptive, peer interaction, and teacher interaction behaviors? (c) Are there relationships between various combinations of humor types and styles and measures of creativity? (d) Is there evidence of concurrent validity for the Classroom Humor Observation System? (e) Which of the variables included in this study (e.g. creativity, self-esteem, on-task, etc.) differentiate those students who frequently produced humor events from those who were seldom humorous?

To answer these questions, data were collected from 78 school children (19 in grade 3, 28 in grade 7, 31 in grade 11). The data were derived from naturalistic observation, teacher ratings, peer nominations of humorous and other classroom behaviors, Torrance Creativity Scales scores, Piers-Harris Self-Concept scores, as well

as observer ratings of humor and disruption. In all of these, the overall purpose of the present study was to provide data relevant to the issue of describing the role and nature of humor in the classroom as well as to determine the characteristics of humorous children and the response(s) they evoke in their teachers and peers.

CHAPTER II

Method

General Summary

The present study involved naturalistic observations of 78 school children in grades 3, 7, and 11. These observations focused upon the coding of two types of behavior: making others laugh or smile and laughing or smiling at events produced by others. In addition, reactions from peers and teachers to humorous events were included and attempts were made to determine differences due to gender and grade level. Peer nominations, observer ratings and teacher ratings of funny students were also obtained and evaluated for relationships with several general classroom behaviors (e.g. on-task, calling out of turn, etc.). Finally, measures of creativity and self-esteem were also examined for relationships with peer nominations and teacher ratings of humor, and with the production and reaction to humorous events.

Subjects

A total of seventy-eight school children were observed in a third grade, seventh grade, and eleventh grade classroom. Every member of the class was studied at each grade level for a total of 19 students in grade three, 28 in grade seven, and 31 in grade eleven. The third grade classroom contained thirteen boys and six girls, the seventh grade classroom had 14 boys and 14 girls, while the eleventh grade classroom contained 14 boys and 17 girls.

The schools which contained the target classrooms "feed into" one another--that is, students from the elementary school go on to the middle school in the sixth grade and then go on to the high school beginning in the ninth grade. These schools are all located in an affluent section of a moderately large southeastern city. The majority of the children observed came from middle- and upper-middle-class families. All the children were caucasian except for one black male in grade seven and all children were of average or above average IQ and achievement levels.

Selection of Classrooms:

Principals at the elementary, middle, and high school were informed briefly about the project and were asked to select a teacher they felt might consent to having an observational study conducted in his/her classroom. Once specific nominations were made a meeting was held with the teachers to explain the details of the procedure to be employed although neither the specific purpose of the study nor the specific behaviors to be observed were divulged. Final permission and agreement forms from school personnel were obtained at this meeting. Teachers and principals were uniformly cooperative.

Description of Classroom Settings and Activities

The third grade classroom had two regular teachers, both female. One teacher, in her early thirties, was in charge of the class all day except for a one-hour period in the afternoon. During

this period the second teacher, who was about forty-five years of age, taught a class on health. The first teacher had four years of teaching experience, the second had been teaching for almost twenty years.

The third grade students typically engaged in four general types of activities throughout the day: (a) individual seatwork; (b) small group activities (e.g. a reading group) led by the teacher; (c) large group activities (e.g. class discussion, lecture) led by the teacher, and (d) free time, where activities were unstructured and nonacademic.

The seventh grade classroom was located in a middle school where children were grouped according to achievement level. The group observed during the study remained intact as they rotated among five teachers who specialized in different subject areas. These included life sciences, math, history, english and language arts. A period was also assigned for special activities which varied according to individual interests (e.g. chorus), while another period was scheduled for health/physical education. Observations were not conducted during either of these latter two periods nor during lunch. Classes met at the same time each day of the week.

The seventh grade teachers included three caucasian women in their late thirties, one black woman in her mid-thirties and one black male in his late forties. All of these teachers had at least ten years of teaching experience. In all five classrooms, the students were involved in three types of activities: (a) individual

seatwork; (b) large group activities led by the teacher; and (c) free time.

The eleventh grade classroom consisted of a college-bound English class. The class met for one hour from 1:30 to 2:30 in the afternoon. The teacher was a female who had nine years of teaching experience and an Ed.D in education. The class was involved in three main types of activities: (a) individual seatwork; (b) large group led by the teacher; and (c) free time.

Observational Procedures

Prior to onset of the study, teachers informed their pupils that college students were conducting a study on what happens in schools and that they were interested in watching a typical classroom. The children were instructed not to interact with the observers and to pretend they were not there. Observers were also instructed not to interact with students. Observers were present in the classroom but did not collect data during the first week so as to allow time for observers and students to become habituated to one another. A maximum of three observers was present in the classroom at one time although only two usually were present at a given time.

In the third and seventh grade classroom, an equal number of observations was conducted during two time periods: (a) between 8⁴⁵ - 11a.m., and (b) between 12⁴⁵ - 3 p.m. All observational data were collected between 1³⁰ and 2³⁰ p.m. in the eleventh grade classroom. Observations in all classrooms were conducted on Tuesdays, Wednesdays and Thursdays to avoid weekend effects.

Observational data collection was continuous in grades three and seven, but a one-week vacation period interrupted eleventh grade observations. Observation sessions in the third and seventh grade classrooms were conducted during February and the first two weeks of March. For grade eleven, observational data were collected during March, April, and the first week of May.

Upon arrival in the classroom, observers proceeded directly to seats located in a corner at the front of each classroom. There were two sets of observers--one group employing the Classroom Humor Observation System and the other group conducting observations using the Saudargas Creed-Murrah State-Event Classroom Observation System (Saudargas, 1980). Each group employed one system exclusively to lessen the risk of observer bias stemming from knowledge of either experimental expectations or results of the other observational system. At a given time, only those observers employing the same observation system were present in the classroom. A typical session involved observing three different children for twenty minutes per child in the case of the Classroom Humor Observation System. A typical session involved ten minutes for each of six children for the observers who employed the Saudargas Creed-Murrah State-Event Classroom Observation System. All of the seventy-eight children were observed six times with the humor observation system and six times with the general classroom behavior system. Each of the 78 children was observed for two hours with the humor observation system (six, twenty-minute sessions) and for one hour with the general classroom behavior system (six, ten-minute sessions).

In grades three and seven each child was observed with both observation systems three times in the morning and three times in the afternoon. Schedules of observation sessions were maintained to assure that each child was observed once within each of the following time intervals: (a) 8:45-9:30 a.m.; (b) 9:30-10:15 a.m.; (c) 10:15-11:00 a.m.; (d) 12:45-1:30 p.m.; (e) 1:30-2:15 p.m.; and (f) 2:15-3:00 p.m. Detailed observation schedules also enabled every observer to conduct a session on each child in the study. Eleventh graders were observed three times between 1:30-2:00 p.m. and three times between 2:00-3:00 p.m. Observers attempted as much as possible to balance the order of observations - i.e. every child in the class was observed an equal number of times (e.g. once) before observing a child again (e.g. a second time).

Observations of "Humorous" Behaviors

The major instrument used to observe classroom humor was the Classroom Humor Observation System (see Appendix A). Several basics of the Classroom Humor Observation System were derived from Kubo's (1979) study of nursery school children. For the present study, humor was defined as any event which was followed by laughter or smiling from anyone in the classroom other than the producer. Detailed descriptions of several different categories into which these behaviors were coded, are presented below.

Humor Styles

For each humor event, the observer recorded whether the child produced and/or responded according to the following category system: P/L referred to instances where the focal child (i.e. the child being observed) produced a humor event and someone laughed but the producer did not; P/S denoted instances when the child under observation produced an event and someone smiled but the focal child did not; 'L' indicated that the observed child laughed in response to an event produced by someone else in the classroom; 'S' represented an instance when the child under observation smiled in response to an event produced by someone else in the classroom; P_L/L referred to when the child who was being observed both produced an event to which someone laughed or smiled and then responded with laughter; P_S/S represented an instance when the child who was being observed both produced an event to which someone else laughed or smiled and then responded by smiling. Each of the six categories defined by this system are referred to as "humor styles".

Humor Types

In addition to style, humor events were also coded into one of three types: (a) Incidental, (b) Silliness/Clowning, and (c) Directed. Incidental humor events were "accidental" events which were not produced for the sake of being humorous. An example of incidental humor occurred in the third grade classroom when a student dropped his books and several of his classmates laughed. This

category also included production of, or responses to, incongruous or surprising objects or events in the environment such as simple incongruities in books or smiling at a bird perched on the windowsill. Silliness/Clowning humor involved funny gestures or remarks produced for the sake of being funny which revealed the protagonist in a comical manner. This category included such instances as telling jokes and making funny noises. This type of humor event was also recorded when student interactions led to laughing or smiling but the conversation could not be heard. Directed humor referred to gestures or remarks aimed toward a specific person, including oneself. This type of humor may be conceptualized as a subcategory of the Silliness/Clowning category where someone is made the "butt of the joke". Examples of Directed events recorded during the course of this study include self-derogatory statements (e.g. "I am a dummy"), teasing remarks directed toward a classmate (e.g. "Stop picking your nose"), and remarks which poked fun at another's misfortune (e.g. "You slow poke, now you don't get a chance to play the game"). Directed events are usually judged to be derogatory when viewed objectively, yet the protagonist may have intended only to make light of the situation and not to be hostile toward another (c. f. Scogin & Pollio, 1980).

Humor Modes

In addition to style and type, observers also recorded the mode or manner of expression for each event. For each humor instance one of 4 modes was coded: (a) verbal, (b) motoric, (c) verbal and

motoric, and (d) other (primarily recorded for incidental events produced by the environment, e.g. a child smiles at a dog sitting in the room). The verbal mode referred to expressions and remarks, while the motoric mode included hand and facial gestures as well as non-verbal activities such as erasing the blackboard and writing a note.

Teacher Responses

Responses produced by teachers and peers were recorded for each event. Four categories of teacher response were recorded: (a) positive, (b) neutral, (c) negative, and (d) absent. Positive responses included acclamations, smiles, laughing, and other approving responses. In some instances, one might judge certain laughter responses as derogatory and therefore negative. The observers were not instructed to make such subjective interpretations. A negative response expressed disapproval, such as when a student was reprimanded by the teacher or when a frown or "dirty look" was directed toward the protagonist. Neutral responses were coded whenever there was neither a clear positive nor a clear negative response: e.g. a blank stare, batting one's eyes etc. In addition, a fifth category, absent, was coded whenever the teacher was not in a position to see or hear the event occur. Obviously, all other categories automatically imply the teacher was present to the event.

Peer Responses

The same response categories discussed above for teacher responses were used for analyzing peer reactions. Recording instances when more than one peer smiled or laughed in response to a humor event proved to be difficult and unreliable to code. Thus, smiling or laughing responses referred to instances when one or more peers responded in that manner to a humor event.

Coding Procedures

For each event the observer coded the style and type of event and then coded the mode as well as teacher and peer responses to that event. For example, the humorous event of making faces behind the teacher's back and laughing along with two other students would be coded in the following manner: P_L/L would be placed in the column for directed events, the mode column would be coded as motoric, the teacher column would be coded as absent, while the peer response would be coded as positive.

Since humor events occurred relatively infrequently (the overall average was approximately 2.5 events per twenty-minute session), observers also provided a narrative response for each event (e.g. erases assignment on board while grinning, at least ten classmates laugh, teacher reprimands student). The observers also recorded which teacher was present for each of the six twenty-minute sessions conducted on each subject. In addition, observers recorded

which activity the focal child was involved in during the twenty-minute session and made note of instances when teachers and/or activities changed within a session.

Selection and Training of Humor Observers

Observations of the humorous behaviors produced by children in this study were conducted by six undergraduates - four females and two males. Two male graduate students also conducted observations, one was the investigator while the other was an assistant who received research credit. The four female undergraduates were volunteers fulfilling partial course requirements for an honors introductory psychology class. The two male undergraduates were volunteers enrolled in an undergraduate research course.

All of the observers described above were trained for eight hours on the use of the Classroom Humor Observation System. Training included practice on hypothetical case examples as well as on videotapes of children in a classroom setting. In addition, the observers studied a manual which provided definitions and examples of humor styles, types, modes as well as responses from teachers and peers. During the week before actual data collection began, the investigator conducted reliability sessions with each observer in each of the three classrooms. Disagreements were discussed following each reliability session as further training for the observers.

Reliability of the Classroom Humor Observation System

Kubo (1979) reported ranges of reliability for three categories of behavior analagous to those used in the current study: .84 to .87 for humor style, .82 to 1.00 for humor type, .74 to .82 for humor mode. These reliability coefficients were obtained by comparing the investigator's category codings with each of the undergraduate observers employed in her study. The reliability coefficients were derived from the coefficient Kappa formula (Cohen, 1960), which was specifically designed for categorical data. Use of the same reliability measure produced the following ranges of reliability for specific categories recorded during the first week: .81 to .91 for humor style, .87 to .91 for humor type, .90 to 1.00 for humor mode, .86 to .95 for teacher responses, and .78 to .89 for peer responses. These reliability ranges were obtained by comparing codings of the investigator with those of each observer on at least ten events recorded by both observers. Agreement on whether a humor event had occurred ranged from .86 to 1.00 as measured by the quotient of agreements divided by disagreements plus agreements. Similar results were obtained on a subsequent reliability check conducted during the last 2 weeks of data collection. Interobserver reliability sessions (between two observers other than the investigator) were conducted once within the first two weeks and again during the last two weeks of data collection. Interobserver reliabilities were calculated by the Kappa formula for each pair of observers. For both sessions and across all pairs of observers,

reliability estimates ranged from .85 to 1.00 for humor style, .81 to .98 for humor type, .90 to 1.00 for humor mode, .74 to .98 for teacher responses and .80 to .92 for peer responses. Agreement was computed on at least eight events coded by both observers (when necessary, more than one child was observed in order to obtain at least eight events). Agreement on the occurrence of humor events for both reliability sessions and across all pairs of observers ranged from .87 to 1.00 as derived from the agreements divided by agreements plus disagreements formula.

Observations of General Classroom Behaviors

The State-Event Classroom Observation System (Saudargas and Creed-Murrah, 1980) was employed to observe and measure occurrences of several different classroom behaviors. This coding system consisted of three basic categories of behavior: (a) "states", (b) "events", and (c) teacher-student interaction behaviors. States included behaviors whose typical duration was variable but greater than four seconds. Events consisted of behaviors of relatively short duration (less than four seconds). The teacher-student interaction behaviors involved various exchanges between the dyad (e.g. teacher reprimands student).

In general, this observation system yields measures of on-task behavior, "nervous" behavior (e.g. tapping a pencil, running fingers through ones hair), interactions with other students (which also define who initiated the interaction), various disruptive behaviors including raising one's hand and making noise, an evaluation of the

nature and quality of teacher interaction with each child and a count of compliance with directions. Each behavior category measured by this system is defined in Appendix B.

Coding Procedures

The Saudargas - Creed-Murrah observation system utilizes a thirty-second interval recording procedure. At the beginning of each thirty-second interval, observers focused on the focal child for a few seconds and then recorded whichever "state" the child was in. The remainder of the thirty-second interval was spent observing events, which were recorded as they occurred. This procedure was repeated for twenty, thirty-second intervals per observation session. A section for comments concerning unusual circumstances and occurrences was provided on the observation sheet. Observers noted changes in activity and teacher present during the ten-minute session.

Selection and Training of General Classroom Behavior Observers

Observations of general classroom behaviors were conducted by six male undergraduates. These observers were volunteers enrolled in an undergraduate research course. All observers attended five one-hour training sessions where definitions and coding procedures were explained. In addition, observers practiced recording classroom behavior on videotapes of students in classroom settings. At the end of training, all observers obtained at least 80% agreement with a test videotape. Further reliability measures were

obtained during the first week of observations when observers' codings were compared with those of the investigator. This process took place again toward the end of the study. Reliability coefficients across both sessions and all observer pairings with the investigator ranged from .87 to 1.00 on the nine state behaviors, .86 to .97 on the nine focal child events, and .71 to .89 for the six teacher-student interaction events as measured by the agreements divided by agreements plus disagreements formula. Intervals where neither observer recorded the occurrence of target behavior within a given category were excluded in order to obtain a more rigorous and, perhaps, more accurate measure of reliability (Hartmann, 1977). This same formula was employed in computing agreement among pairs of observers. Interobserver reliability sessions were conducted twice-once during the first 2 weeks and again during the last 2 weeks of data collection. Reliability estimates across both sessions and all observer pairs ranged from .81 to .90 on state behaviors, .84 to .99 on focal child events and .81 to .95 on the teacher event categories.

Observer Ratings of Humor and Disruption Following Each Observation Session

The observers who employed the Classroom Humor Observation System were asked to rate each child immediately after observing each student on how humorous the child was during the session. The observers who employed the Saudargas-Creed-Murrah State-Event Classroom Observation System rated each child on "disruptiveness"

immediately after each session. Thus, each child was rated six times on humor production and six times on disruptiveness. Both rating scales are presented in Appendix C. For rating purposes, humor was defined as the ability to make others in the classroom laugh or smile whereas disruptiveness was defined as interruptions in normal classroom activities caused by the child being rated.

Creativity And Self-Concept Scales, Teacher Ratings, and Peer Nominations

Following the collection of observational data, all students completed the Torrance test of creativity and the Piers Harris measure of self-esteem. In addition, students were asked to nominate the funniest student(s) in the class as well as to specify their friends. All teachers (two in grade three, five in grade seven, and one in grade eleven) rated each of their students on humor production, disruptiveness, and creative ability.

The Creativity Test

The Torrance Tests of Creative Thinking, Figural Form A (subtitled "Thinking Creatively With Pictures") was administered to all students in the study. The test was administered to each class as a whole and then in smaller groups for those absent during the large group administration. This test is appropriate for group administration to children in grades three and above (Torrance, 1966).

The Figural Form A contains three separate tasks, each with a ten-minute time limit. The first task involved creating a picture-story using a green, pear-shaped piece of paper as a part of the picture. The next task had ten incomplete ambiguous forms which were to be completed by the student so as to make a "coherent picture." The third and last task presented thirty sets of two parallel lines and asked the student to create a picture using these lines as the basic structures.

Four separate measures of creativity were obtained from this test: (a) Fluency, (b) Flexibility, (c) Originality, and (d) Elaboration. Fluency referred to the number of ideas produced, Flexibility to the number of different categories of ideas produced, Originality to the uniqueness of ideas produced, and Elaboration represented the ability to embellish ideas.

Torrance (1966) reported test-retest reliabilities ranging from .60 to .93 for a sample of students in grades five through nine. Concurrent validity has also been evaluated on the basis of both peer and teacher nominations of creative children. The Torrance manual cited several studies which indicated that this test can be reliably scored by untrained graders if they follow the manual carefully. All test protocols were scored by the investigator without any knowledge of the specific child's ratings or any of the other measures used.

The Self-Concept Scale

The Piers-Harris Children's Self-Concept Scale (subtitled, "The Way I Feel About Myself") was administered to each class as a whole and then to smaller groups of students who were absent during the large group administrations. The scale consists of 80 items which are answered yes or no. A total score reflecting the quality of the student's self-concept was obtained based on the number of items answered in a positive mode (i.e. "yes" to positive self statements and "no" to statements carrying negative connotations about oneself). The higher the total number of items responded to in the positive mode, the higher the self-esteem. Some examples of scale items were: "I do many bad things", "I am good in my schoolwork", "I am good looking", and "I am shy". A "no" response to the first and fourth examples reflect positive self-concept while "no" responses to the second and third examples reflect a relatively negative self-concept.

A factor analysis reported by Piers (1969) found six factors accounting for approximately forty-two percent of the variance: (a) Behavior, (b) Intellectual and School Status, (c) Physical Appearance and Attributes, (d) Anxiety, (e) Popularity, and (f) Happiness and Satisfaction. Split-half reliabilities ranged from .87 to .90 and test-retest reliabilities ranged from .71 to .77. Millen (1966) found the scale correlated between .24 and .45 with the Crandall Social Desirability Scale, which was significant but did not account for a large proportion of the variance. Thus,

respondents may tend to want to "look good", although the tendency does not appear to be very harmful to overall results.

Teacher Rating Scales

Following observational data collection and before he/she was told of the specific purposes of the study, teachers were asked to rate each of their students on several dimensions of behavior (see Appendix D for a copy of this scale). Teachers were asked to rate five items on a Likert scale of one through seven for each student in the class. The items asked the teacher to rate each child on creativity, disruptiveness, predicted likability with future teachers, frequency of teacher reprimands toward the student, and the child's ability to produce humor. Interrater reliability estimates were obtained through use of the Spearman-Brown correlation method. Reliability estimates for the two third grade teachers ranged from .63 to .87 for the five rating scale items, with a mean of .75. In the seventh grade, interrater reliability among the five teachers ranged from .57 to .71 for the five scale items. There was but one teacher in the eleventh grade.

Peer Nominations

Following the observation sessions and test administrations, all students were asked to nominate certain classmates of special interest to this study. First, students were asked to write the names of those classmates who they considered to be the funniest in the class. The students were informed they could include themselves

and could nominate as many students as desired, or they could nominate no students at all. Next, students were asked to name those classmates who they considered among their friends and were told they could nominate none, one student, a few, or the whole class.

Summary of Procedures

In order to provide an overview to the present experiment, Table 1 provides a summary of all of the major variables used in the present study. As can be seen, the study involved two types of observation systems (humor, general classroom behavior), two rating systems (observer and teacher), two standardized tests (creativity and self-concept), and finally, peer nominations.

Table 1

Summary of Variables in Order of Administration

<u>Variable</u>	<u>Measure</u>	<u>Rater</u>	<u>No. Admins.</u>
1.a. Classroom Humor (Humor Style, Mode, Teacher & Peer Response)	Classroom Humor Observation System	Classroom Humor Observers (6 undg., 2 grads)	6 per child
1.b. General Classroom Beh. (e.g. on-task, peer & teacher interaction, etc.)	Saudargas-Creed-Murrah State-Event Classroom Observation System	General Classroom Beh. Observers (6 undgs)	6 per child
2a. Observer Ratings of Humor	Observer Rating Form (H)	Classroom Humor Observers	6 per child
2b. Observer Ratings of Disruptiveness	Observer Rating Form (D)	General Classroom Beh. Observers (6 undgs)	6 per child
3. Creativity (Fluency, Flexibility, and Originality, and Elaboration)	Torrance Tests of Creative Thinking - Figural Form A	Investigator-Standardized scoring system	once per child
4. Self-Esteem	Piers-Harris Children's Self-Concept Scale	Investigator-Standardized scoring system	once per child
5. Teacher Ratings of Humor, creativity, disruptiveness, and likability with future teachers	Teacher Rating Scale	Teachers	one per child
6. Peer nominations of friends and funniest classmates	Frequency of nominations	Students	once per child

CHAPTER III

RESULTS

Five major questions guided the presentation of results produced by this study. These questions include: (a) Are there differences in rates and characteristics of humor production and appreciation among male and female school children in grades three, seven, and eleven? (b) What relationships, if any, are there between various combinations of humor styles and humor types with other classroom behaviors including child on-task, disruptive behaviors, peer interaction, and teacher interaction? (c) What relationships, if any, are there between various combinations of humor styles and types and measures of creativity? (d) What evidence is there of concurrent validity for the Classroom Humor Observation System? (e) Which of the variables included in this study (e.g. creativity, self-esteem, on-task behavior, etc.) differentiate students who frequently produced humor events from those who were seldom humorous?

