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A Case Study of the Relationship between Role-taking Skills and Intellectual Development

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A CASE STUDY OF THE RELATIONSHIP BETWEEN ROLE-TAKING
SKILLS AND INTELLECTUAL DEVELOPMENT

A Thesis

Presented to

the Faculty of the Graduate School
Central Washington State College

In Partial Fulfillment
of the Requirements for the Degree
Master of Science

by

Linda Suzanne Green

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APPROVED FOR THE GRADUATE FACULTY

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A series of thirteen role-taking and cognitive development tasks, taken from research done on Piaget's developmental theories, were presented to ascertain the relationship between refined role-taking skills and the level of intellectual development demonstrated by a child in Piaget's pre-operational phase (two to seven years).

The results indicated that a child in this age range is not able to remove himself from his egocentric position and utilize the concepts of decentering and reversibility in constructing a meaningful message. This would indicate a lack of role-taking skill refinement.

It was concluded that the use of this type of task series would aid a therapist in determining a beginning level of therapy that was meaningful to the client.

CHAPTER I

INTRODUCTION

It has been postulated in recent research (Flavell, 1968) that before a child can effectively communicate in a social environment he must be able to anticipate the role-attributes of his listener. This ability is called "role-taking" and is contingent on the individual's level of intellectual development and communication skills. The present study was aimed at creating specific situational tasks that would in their completion reflect the role-taking abilities of a preschool child. The tasks were designed to necessitate both the individual's assessment of his listener's informational needs and to use this understanding in constructing a meaningful communicative message. A case study observation was chosen as the research design for this study in order to facilitate the observation of any or all variables that would be operating during the problem solving activities of the tasks.

A firm understanding or recognition of the