In order to present data relevant to answering these questions, the present section has been divided according to the following headings: (a) Smiling and Laughing Responses, (b) Humor Styles, (c) Humor Types, (d) Combinations of Types by Style, (e) Humor Modes, (f) Teacher Responses to Students' Humor, (g) Peer Responses to Humor, (h) Ratings of Humor, Disruptiveness, Future Likability, and Creativity, (i) Peer Nominations of Friends and Funniest Students, (j) Creativity and Self-Concept Scales, (k) General Classroom Behaviors, (l) Relationships Among Selected

Humor Variables, (m) Relationships Among Selected Humor Variables and Measures of Creativity and Self-Concept, (n) Relationships Among Selected Humor and General Classroom Behaviors, (o) "Best" Predictors of Selected Dependent Variables, and (p) The Factorial Structure of Humor. Sections (a) through (k) are concerned with question (a), sections (l), (m), (n) and (p) address questions (b) through (d), and section (o) is concerned with question (e).

Smiling and Laughing Responses

In this study, humor was defined as any event produced by a student which was followed by smiling or laughing from another student. Hence, humorous events were divided into two categories: those which produced smiling and those which produced laughter. Since this study focused upon one focal child at a time, the type of response coded for particular events was usually the focal child's response. The sole exception to this pattern occurred when the focal child produced an event to which he/she did not respond but to which one or more classmates did either by laughing or by smiling. Humorous events which were produced by a student other than the focal child and did not elicit a laughing or smiling response from the focal child were not recorded.

Mean rates for both smiling and laughing from children in grades 3, 7, and 11 are presented in Figure 1. From this figure it can be seen that third grade children tended to smile in response to humor events more often than they laughed. Smiling also dominated over laughter in grades 7 and 11 although the disparity was less at

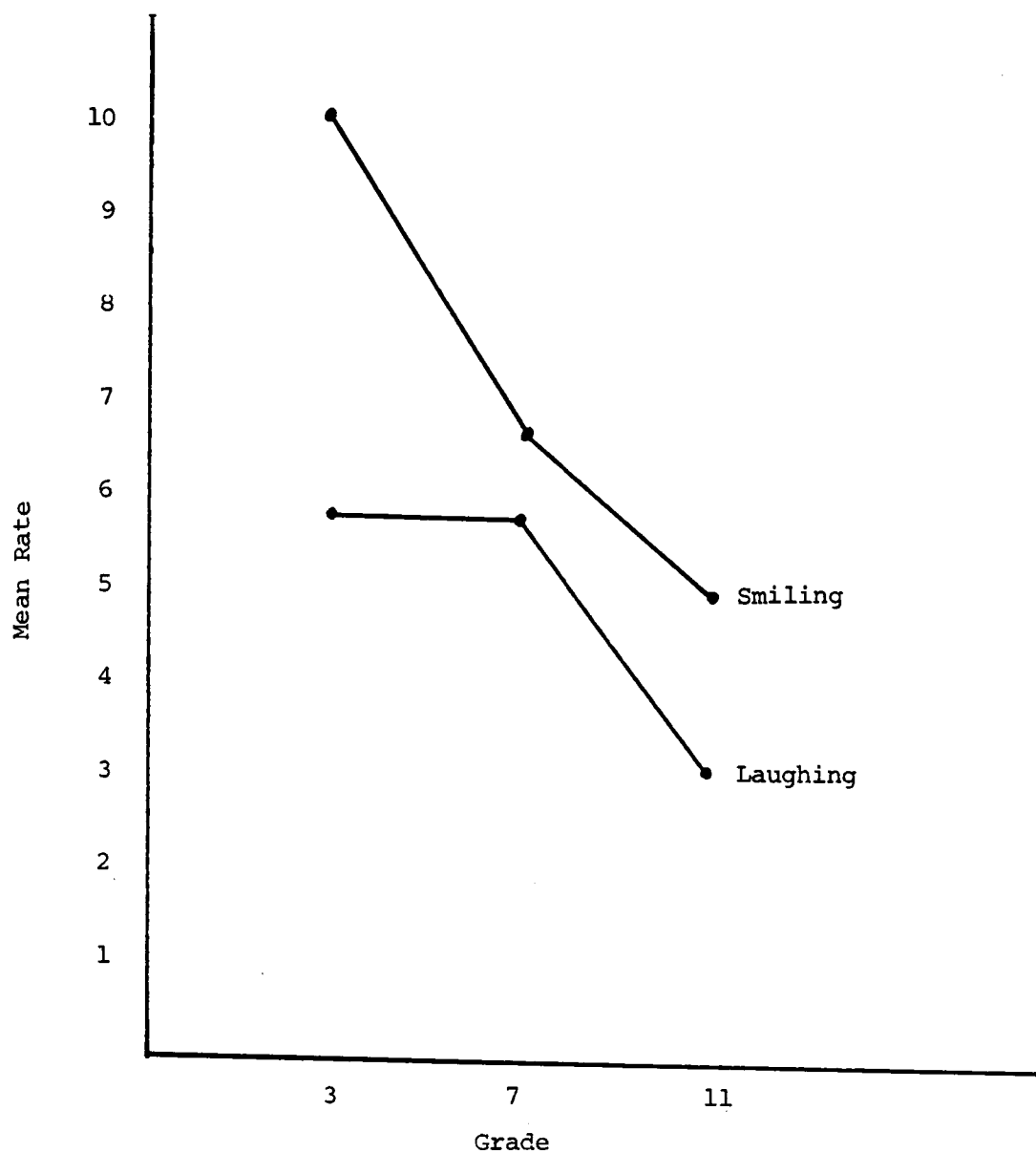


Figure 1. Mean rates of laughing and smiling in grades 3, 7 and 11.

these grade levels than in grade 3. The figure also suggests that third graders smiled more often than any other group while eleventh graders smiled least. In the case of laughter, eleventh graders once again responded less often than third and seventh graders but grades 3 and 7 appear to have responded to events by laughing at approximately equal rates.

To analyze these relationships a $2 \times 3 \times 2$ (smiling/laughing $\times$ grade $\times$ sex) analysis of variance was employed in which smiling/laughing was treated as a within-subjects measure and in which grade and sex were treated as between-subjects measures. Means which were employed in the analysis are presented in Table 2 by response type for males and females in grades 3, 7, and 11. The raw frequencies of smiling and laughing for each sex in each of the three grades are available in Table 25 in Appendix E.

Analysis of Variance results revealed significant F-Values for each of the three main effects. The significant effect for response indicated that students responded by smiling more often than by laughing ($F_{1,77} = 7.03, p < .05$). A significant main effect for grade ($F_{2,77} = 5.07, p < .01$) suggested a decrease in overall responding over the three grades studied. Tukey post-hoc comparisons revealed that third graders were higher in overall responding than either seventh or eleventh graders ($p < .05$) and that seventh graders responded more often than eleventh graders ($p < .05$). Results of the analysis of variance also revealed an interaction between grade and response type ($F_{2,77} = 6.05, p < .01$). A series of Tukey post hoc comparisons revealed that third graders smiled more often than

TABLE 2

MEAN RATES OF LAUGHING AND SMILING
BY SEX IN GRADES 3, 7, AND 11

Grade	Sex	Laughing	Smiling	Total
3	Males	6.92	13.46	20.38
	Females	3.67	12.00	15.67
	Total	5.89	13.00	18.89
7	Males	6.79	6.21	13.00
	Females	4.86	6.64	11.50
	Total	5.82	6.43	12.25
11	Males	2.00	3.79	5.79
	Females	4.18	5.29	9.47
	Total	3.19	4.61	7.81
Total	Males	5.20	7.68	12.88
	Females	4.35	6.89	11.24
	Total	4.79	7.31	12.10

either seventh or eleventh graders ($p < .01$) and seventh graders smiled more often than eleventh graders ($p < .05$). In addition, third and seventh graders responded by laughing more often than eleventh graders ($p < .01$).

In regard to sex differences, the analysis of variance revealed a significant main effect for sex ($F_{1,77} = 6.97$, $p < .05$) with males higher than females in overall rate of responding.

This main effect was clarified by results of Tukey comparisons which were conducted to explore the significant response by grade by sex interaction ($F_{2,77} = 7.26$, $p < .01$). The Tukey analysis revealed the following significant ($p < .05$) comparisons: (a) third grade males laughed more often than third grade females; (b) seventh grade males laughed more often than seventh grade females; (c) eleventh grade females laughed more often than eleventh grade males; (d) third grade males and females smiled more often than either eleventh grade males or eleventh grade females; (e) third grade males laughed more often than either third, seventh, or eleventh grade females, and than eleventh grade males; (f) seventh grade males laughed more often than either third, seventh, or eleventh grade females, and than eleventh grade males; (g) seventh grade females laughed more often than eleventh grade males; (h) eleventh grade females laughed more often than eleventh grade males.

Summary of Smiling and Laughing Responses

Analyses revealed several grade differences in laughing and smiling. Third graders smiled more often than either seventh or eleventh graders whereas seventh graders smiled more frequently than eleventh graders. In addition, third graders and seventh graders laughed more frequently than eleventh graders. Overall main effects were produced by response type, grade, and sex. Students smiled more often than they laughed, third graders responded by laughing or smiling more often than seventh or eleventh graders, while seventh graders were higher than eleventh graders, and males smiled or laughed more often than females. In addition, several differences were revealed among various response by grade by sex interaction effects.

Humor Styles

All humor events were coded into one of the following categories of humor style: (a) focal child produced an event to which others laughed although the producer did not respond by laughing or smiling; (b) focal child produced an event to which others smiled but the producer did not respond by laughing or smiling; (c) focal child responded to an event by laughing; (d) focal child responded to an event by smiling; (e) focal child produced and responded by laughing to an event which was laughed or smiled at by others; (f) focal child produced and responded by smiling to an event which was laughed or smiled at by others.

Figure 2 presents mean rates of humor styles for grades 3, 7, and 11. The figure reveals several clear patterns among humor styles. In general, rates decreased as grade level increased. It also appears that rates of response categories were higher than for categories which involved the production of humor events. In addition, the categories which involved producing but not responding by laughing or smiling appear to have the lowest rates among the humor style categories.

A $6 \times 3 \times 2$ (style $\times$ grade $\times$ sex) analysis of variance was conducted with humor style as the repeated measure. The analysis of variance procedure was conducted over the mean frequencies of humor styles which are presented by grade and sex in Table 3. Results of the analysis revealed significant main effects for style ($F_{5,77} = 5.07, p < .01$) and for grade ($F_{2,77} = 21.07, p < .0001$). In addition, a significant interaction between style and grade was also found ($F_{10,77} = 17.08, p < .0001$).

Tukey post hoc comparisons were performed to clarify each of the significant effects. With respect to humor style, the Tukey procedure indicated that responding by smiling occurred significantly more often than any other style category ($p < .01$). In addition, responding by laughing as well as producing and responding by smiling occurred more often than any of the style categories excluding responding by smiling ($p < .05$). Finally, producing and responding by laughing occurred more often than either the producing and others laughed or producing and others smiled categories ($p < .05$).

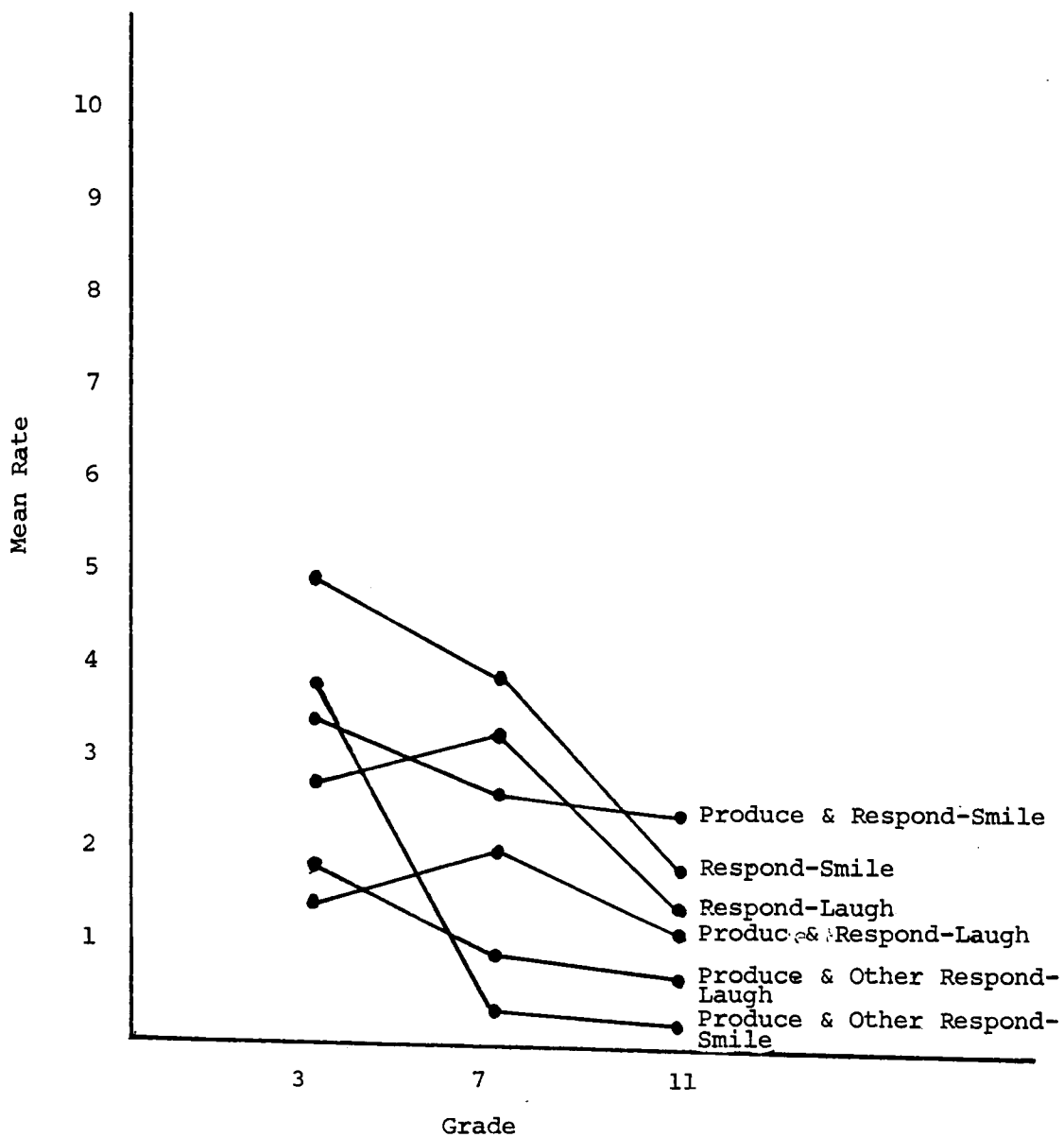


Figure 2. Mean rates of humor styles in grades 3, 7 and 11.

TABLE 3
MEAN FREQUENCIES OF HUMOR STYLES BY GRADE, SEX, AND LAUGHTER/SMILING RESPONSE
WHICH WERE PRODUCED BY, AND BOTH PRODUCED AND RESPONDED TO
BY STUDENTS IN GRADES 3, 7, AND 11

Total Produced and Laughter or Smiling by	1 Produced and Responded With Laughter by	2 Produced and Responded With Smiling by	Total Produced by Others Responded With Laughter or Smiling	1 Produced by Others Responded With Laughter	2 Produced by Others Responded With Smiling	Total Responded With Laughter or Smiling by	1 Responded With Laughter by	2 Responded With Smiling by	Grand Total
Boys	4.71	1.72	2.98	2.76	1.41	1.34	2.05	3.36	12.88
Grade 3	5.61	1.77	3.85	5.85	2.31	3.54	2.85	6.08	20.38
Grade 7	5.36	2.57	2.79	1.43	1.21	0.21	3.00	3.20	13.00
Grade 11	3.21	0.86	2.36	1.21	0.79	0.43	0.36	1.00	5.79
Girls	3.62	1.46	2.16	1.14	0.24	0.89	2.65	3.84	11.24
Grade 3	2.67	1.00	1.67	5.17	0.67	4.50	2.00	5.83	15.67
Grade 7	3.57	1.43	2.14	0.43	0.14	0.29	3.29	4.21	11.50
Grade 11	4.00	1.65	2.35	0.29	0.18	0.12	2.35	2.82	9.47
Total	4.19	1.60	2.59	1.99	0.86	1.13	2.33	3.59	12.10
Grade 3	4.68	1.53	3.16	5.63	1.79	3.84	2.56	6.00	18.89
Grade 7	4.46	2.00	2.46	0.93	0.68	0.25	3.14	3.71	12.25
Grade 11	3.64	1.29	2.35	0.71	0.45	0.26	1.45	2.00	7.81

The Tukey procedure also clarified the significant grade effect by revealing that third graders were generally higher than either seventh or eleventh graders ($p < .01$). It was also revealed that seventh graders were higher overall than eleventh graders ($p < .05$).

As for the style by grade interaction, the Tukey comparison procedure indicated that seventh graders were coded as producing and responding with laughter more often than either third or eleventh graders ($p < .05$), and that seventh graders responded by laughing more often than did third or eleventh graders ($p < .05$). In addition, Tukey analyses revealed that third graders were higher than either seventh or eleventh graders ($p < .05$) in the following style categories: (a) produced and responded with smiling; (b) produced and others responded by laughing; (c) produced and others responded with smiling; (d) responded by smiling. Results of Tukey comparisons also revealed that third graders responded by laughing more often than eleventh graders ($p < .05$) and seventh graders responded by smiling more often than eleventh graders ($p < .05$).

Summary of Humor Styles

Results of analysis of variance and Tukey comparison procedures revealed a general decrease in the rates of humor styles as grade level increased. Another general finding was the higher frequencies of the response categories versus the categories of production.

The response category of smiling occurred most frequently while the response category of laughing and the produce and respond by smiling category were next highest in frequency of occurrence.

Across all style categories, grade 3 was higher than either grade 7 or grade 11, while grade 7 was higher than grade 11 in overall production. Third graders were higher than seventh or eleventh graders in producing and responding by either laughing or smiling, responding by smiling, and producing events to which others laughed. Seventh graders were higher than either third or eleventh graders in producing and responding by laughing as well as in responding by laughing.

Humor Types

All humor events were coded into one of three types of humor: (a) Incidental, (b) Silliness/Clowning, and (c) Directed. Figure 3 presents mean rates for these humor types in grades 3, 7, and 11. As can be seen, Silliness/Clowning humor is higher than the other humor types at all grade levels. Directed and Incidental types of humor appear to be comparable in frequency of occurrence except for the more frequent occurrence of Incidental events in the third grade. Figure 3 also reveals a general downward trend in humor type production with frequencies decreasing as grade level increased.

A $3 \times 3 \times 2$ (type $\times$ grade $\times$ sex) analysis of variance (with type as a repeated measure) was utilized to analyze these data. Tukey post hoc comparisons were also used to clarify significant effects revealed by the analysis of variance. Mean frequencies of humor types are presented by style, grade and sex in Table 4. The "Grand Totals" column at the bottom of the page provides the mean

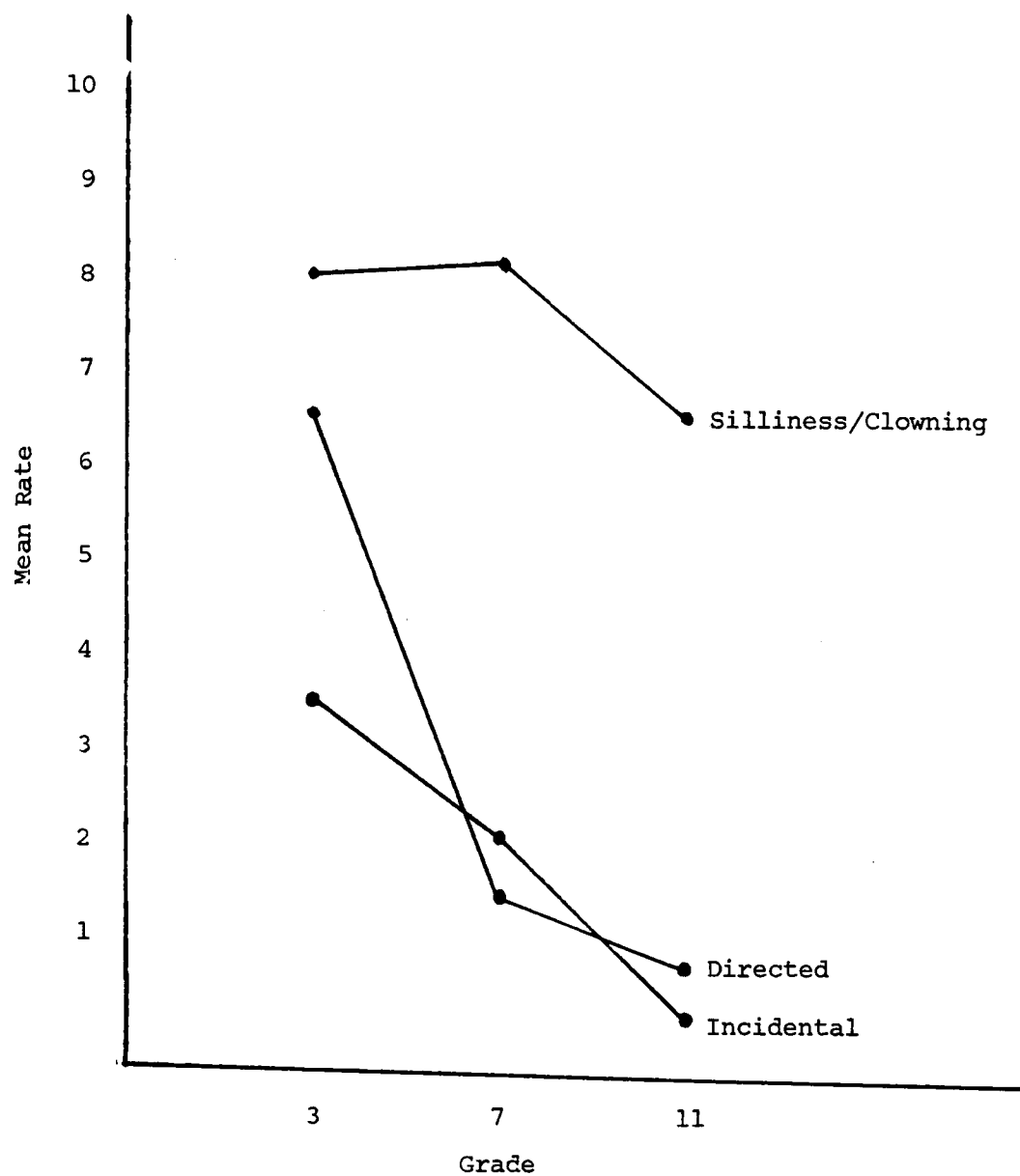


Figure 3. Mean rates of humor types in grades 3, 7 and 11.

TABLE 4
MEAN FREQUENCIES OF HUMOR EVENT TYPES
BY GRADE, SEX, AND STYLE

Humor Style	Sex	INCIDENTAL			Tot	SILLINESS/CLOWNING			Tot	DIRECTED			Tot	Grand Total
		3	7	11		Grade	3	7		11	Grade	3		
Person-Prod Other-Laugh	Males	0.15	0.07	0.00	0.07	1.54	0.93	0.71	1.05	0.62	0.21	0.07	0.29	1.41
	Females	0.00	0.00	0.00	0.00	0.00	0.43	0.00	0.16	0.33	0.00	0.06	0.08	0.24
	Total	0.11	0.04	0.00	0.04	1.05	0.68	0.32	0.63	0.53	0.11	0.06	0.63	0.86
Person-Prod Other-Smile	Males	0.15	0.07	0.00	0.07	1.46	0.14	0.36	0.63	1.92	0.00	0.07	0.63	1.34
	Females	0.33	0.07	0.00	0.08	1.83	0.14	0.06	0.38	2.33	0.07	0.06	0.43	0.89
	Total	0.21	0.07	0.00	0.08	1.58	0.28	0.19	0.51	2.05	0.04	0.06	0.54	1.13
Respond-Laugh Other-Prod	Males	0.46	0.86	0.14	0.49	1.54	1.78	0.14	1.15	0.85	0.36	0.07	0.41	2.05
	Females	0.50	0.86	0.12	0.46	1.33	1.86	2.12	1.89	0.17	0.57	0.12	0.30	2.65
	Total	0.47	0.86	0.13	0.47	1.47	1.82	1.22	1.50	0.63	0.46	0.10	0.36	2.33
Respond-Smile Other-Prod	Males	2.54	1.21	0.07	1.24	1.46	1.57	0.93	1.32	2.08	0.43	0.00	0.80	3.36
	Females	2.33	1.29	0.24	0.97	1.17	1.79	2.35	1.95	2.33	1.14	0.23	0.92	3.84
	Total	2.47	1.25	0.16	1.12	0.84	1.68	1.71	1.62	2.16	0.78	0.13	0.86	3.59
Person-Prod and Respond- Laugh	Males	0.46	0.00	0.00	0.15	0.77	2.21	0.86	1.29	0.54	0.36	0.00	0.29	1.73
	Females	0.00	0.00	0.00	0.00	1.00	1.14	1.53	1.30	0.00	0.28	0.12	0.16	1.46
	Total	0.32	0.00	0.00	0.08	0.84	1.68	1.22	1.29	0.37	0.32	0.06	0.23	1.60
Person-Prod and Respond- Smile	Males	0.31	0.07	0.00	0.12	2.15	2.64	2.00	2.27	1.38	0.07	0.36	0.58	2.98
	Females	0.33	0.07	0.35	0.24	1.00	1.78	2.00	1.76	0.33	0.28	0.00	0.16	2.16
	Total	0.32	0.07	0.19	0.18	1.79	2.21	2.00	2.02	1.05	0.18	0.16	0.38	2.59
Grand Totals	Males	4.08	2.29	0.21	2.15	8.92	9.28	5.00	7.71	7.38	1.43	0.57	3.02	12.88
	Females	3.50	2.29	0.71	1.76	6.33	7.27	8.08	7.44	5.50	2.36	0.59	2.05	11.24
	Total	3.89	2.29	0.48	1.96	8.11	8.23	6.68	7.58	6.79	1.89	0.58	2.56	12.10

frequencies for humor types across style categories for each sex at each grade level. Raw frequencies of humor types are available in Table 27 in Appendix G.

Results revealed a significant effect for humor type ($F_{2,77} = 7.09$, $p < .01$) and grade ($F_{2,77} = 8.31$, $p < .0001$), as well as a significant interaction between type and grade ($F_{4,77} = 6.91$, $p < .001$). With respect to the main effect for type, Tukey post hoc analyses indicated that Silliness/Clowning humor occurred more often than either Incidental or Directed humor ($p < .01$) and that Directed humor was more frequently coded than Incidental humor ($p < .05$). As for the significant grade effect, Tukey post hoc comparisons revealed that third graders were higher overall than either seventh or eleventh graders and that seventh graders were higher than eleventh graders.

Tukey comparisons also indicated that third graders produced more Incidental events than either seventh or eleventh graders ($p < .01$), whereas seventh graders produced more Incidental events than eleventh graders ($p < .01$). For Silliness/Clowning humor, both third and seventh graders produced this type more often than did eleventh graders ($p < .05$). In the case of Directed humor, third graders were coded more often in this category than either seventh or eleventh graders ($p < .01$) and seventh graders were higher than eleventh graders ($p < .05$).

Summary of Humor Types

Silliness/Clowning humor was the most frequently coded humor type across all three grade levels while Directed humor was more

frequently coded than Incidental humor. The production of all humor categories decreased as grade level increased, with third graders higher than seventh or eleventh graders, and with seventh graders higher than eleventh graders. Third graders produced Incidental events more often than did seventh or eleventh graders while seventh graders were higher than eleventh graders. Third and seventh graders produced Silliness/Clowning events more often than did eleventh graders. Third graders produced Directed events more often than did seventh or eleventh graders while seventh graders were higher than eleventh graders.

Combinations of Types by Style

As mentioned previously in the Method section, each humor event was coded for both humor type and humor style. Hence, it is possible to analyze combinations of humor types and styles. Such combinations include, for example, Incidental events which were produced by the focal child and others responded by laughing, and Silliness/Clowning events to which the focal child responded by smiling. In all, the 6 humor styles combine with the 3 humor types to form 18 type by style combinations. Table 4 provides the mean frequencies for each of these 18 combinations by grade and sex. The raw frequencies for each category of type by style combinations are provided in Table 27 in Appendix H.

Each of the 18 combinations of humor types by style were analyzed by two-way (grade by sex) analysis of variance procedures followed by Tukey post hoc comparisons conducted on significant main

and interaction effects. Only significant main and interaction effects will be discussed; summary tables containing complete ANOVA results can be found in Table 34 in Appendix N.

1. Incidental Humor Events

(a) Focal child produced and did not respond to events which elicited laughter from others. Approximately 2% of all Incidental events were coded in this style category. A two-way grade by sex analysis of variance failed to reveal differences between sexes, among grade levels, or significant interaction effects. Events which fell into this category included tripping over a desk accidentally (in grade 11) and giving an obviously wrong answer to a relatively easy question asked by the teacher (grade 11).

(b) Focal child produced but did not respond to events which elicited smiling from others. This category accounted for 4% of all Incidental events. Examples included handing a pencil to a classmate (grade 3), tapping a classmate on the shoulder (grade 7), and skipping across the classroom (grade 3). An analysis of variance failed to reveal significant differences between the sexes, among the grade levels, and also did not reveal significant interaction effects.

(c) Focal child responded with laughter to other-produced events. Approximately 24% of the Incidental events recorded were responded to with laughter from the focal child. This category was

coded when, for example, a loud noise came out of the intercom and the focal child began laughing (grade 11), and when a child dropped his book and the focal child responded by laughing (grade 7). A two-way analysis of variance revealed one main effect for grade ($F_{2,77} = 5.61, p < .01$); a Tukey post hoc comparison revealed that seventh graders were higher in this category than either third graders or eleventh graders ($p < .05$).

(d) Focal child responded by smiling to other-produced events.

Examples of this category which were recorded during the course of the study included an instance when the focal child smiled at another student who was swatting at a fly (grade 11) and an instance when the focal child smiled at a student who was falling asleep during class (grade 7). Events such as these accounted for 57% of all Incidental events recorded. The results of an analysis of variance revealed a significant difference due to grade level ($F_{2,77} = 14.98, p < .0001$). A Tukey post hoc comparison indicated that third graders responded by smiling to their own Incidental events more often than seventh or eleventh graders ($p < .05$), and seventh graders smiled at incidental events more frequently than eleventh graders ($p < .05$).

(e) Focal child produced an event and responded to it with laughter. Approximately 4% of all Incidental events were coded in this category. Examples included laughing while skipping across the room (grade 3) and laughing at one's own involuntary hiccup. There

were no significant interaction effects and no differences between the sexes or among grade levels.

(f) Focal child produced an event and responded to it by smiling. These events represent 9% of all Incidental events. Recorded examples included smiling after getting out of one's seat and making a screeching noise (grade 3) as well as smiling at one's own involuntary voice change due to hoarseness (grade 3). No significant differences were found between the sexes or among grade levels, and no significant interaction effects were revealed.

2. Silliness/Clowning Humor Events

(a) Focal child produced but did not respond to events which elicited laughter from others. In 8% of all Silliness/Clowning events, the focal child produced but did not laugh or smile at events which were followed by laughter from others. Examples included making verbal noises during class time and making funny faces while reading a book (grade 3). An analysis of variance indicated that males produced more events in this category than did females ($F_{1,77} = 12.03, p < .001$).

(b) Focal child produced and did not respond to events which elicited smiling from others. This category was coded for 7% of all Silliness/Clowning events. Recorded examples included an imitation of Wolfman Jack (grade 3) and singing a song at an extremely high pitch (grade 7). Third graders produced more events in this category than did seventh or eleventh graders ($F_{2,77} = 12.03, p < .001$; Tukey, $p < .05$).

(c) Focal child responded with laughter to other-produced events. Approximately 20% of all Silliness/Clowning events were coded into this category. Examples included laughing at another child making funny faces and laughing at another child who is talking "baby talk" (grade 3). No significant main effects or interactions were found.

(d) Focal child responded by smiling to other-produced events. This category contributed 21% of all Silliness/Clowning events recorded. Some examples were smiling at a student drawing a person on the blackboard (grade 7), and smiling at a student crawling on the ground in an attempt to hide from the teacher (grade 3). A two-way analysis of variance revealed no significant differences between the sexes or among grade levels, and no significant interaction effects.

(e) Focal child produced an event and responded to it with laughter. Approximately 17% of all Silliness/Clowning events were coded into this category. Notable examples included lying on the floor pretending to be shot and laughing (grade 7) as well as making faces and laughing. No significant main effects or interactions were found.

(f) Focal child produced an event and responded to it by smiling. These events represent 27% of all Silliness/Clowning events, making this category the most frequent for this humor type. Examples included hiding one's face behind a book and smiling (grade

3) as well as smiling while walking in exaggerated steps (grade 7). There were no significant main effects or interactions for this category.

3. Directed Humor Events

(a) Focal child produced and did not respond to events which elicited laughter from others. Approximately 7% of all Directed events were coded into this category. Some examples were making obscene gestures behind the teacher's back (grade 7) and tripping a classmate as he walked by (grade 7). A two-way analysis of variance revealed a significant difference among grade levels ($F_{2,77} = 4.66$, $p < .05$); a Tukey comparison analysis indicated that third graders produced more events in this category than did either seventh or eleventh graders ($p < .05$).

(b) Focal child produced and did not respond to events which elicited smiling from others. This category accounted for 21% of all Directed events. Examples included taking the chair out from under a student as he attempted to sit down (grade 11) and calling another student names. There was a significant effect due to grade ($F_{2,77} = 25.66$, $p < .0001$) with third graders producing more events in this category than did seventh or eleventh graders (Tukey, $p < .05$).

(c) Focal child responded with laughter to other - produced events. Approximately 14% of all Directed events were coded into this category. Recorded examples included laughing at a student who erased the blackboard when the teacher was not looking (grade 7), and laughing at a student who poked fun at the teacher's name

(grade 11). There were no significant main or interaction effects revealed by the analysis of variance procedure.

(d) Focal child responded by smiling to other - produced events. These events represent approximately 33% of all Directed events. This was the most frequently coded category of Directed events. Examples belonging to this category included smiling at a student who strummed another student's ear with his finger (grade 11) and smiling at two students play-fighting (grade 7). A two-way analysis of variance revealed differences among grade levels with third graders coded in this category more often than either seventh or eleventh graders, and with seventh graders higher than eleventh graders ($F_{2,77} = 15.14$, $p < .0001$; Tukey, $p < .05$).

(e) Focal child produced an event and responded to it with laughter. This category accounted for 9% of all Directed events. Examples included spitting water at another student and laughing (grade 7), and taking a student's comb from his pocket while laughing (grade 11). There were no significant interactions or significant differences between sexes and among grade levels.

(f) Focal child produced an event and responded to it by smiling. Approximately 15% of all Directed events were coded into this category. Examples observed during the course of the study include tapping another student's shoulder and pretending not to have touched him (grade 11) and taking a female student's pocketbook when she was not looking (grade 7). A two-way analysis of variance

revealed differences between sexes ($F_{1,77} = 5.04, p < .05$) and among grade levels ($F_{2,77} = 5.43, p < .01$) as well as a grade X student interaction ($F_{2,77} = 3.83, p < .05$). A Tukey comparison indicated that third graders produced more than either seventh or eleventh graders ($p < .05$); males produced more events in this category than did females.

Summary of Combinations of Humor Types by Style

With respect to combinations involving Silliness/Clowning humor and the 6 style categories, one significant main effect was revealed for grade and one was revealed for sex. Third graders produced but did not respond to Silliness/Clowning events which others smiled at more often than did either seventh or eleventh graders. Males produced more Silliness/Clowning events to which others responded by laughing than did females.

In the case of Directed humor and its 6 combinations with humor style, there were four significant grade effects: (a) Third graders produced but did not respond to Directed events which were followed by laughter from others more often than either seventh or eleventh graders; (b) Third graders produced and others responded by smiling more often than either seventh or eleventh graders; (c) Third graders responded by smiling more often than seventh or eleventh graders and seventh graders smiled in response to other-produced Directed events more often than eleventh graders; (d) Third graders produced and smiled at Directed events more often than seventh or eleventh graders. In addition, there was one main effect for sex:

Males produced and smiled at their own Directed humor events more often than did females.

With respect to combinations of style and Incidental humor, two grade effects were found: (a) seventh graders responded with laughter more often than either third or eleventh graders; (b) third graders smiled at their own Incidental events more often than seventh or eleventh graders, and seventh graders smiled at their own Incidental events more often than did eleventh graders. There were no sex differences and no interaction effects for any of the Incidental humor categories.

Humor Modes

Each humor event was coded into one of four mode categories: (a) Verbal, (b) Motoric, (c) Verbal and Motor, and (d) Other. Figure 4 presents the weighted mean rates of humor modes for each grade level. Means were weighted by the number of humor events produced in each grade in order to correct for the possibility of spurious grade differences in mode due to a disproportionate number of events produced at various grade levels. As can be seen in Figure 4, the verbal mode category appears to be most frequent at each grade level. The figure also indicates that third graders used the four categories in a more balanced fashion than did seventh or eleventh graders. At the higher grade levels, the verbal mode dominated more so than in the third grade.

A $4 \times 3 \times 2$ (mode $\times$ grade $\times$ sex) analysis of variance was performed over weighted means, with mode as a repeated measure.

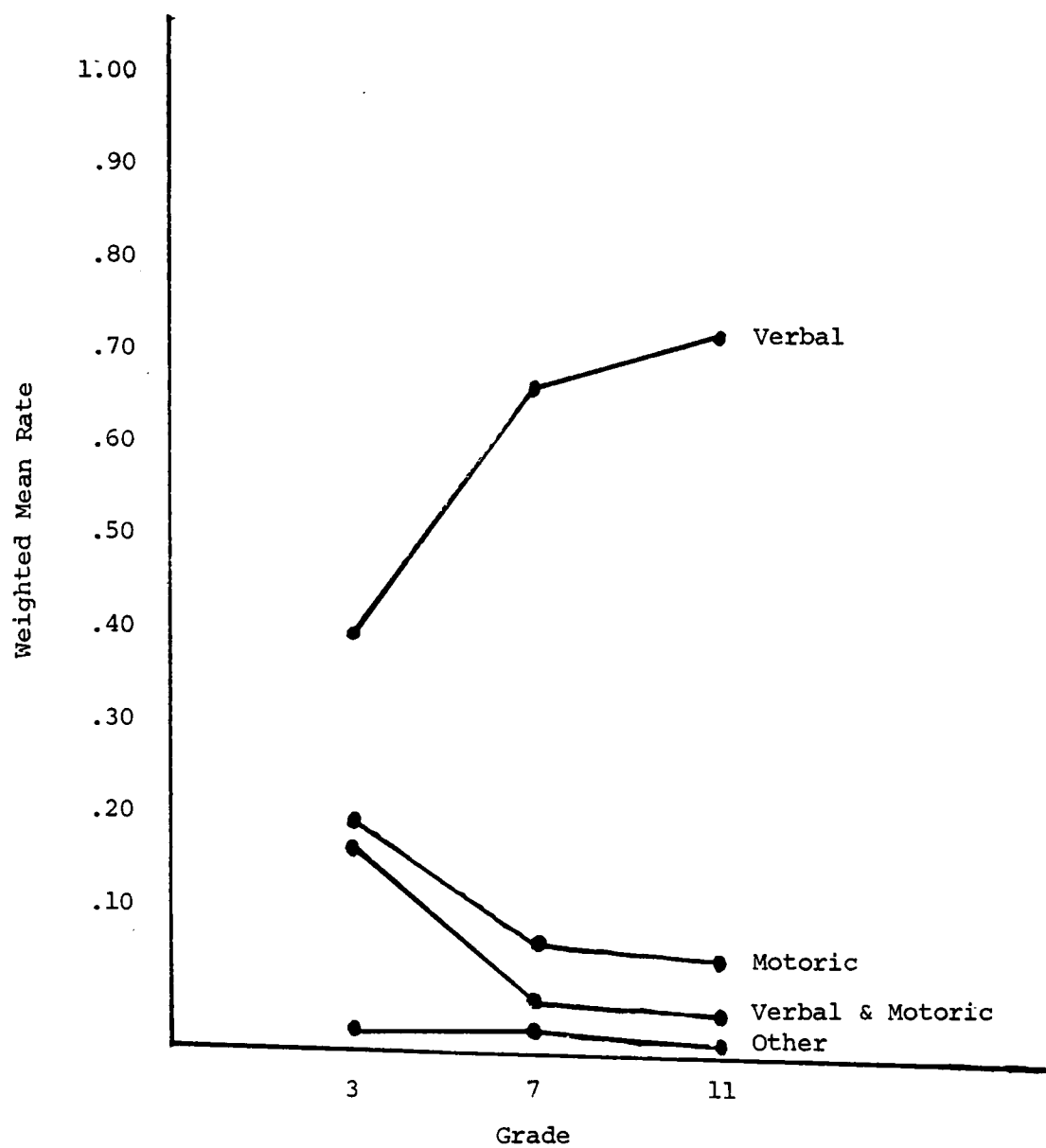


Figure 4. Weighted rates of humor modes in grades 3, 7 and 11.

Table 5 presents mean frequencies for the four humor modes weighted by the number of events for each grade and sex. Raw frequencies of humor modes are provided in Table 28 in Appendix I.

Analysis of variance results indicated a significant main effect for mode ($F_{3,77} = 6.47, p < .01$), and a significant interaction of mode category by grade level ($F_{6,77} = 9.07, p < .001$). No other significant main or interaction effects were found. Tukey post hoc comparisons revealed that the verbal category was coded more frequently than any other humor mode while the motoric as well as the verbal and motoric categories were coded more frequently than the "other" category, which represented events created by the environment rather than by people.

The Tukey procedure also revealed that seventh and eleventh graders produced verbal events more often than third graders and third graders used the motoric as well as the verbal and motoric categories more often than did seventh or eleventh graders.

Summary of Humor Modes

The verbal mode was most often utilized at all grade levels while the "other" category was least frequently used. Seventh and eleventh graders used the verbal category more frequently than did third graders while third graders used the motoric as well as the verbal and motor categories more frequently than seventh or eleventh graders.

TABLE 5

WEIGHTED MEAN FREQUENCIES OF HUMOR MODES
BY GRADE AND SEX*

Sex	Grade						Grand Total		
	3		7		11				
Mode	Males	Females	Tot	Males	Females	Tot	Males	Females	Tot
Verbal	0.43	0.39	0.42	0.71	0.66	0.69	0.62	0.74	0.70
Motoric	0.26	0.29	0.27	0.14	0.12	0.13	0.11	0.09	0.10
Verbal and Motoric	0.25	0.27	0.26	0.07	0.08	0.07	0.11	0.06	0.07
Other	0.01	0.01	0.01	0.03	0.03	0.03	0.02	0.02	0.02
Total	0.95	0.95	0.95	0.95	0.90	0.92	0.85	0.90	0.92

* Mean Frequencies were weighted by the number of humor events in each grade and sex.

Teacher Responses to Humor Produced by Students

Responses from the teacher to student produced humor events were coded into one of the following categories: (a) Positive, (b) Negative, and (c) Neutral. In addition, the category of Absent was coded when the teacher was not in a position to respond to the humor event. Thus, an analysis was made of teacher responses as well as whether the teacher was present or absent during the production of a humor event.

Two analysis of variance procedures were employed to analyze teacher responses to humor. The first involved a $3 \times 3 \times 2$ (response $\times$ grade $\times$ sex) analysis of variance, with response as a repeated measure. This analysis was conducted over the weighted mean frequencies for positive, negative, and neutral teacher responses which are presented in Table 6 by grade and sex. The second procedure involved a $2 \times 3 \times 2$ (teacher position $\times$ grade $\times$ sex) analysis of variance with teacher position (present/absent) as a repeated measure. This analysis was conducted over the weighted means presented in Table 6. The values in Table 6 represent Silliness/Clowning and Directed events which were produced by the focal child. Mean frequencies were weighted by the number of Silliness/Clowning and Directed events in each grade, for each sex. Raw frequencies of teacher responses are provided in Table 29 in Appendix J.

Analysis of variance results from the first procedure revealed significant main effects for response type ($F_{2,77} = 4.90, p < .01$) and

TABLE 6

WEIGHTED MEAN FREQUENCIES OF TEACHER RESPONSES TO
SILLINESS/CLOWNING AND DIRECTED EVENTS
BY GRADE AND SEX*

Grade										
3			7			11				
Sex	Males	Females	Tot	Males	Females	Tot	Males	Females	Tot	Grand Total
<u>Response</u>										
Positive	0.22	0.36	0.26	0.10	0.07	0.09	0.03	0.03	0.03	0.20
Negative	0.03	0.00	0.02	0.05	0.04	0.04	0.01	0.04	0.03	0.05
Neutral	0.02	0.03	0.02	0.02	0.02	0.02	0.00	0.00	0.00	0.01
<u>Total-</u>										
Present	0.27	0.39	0.30	0.17	0.13	0.15	0.04	0.07	0.06	0.28
Absent	0.35	0.18	0.31	0.36	0.33	0.34	0.63	0.33	0.43	0.54
<u>Grand</u>										
Total	0.62	0.57	0.61	0.53	0.46	0.49	0.66	0.40	0.49	0.81

* Mean frequencies were weighted by the number of humor events which were produced by the focal child in each grade and sex.

grade ($F_{2,77} = 3.84, p < .05$). Tukey post hoc comparisons indicated that positive teacher responses were more frequent than either negative or neutral teacher responses ($p < .01$). The Tukey procedure also indicated that third grade teachers were higher in overall responding than either seventh or eleventh grade teachers ($p < .01$) while seventh grade teachers were also higher than teachers in the eleventh grade ($p < .05$).

Results of the second ANOVA yielded a significant main effect for teacher position ($F_{1,77} = 5.88, p < .05$) and significant interactions for position x grade ($F_{2,77} = 6.71, p < .01$) and position x grade x sex ($F_{2,77} = 12.09, p < .001$). Tukey post hoc comparisons revealed the following results: (a) teachers were not present to humor events more often than they were ($p < .01$); (b) teachers in the third grade were present to humor events more often than were teachers in the seventh or eleventh grades ($p < .01$); (c) third grade teachers were present to events produced by females more often than they were to events produced by males ($p < .05$); (d) the eleventh grade teacher was absent to events produced by males more often than she was absent to events produced by females ($p < .01$).

Peer Responses To Humor

For each humor event, one of the following peer response categories was coded: (a) positive, (b) negative, and (c) neutral. In addition, the "absent" category was coded when the event took place in a situation where no peer could respond to it (e.g. in the back of the classroom). Hence, an analysis was made of the response

types as well as whether the peer was present or absent to the event. Table 7 presents weighted mean frequencies for each of the peer response categories by grade and sex. Mean frequencies were weighted by the number of Silliness/Clowning and Directed events produced by the focal child in each grade and sex. Raw frequencies of peer response types are available in Table 30 in Appendix J.

As in the case of teacher responses, peer responses were analyzed by two different procedures. The first procedure involved the utilization of a $3 \times 3 \times 2$ (response $\times$ grade $\times$ sex) analysis of variance which was conducted over weighted means with response type as a repeated measure. The second procedure used a $2 \times 3 \times 2$ (present/absent $\times$ grade $\times$ sex) analysis of variance, which was conducted over weighted means with peer position (present/absent) as a repeated measure. Both analysis of variance procedures were followed by Tukey post hoc comparisons in order to differentiate and clarify significant effects.

Results of the first ANOVA indicated a significant main effect for response ($F_{2,77} = 6.01, p < .01$) and no significant grade or sex effects. Tukey comparisons indicated that positive peer responses to humor events occurred significantly more often than either negative or neutral peer responses ($p < .01$). Results of the second ANOVA revealed a significant main effect for position ($F_{1,77} = 11.50, p < .001$) and Tukey comparisons indicated that peers were present to humor events more often than they were absent ($p < .01$).

TABLE 7

WEIGHTED MEAN FREQUENCIES OF PEER RESPONSES TO
SILLINESS/CLOWNING AND DIRECTED EVENTS
BY GRADE AND SEX*

<u>Grade</u>										
3			7			11				
Sex	Males	Females	Tot	Males	Females	Tot	Males	Females	Tot	Grand Total
<u>Response</u>										
Positive	0.44	0.48	0.45	0.49	0.44	0.46	0.59	0.34	0.43	0.73
Negative	0.03	0.00	0.02	0.02	0.00	0.01	0.00	0.01	0.01	0.02
Neutral	0.07	0.05	0.07	0.02	0.02	0.02	0.05	0.05	0.05	0.07
<u>Total-</u>										
Present	0.54	0.53	0.54	0.53	0.46	0.49	0.64	0.40	0.49	0.83
Absent	0.08	0.04	0.07	0.00	0.00	0.00	0.02	0.00	0.01	0.04
<u>Grand</u>										
Total	0.62	0.57	0.61	0.53	0.46	0.49	0.66	0.40	0.50	0.88

* Mean frequencies were weighted by the number of humor events which were produced by the focal child in each grade and sex.

Ratings of Humor, Disruptiveness, Future Likability,
and Creativity

Teacher Ratings

Teachers were asked to rate each of their students on the following characteristics: (a) humor frequency, (b) disruptive frequency, (c) creativity, (d) likability with future teachers, and (e) frequency of reprimands. Each student was rated on a Likert scale from 1 to 7 for each of the five rating measures. Means for each of these rating measures are presented in Table 8.

Two-way (grade x sex) analysis of variance procedures were employed for each of the five teacher rating items. Results revealed significant grade effects for all items except ratings of reprimand frequency. Teachers rated seventh graders higher than either third or eleventh graders on humor frequency ($F_{2,77} = 4.11$, $p < .05$; Tukey, $p < .05$; and disruptive frequency ($F_{2,77} = 3.79$, $p < .05$; Tukey, $p < .05$). Third graders were rated higher than either seventh or eleventh graders on creativity ($F_{2,77} = 13.18$, $p < .001$; Tukey, $p < .05$) and likability with future teachers ($F_{2,77} = 5.71$, $p < .01$; Tukey, $p < .05$). Four main effects for sex were also found: (a) Males were rated higher than females on humor frequency ($F_{1,77} = 6.88$, $p < .05$); (b) Males were rated higher than females on disruptiveness ($F_{1,77} = 12.03$, $p < .001$); (c) Males were rated higher than females in reprimand frequency ($F_{1,77} = 6.35$, $p < .05$); (d) Females were rated higher than males on likability with future teachers ($F_{1,77} = 6.69$, $p < .05$).

TABLE 8

MEANS FOR TEACHER RATINGS, OBSERVER RATINGS, AND
PEER NOMINATIONS BY GRADE AND SEX

Variable	Sex	Grade 3		Grade 7		Grade 11				
		Males	Females	Total	Males	Females	Total			
<u>Teacher Ratings</u>										
1. Humor Frequency		4.27	3.50	4.03	5.31	5.07	5.19	4.81	2.98	3.81
2. Disruption		3.11	2.02	2.77	5.01	4.29	4.65	3.56	2.90	3.20
3. Creativity		5.26	5.48	5.33	4.07	3.91	3.99	4.55	5.03	4.26
4. Future Likability		5.22	6.17	5.52	3.97	4.12	4.04	3.58	4.51	4.09
5. Reprimand										
Frequency		3.61	2.00	3.10	3.73	2.98	3.36	3.33	2.87	3.08
<u>Observer Ratings</u>										
1. Humor Frequency		4.31	4.11	4.25	5.56	5.41	5.49	3.98	4.10	4.09
2. Disruption		3.89	2.78	3.54	4.58	3.76	4.17	3.48	3.26	3.36
<u>Peer Nominations</u>										
1. Funniest Students		1.08	0.91	1.03	1.01	1.03	1.02	0.89	0.99	0.96
2. Friends		5.05	4.81	4.97	3.50	3.41	3.46	3.21	3.73	3.50

Observer Ratings

One set of observers (those who employed the Classroom Humor Observation System) rated students on humor frequency immediately after an observation session was completed, while another set of observers (those who employed the Saudargas - Creed-Murrah Classroom Observation System) rated each student on disruptive frequency following each observation session. Both sets of ratings employed a Likert scale from 1 to 7. Mean values for both ratings are presented by grade and sex in Table 8.

Two-way (grade x sex) analysis of variance procedures were employed for each of the ratings. Results of these analyses revealed significant grade effects for both sets of ratings. Seventh graders were rated higher on humor frequency than either third or eleventh graders ($F_{2,77} = 14.06, p < .001$; Tukey, $p < .05$). Seventh graders were also rated higher than third or eleventh graders on disruptiveness ($F_{2,77} = 3.53, p < .05$; Tukey, $p < .05$). One significant main effect for sex was revealed on disruptive ratings: males were rated as more disruptive than females ($F_{1,77} = 6.29, p < .01$).

Peer Nominations

All students were asked to nominate the funniest students in the class as well as students who they considered to be among their friends. Mean values for both sets of nominations are presented by grade and sex in Table 8. A two-way (grade x sex) analysis of variance indicated no significant main effects or interactions for

peer nominations of funniest students. A significant difference among grade levels was detected for nominations of friends: third graders nominated more students as their friend than did either seventh or eleventh graders ($F_{2,77} = 5.71, p < .01$; Tukey, $p < .05$).

Creativity and Self-Concept Scales

The Torrance Creativity Test yields four scores for each child: (a) fluency, (b) flexibility, (c) originality, (d) elaboration. Table 9 presents mean values obtained by males and females in grades 3, 7, and 11 on each of the four scores.

A two-way (grade x sex) analysis of variance was conducted on each of the four creativity scores. Analysis of variance results yielded significant grade effects for all 4 scores. Third graders scored higher than seventh or eleventh graders on fluency ($F_{2,77} = 3.27, p < .05$; Tukey, $p < .05$), flexibility ($F_{2,77} = 3.22, p < .01$; Tukey $p < .01$), and originality ($F_{2,77} = 28.30, p < .0001$; Tukey $p < .05$). In addition, eleventh graders scored higher than seventh graders on originality (Tukey, $p < .05$) and elaboration (Tukey, $p < .05$). There were no sex differences on any of the creativity test measures.

The Piers-Harris Self-Concept Scale yielded an overall measure of self-esteem. A two-way (grade x sex) analysis of variance yielded no significant differences between sexes or among grade levels.

TABLE 9

MEAN SCORES OBTAINED ON THE TORRANCE CREATIVITY TEST
AND THE PIERS-HARRIS SELF-CONCEPT SCALE
BY GRADE AND SEX

Variable	Sex	Grade 3		Grade 7		Grade 11	
		Males	Females	Total	Males	Females	Total
<u>Torrance Creativity</u>							
<u>Test Scores</u>							
1. Fluency		50.61	50.17	50.47	41.17	44.64	42.91
2. Flexibility		49.17	50.21	49.50	40.08	41.16	40.62
3. Originality		50.21	51.90	50.74	39.96	42.17	41.07
4. Elaboration		51.11	49.98	50.75	38.87	40.71	39.79
<u>Piers-Harris</u>							
<u>Self-Concept Scores</u>							
		49.80	45.61	48.48	47.60	50.01	48.81
					48.94	49.17	49.07

General Classroom Behaviors

Three distinct types of classroom behaviors are measured by the Saudargas-Creed-Murrah Classroom Observation System: (a) "States"; (b) Focal Child "Events"; (c) Teacher-Student Interaction Events. Included among the "State" behaviors were: (a) Schoolwork; (b) Out of Seat; (c) Looking Around; (d) Motoric Movements; (e) Playing With Object; (f) Social Interaction With Peer; (g) Social Interaction With Teacher; (h) Passive Opposition; (i) Smiling. Mean frequencies of "state" behaviors are presented in Table 10 while raw frequencies for each category are available in Table 31 in Appendix K.

Focal child "events" included: (a) Raise hand-No Interaction; (b) Raise Hand-Interaction; (c) Calling Out; (d) Out of Seat; (e) Object Aggression; (f) Making Noise; (g) Approach Child-No Interaction; (h) Approach Child-Interaction; (i) Other Child Approach-No Interaction; (j) Other Child Approach-Interaction. Mean frequencies of student "events" are presented in Table 11 while raw frequencies for each category are presented in Table 32 in Appendix L.

The teacher-student interaction behaviors were: (a) Teacher Attention to a Student Doing Schoolwork; (b) Teacher Attention to a Student Who Is Off-Task; (c) Direction Followed By Opposition; (d) Direction Followed By Compliance; (e) Teacher Approval; (f) Teacher Disapproval. Mean frequencies of teacher-student interaction behaviors are presented in Table 12 while raw frequencies for each behavior are presented in Table 33 in Appendix M.

TABLE 10
 MEAN NUMBER OF INTERVALS WHICH CONTAINED INSTANCES OF STUDENT "STATE" BEHAVIORS
 IN GRADES 3, 7, AND 11

"State Behavior"	Sex	Grade 3			Grade 7			Grade 11			Grand Total
		Males	Females	Total	Males	Females	Total	Males	Females	Total	
School work		88.61	84.50	87.32	85.21	52.43	88.82	91.50	78.35	84.29	86.65
Looking Around		12.85	13.33	13.00	11.07	11.50	11.29	30.00	28.88	29.39	18.90
Out of Seat		13.77	18.17	15.16	4.57	4.43	4.50	2.50	1.53	1.97	6.09
Motoric Movements		3.38	3.67	3.47	3.14	4.57	3.86	3.36	5.59	4.58	4.05
Playing With Object		13.38	5.33	10.84	4.07	5.50	4.78	4.21	4.41	4.32	6.08
Passive Opposition		0.69	1.67	1.00	0.64	0.43	0.54	0.29	0.29	0.29	0.55
Smiling		1.54	2.17	1.74	0.86	1.29	1.07	1.57	1.47	1.52	1.41
Social Interaction With Peer		6.54	6.50	6.53	8.00	4.07	6.04	4.86	4.12	4.45	5.52
Social Interaction With Teacher		2.54	4.33	3.11	0.50	0.57	0.54	0.36	0.18	0.26	1.05

TABLE 11
 MEAN FREQUENCIES OF STUDENT CLASSROOM "EVENTS"
 IN GRADES 3, 7, AND 11

"Event"	Sex	Grade 3			Grade 7			Grade 11			Grand Total
		Males	Females	Total	Males	Females	Total	Males	Females	Total	
Raising Hand		10.85	11.83	11.26	4.57	5.71	5.14	4.93	4.23	4.55	6.37
Raising Hand Followed By Teacher Interaction		0.62	2.00	1.06	0.57	0.43	0.50	0.36	0.23	0.29	0.55
Calling Out		3.46	2.50	3.16	1.50	1.14	1.32	2.50	3.29	2.94	2.41
Out of Seat		13.15	15.67	13.95	6.36	5.64	6.00	4.00	2.88	3.39	6.90
Object Aggression		4.23	2.33	3.63	2.79	1.07	1.93	2.86	1.41	2.06	2.40
Noise Making		3.92	3.17	3.68	1.64	2.00	1.82	0.57	0.29	0.42	1.72
Approach Child		3.69	1.83	3.11	2.28	2.71	2.50	2.43	2.29	2.35	2.59
Approach Child And Interaction		5.08	3.50	4.58	6.00	4.50	5.25	5.21	4.06	4.58	4.82
Other Child Approach		1.62	1.67	1.63	1.00	1.28	1.14	0.86	0.88	0.87	1.15
Other Child Approach And Interaction		2.23	3.17	2.53	3.57	3.79	3.69	3.43	3.06	3.22	3.21

TABLE 12
 MEAN FREQUENCIES OF STUDENT-TEACHER INTERACTION BEHAVIORS
 IN GRADES 3, 7, AND 11

Behavior	Sex	Grade 3			Grade 7			Grade 11			Grand Total
		Males	Females	Total	Males	Females	Total	Males	Females	Total	
Teacher Attention to Student Doing School work		3.15	3.83	3.37	0.43	0.57	0.50	0.57	0.29	0.42	1.17
Teacher Attention to Student Who Is Off-Task		1.31	0.83	1.16	0.43	0.29	0.36	0.43	0.35	0.39	0.56
Direction Followed By Opposition		0.15	0.00	0.11	0.00	0.07	0.04	0.07	0.07	0.06	0.06
Direction Followed By Compliance		0.92	0.83	0.89	0.36	0.29	0.32	0.21	0.29	0.26	0.44
Teacher Approval		1.69	3.50	2.26	0.21	0.36	0.29	0.07	0.12	0.10	0.69
Teacher Disapproval		0.85	0.50	0.74	0.86	0.43	0.64	0.36	0.35	0.35	0.55

Two-way grade by sex analyses of variance were conducted on each of the 25 general classroom behaviors. Analyses which contained significant main or interaction effects are summarized below. Table 34 in Appendix N provides a summary of significance levels for all effects in each behavior category.

Differences among grade levels were found for the following classroom behaviors: (a) Third graders produced the Looking Around behavior more often than seventh or eleventh grade's ($F_{2,77} = 4.29$, $p < .05$; Tukey, $p < .01$); (b) Seventh graders were coded as Out of Seat more often than third or eleventh graders ($F_{2,77} = 6.81$, $p < .01$; Tukey, $p < .01$); (c) Seventh graders produced Raised Hand behavior more often than third or eleventh graders ($F_{2,77} = 3.57$, $p < .05$; Tukey, $p < .05$). Only one sex difference was found: the Object Aggression category, which defines destructive behaviors such as tearing a piece of paper and throwing a pencil, was coded more often for males than for females ($F_{1,77} = 4.07$, $p < .05$).

Relationships Among Selected Humor Variables

In this section, as in the next two, Pearson Product-Moment correlations will be presented among pairs of selected dependent variables of interest. Pearson correlations were used following a comparison of Pearson results with both Spearman and Kendall correlations. Such a comparison was made since Hays (1977) reported the tendency for Pearson correlations to be inflated when the data contain several instances of 0. One hundred correlations were compared and the following results were obtained: (a) Spearman

correlations were higher by at least a full decimal unit in 64% of all cases, Kendall correlations were higher in 16% of the comparisons and Pearson results were higher in 8% of the cases;

(b) Spearman procedures yielded 6 more significant coefficients than Kendall's procedure and 9 more than by the Pearson method. On an empirical basis, then, it seemed appropriate to employ Pearson correlations in the data analysis largely because it seemed to be the most conservative of the 3 correlational measures used.

The majority of correlation matrices presented, in this, and in the next four sections, contain coefficients of correlation among selected humor events and other variables of interest. In most cases, the humor events were defined so as to include both Silliness/Clowning and Directed humor. These humor types were further subdivided for purposes of analysis into the following 4 style categories: (a) The focal child produced a Silliness/Clowning or a Directed event and either he/she or a classmate responded by laughing; (b) the focal child produced a Silliness/Clowning or a Directed event and either he/she or a classmate responded by smiling; (c) the focal child responded to a Silliness/Clowning or a Directed event by laughing; (d) the focal child responded to a Silliness/Clowning or a Directed event by smiling.

Intercorrelations are presented separately for each grade level since analysis of variance results revealed a substantial number of differences among the grade levels for several of the dependent variables measured. A caution is warranted for any interpretations

made concerning correlations in grade 3 largely because of the disproportionate number of males to females at this grade level (13 to 6).

Silliness/Clowning and Directed Events

Intercorrelations of the four style categories for both Silliness/Clowning and Directed events are presented by grade in Table 13. The most striking finding provided by results presented in this table is the lack of significant intercorrelations among the various measures of Silliness/Clowning categories for all grade levels. The same lack of significant intercorrelations is evident for the four categories of Directed humor, except for a significant number of intercorrelations in the seventh grade. The seventh grade matrix also contains a significant number of intercorrelations between Silliness/Clowning and Directed humor categories. In the eleventh grade a modest number of relationships appear to exist among the production categories of Silliness/Clowning and Directed events.

Humor Events, Ratings, and Peer Nominations

Table 14 provides intercorrelations between selected Directed and Silliness/Clowning events and ratings of humor by teachers and observers. Peer nominations of funniest students were also intercorrelated with Silliness/Clowning and Directed events. Hence, Table 14 provides an opportunity to evaluate the concurrent validity of the Classroom Humor Observation System.

TABLE 13
INTERCORRELATIONS OF SELECTED SILLINESS/CLOWNING
AND DIRECTED HUMOR EVENTS BY GRADE

HUMOR EVENTS	GRADE THREE ^a							
	Silliness/Clowning				Directed			
	Produces	Produces	Responds	Responds	Produces	Produces	Responds	Responds
Silliness/Clowning	Laughs	Smiles	Laughs	Smiles	Laughs	Smiles	Laughs	Smiles
Produces-Laugh	X	.30	.03	.03	-.10	-.01	.33	-.06
Produces-Smiles		X	-.21	.14	-.23	-.16	-.06	.09
Responds-Laugh			X	-.31	.10	-.20	.37	.39
Responds-Smiles				X	-.06	.10	.14	-.11
<u>Directed</u>								
Produces-Laugh					X	.23	-.08	-.49*
Produces-Smiles						X	-.18	-.11
Responds-Laugh							X	.22

^a Note: for 18d.f. an $r=.42$ is required for $p<.05$; an $r=.51$ is required for $p<.01$

GRADE SEVEN ^a								
Produces-Laugh	X	-.01	.20	-.09	.71**	-.06	-.17	.19
Produces-Smiles		X	-.04	.17	.61**	.02	-.10	.21
Responds-Laugh			X	.05	.13	.38*	.66**	.41*
Responds-Smiles				X	.18	.04	.00	.23
<u>Directed</u>								
Produces-Laugh					X	.48**	.08	.56**
Produces-Smiles						X	.43*	.60**
Responds-Laugh							X	.32

^a Note: for 27 d.f. an $r=.38$ is required for $p<.05$; an $r=.44$ is required for $p<.01$

GRADE ELEVEN ^a								
Produces-Laugh	.X	.47**	-.01	-.26	.88**	.28	-.06	-.15
Produces-Smiles		X	.19	-.31	.41*	.46**	-.20	.04
Responds-Laugh			X	.29	-.09	.29	.23	.29
Responds-Smiles				X	-.25	-.26	.23	.28
<u>Directed</u>								
Produces-Laugh					X	.29	-.10	-.09
Produces-Smiles						X	-.11	-.10
Responds-Laugh							X	-.01

^a Note: for 30 d.f. an $r=.35$ is required for $p<.05$; an $r=.42$ is required for $p<.01$

* $P<.05$

** $P<.01$

TABLE 14
 INTERCORRELATIONS OF SELECTED SILLINESS/CLOWNING AND DIRECTED
 HUMOR EVENTS WITH PEER NOMINATIONS, TEACHER RATINGS,
 AND OBSERVER RATINGS OF HUMOR IN
 IN GRADES 3, 7, AND 11

Humor Measures	GRADE THREE							
	Silliness/Clowning				Directed			
	Produces Laughs	Produces Smiles	Responds Laughs	Responds Smiles	Produces Laughs	Produces Smiles	Responds Laughs	Responds Smiles
Peer Nominations of Funniest Students	.13	.12	-.16	.38	-.03	.27	-.13	-.03
Teacher Ratings of Humor Frequency	.38	.07	.11	.07	.01	.12	.08	-.02
Observer Rating of Humor Frequency	.46*	-.08	.21	.19	.50*	.06	.16	.10
GRADE SEVEN								
Peer Nominations of Funniest Students	.73**	.57**	.09	.23	.77**	-.02	.12	.27
Teacher Ratings of Humor Frequency	.43*	.63**	.15	.22	.44*	.13	.22	.20
Observer Ratings of Humor Frequency	.57**	.51**	.17	.23	.40*	.12	.57**	.11
GRADE ELEVEN								
Peer Nominations of Funniest Students	.75**	.41**	-.07	-.36*	.75**	.36*	.03	-.13
Teacher Ratings of Humor Frequency	.30	-.01	.04	-.32	.36*	.49*	.06	-.22
Observer Ratings of Humor Frequency	.51**	.38*	-.38*	.22	.61**	.39*	.12	-.07

* $P < .05$

** $P < .01$

For grade 3, two significant intercorrelations were obtained. Observer ratings of humor frequency correlated positively with personally produced Silliness/Clowning and Directed events which were responded to by laughing. In grades 7 and 11, significant intercorrelations are too frequent to mention individually. For grade 7, the production categories of Silliness/Clowning humor correlated significantly and positively with all three concurrent ratings while the production of Directed events which were followed by laughing also correlated with the three concurrent ratings. In grade 11, the Silliness/Clowning production categories correlated significantly and positively with peer nominations of funniest students and observer ratings of humor frequency whereas the production categories of Directed events were significantly related to all three concurrent measures. Overall, Table 14 provides evidence for concurrent validity of the Classroom Humor Observation System in grades 7 and 11 and less in grade 3.

Relationships Among Selected Humor Variables and Measures of Creativity and Self-Concept

Table 15 presents Pearson correlations between Silliness/Clowning and Directed humor events and various measures of creativity and self-concept.

TABLE 15

INTERCORRELATIONS OF SELECTED SILLINESS/CLOWNING AND DIRECTED EVENTS,
TEACHER AND OBSERVER RATINGS OF HUMOR,
AND PEER NOMINATIONS WITH MEASURES
OF CREATIVITY AND SELF-CONCEPT

Creativity and Self-Concept Measures	GRADE THREE										
	Silliness/Clowning					Directed					
	Prod Laughs	Prod Smiles	Resp Laughs	Resp Smiles	Prod Laughs	Prod Smiles	Resp Laughs	Resp Smiles	Peer Nominations Funniest Students	Teacher Ratings Humor Frequency	Observer Ratings Humor Frequency
Teacher Ratings of Creativity	-.11	-.25	-.04	.18	.04	-.50*	.28	.35	-.12	.16	.65**
Fluency	.34	.32	.26	.04	.30	.27	-.06	.28	.49*	.01	.46*
Flexibility	-.49*	.11	-.18	.16	-.03	.20	-.24	.18	.10	.03	.51*
Originality	-.46*	.12	-.18	.23	-.04	.08	-.26	.19	.14	-.03	.33
Elaboration	-.19	-.01	-.26	.26	-.18	.26	-.06	.32	.24	-.05	.27
Self-Concept	-.74**	-.44*	-.01	-.07	.07	-.70**	-.30	.23	.28	-.31	-.05

Teacher Ratings of Creativity	GRADE SEVEN										
	Silliness/Clowning					Directed					
	Prod Laughs	Prod Smiles	Resp Laughs	Resp Smiles	Prod Laughs	Prod Smiles	Resp Laughs	Resp Smiles	Peer Nominations Funniest Students	Teacher Ratings Humor Frequency	Observer Ratings Humor Frequency
Teacher Ratings of Creativity	.15	-.08	.15	.00	.11	.14	.37*	.41*	.05	.22	.09
Fluency	-.09	-.24	.05	-.30	.14	.30	.09	.17	-.01	-.03	-.01
Flexibility	-.10	-.22	.07	-.26	.11	.20	.11	.30	-.01	-.10	.03
Originality	.02	-.10	-.06	-.21	.04	-.08	-.14	.02	.05	.09	.02
Elaboration	-.27	-.15	.22	-.35	-.20	.09	.19	.01	-.02	.20	-.22
Self-Concept	-.08	-.20	-.25	-.10	-.37*	-.36*	-.31	-.22	-.38*	-.09	-.09

Teacher Ratings of Creativity	GRADE ELEVEN										
	Silliness/Clowning					Directed					
	Prod Laughs	Prod Smiles	Resp Laughs	Resp Smiles	Prod Laughs	Prod Smiles	Resp Laughs	Resp Smiles	Peer Nominations Funniest Students	Teacher Ratings Humor Frequency	Observer Ratings Humor Frequency
Teacher Ratings of Creativity	.38*	.06	.02	-.04	.38*	.07	.27	-.09	.29	.58**	.16
Fluency	-.37	.12	-.19	.18	-.04	.45**	-.22	.32	.30	.17	.23
Flexibility	.32	.34	.24	-.01	.29	.37*	.01	.23	.28	.09	.31
Originality	.35*	.37*	.19	.10	.40*	.30	.04	.13	.41*	.16	.27
Elaboration	.40*	.39*	.12	-.18	.39*	.27	-.08	.04	.18	.31	.37*
Self-Concept	.28	.13	-.10	-.03	.04	.15	-.02	.35*	.25	.12	.07

* $P < .05$ ** $P < .01$

Humor and Creativity

As can be seen from results presented in Table 15, there are a modest number of correlations between measures of humor and creativity at each grade level. In grade 3, personally produced Silliness/Clowning events, to which the producer or others laughed, correlated negatively with the Fluency and Flexibility scales of The Torrance Creativity Scales. Observer ratings of humor frequency correlated positively with teacher ratings of creativity and with the Fluency and Flexibility scales. In the seventh grade, only two significant correlations were found between teacher ratings of creativity and responding by laughing and smiling to Directed events. For the eleventh grade, a clear pattern emerged. The production of Silliness/Clowning and Directed events which were followed by laughing correlated significantly and positively with the Originality and Elaboration scales of the Torrance Creativity test and with teacher ratings of creativity. Producing Silliness/Clowning events which elicited smiling from the producer or others was related to the Originality and Elaboration scales while producing Directed events which elicited smiling was related to the Fluency and Flexibility scales of the Torrance Test. Peer nominations and teacher ratings were unrelated to the creativity measures at all grade levels.

Observer ratings correlated with several measures of creativity in grade 3 but not in grades 7 and 11. Overall, the relationship

between humor and creativity was somewhat negative in grade 3, nonexistent in grade 7, and fairly strong in grade 11.

Humor and Self-Concept

Intercorrelations among the selected humor variables and the self-concept scores were modest at all grade levels. Three negative correlations were found for children in the third grade as was also the case for children in the seventh grade. One positive intercorrelation was found in the eleventh grade. In grade 3, self-esteem was negatively related with both production categories of Silliness/Clowning events and with producing Directed events which elicited smiling. In grade 7, self-esteem correlated negatively with both production categories of Directed humor and with peer nominations of funniest students.

Relationships Among Selected Humor Events and General Classroom Behaviors

Intercorrelations between Silliness/Clowning humor events and selected student "state" behaviors are presented in Table 16. Three of the nine "state" behaviors (Passive Opposition, Playing With Object, and Smiling) were not analyzed because: (a) frequency of occurrence was low, or (b) the behavior was not of interest in terms of relationships with humor.

As can be seen in Table 16, none of the classroom behaviors were meaningfully related to Silliness/Clowning or to Directed categories of humor in the third grade. In grades 7 and 11, the Social

TABLE 16
 INTERCORRELATIONS OF SELECTED SILLINESS/CLOWNING AND DIRECTED
 HUMOR EVENTS WITH SELECTED BEHAVIORAL "STATES"
 IN GRADES 3, 7, AND 11

Student "State" Behaviors	Silliness/Clowning				Directed			
	Produces	Produces	Responds	Responds	Produces	Produces	Responds	Responds
	Laughs	Smiles	Laughs	Smiles	Laughs	Smiles	Laughs	Smiles
School Work	-.02	.34	.13	-.03	-.08	.25	.07	-.01
Out of Seat	-.03	.05	-.23	.60**	.15	-.16	.22	-.07
Looking Around	-.20	.13	.03	-.21	-.08	-.25	-.21	.11
Motoric Movements	.07	-.27	-.48*	-.13	.17	.30	-.36	-.35
Social Interaction With Peer	-.06	.19	-.36	.32	.07	.35	-.03	.29
Social Interaction With Teacher	.01	.04	.11	.18	.33	-.44*	.21	-.14

GRADE SEVEN								
School Work	-.47**	-.21	-.02	-.15	.13	-.09	-.53**	.09
Out of Seat	.51**	.31	.13	.12	.11	.59**	.79**	.59**
Looking Around	-.02	-.08	-.02	.21	-.22	-.02	-.20	-.08
Motoric Movements	-.15	-.06	-.09	.13	.06	.19	-.06	-.09
Social Interaction With Peer	.55**	.38*	.21	.31	-.01	.49*	.59**	.09
Social Interaction With Teacher	.44**	.11	-.11	-.27	-.09	.06	-.29	.08

GRADE ELEVEN								
School Work	-.28	.12	-.11	-.10	-.26	.02	.02	.09
Out of Seat	.06	-.09	-.36*	.03	-.02	.01	-.07	-.02
Looking Around	.17	-.20	.04	-.29	.14	-.03	-.02	-.09
Motoric Movements	.07	-.19	-.25	-.04	.05	-.18	-.05	-.04
Social Interaction With Peer	.44**	.35*	.37*	.18	.47**	.06	.09	.03
Social Interaction With Teacher	-.11	-.14	-.02	.04	-.07	-.38*	-.07	-.22

* $P < .05$

** $P < .01$

Interaction With Peer category correlated significantly and positively with both of the production categories of Silliness/Clowning humor and with one of the production categories of Directed humor. In addition, the Schoolwork category was inversely related to two Silliness/Clowning categories involving humor production in grade 7. The Out of Seat category was positively correlated with one production category of both Silliness/Clowning and Directed events as well as with both response categories of Directed humor events. Overall, the production categories for Silliness/Clowning and Directed events were positively related to several "state" behaviors in grades 7 and 11.

Table 17 presents intercorrelations between the production and response categories of Silliness/Clowning and Directed humor with eight of the nine student classroom behavior "events". The object aggression category was omitted due to low frequency of occurrence. For the third grade, six significant correlations were scattered in a non-meaningful pattern in which none of the classroom "events" correlated with more than one category of Silliness/Clowning or Directed humor. In grades 7 and 11, the production of Silliness/Clowning and Directed events which were responded to by laughing correlated significantly and positively with out of seat and calling out of turn behavior. In the seventh grade, approaches to other students by the focal child which were followed by interaction correlated with several production measures. For grade 11, other child approaches to the focal child which were followed by interaction correlated significantly with both production categories

TABLE 17

INTERCORRELATIONS OF SELECTED SILLINESS/CLOWNING AND DIRECTED
EVENTS WITH SELECTED "EVENTS" BEHAVIORS
FOR GRADES 3, 7, AND 11

GRADE THREE								
Student "Event" Behaviors	Silliness/Clowning				Directed			
	Produces Laughs	Produces Smiles	Responds Laughs	Responds Smiles	Produces Laughs	Produces Smiles	Responds Laughs	Responds Smiles
Raises Hand	-.23	-.25	.26	-.47*	.13	.11	-.03	.24
Raises Hand Followed by Interaction	-.02	-.19	-.06	-.03	-.03	-.01	-.08	.29
Calling Out	.13	-.05	.43*	-.31	-.03	-.22	.20	.29
Out of Seat	.12	.19	-.18	.69**	.05	-.22	.33	-.20
Approach Child	.30	.23	.31	.02	.09	.19	.50*	.34
Approach Child Followed by Interaction	.25	.19	-.03	.35	-.15	.16	.38	.04
Other Child Approach	-.53**	.16	-.09	.15	.36	.21	-.16	.13
Other Child Approach Followed by Interaction	-.15	.22	.13	-.15	.06	-.12	-.13	-.01
GRADE SEVEN								
Raises Hand	-.25	-.20	.46**	-.27	-.12	-.01	.16	.24
Raises Hand Followed by Interaction	.42*	.32	.03	.20	.56**	.01	-.13	.26
Calling Out	.65**	.37*	-.06	.02	.76**	.26	-.14	.36*
Out of Seat	.39*	-.10	.04	.10	.38*	.01	-.12	.26
Approach Child	-.07	-.18	.06	-.01	-.02	-.05	.15	-.01
Approach Child Followed by Interaction	.62**	.39*	.29	.28	.60**	.08	.24	.28
Other Child Approach	.13	.09	.09	.04	-.02	.03	.21	.11
Other Child Approach Followed by Interaction	.05	.06	.13	.51**	.09	.21	.23	.30
GRADE ELEVEN								
Raises Hand	.46**	.18	.10	-.18	.62**	.26	-.21	.10
Raises Hand Followed By Interaction	-.22	-.18	-.12	.05	-.16	-.17	-.20	.04
Calling Out	.38*	-.02	-.01	-.13	.53**	.16	.38*	.04
Out of Seat	.39*	.32	-.26	-.37*	.36*	.21	-.04	-.01
Approach Child	-.01	.05	.28	.39*	.03	.15	.35*	.47**
Approach Child Followed By Interaction	.30	.09	.39*	.27	.32	.02	-.02	.04
Other Child Approach	-.10	.23	-.05	.45**	.09	.10	.48**	.01
Other Child Approach Followed By Interaction	.52**	.37*	.23	.35*	.46**	.41*	.25	-.23

* p<.05

** p<.01

of Silliness/Clowning and Directed humor. The response categories were generally unrelated to the various "events", except for focal child laughter responses to Directed events which correlated significantly with calling out, approaching others and other students approaching the focal child.

Table 18 presents intercorrelations between production and response categories of Silliness/Clowning and Directed humor and four categories of classroom behavior which involved interaction between student and teacher. The Teacher Attention To Schoolwork and Teacher Approval categories represent positive interactions, while the Teacher Attention To Student Who Is Off-Task and Teacher Disapproval categories indicate negative interactions. The Direction Followed by Compliance and Direction Followed by Opposition categories of interaction behavior were omitted due to low frequency of occurrence.

The third grade matrix revealed a clear relationship among smiling responses to Silliness/Clowning events and several classroom interaction behaviors. Teacher approval and disapproval as well as teacher attention to a child doing schoolwork were inversely related to this particular response category. In grade 7, 3 of the 4 production categories for Silliness/Clowning and Directed humor correlated significantly and positively with the teacher disapproval category. All four production categories were significantly related to teacher disapproval in grade 11. Thus seventh and eleventh grade students who produced Silliness/Clowning events tended to receive expressions of disapproval from their teacher. The other negative

TABLE 18
INTERCORRELATIONS OF SELECTED SILLINESS/CLOWNING AND DIRECTED
EVENTS WITH SELECTED TEACHER-CHILD
INTERACTION BEHAVIORS FOR
GRADES 3, 7, AND 11

<u>GRADE THREE</u>									
Teacher-Child Interaction Behaviors	Silliness/Clowning				Directed				
	Produces Laughs	Produces Smiles	Responds Laughs	Responds Smiles	Produces Laughs	Produces Smiles	Responds Laughs	Responds Smiles	
Teacher Attention For School Work	-.13	-.29	.01	-.56**	.04	.08	-.25	.29	
Teacher Attention To Off-Task Behavior	.28	.26	.05	-.16	.03	-.14	-.03	-.28	
Teacher Approval	.02	-.34	.01	-.48*	-.12	.03	-.13	.05	
Teacher Disapproval	.11	-.07	.48*	-.61**	.03	-.15	-.01	.31	
<u>GRADE SEVEN</u>									
Teacher Attention For School Work	-.12	-.17	.28	-.39*	-.10	-.03	.20	.06	
Teacher Attention To Off-Task Behavior	.39*	.02	.23	-.10	.31	.29	.31	.14	
Teacher Approval	-.08	-.16	.43*	-.26	-.02	.02	.42*	.27	
Teacher Disapproval	.82**	.50**	-.01	.01	.84**	.25	-.01	.40*	
<u>GRADE ELEVEN</u>									
Teacher Attention For School Work	-.06	-.09	-.09	-.08	-.09	-.10	-.10	-.10	
Teacher Attention To Off-Task Behavior	.73**	.43**	-.10	-.28	.77**	.44**	-.13	-.03	
Teacher Approval	.18	.19	.13	-.07	-.10	-.11	-.18	-.21	
Teacher Disapproval	.78**	.45**	-.08	-.26	.82**	.48**	-.13	-.03	

* P<.05

** P<.01

interaction category - Teacher Attention To Off-Task Behavior - was also positively related to all four production categories in grade 11.

In Table 19, intercorrelations between teacher responses to Silliness/Clowning and Directed events and teacher responses to other classroom behavior are presented for each of the three grade levels. In the third grade, positive teacher responses to humor were negatively correlated with teacher attention to off-task behavior, and negative teacher responses to humor were positively correlated with teacher attention to off-task behavior and teacher disapproval. Thus, third grade teachers responded in a consistent fashion to humor as they did to other classroom events. This pattern was also evident in the seventh and eleventh grades. Teacher absence to humor events was related to attention for off-task behavior and teacher disapproval in grades 7 and 11. In addition, teacher absence was negatively correlated with teacher attention to a child who is doing schoolwork. Hence, it appears that seventh and eleventh graders who receive negative feedback from the teacher also tend to produce humor events when the teacher is not present.

"Best" Predictors of Selected Dependent Variables

A stepwise regression procedure was employed to determine which of the variables studied differentiated students on several selected variables of interest. A brief description of this procedure will be helpful in interpreting the results. The first step involves a calculation of simple regressions for each independent variable (see

TABLE 19
INTERCORRELATIONS OF TEACHER RESPONSES TO SILLINESS/CLOWNING
AND DIRECTED EVENTS WITH TEACHER RESPONSES
TO NON-HUMOROUS CLASSROOM BEHAVIORS
FOR GRADES 3, 7, AND 11

GRADE THREE			
Teacher Response Categories	Positive Response To Silliness/C clowning And Directed	Negative Response To Silliness/C clowning And Directed	Absent To Silliness/C clowning And Directed
Attention For School Work	.26	.04	.30
Attention To Off-Task Behavior	-.49*	.59**	.07
Approval	.21	-.07	-.09
Disapproval	.19	.60**	.25
GRADE SEVEN			
Attention For School Work	.27	-.42*	.15
Attention To Off-Task Behavior	-.41*	.61**	.36*
Approval	.55**	-.11	.19
Disapproval	-.37*	.71**	.58**

TABLE 19 CONT'D.

GRADE ELEVEN

Teacher Response Categories	Positive Response To Silliness/C clowning And Directed	Negative Response To Silliness/C clowning And Directed	Absent To Silliness/C clowning And Directed
Attention For School Work	.49**	.09	-.41*
Attention To Off Task	.05	.38*	.41*
Approval	.61**	.01	-.29
Disapproval	-.01	.59**	.57**

* $P < .05$ ** $P < .01$

Table 35 in Appendix O for a complete list of independent variables employed in the analysis) and determination of the F value for each regression. Next, the variable with the largest F value (which must exceed a significance level of $p < .05$) is placed into the equation as one independent variable and regressions with each independent variable again are calculated with the previously determined variable which contained the highest F value as one of the pair. The independent variable with the highest F value (which must exceed $p < .05$) was then added to the equation as the second independent variable. At this point, the stepwise regression routine determines which independent variables fell below the cutoff for significance of the F statistic and these variables are dropped. Assuming independent variables remain, variables are added to the equation or dropped according to the procedure described above until all variables are accounted for.

The independent variables employed in the analysis were selected on the basis of two criteria: (a) The variable seemed to have some potential for predicting variables of interest as determined by the correlational analyses; (b) The variable occurred at least ten times in each grade level. A list of variables employed in the analysis can be found in Table 35 in Appendix O. Grades 7 and 11 were combined for the present analysis since correlational results indicated similar patterns in both grade levels. The third grade was omitted from the analysis for two reasons: the number of subjects for each sex was uneven; and correlational analyses

revealed few meaningful relationships between selected humor variables and other variables of interest.

Silliness/Clowning Humor

Table 20 provides the "best" predictors for four categories of Silliness/Clowning humor. These categories were: (a) focal child produced Silliness/Clowning events to which he/she or other students responded with laughter; (b) focal child produced Silliness/Clowning events to which he/she or other students responded with smiling; (c) focal child responded with laughter to Silliness/Clowning events produced by other students; (d) focal child responded with smiling to Silliness/Clowning events produced by other students. Hence, analyses sought to predict two categories of production and two categories of responding.

For the production categories, observer ratings of humor frequency and peer nominations of funniest students were useful in differentiating those who produced several Silliness/Clowning events from those who rarely produced such events. The most useful predictors for the response categories differed in each case. Responding with laughter was predicted best by social interaction with child and nominations of friends. Responding by smiling had only one useful predictor - other child approach followed by interaction.

Directed Humor

Separate stepwise regression analyses were conducted on each of four Directed humor categories: (a) focal child produced Directed events to which he/she or other students responded with laughter;

TABLE 20

"BEST" PREDICTORS DERIVED FROM STEPWISE REGRESSION ANALYSIS
FOR SELECTED SILLINESS/CLOWNING EVENTS
IN GRADES 7 AND 11

Dependent Variable	Variables In The Equation	Multiple R
Person Produce Laughter From Self or Others	Teacher Disapproval Observer Ratings of Humor Frequency Peer Nominations of Funniest Students Creative Flexibility	0.77 0.82 0.85 0.86
Person Produce Smiling From Self or Others	Observer Ratings of Humor Frequency Peer Nominations of Friends Peer Nominations of Funniest Students Calling Out	0.50 0.65 0.70 0.72
Other-Prod Pers. Respond-Laugh	Social Interaction With Child Peer Nominations of Friends	0.45 0.50
Other-Prod Pers. Respond-Smile	Other Child Approach And Interaction	0.37

(b) focal child produced Directed events to which he/she or other students responded with smiling; (c) focal child responded with laughter to Directed events produced by other students; (d) focal child responded with smiling to Directed events produced by other students. Hence, analyses sought to predict two categories of production and two categories of responding.

Results presented in Table 21 indicate that different variables provided the "best" prediction of the two production categories. The production of Directed events which were responded to with laughter appeared to be most strongly related to general teacher disapproval and to various ratings of disruption. The production of Directed events which were responded to with smiling appeared to be closely associated with peer interaction, peer nominations of funniest students, and teacher ratings of future likability and disruption.

The response categories were most closely associated with other child approach followed by interaction behavior. In addition, responding with laughter was related to teacher ratings of future likability while responding with smiling was related to student nominations of friends as well as with peer interaction.

Teacher Ratings, Observer Ratings and Peer Nominations

The variables which were useful in differentiating students on the various teacher ratings, observer ratings, and peer nominations are provided in Table 22. In general, teacher ratings of specific behaviors were best predicted by teacher ratings of other behaviors.

TABLE 21

"BEST" PREDICTORS DERIVED FROM STEPWISE REGRESSION ANALYSIS
FOR SELECTED DIRECTED EVENTS
IN GRADES 7 AND 11

Dependent Variable	Variables In The Equation	Multiple R
Produce With Laughter Responses From Producer and/or Other	Teacher Disapproval Observer Ratings of Disruption Teacher Ratings of Disruption	0.61 0.73 0.77
Produce With Smiling Responses From Producer and/or Other	Peer Nominations of Funniest Students Teacher Ratings Likability With Future Teachers Social Interaction With Child Teacher Ratings of Disruption	0.57 0.64 0.69 0.72
Respond With Laughter to Other Produced Events	Other Child Approach And Interaction Teacher Ratings Likability With Future Teachers	0.48 0.54
Respond With Smiling to Other Produced Events	Other Child Approach And Interaction Peer Nominations Friends Social Interaction With Child	0.59 0.68 0.72

TABLE 22

"BEST" PREDICTORS DERIVED FROM STEPWISE REGRESSION ANALYSIS FOR SELECTED
TEACHERS RATINGS, OBSERVERS RATINGS, AND PEER NOMINATIONS
IN GRADES 7 AND 11

Dependent Variable	Variables In The Equation	Multiple R
Teacher Ratings of Humor Frequency	Teacher Ratings of Disruptive Frequency Teacher Ratings Likability With Future Teachers Peer Nominations of Funniest Students	0.61 0.81 0.83
Teacher Ratings of Disruptive Frequency	Teacher Disapproval Teacher Ratings Likability With Future Teachers Grade Peer Nominations of Funniest Students	0.49 0.59 0.72 0.79
Teacher Ratings of Future Likability With Teachers	Teacher Ratings of Creativity Teacher Ratings of Disruptive Frequency Self Concept Scores Schoolwork	0.50 0.71 0.75 0.79
Teacher Ratings of Reprimand Frequency	Teacher Ratings of Disruptive Frequency Produces Silly/Clown, Smile From Self or Others	0.76 0.79
Observer Ratings of Humor Frequency	Positive Peer Responses To Silly/Clown and Directed Observer Ratings of Disruptive Frequency Grade	0.69 0.76 0.79

Table 22 Cont'd

Dependent Variable	Variables In The Equation	Multiple R
Observer Ratings of Disruptive Frequency	Positive Peer Responses to Silly/Clown and Directed	0.71
	Observer Ratings of Humor Frequency	0.73
	Teacher Ratings of Disruptive Frequency	0.75
Peer Nominations of Funniest Students	Produce Silly/Clown, Laughter From Self or Others	0.66
	Negative Teacher Resp to Silly/Clown and Directed	0.70
	Teacher Ratings Disruptive Frequency	0.75
Peer Nominations of Friends	Produce Silly/Clown, Smile From Self or Others	0.60
	Negative Teacher Resp to Silly/Clown and Directed	0.68
	Produce Silly/Clown, Laughter From Self or Others	0.72

The peer nominations of funniest students variable was useful in predicting teacher ratings of both humor and disruptive frequency.

The "best" predictor of observer ratings on humor frequency and disruptive frequency was the variable comprised of positive peer responses to Silliness/Clowning and Directed events. In addition, each of the observer ratings was useful in predicting the other.

Table 22 also presents the results of the stepwise regression analysis for peer nominations of friends and funniest students. For both categories of nominations, several production categories of Silliness/Clowning events and negative teacher responses to Silliness/Clowning and Directed events proved to be among the most useful predictors.

Creativity and Self-Concept

Table 23 provides the results of stepwise regression analyses for a composite score derived from the summation of the 4 Torrance creativity scales (Fluency, Flexibility, Originality, and Elaboration), teacher ratings of creativity, and self-concept scores. Negative teacher responses to Silliness/Clowning and Directed events was a useful variable in predicting both creativity scores and teacher ratings of creativity. In addition, raising hand and not being called on predicted the Torrance scales while out of seat behavior served as a useful predictor for teacher ratings of creativity. Self-concept scores were best predicted by:

(a) Teacher ratings of likability with future teachers; (b) Laughing

TABLE 23

"BEST" PREDICTORS DERIVED FROM STEPWISE REGRESSION ANALYSIS FOR SELECTED
CLASSROOM BEHAVIORS AND MEASURES OF CREATIVITY
AND SELF-CONCEPT FOR GRADES 7 AND 11

Dependent Variable	Variables In The Equation	Multiple R
School work	Teacher Ratings of Likability With Future Teachers	0.33
	Out of Seat	0.48
Calling Out	Negative Teacher Response to Silly/Clown and Directed	0.51
	Teacher Ratings of Humor Frequency	0.60
Other Child Approach and Interaction	Peer Nominations of Funniest Students	0.68
	Produces Silly/Clown, Smiling From Self or Others	0.77
	Positive Peer Response To Silly/Clown and Directed	0.81
Total Creativity (Fluency + Flexibility +Originality + Elaboration)	Raise Hand - No Interaction	0.33
	Negative Teacher Response To Silly/Clown and Directed	0.42
Teacher Ratings of Creativity	Negative Teacher Response to Silly/Clown and Directed	0.40
	Out of Seat	0.46
Self-Concept	Teacher Ratings of Likability with Future Teachers	0.46
	Produces Silly/Clown, Laughter From Self or Others	0.53
	Raise Hand - No Interaction	0.62

at Silliness/Clowning events; (c) Raising hand and not being called on. This latter variable also served as a useful predictor of creativity scores.

The Factorial Structure of Humor

A principal components factor analysis was conducted in order to determine relevant relationships among selected variables. Variables were selected for inclusion based on the following considerations: (a) The variable was produced at least ten times in each grade level; (b) Correlational analyses determined the variable to be related to at least two categories of Silliness/Clowning and/or Directed humor. As in the regression analysis, data for grades 7 and 11 were combined for purposes of analysis. This was deemed advisable on two grounds: (a) to increase the sample size and (b) because prior correlational analysis had revealed similar patterns of relationship in both grade levels. The disproportionate number of males and females as well as the lack of relationship patterns revealed by correlational analyses led to the exclusion of third grade data from the analysis.

The original data table, which consisted of 28 variables, was reduced by varimax rotation to three factors. Variables whose loadings were 0.35 and above were considered significant contributors to the various factors. Factor A accounted for 39% of the variance, while Factors B and C accounted for 31% and 19%, respectively. Table 24 provides compositions of each Factor while

TABLE 24
COMPOSITION OF VARIMAX FACTORS FOR CHILDREN
IN GRADES 7 AND 11

Pattern Loadings From Varimax Rotations To Best Fit		Loading
Factor 1: Socially Approved Humor		
Teacher Ratings Likability With Future Teachers		0.53
Peer Nominations Friend(s)		0.51
Positive Teacher Response to Silly/Clown & Directed		0.64
Positive Peer Response to Silly/Clown & Directed		0.48
Social Interaction With Peers		0.56
Social Interaction With Teacher		0.71
Approach Child - Interaction		0.66
Teacher Approval		0.61
Factor 2: Socially Disapproved		
Teacher Ratings Likability With Future Teachers		-0.47
Teacher Ratings Reprimand Frequency		0.59
Teacher Ratings Creativity		-0.48
Peer Nominations Friend(s)		-0.49
Negative Teacher Response To Silly/Clown & Directed		0.43
Negative Peer Response to Silly/Clown & Directed		0.76
Produced Directed, Smile From Self or Others		0.69
Produced Directed, Laughter From Self or Others		0.60
Positive Teacher Response to Silly/Clown & Directed		-0.36
Factor 3: Social Adroitness		
Peer Nominations Friend(s)		0.61
Respond By Smile To Other-Prod. Silly/Clown		0.48
Produced Silly/Clown, Smile From Self or Others		0.63
Other Child Approach - Interaction		0.55
Originality		0.43

Table 36 in Appendix P provides the respective loadings on each factor for all variables employed in the analysis.

As can be seen in Table 24, the first factor which was labeled Socially Approved Humor, was composed of the following variables:

(a) Teacher Ratings of future Likability; (b) Number of Nominations as Friends; (c) Positive Teacher Responses to Silliness/Clowning and Directed events; (d) Positive Peer Responses to Silliness/Clowning and Directed events; (e) Social Interaction With Peers; (f) Social Interaction With Teachers; (g) Approach Child Followed by Interaction; (h) Teacher Approval. Hence, this factor represents friendly or positive events which would seem to reflect "good" social skills.

The second factor which was entitled Socially Disapproved was composed of the following variables: (a) Teacher Ratings of Future Likability (negative correlation); (b) Teacher Ratings of Reprimand Frequency; (c) Teacher Ratings of Creativity; (d) Peer Nominations of Friends (negative correlation); (e) Negative Teacher Responses To Silliness/Clowning and Directed events; (f) Negative Peer Responses To Silliness/Clowning and Directed events; (g) Smiling to Personally Produced Directed events; (h) Producing Directed events laughed at by self or others. Thus, this factor appears to represent humor events which are responded to in a negative fashion.

The third and final factor which was labeled Social Adroitness, contained variables which seem to represent social responsiveness. These variables included: (a) Peer Nominations of Friends; (b) Smiling in Response To Other-Produced Silliness/Clowning Events;

(c) Smiling in Response To Personally Produced Silliness/Clowning Events; (d) Other Child Approach Followed By Interaction;

(e) Creative Originality. The variables which comprise this factor seem to share the common property of pleasantness and each variable suggests a positive connotation. Taken together, these variables suggest a factor of humor which is primarily positive, or friendly, in nature.

CHAPTER IV

DISCUSSION

The results of the present investigation shed a good deal of light on the role of humor in the classroom as well as on the relationship of humor to other classroom behaviors. Given the comprehensiveness of this study it is necessary to provide a summary of the results produced before these results can be discussed meaningfully. This summary will be organized around the following major questions: (1) Are there grade differences in rates and types of humor produced in the classroom? (2) Are there gender differences in rates and types of humor produced and appreciated in the classroom? (3) What types of relationships exist between the various humor measures and measures of creativity and self-concept? (4) What types of relationships exist between humorous behaviors and other classroom behaviors? (5) Is there a clear factorial structure of humor produced in the classroom?

Grade Differences in Humor Production

Several differences among grade levels were apparent for the majority of measures which were studied. With respect to the production of humorous events, the general trend indicated a decrease in humor production as grade level increases. This same trend was found for the frequency of occurrence of laughing and smiling. This decrease in humor production was observed despite the fact that rate of on-task behavior did not differ among grade levels.

When humor was defined as any event which was followed by laughter, rates of humorous episodes per 2 hour period were approximately 6.00 in the third and seventh grades and 3.00 in the eleventh grade. When humor was defined as any event which was followed by smiling, rates of humorous episodes per 2 hour period were approximately 13.00 in the third grade, 6.50 in the seventh grade, and 4.50 in the eleventh grade. These average rates are strikingly low for each grade level. The rates also indicate that the rate of humor decreases at upper grade levels.

Since this investigation is the first of its kind in the classroom context, it is not possible to compare these rates of humor occurrence with previous findings. However, a similar investigation of the rate of humor occurrence has recently been conducted by Kubo (1979) with a nursery school population. Kubo's results indicated a far greater degree of humor production in 3 to 5 year-olds than at any age level studied in the present investigation. Unfortunately, Kubo's findings are not directly comparable to those produced from the present study since her study involved the observation of children in playground settings who were engaged in play activities. Although certain observations were conducted when activities were unstructured, the present study focused primarily on humor during academic periods of instruction. Hence, differences in the rate of humor observed in Kubo's study versus the present investigation may be due to the different situations in which the children were observed. Further research is needed before

it can be concluded that preschool children produce humor at higher rates than older children.

Despite the lack of comparable data, it does seem reasonable to conclude that humor in the classroom is a relatively infrequent phenomenon. The occurrence of several other classroom behaviors--such as calling out of turn, interacting with peers and being out of seat--was somewhat higher than the rate of any of the three types of humor events. The low frequency of occurrence of humor observed in the classroom could be due to the influence of several developmental and/or environmental factors. The most likely of these is that teachers and school administrators tend to "dampen" willingness on the part of students to produce humor. This view has been espoused earlier by Chandler (1902) and by Ding and Jersild (1932). In terms of the present data, results concerning teacher behaviors indicated that actual teacher responses to humor were predominantly positive. However, students produced humor when the teacher was not in a position to respond more often than when the teacher was in such a position. This issue will be discussed more fully later in the section on teacher behaviors.

While school systems are likely to have an effect on the rate of humor production, several other factors may also play a role in humor production. The decrease in humor production as the child progresses through the school years may also be attributable to the maturation process. Cognitive-developmental theorists have postulated that the appreciation of humor changes during the school years

(McGhee, 1979). As a result of this change, students may find certain occurrences of classroom humor less funny as he/she progresses through the school years. For example, seventh and eleventh grade students should respond less often to environmental events than should younger students (McGhee, 1979). Further research of a longitudinal nature may reveal that the tendency to laugh and smile decreases as the child matures and approaches adulthood.

A related explanation for both the low frequency and decreasing frequency of classroom humor may be a by-product of the definition of humor employed in the current study. Since humor was defined as events to which others laughed or smiled, several "funny" events may not have been coded because either no one saw or heard the event, or more importantly, because other students refrained from laughing or smiling for several reasons. The most obvious reason for student reluctance to display his or her appreciation for humor is fear of teacher reprisal. Alternatively, a second possible reason is that parents, more so than teachers, are responsible for the low frequency of humor observed in the present study. That is, parents may discourage laughter and smiling expressions for several as yet unknown reasons. Further research may reveal that child rearing techniques contribute to the decrease in humor production as age level increases. Unfortunately, very little pertinent data are available on this issue. More research is needed to increase our understanding of changes in humor production and appreciation from childhood through adolescence.

Humor Styles

Several specific grade differences occurred among the various humor styles. Third graders were coded more often than either seventh or eleventh graders in the following style categories: producing and responding by smiling, producing and others responding by laughing, producing followed by smiling from others only, and responding by smiling. Hence, third graders were more productive than seventh and eleventh graders, especially where smiling is the indicator that a humorous event occurred. Seventh graders were coded more often than either third or eleventh graders in two style categories: producing and responding with laughter and responding with laughter. In general, seventh graders frequently produced humor events marked by instances of laughter.

Humor Types

With respect to humor types, grade differences were also evident. In the case of Incidental humor, third graders produced more events which were coded in this category than did either seventh or eleventh graders whereas seventh graders produced more Incidental events than eleventh graders. For Silliness/Clowning humor, third and seventh graders produced more events in this category than did eleventh graders. With respect to Directed humor, third graders were coded in this category more often than seventh or eleventh graders and seventh graders were higher than eleventh graders.

Incidental humor, which represents events which were not meant to be funny but nonetheless elicited laughing and smiling from others, decreased in frequency as grade level increased. This finding supports McGhee's (1979) cognitive-developmental theory of humor which predicts that appreciation of Incidental humor situations, such as when a student drops a book or when a squeaking noise is emitted from the intercom system, should decrease as age level increases the child's level of cognitive and social maturity. Hence, eleventh graders should laugh and smile less in response to Incidental events than should third or seventh graders, and seventh graders should respond less than third graders. This was indeed the case for the present sample. Of course, this result is clouded by the fact that all three types of humor decreased as a function of age, making it conceivable that the decrease in Incidental humor appreciation was due simply to a general suppression of humor at upper grade levels and not to developmental progression. More research is needed before McGhee's theory can be conclusively supported.

Another important finding concerning humor types was the decrease in Directed humor as grade level increased. Since Directed humor is often used to derogate others, this decrease would be welcomed by many observers of the educational system. The party responsible for this decrease is not readily apparent from the current data. The decrease in the rate of Directed humor could be attributed to teacher influence, family influence, or general maturity. In Justin's (1932) view, schools are responsible for

"civilizing" humor expression in children. Since relevant data are lacking, further research is needed to explore this important issue.

Humor Modes

The three grade levels also differed in their use of the various humor modes. Seventh and eleventh graders utilized the verbal mode more frequently than third graders. However, third graders used the motoric and the verbal and motor categories more frequently than seventh or eleventh graders.

It appears that students at upper grade levels produce humor via the verbal mode predominantly, while younger students use motoric modes quite frequently in humor production. Kubo (1979) found a similar pattern in preschool children as the motoric humor mode gradually decreased as a function of age. Wolfenstein (1954) described similar results in children undergoing play therapy treatment. These results are reasonably understood in terms of cognitive-developmental theory (e.g. Piaget, 1954) since the ability to think logically increases with age and is accompanied by a decreasing reliance on sensorimotor modes for expressing oneself.

Teacher Responses

The frequency and type of teacher response also varied across grade levels. Third grade teachers were in a position to respond to humor events produced by their students on more occasions than was the case for seventh or eleventh grade teachers. Third grade teachers also responded to humor events more frequently than seventh or eleventh grade teachers. Teacher ratings of their students' rate

of humor production also varied across grade levels, with teachers in the seventh grade rating their students higher on humor frequency than teachers in the third or eleventh grades.

Teachers at the three grade levels differed somewhat in the type of response they made following humor episodes from their students. Despite these differences, positive responses dominated over the other response types for teachers at all three grade levels. An interesting aspect to these findings was that more humorous events occurred when the teacher was not in a position to respond than when the teacher was in such a position. This effect was stronger at the upper grade levels. Hence, it appears that students are prone (learn?) to produce humorous events when the teacher is not "looking". This finding suggests that students believe humor is not welcome in the classroom and thus find it wise to be humorous while the teacher is not around.

The finding that students at upper grade levels produce more humorous events while the teacher was not present suggests several possible explanations. First, it may be that older students are more proficient at performing behaviors without the teacher's knowledge than are younger students. A second explanation is that teachers at upper grade levels may allow their students more time without direct supervision. Lastly, and of most interest, older students may have learned from experience that humor is not welcomed by teachers and they therefore produce humor less frequently and less often in the presence of teachers.

There is one puzzling aspect to this particular finding that students tend to produce humor while the teacher is not present. This finding fails to make sense given the previously mentioned finding that teacher responses to humor are often positive. Fortunately, correlational data from the present investigation shed some light on this irony. It appears that students (at all three grade levels) who receive expressions of disapproval from the teacher for general classroom behaviors (including but not limited to humor) are students who frequently produce humor in the classroom. Hence, these students may be wary of teacher reprisal and avoid being humorous when the teacher is around. Correlational analyses also revealed that teachers follow the same patterns of approval/disapproval of humor events as is the case for teacher responses to other classroom behaviors. Thus, students who are reprimanded for general classroom behavior also tend to be reprimanded for humor. It also seems reasonable to hypothesize that most students, even those who rarely receive reprimands from the teacher, come to avoid producing humor while teachers are present because they have witnessed how certain students were reprimanded for producing humor and anticipate similar results to occur should they themselves produce humor. Given these patterns of teacher disapproval, avoidance of the teacher while the student says or does funny things appears reasonable.

Sex Differences Among Humor Measures

In general, differences among the sexes were infrequent across the numerous humor measures. No sex differences were found for humor styles, humor types, nor humor modes. Male and female students did differ in their rates of laughing in the classroom. Males laughed more than females except in the eleventh grade where the reverse was true.

In the third and eleventh grades, teachers responded differently to male and female students in several ways. Teachers in both grades were not in a position to respond to humor events produced by males more often than was the case for females. A further finding revealed that teachers rated the sexes differently on humor frequency. Males were rated higher in humor frequency than females. No sex differences were evident for observer ratings of humor frequency nor for peer nominations of funniest students.

One important sex difference which emerged was the finding that teachers were not present to humor events produced by males more often than was the case for females. Given the previous discussion of teacher responses, it seems possible that perhaps males are reprimanded by teachers more often than females. In support of this hypothesis is the finding that teachers rated males as more disruptive as well as more humorous than females. On the other hand, teachers did not discriminate between the sexes on the teacher disapproval category, nor did teachers respond differently to humor produced by males and females - the rates of positive and negative

teacher responses did not differ among the sexes. While the teacher absence finding is perplexing, perhaps the explanation is that males are more adept at producing humor while the teacher is not in a position to respond.

Another significant sex difference revealed that males laughed more often than females in grades 3 and 7 but that females laughed more frequently than males in grade 11. Past research has also yielded inconsistent findings concerning sex differences in the rate of laughter. The finding that females in grade 11 laughed more often than males is consistent with previous findings in adults (Scogin & Pollio, 1980) as well as in nursery school children (Kubo, 1979). That males laughed more than females in the third and seventh grades also receives support from Justin's (1932) finding that preschool boys smiled more often than girls. To complicate matters further, Zigler et al. (1967) have reported no differences among the sexes in the rate of laughter in preschool children. Further research is needed to clarify the inconsistent results which have been revealed thus far.

While sex differences for the rate of laughter were revealed in the current study, there were no differences in the rate of smiling among males and females. Previous research conducted with different age populations has consistently found that females smile more often than males. For example, preschool girls smiled more often than boys in several observational studies (Justin, 1932; Kubo, 1979) and the same result has been obtained in studies on college students (Chapman, 1973; Scogin & Pollio, 1980). While further research is

necessary, it appears from the present study that girls do not smile more often than boys in public school classrooms during classroom instruction.

Given the large number of humor variables studied in the current investigation, the number of variables which contained sex differences was strikingly small. Kubo's (1979) study of preschool children also revealed only a small number of sex differences among a large set of variables. Evidently, boys and girls are quite similar in rates and types of humor they produce during preschool and grade school hours.

Relationships Among Humor Measures

There were few intercorrelations among production and response measures of Silliness/Clowning and Directed humor in grade 3. Meaningful relationships among humor measures were evident for the seventh grade in that production and response categories of Directed and Silliness/Clowning events were significantly related, as were production and response categories of Directed events. In the eleventh grade, only the production categories of Silliness/Clowning and Directed events were related.

The observational categories of humor were significantly related to several other concurrent measures of humor in grades 7 and 11, but not in grade 3. In grade 7, peer nominations, teacher ratings, and observer ratings were significantly related to producing Silliness/Clowning events where the response was either laughing or smiling, and to producing Directed events which elicited

laughter. In the eleventh grade, all four humor production categories correlated with the three concurrent measures except for the lack of correlation between producing Silliness/Clowning events and teacher ratings of humor. Hence, reasonable preliminary evidence of concurrent validity for the Classroom Humor Observation System appears to have been established for students in grades 7 and 11. The lack of concurrent evidence for third graders is either an artifact of the experimental design, or more likely, humor is not a clear, precise phenomenon at early grade levels. The general lack of significant correlations for humor measures in the third grade supports this hypothesis.

Relationships Among Measures of Humor, Creativity and Self-Concept

Humor and Creativity

In the third and seventh grades, there were only infrequent significant intercorrelations between humor and creativity measures. For the third grade, observer ratings of humor were positively related to 3 of 5 creativity measures while the child's tendency to produce Silliness/Clowning events to which the producer and/or others laughed was negatively related to 2 of 5 creativity measures. No meaningful patterns emerged from the seventh grade data. In the eleventh grade, producing Silliness/Clowning and Directed events to which the producer and/or others laughed was positively related to 3 of 5 creativity measures. In addition, teacher ratings of humor in the eleventh grade were positively related with teacher ratings of creativity.

Relationships among humor measures and measures of creativity were infrequent and non-meaningful in the third and seventh grades, but frequent and significant for eleventh graders. In the third grade, observer ratings of humor showed some promise for predicting creativity whereas no other variable showed such promise in grades 3 and 7. In contrast, the data for eleventh graders revealed significant, though modest, relationships between the production of both Silliness/Clowning and Directed humor events and the various measures of creativity. While a significant number of inter-correlations were found, it should be noted that these inter-correlations were quite modest (the average value was .40).

Current results supplement findings of several previous studies which revealed significant relationships between humor and creativity in junior high and high school students (e.g. Getzels & Jackson, 1962; Hauck & Thomas, 1972). On the other hand, current results contradict previous findings which revealed positive relationships between humor and creativity in elementary and junior high school students (e.g. Weisberg & Springer, 1961; Lieberman, 1977). The explanation for the failure to corroborate these previous findings may lie in the fact that different experimental methods were employed in the current study. Previous studies have used teacher ratings and peer nominations to measure humor and have measured creativity by teacher ratings and standardized tests. The current study employed these same measures and yet failed to corroborate previous findings for elementary school children. In addition, the current study went beyond its predecessors by

employing observational measures of humor. None of the numerous humor measures were meaningfully related to measures of creativity in the third and seventh grades (except observer ratings for the third grade).

The current study suggests possible developmental patterns in the relationship between humor and creativity. Humorous students tended to be relatively non-creative in grades 3 and 7 while students who were humorous in the eleventh grade were somewhat creative. This trend is difficult to explain given the dearth of information currently available on the relationship between humor and creativity in school children. Perhaps humor producers in the third grade are immature and simply repeat funny events which they have seen or events which they themselves produced and which elicited laughter in the past. In contrast, funny students in the eleventh grade may produce humor events which require the creation of a new funny event. Further research is needed in order to shed some light on this issue concerning the possibility of a developmental trend in the relationship between humor and creativity.

Current experimental evidence suggests little relationship between creativity and observational measures of humor for grades 3 and 7. Kubo (1979) found the same lack of relationship between observational measures of humor and standardized creativity test scores in a nursery school population. This lack of relationship in both the current (except for the eleventh grade) and Kubo's studies may be attributable to difficulties involved in correlating observational data with ratings and test scores. Unfortunately,

observational measures of creativity have not yet been developed. Equally unfortunate is the lack of highly reliable and valid measures of creativity. The Torrance Creativity Test correlates only modestly with other creativity tests and again only modestly with teacher ratings of creativity (Torrance, 1966). Teacher ratings of creativity have generally been found to be low in reliability when measured over time and with various creativity tests (Piers, Daniels & Quakenbush, 1960; Guilford, Wilson & Christensen, 1951). Improvement of creativity measures may possibly lead to the future revelation of consistent relationships between humor and creativity.

Humor and Self-Concept

Self-concept was negatively related to 3 humor measures in grades 3 and 7; and these were observational humor categories except for peer nominations of funniest students in the seventh grade. There was only one marginally significant correlation between humor and self-concept in the eleventh grade, suggesting a lack of relationship for students at this grade level.

Similar methodological problems to those discussed for creativity measures may have disguised relationships between humor and self-concept. Nonetheless, findings suggest that humor is negatively related with self-esteem for children in grades 3 and 7. Hence, humorous third and seventh graders appear to have low levels of self-acceptance while no relationship with self-esteem exists for humorous students in the eleventh grade.

These findings contradict the results of LaChance's (1972) study which found a positive relationship between standardized creativity test scores and the number of jokes and humorous events reported by fifth graders. However, the current study's finding of a negative relationship between humor and self-concept for younger students finds support from findings reported by Morton and Wellons (1980). These researchers found that subjects who recalled classmates who were funny in elementary school reported that these students were now in low status positions and some were in trouble with the law. In contrast, students who were recalled as funny in high school were now in relatively respectful positions in the community. Hence, the finding that funny students in the third grade tend to have low self-concepts would suggest that these students may be headed toward relatively low status economic and social positions in the community although further research is needed in order to confirm or discredit this hypothesis. Further studies are also needed to explore the relationship between humor and self-concept.

A recent study conducted by Fisher and Fisher (1981) provides a possible explanation for why extremely humorous students might develop low self-concepts. Subjects in this study were humorous behavior problem children in the elementary grade levels who were referred for psychological services. Fisher and Fisher found that mothers of such extremely humorous, disruptive students tended to be non-supportive and claimed the child to be a burden and a sacrifice for the mother. Hence, a low self-concept might reasonably develop from exposure to such a family environment. Further research of a

more systematic nature is needed to explore the influence of parental attitudes on humor production in all children, not just disruptive ones.

Relationships Among Humorous And Other Classroom Behaviors

In the third grade, responding by smiling to Silliness/Clowning events was the only category which correlated with a significant number of classroom behaviors. For the seventh grade, producing Silliness/Clowning and Directed events which elicited laughter were related to several disruptive behaviors including peer interaction, out of seat, and raising hand. Results for the eleventh grade were similar to those disclosed for grade 7. Producing Silliness/Clowning and Directed events which elicited laughter were related to such disruptive behaviors as raising hand, peer interaction, and calling out of turn.

Teacher classroom behaviors were also meaningfully related to humor events. With respect to the third grade, results indicated that teachers responded to humor events in a way similar to their responses to other classroom behaviors. This finding was even stronger in the seventh and eleventh grades. In addition, it was apparent that general teacher disapproval was related to the production of Silliness/Clowning and Directed events in the seventh and eleventh grades.

Very few meaningful patterns of relationship emerged between humor and general classroom behaviors. In fact, the third grade data contained virtually no significant correlations between

humorous and other classroom behaviors. This lack of relationship was generally the case in grades 7 and 11 as well, although one important pattern did emerge at these grade levels and will be discussed later in this section. In general, the conclusion can be made that humor is an independent behavior which is not closely related to other behaviors common to school classrooms. This is a very interesting finding given earlier discussion on the finding that teachers respond similarly to humorous behaviors as they do to other classroom behaviors. Apparently, teachers place humor within a larger group of behaviors and do not distinguish it from other behaviors despite the fact that humor production does not follow the same patterns as do other classroom behaviors.

One important relationship emerged in grades 7 and 11 which deserves close attention. For both of these grade levels, producing Silliness/Clowning and Directed events which were laughed at by others was positively related to raising hand, calling out of turn, being out of seat and talking to others. The picture painted by these behaviors - that of an active, talkative child who makes others laugh - appears to resemble the common conception of the type of student often termed "class clown". It appears that humor is unrelated to general classroom behaviors in most children, but in certain cases, those students who make others laugh tend to engage in other disruptive behaviors as well.

The finding that ability to make others laugh is related to producing various behaviors usually defined as "disruptive" carries two significant implications. One of these is that students who are

humorous and disruptive should respond similarly to behavior modification treatment as do nonhumorous, disruptive students. This would seem reasonable since behavior modification has been successful in treating disruptive behavior in the classroom (Kazdin, 1976) and since making others laugh is related to several disruptive behaviors. Surprisingly, Fabrizi and Pollio (1982) found that humorous, disruptive males responded in ways which were opposite to treatment responses on the part of nonhumorous, disruptive males. This finding is somewhat perplexing but might be explained by the current study's finding that most humor measures are unrelated to disruptive behaviors. Another explanation stems from Fabrizi and Pollio's finding that humorous, disruptive students curtailed their disruptive behaviors best when given the opportunity to earn free time to engage in peer interaction as a reward for proper classroom behavior while nonhumorous, disruptive students behaved best under timeout contingencies. Hence, it appears that these two categories of disruptive students are acting in a disruptive fashion for different reasons. The humorous, disruptive students ("class clowns") appear to be seeking attention from peers through disruptive behavior and therefore they can be controlled by allowing them free time to satiate their need for peer attention. Fisher and Fisher (1981) also reported evidence that "class clowns" (or "schlemiels") seek attention from their classmates through behaviors which the clowns and other students find funny but which the teacher finds disruptive and inappropriate.

The second implication which can be derived from the significant correlations between humorous events which make others laugh and various disruptive events concerns the social aspects of humorous as well as other disruptive acts. It may be reasonable to hypothesize that students who are adept at making others laugh are doing so in order to gain attention from others, which is also the likely explanation for why these students also produce several other types of disruptive behaviors. Again, there is evidence to support this view in the case of clearly humorous, disruptive students who come to the attention of psychologists in the schools. Perhaps the same can be said for humor production in general - that people produce humor in order to gain attention from or come in contact with other people in the world. This assumption essentially represents a social learning explanation for humor production. Oddly enough, a social learning explanation of humor has not been formally expressed up to this point. However, such an explanation seems justified in light of these data. Additional support for a social learning explanation of humor production in the classroom can be found from previously discussed findings which demonstrated that teacher disapproval for general disruptive behaviors correlated significantly with the production of humorous behaviors, thus providing an explanation for reluctance on the part of students to produce humor in the presence of their teachers. Hence, these students may have been "conditioned" to diminish humor production while teachers are present.

The Factorial Structure of Humor

Results of a factor analysis performed over observational humor and general classroom behaviors, standardized test scores, teacher and observer ratings and peer nominations, revealed three general aspects of classroom humor. The first factor, which was entitled Socially Approved Humor, contained variables which represented positive interactional aspects of humor such as receiving positive responses to humor events from teacher and peers, as well as interacting with teachers and peers in conversation. The second factor, labeled Socially Disapproved Humor, contained variables which suggested a negative, disapproval eliciting function for humor. Variables contained in this second factor include receiving negative responses to humor from peers and teachers as well as being rated high on frequency of receiving reprimands from the teacher. The third and final factor, Social Adroitness, was comprised of variables which represented a friendly, sociable function of humor such as being nominated as a friend and smiling at personally produced as well as other-produced humor events.

These three aspects of humor were confirmed by results of the multiple regression analysis. The production of Silliness/Clowning humor was best predicted by both positive (e.g. creativity) and negative (e.g. teacher disapproval) variables while Directed humor was best predicted by variables which carry negative connotations. Hence, humor appears to be related to positive as well as negative behaviors.

Summary and Conclusions

The present study has suggested several important aspects of humor in public school classrooms. The most striking finding was the decrease in the rate of humor production as grade level increased. In addition, results indicated that the rates of smiling and laughing decreased as grade level increased. Hence, school classrooms become more serious as grade level increases. These findings cannot be conclusively explained by results of the current experiment but results do suggest that teachers are at least partially responsible for the decrease in humor production at upper grade levels.

While grade differences among humor measures were frequent, sex differences in humor were almost non-existent. In general, both sexes produced humor of similar type and at similar rates.

Meaningful relationships between humor and creativity were found in the eleventh grade only. Humorous eleventh graders tended to be creative while humorous third and seventh graders did not demonstrate high creative ability. In contrast, humorous third and seventh grade students tended to have low self-concepts while no relationship between humor and self-concept was found for humorous eleventh grade students. These results suggest that humorous students have different characteristics at different age levels. Humorous children in lower and middle grade classrooms tend to lack special creative ability and have low self-esteem while humorous

children at upper grade levels tend to be creative and have adequate levels of self-esteem.

Several aspects of teacher responses to humor were revealed. It appears that teacher responses to humor are consistent with teacher responses to other classroom behaviors. Furthermore, students who produced Silliness/Clowning and Directed events tended to receive teacher expressions of disapproval for general classroom behaviors. This finding may provide at least a partial explanation for the gradual decrease in humor production as grade level increases.

Humor was found to be comprised of three components: positive, negative and social. Thus, classroom humor appears to have both positive and negative aspects, in addition to a social function. A related finding concerns the general classroom behavior of humorous students. In general, humor was unrelated to the production of other classroom behaviors. However, one clear relationship emerged: students who possessed the ability to make others laugh also produced several behaviors which can be termed disruptive. Hence, certain humorous students - i.e. students who produce humor events which make others laugh - tend to be generally disruptive in the classroom. In the final analysis, current results suggest that humor is an undesirable event in certain conditions and for certain students but can also be used positively by certain students in certain conditions.

Although primarily descriptive, the current study suggests some support for a social learning theory approach to humor. Results

indicated that students are sensitive to negative teacher responses to humor and other classroom behaviors and so students tend to avoid teachers when they produce humor. Furthermore, students who are adept at making others laugh also produce other disruptive behaviors at high rates and thus may use humor as one way to get attention from others.

Suggested Directions For Future Research

The present study revealed several interesting findings concerning humor in the classroom. Like most research projects, however, the current investigation raises more questions than it answers. A great deal of further research is needed in order to understand fully the findings revealed in this study. In addition, this study raises several related issues which deserve attention from future humor researchers.

Longitudinal studies would be most helpful in clarifying age differences in humor production and appreciation. Following the same individuals from kindergarten to high school would provide conclusive data on the rate of humor production at various stages of the student's educational experience. In addition, longitudinal data would provide confirmation or disconfirmation for the finding that humor decreases as the child progresses through the educational system.

In the event that further research confirms this finding, several strategies would be useful in helping to explain this decrease. Such strategies would include investigations of rates of

humor production and appreciation outside the classroom and would compare these data with the rate of humor produced within the classroom by those same students. In addition, further research should investigate parental influences, if any, upon humor production and appreciation in school age children. Such research should focus on investigating those child rearing and family environment variables which have an effect on children's humor. Knowledge of parental and family influences on children's humor would explain influences of the child's home environment on the rate of humor in the classroom. Although the decrease in classroom humor as grade level increases seems most logically related to school environment variables, family environment may play a very important role in lowering the rate of humor produced in the classroom over the course of the child's schooling.

In regard to the role schools play in influencing humor produced by students, several research strategies are recommended. One line of research should focus on the personality attributes and teaching philosophies of classroom teachers which affect humor production in children. A related line of research would involve investigating the effects of classroom environment on classroom humor. The social climate within a classroom seems to be a potential source of influence upon the rate and characteristics of children's humor.

Several studies on humor in school children are suggested by the results of the present study. Further research is needed concerning the relationship between humor and general personality

traits in children. For example, correlations between humor measures and scores on a personality inventory carry potential for predicting humor production in school children. On a related issue, further clarification of humor's role in allaying children's feelings of anxiety could be gained by focusing on rates of humor before and after academic testing for test-anxious students and students who are not anxious during testing. Exploring the relationships between humor and general anxiety would also be a worthwhile direction for future research.

A final direction for future research concerns the investigation of the characteristics of "class clowns" - children who produce large amounts of humor and other disruptive events. Future studies are needed to investigate personality and behavioral characteristics of these students as well as treatment procedures for modifying their behavior. Along treatment lines, further research is needed in order to explain and either confirm or disconfirm the recent finding that "class clowns" respond differently to behavior modification procedures when compared with disruptive but nonhumorous students.

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APPENDICES

APPENDIX A

Humor Observation Form

(GR:)	T W R	Start:	End:	Total:
Date	Day (Circle)			
		1. ISW:TPsnt	3.	SmGp:Tled
School	Class/Activity	2. ISW:TSmGp	4.	LgGp:Tled

Humor Type Humor Style (Productive/Responsive/Both: Laugh/Smile)

[illegible]

Humor Observation Form -- Page 2

Peer Negative										
Peer Neutral										
Peer Absent										

Comments:

(GR:)	T W R	Start:	End:	Total:
Student _____	Date _____	Day (circle)		
		1. Isw:Tpsnt	3. SmGp:Tled	
School _____	Class Activity _____	2. Isw:TsmGp	4. LgGp:Tled	
Teacher _____	Observer _____	Session: 1 2 3 4 5 6		

Start Writing Here:

APPENDIX B

Definitions Of The Behavioral Categories
Contained In The Saudorgas-Creed-Murrah
State-Event Classroom Observation System*

A. Behavioral "State"

1. School Work: On-task behavior as exemplified by having head and eyes oriented toward the work materials or the teacher.
2. Out of Seat: When the student has neither his knee(s) nor his buttocks on the seat.
3. Looking Around: Off-task behavior exemplified by eyes and head oriented away from classroom activities.
4. Repetitive Motoric Movements: Repetitive manipulations of the student's body. The movements must continue for three or more identical occurrences.
5. Playing With Objects: Repetitive (three or more) manipulations of an object such as a pencil. This category does not include manipulations which are part of a more complex activity such as toy play, for example.
6. Social Interaction With Child: Verbal or non-verbal interactions between the student being observed and any other student(s).
7. Social Interaction With Teacher: Verbal or non-verbal interaction between the student under observation and the teacher.
8. Passive Opposition: The student is engaged in inappropriate activities which are not directed by the teacher. For example, this category should be coded when the teacher instructs the student to put his book on the shelf and he remains in his seat.

B. Behavioral "Events"

1. Raise Hand: The student's hand is raised, not necessarily over his head. The coding line is encircled if the teacher calls on the student while his hand is raised.
2. Calling Out to Teacher: The student verbally calls out to obtain teacher attention in one of two situations: (a) the student calls out an answer to a question directed toward another student; and (b) the student calls out the teacher's name.
3. Out of Seat: Occurs every time the student's knees and buttocks leave the seat.

Cont'd.

4. Object Aggression: Aggression against an object including the destruction or mutilation of property.

5. Noise: Student makes an audible vocal or nonvocal noise using his body or an object.

6. Approach Child: The student being observed attempts to obtain attention from another student verbally or physically. If an interaction takes place following the approach, the coding line is encircled.

7. Other Child Approach: Another student attempts to gain the attention of the student being observed through verbal or physical means. If an interaction takes place following the approach, the coding line is encircled.

C. Teacher-Student Interaction Behaviors

1. Teacher Approach To Student Engaged in School Work: The teacher verbally or physically initiates an interaction with the student under observation who, at the moment of contact, is engaged in behavior defined as School Work.

2. Teacher Approach/Off Task: The teacher verbally or physically initiates an interaction with the student under observation who, at the moment of contact, is engaged in behavior which is defined as off-task.

3. Direction Followed By Compliance: The teacher verbally instructs the student to move from one activity to another and the student complies.

4. Direction Followed By Opposition: The student is given a direction by the teacher but does not comply within five seconds.

5. Approval or Praise Verbalizations: Positive verbal comments on the appropriate social or academic behavior of the student under observation.

6. Disapproval: The teacher expresses disapproval over inappropriate social or academic behavior displayed by the student being observed.

*Note. These definitions are simplified versions of more detailed definitions contained in The Manual For The Saudargas Creed-Murrah State-Event Classroom Observation System. This manual also contains examples and non-examples for each behavior category.

APPENDIX C

Observer Rating Form (H)

Student	Teacher		Observer	
Date	Day (Circle)	Session:	1 2 3 4 5 6	
During this observation session, how humorous was this child, according to the following scale: (circle) (Humor is ability to make others in class laugh)				
Very Humorous	Humorous	Moderately Humorous	Neither Humorous Nor Non-Humorous	Moderately Non-Humorous
7	6	5	4	3
				2
				1
				Very Non-Humorous

Observer Rating Form (D)

Student	Teacher	Observer
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Date	Day (Circle)	Session: 1 2 3 4 5 6
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During this observation session, how disruptive was this child, according to the following scale: (circle) (Disruption means the interruption of normal class activities)

Very Disruptive		Moderately Disruptive		Neither Disruptive Nor Moderately Disruptive		Very Non-Disruptive	
6	5	4	3	2	1		
7							

APPENDIX D

Teacher Ratings of Student Behavior

Name of Child _____

As a teacher, you know that your students differ in many ways - some are shy, some are outgoing, some call out constantly, while others sit quietly.

In this study, we are interested in finding out how children differ in the way they express their sense of humor. We are also interested in the way your students behave in the classroom, specifically, in how they do or do not disrupt the classroom. Finally, we would like to find out how creative they are in your classroom.

The following rating scale refers directly to the above named child's behavior in the classroom. We are interested in your impression of this child's sense of humor, disruptive tendencies, and creativity. Please circle the figure that best indicates your evaluation of this child. In the space following the scale, feel free to comment about the content or form of the questions, or about any difficulties that you may have in answering them. Thank you for your cooperation in completing these forms.

1. How often does this child show a sense of humor during classroom activities? By sense of humor is meant telling jokes, making funny remarks or faces, teasing and so on.

Very Often	Often	Moderately Often	Occasionally	Moderately Rarely	Rarely	Very Rarely
7	6	5	4	3	2	1

Teacher Rating Cont'd.

Name of Child _____

2. I feel that this is a creative child.

Strongly Agree	Agree	Moderately Agree	Neutral	Moderately Disagree	Disagree	Strongly Disagree
7	6	5	4	3	2	1

3. How often is this child disruptive in your classroom?
The term disruptive refers to behaviors which interrupt normal classroom activities. Examples of disruptive behaviors include calling out of turn, talking to neighbors when not in free time, and getting out of seat during classroom instruction.

Very Often	Moderately Often	Occasionally	Moderately Rarely	Rarely	Very Rarely
7	6	5	4	3	2
					1

4. In my judgment, this child will be easily liked by future teacher.

Strongly Agree	Agree	Moderately Agree	Neutral	Moderately Disagree	Disagree	Strongly Disagree
7	6	5	4	3	2	1

5. How often is this child reprimanded during class time?

Very Often	Moderately Often	Occasionally	Moderately Rarely	Rarely	Very Rarely
7	6	5	4	3	2
					1

APPENDIX E

TABLE 25

RATES OF LAUGHING AND SMILING BY SEX
IN GRADES 3, 7, AND 11

Grade	Sex	Laughing	Smiling	Total
3	Males	90	175	265
	Females	22	72	94
	Total	112	247	359
7	Males	95	87	182
	Females	68	93	161
	Total	163	180	343
11	Males	28	53	81
	Females	71	90	161
	Total	99	143	242
Total	Males	213	315	528
	Females	616	255	416
	Total	374	570	944

APPENDIX F

TABLE 26

FREQUENCIES OF HUMOR STYLES BY GRADE, SEX, AND LAUGHTER/SMILING RESPONSE WHICH WERE PRODUCED BY, RESPONDED TO BY, AND BOTH PRODUCED AND RESPONDED TO BY STUDENTS IN GRADES 3, 7, AND 11

Total	1	2	Total	1	2	Total	1	2	Total	1	2
Prod and Resp With Laughter Or Smiling By	Prod And Resp With Laughter By	Prod And Resp With Smiling By	Prod And Resp With Smiling By	Prod By Others Resp With Laughter Or Smiling	Prod By Others Resp With Smiling	Prod By Others Resp With Smiling	Prod By Others Resp With Smiling	Prod By Others Resp With Smiling	Prod By Others Resp With Smiling	Prod By Others Resp With Smiling	Prod By Others Resp With Smiling
Boys	193	71	122	113	58	55	222	84	138	528	
Grade 3	73	23	50	76	30	46	116	37	79	265	
Grade 7	75	36	39	20	17	03	87	42	45	182	
Grade 11	45	12	33	17	11	06	19	05	14	81	
Girls	134	54	80	42	09	33	240	98	142	416	
Grade 3	16	06	10	31	04	27	47	12	35	94	
Grade 7	50	20	30	06	02	04	105	46	59	161	
Grade 11	68	28	40	05	03	02	88	40	48	161	
Total	327	125	202	155	67	88	462	182	280	944	
Grade 3	89	29	60	107	34	73	163	49	114	359	
Grade 7	125	56	69	26	19	07	192	88	104	343	
Grade 11	113	40	73	22	14	08	107	45	62	242	

APPENDIX G

TABLE 27
 FREQUENCIES OF HUMOR EVENT TYPES BY
 GRADE, SEX, AND STYLE

Humor Style	Sex	INCIDENTAL				SILLINESS/CLOWNING				DIRECTED				Grand Total
		3	7	11	Tot	3	7	11	Tot	3	7	11	Tot	
Person-Prod Other-Laugh	Males	02	01	00	03	20	13	10	43	08	03	01	12	58
	Females	00	00	00	00	00	06	00	06	02	00	01	03	09
	Total	02	01	00	03	20	19	10	49	10	03	02	15	67
Person-Prod Other-Smile	Males	02	01	00	03	19	02	05	26	25	00	01	26	55
	Females	02	01	00	03	11	02	01	14	14	01	01	16	33
	Total	04	02	00	06	30	04	06	40	30	01	02	42	88
Resp-Laugh Other-Prod	Males	06	12	02	20	20	25	02	47	11	05	01	17	84
	Females	03	12	02	17	08	26	36	70	01	08	02	11	98
	Total	09	24	04	37	28	51	38	117	12	13	03	28	182
Resp-Smile Other-Prod	Males	33	17	01	51	19	22	13	54	27	06	00	33	138
	Females	14	18	04	36	07	25	40	72	14	16	04	34	142
	Total	47	35	05	87	26	47	53	126	41	22	04	67	280
Person-Prod and Resp Laugh	Males	06	00	00	06	10	31	12	53	07	05	00	12	71
	Females	00	00	00	00	06	16	26	48	00	04	02	06	54
	Total	06	00	00	06	16	47	38	101	07	09	02	18	125
Person-Prod and Resp Smile	Males	04	01	00	05	28	37	28	93	18	01	05	24	122
	Females	02	01	06	09	06	25	34	65	02	04	00	06	80
	total	06	02	06	14	34	62	62	158	20	05	05	30	202
Grand Totals	Males	53	32	03	88	116	130	70	316	96	20	08	124	528
	Females	21	32	12	65	38	100	137	275	33	33	10	76	416
	Total	74	64	15	153	154	230	207	591	129	53	18	200	944

APPENDIX H

TABLE 28

FREQUENCIES OF HUMOR MODES
BY GRADE AND SEX

Mode	GRADE										Grand Totals
	3		7						11		
	Sex	Males	Females	Tot	Males	Females	Tot	Males	Females	Tot	
Verbal		119	38	157	139	119	258	59	130	189	604
Motoric		72	28	100	28	22	50	10	16	26	176
Verbal And Motoric		70	26	96	14	14	28	10	10	20	144
Other		30	01	04	05	06	11	02	03	05	20
Total		264	93	357	186	161	347	81	159	240	944

APPENDIX I

TABLE 29
 FREQUENCIES OF TEACHER RESPONSES TO SILLINESS/CLOWNING
 AND DIRECTED EVENTS BY
 GRADE AND SEX*

	3		GRADE 7				11			
	Sex	Males	Females	Tot	Males	Females	Tot	Males	Females	Grand
Response										
Positive		61	35	96	20	13	33	03	05	137
Negative		08	00	08	10	07	17	01	08	34
Neutral		06	03	09	03	03	06	00	00	15
Total-										
Present		75	38	113	33	23	56	04	13	186
Absent		98	18	116	70	59	129	59	58	362
Grand Total		173	56	229	103	82	185	63	71	548

* Frequencies represent only events which were produced by the focal child.

APPENDIX J

TABLE 30
 FREQUENCIES OF PEER RESPONSES TO SILLINESS/CLOWNING
 AND DIRECTED EVENTS BY
 GRADE AND SEX*

	GRADE 3		GRADE 7		GRADE 11		Tot	Males	Females	Tot	Grand
	Sex	Males	Females	Tot	Males	Females					
Response Positive		123	47	170	96	78	174	56	60	116	460
Negative		09	00	09	04	00	04	00	02	02	15
Neutral		20	05	25	03	04	07	05	09	14	46
Total-Present		152	52	204	103	82	185	61	71	132	521
Absent		21	04	25	00	00	00	02	00	02	27
Grand Total		173	105	278	103	82	185	63	71	134	548

* Frequencies represent only events which were produced by the focal child.

APPENDIX K

TABLE 31
NUMBER OF INTERVALS WHICH CONTAINED INSTANCES OF STUDENT "STATE" BEHAVIORS
IN GRADES 3, 7, AND 11

"State Behavior"	Sex	Grade 3			Grade 7			Grade 11			Grand Total
		Males	Females	Total	Males	Females	Total	Males	Females	Total	
School work		1152	507	1659	1193	1294	2487	1281	1332	2613	6759
Looking Around		167	80	247	155	161	161	420	491	911	1474
Out of Seat		179	109	288	64	62	126	35	26	61	475
Motoric Movements		44	22	66	44	64	108	47	95	142	316
Playing With Object		174	32	206	57	77	134	59	75	134	474
Passive Opposition		09	10	19	09	06	15	04	05	09	43
Smiling		20	13	33	12	18	30	22	25	47	110
Social Interaction With Peer		85	39	124	112	57	169	68	70	138	431
Social Interaction With Teacher		33	26	59	07	08	15	05	03	08	82

APPENDIX L

TABLE 32
FREQUENCIES OF STUDENT CLASSROOM "EVENTS"
IN GRADES 3, 7, AND 11

"Events"	Sex	Males	Females	Total	Males	Females	Total	Males	Females	Total	Grand Total
Raising Hand		141	71	212	64	80	144	69	72	141	497
Raising Hand Followed By Teacher Interaction		08	12	20	08	06	14	05	04	09	43
Calling Out		45	15	60	21	16	37	35	56	91	188
Out of Seat		171	94	265	89	79	168	56	49	105	538
Object Aggression		55	14	69	39	15	54	40	24	64	187
Noise Making		51	19	70	23	28	51	08	05	13	134
Approach Child		48	11	59	32	38	70	34	39	73	202
Approach Child And Interaction		66	21	87	84	63	147	73	69	142	376
Other Child Approach		21	10	31	14	18	32	12	15	27	90
Other Child Approach And Interaction		29	19	48	50	53	103	48	52	100	251

APPENDIX M

TABLE 33
FREQUENCIES OF STUDENT-TEACHER INTERACTION BEHAVIORS
IN GRADES 3, 7, AND 11

Behavior	Sex	Grade 3			Grade 7			Grade 11			Grand Total
		Males	Females	Total	Males	Females	Total	Males	Females	Total	
Teacher Attention To Student Doing School work	41	23	64	06	08	14	08	05	13	91	
Teacher Attention To Student Who Is Off-Task	17	05	22	06	04	10	06	06	12	44	
Direction Followed By Opposition	02	00	02	00	01	01	01	01	02	05	
Direction Followed By Compliance	12	05	17	05	04	09	03	05	08	34	
Teacher Approval	22	21	43	03	05	08	01	02	03	54	
Teacher Disapproval	11	03	14	12	06	18	05	06	11	43	

APPENDIX N

TABLE 34

ANALYSIS OF VARIANCE SUMMARIES FOR DEPENDENT VARIABLES

Source	D.F.	F	Source	D.F.	F
<u>Humor Types</u>					
Type	2	7.09**	<u>Humor Styles</u>		
Grade	2	8.31***	Style	5	5.07**
Sex	1	2.27	Grade	2	21.07***
Type X Grade	4	6.91***	Sex	1	3.01
Type X Sex	2	1.98	Style X Grade	10	17.08***
Grade X Sex	2	2.50	Style X Sex	5	1.07
Type X Grade X Sex	4	1.81	Grade X Sex	2	1.55
			Style X Grade X Sex	10	0.88
<u>Teacher Position</u>					
Position	1	5.88*	<u>Humor Modes</u>		
Grade	2	2.29	Mode	3	6.47**
Sex	1	1.58	Grade	2	2.98
Position X Grade	2	6.71**	Sex	1	0.43
Position X Sex	1	3.89	Mode X Grade	6	9.07***
Grade X Sex	2	2.11	Mode X Sex	3	0.03
Position X Grade X Sex	2	12.09***	Grade X Sex	2	1.21
			Mode X Grade X Sex	6	1.57
<u>Peer Position</u>					
Position	1	11.50***	<u>Teacher Responses</u>		
Grade	2	1.43	Response	2	4.90**
Sex	1	0.92	Grade	2	3.84*
Position X Grade	2	0.61	Sex	1	1.12
Position X Sex	1	1.27	Response X Grade	4	1.19
Grade X Sex	2	1.20	Response X Sex	2	0.96
Position X Grade X Sex	2	0.95	Grade X Sex	2	1.98
			Response X Grade X Sex	4	1.61
<u>Peer Nominations of Funniest Children</u>					
Grade	2	0.69	<u>Peer Responses</u>		
Sex	1	4.69	Response	2	6.01**
Grade X Sex	2	1.13	Grade	2	0.29
			Sex	1	0.72
<u>Peer Nominations of Friends</u>					
Grade	2	5.71**	Response X Grade	4	0.49
Sex	1	1.27	Response X Sex	2	0.36
Grade X Sex	2	0.31	Grade X Sex	2	0.28
			Response X Grade X Sex	4	0.48

Table 34 Cont'd.

Source	D.F.	F	Source	D.F.	F
<u>Teacher Ratings of Reprimand Frequency</u>					
Grade	2		Grade	2	1.77
Sex	1		Sex	1	6.35*
Grade X Sex	2		Grade X Sex	2	0.87
<u>Smile at Other-Prod. Incid.</u>					
Grade	2	0.63	Grade	2	14.98****
Sex	1	2.14	Sex	1	0.10
Grade X Sex	2	0.63	Grade X Sex	2	0.40
<u>Laugh at Person-Prod. Incid.</u>					
Grade	2	4.66	Grade	2	0.74
Sex	1	2.61	Sex	1	0.89
Grade X Sex	2	0.69	Grade X Sex	2	0.74
<u>Smile at Person-Prod. Incid.</u>					
Grade	2	3.27*	Grade	2	3.01
Sex	1	1.14	Sex	1	0.01
Grade X Sex	2	0.94	Grade X Sex	2	0.01
<u>Prod. Silly/Clown Others Laugh</u>					
Grade	2	3.22*	Grade	2	1.54
Sex	1	2.79	Sex	1	12.19****
Grade X Sex	2	1.29	Grade X Sex	2	0.62
<u>Prod. Direc. Others Smile</u>					
Grade	2	2.98	Grade	2	25.66****
Sex	1	1.50	Sex	1	0.01
Grade X Sex	1		Grade X Sex	2	0.05
<u>Teacher Attention To Student Doing Schoolwork</u>					
Grade	2		Grade	2	
Sex	1		Sex	1	
Grade X Sex	2		Grade X Sex	2	

Table 34 Cont'd.

Source	D.F.	F	Source	D.F.	F
<u>Teacher Attention To Student</u>					
<u>Doing Schoolwork</u>					
Grade	2	2.98	Laugh at Other-Prod. Direc.	2	2.78
Sex	1	1.50	Grade	1	0.98
Grade X Sex	2	0.88	Grade X Sex	2	2.67
<u>Teacher Attention To Student</u>					
<u>Who Is Off-Task</u>					
Grade	2	1.56	Smile at Others Prod. Direc.	2	15.14****
Sex	1	0.86	Grade	1	0.81
Grade X Sex	2	0.31	Grade X Sex	2	1.02
<u>Direction Followed By</u>					
<u>Compliance</u>					
Grade	2	1.01	Laugh at Person-Prod. Direc.	2	0.92
Sex	1	0.57	Grade	1	0.78
Grade X Sex	2	0.16	Grade X Sex	2	0.97
<u>Direction Followed By</u>					
<u>Opposition</u>					
Grade	2	0.46	Smile at Person Prod. Direc.	2	5.43**
Sex	1	0.12	Grade	1	5.04*
Grade X Sex	2	0.10	Grade X Sex	2	3.83*
<u>Teacher Approval</u>					
Grade	2	0.41	Creative Originality	2	10.37***
Sex	1	1.07	Grade	1	0.11
Grade X Sex	2	0.42	Grade X Sex		
<u>Creative Elaboration</u>					
Grade	2	1.41	Creative Elaboration	2	28.30****
Sex	1	1.07	Grade	1	0.64
Grade X Sex	2	0.42	Grade X Sex	2	0.54

Table 34 Cont'd.

Source	D.F.	F	Source	D.F.	F
<u>Teacher Disapproval</u>					
Grade	2	0.88	<u>Self-Concept Scores</u>		
Sex	1	1.07	Grade	2	1.19
Grade X Sex	2	0.22	Sex	1	2.01
			Grade X Sex	2	1.08
<u>Social Interaction With Peer</u>					
Grade	2	1.96	<u>School work</u>		
Sex	1	1.08	Grade	2	1.78
Grade X Sex	2	1.01	Sex	1	0.01
			Grade X Sex	2	0.32
<u>Social Interaction With Teacher</u>					
Grade	2	2.01	<u>Looking Around</u>		
Sex	1	2.20	Grade	2	4.29*
Grade X Sex	2	1.53	Sex	1	0.48
			Grade X Sex	2	0.81
<u>Passive Opposition</u>					
Grade	2	1.69	<u>Out of Seat</u>		
Sex	1	0.97	Grade	2	6.81**
Grade X Sex	2	0.21	Sex	1	2.21
			Grade X Sex	2	0.81
<u>Smiling</u>					
Grade	2	0.91	<u>Motoric movements</u>		
Sex	1	0.97	Grade	2	1.59
Grade X Sex	2	1.02	Sex	1	2.36
			Grade X Sex	2	0.97
<u>Raising Hand</u>					
Grade	2	3.57*	<u>Playing With Object</u>		
Sex	1	1.31	Grade	2	2.70
Grade X Sex	2	2.07	Sex	1	2.01
			Grade X Sex	2	0.90

Table 34 Cont'd.

Source	D.F.	F	Source	D.F.	F
<u>Raising Hand Followed</u>					
<u>By Interaction</u>					
Grade	2	1.59	<u>Out of Seat</u>	2	5.98**
Sex	1	0.98	Grade	1	2.07
Grade X Sex	2	1.10	Sex	2	1.61
			Grade X Sex		
<u>Calling Out</u>					
<u>Grade</u>					
Grade	2	2.26	<u>Object Aggression</u>	2	1.07
Sex	1	2.08	Grade	1	4.07*
Grade X Sex	2	1.18	Sex	2.	0.87
			Grade X Sex		
<u>Noise Making</u>					
<u>Grade</u>					
Grade	2		Grade	2	2.98
Sex	1		Sex	1	1.42
Grade X Sex	2		Grade X Sex	2	0.22
<u>Approach Child</u>					
<u>Grade</u>					
Grade	2		Grade	2	0.87
Sex	1		Sex	1	1.91
Grade X Sex	2		Grade X Sex	2	1.11
<u>Approach Child Followed</u>					
<u>By Interaction</u>					
<u>Grade</u>					
Grade	2		Grade	2	0.51
Sex	1		Sex	1	2.91
Grade X Sex	2		Grade X Sex	2	0.53

Table 34 Cont'd.

Source	D.F.	F	Source	D.F.	F
<u>Observer Ratings of</u>					
<u>Humor Frequency</u>					
Grade	2	14.06***	Other Child Approach	2	0.88
Sex	1	0.13	Grade	1	0.31
Grade X Sex	2	1.55	Sex	2	0.09
<u>Observer Ratings of</u>					
<u>Disruptive Frequency</u>					
Grade	2	3.53*	Other Child Approach Followed	2	1.12
Sex	1	6.29**	By Interaction	1	0.89
Grade X Sex	2	2.75	Grade	2	0.51
			Sex	1	
			Grade X Sex	2	

* $P < .05$ ** $P < .01$ *** $P < .001$ **** $P < .0001$

APPENDIX O

TABLE 35

LIST OF INDEPENDENT VARIABLES INCLUDED
IN STEPWISE REGRESSION ANALYSIS

Variable	Variable
Observer Ratings of Humor Frequency	Positive Teacher Response to Silly/Clown & Directed
Observer Ratings of Disruptive Frequency	Negative Teacher Response to Silly/Clown & Directed
Teacher Ratings of Humor Frequency	Positive Peer Response To Silly/Clown & Directed
Teacher Ratings of Disruptive Frequency	Negative Peer Response To Silly/Clown & Directed
Teacher Ratings Likability With Future Teachers	School work
Teacher Ratings of Reprimand Frequency	Social Interaction With Child
Teacher Ratings of Creativity	Social Interaction With Teacher
Fluency	Raise Hand
Flexibility	Raise Hand Followed By Interaction
Elaboration	Calling Out
Piers-Harris Self-Concept Score	Approach Child
Peer Nominations of Friends	Approach Child and Interaction
Peer Nominations of Funniest Students	Other Child Approach
Produce Silly/Clown, Laughter From Self or Others	Other Child Approach and Interaction
Produce Silly/Clown, Smiling From Self or Others	Teacher Approval
Respond By Laugh To Other-Prod Silly/Clown	Teacher Disapproval
Respond By Smile To Other-Prod Silly/Clown	Teacher Approach To Child Off-Task
Produce Directed, Laughter From Self or Other	Teacher Approach To Child Doing Schoolwork
Produce Directed, Smiling From Self or Other	Grade
Respond By Laugh To Other-Prod Directed	
Respond By Smile To Other-Prod Directed	

APPENDIX P

TABLE 36
 FACTOR MATRIX FOR CHILDREN IN GRADES 7 AND 11 WITH
 VARIMAX ROTATIONS TO BEST FIT

Variables	Factor A	Factor B	Factor C
Teacher Ratings Humor Frequency	0.19	0.32	0.28
Teacher Ratings Creativity	-0.27	-0.48	-0.02
Teacher Ratings Likability With Future Teachers	0.53	-0.47	-0.01
Teacher Ratings Reprimand Frequency	0.08	0.59	0.06
Peer Nominations Funniest Student(s)	-0.03	-0.02	0.03
Peer Nominations Friend(s)	0.51	-0.49	0.61
Positive Teacher Response To Silly/Clown & Direc	0.64	-0.36	0.15
Negative Teacher Response To Silly/Clown & Direc	0.11	0.43	0.10
Positive Peer Response To Silly/Clown & Direc	0.48	-0.04	0.16
Negative Peer Response To Silly/Clown & Direc	0.26	0.76	0.06
Produce Silly/Clown, Laughter From Self or Others	-0.05	-0.18	-0.09
Produce Silly/Clown, Smiling From Self or Others	0.26	0.28	0.04
Respond by Laugh to Other-Prod. Silly/Clown	0.27	0.16	0.19
Respond by Smile To Other-Prod. Silly/Clown	0.06	0.04	0.48
Respond by Laugh To Person-Prod. Silly/Clown	0.25	0.14	0.21
Respond by Smile To Person-Prod. Silly/Clown	-0.11	-0.02	0.63
Produce Directed, Laughter From Self or Others	0.07	0.60	0.20
Produce Directed, Smiling From Self or Others	-0.11	0.17	0.08
Respond by Laugh To Person-Prod. Direc	-0.04	-0.34	0.07
Respond by Smile To Person-Prod. Direc	-0.08	0.69	0.21
Social Interaction With Peer	0.56	0.28	0.09
Social Interaction With Teacher	0.71	-0.14	0.17
Approach Child-No Interaction	0.21	0.09	-0.12
Approach Child-Interaction	0.66	0.05	-0.04
Other Child Approach-No Interaction	-0.15	0.01	0.29
Other Child Approach-Interaction	0.09	-0.02	0.55
Teacher Approval	0.61	0.26	0.21
Teacher Disapproval	0.05	-0.06	0.18
Fluency	0.26	-0.20	0.17
Flexibility	-0.03	0.09	0.28
Originality	0.07	0.29	0.43
Elaboration	0.15	-0.13	-0.07
Self-Concept	-0.21	-0.19	0.04

VITA

Michael S. Fabrizi was born on July 16, 1956 in Plainville, Connecticut. He attended grade schools there and graduated from Plainville High School in June 1974. He entered the University of Connecticut in September 1974 and graduated with a Bachelor of Arts Degree in Psychology in May 1978.

In September 1978, he enrolled in the graduate school of The University of Tennessee, Knoxville. During his four years in graduate school he held several research and teaching assistantships. He received the Doctor of Philosophy degree with a major in Psychology from The University of Tennessee, Knoxville in August 1982.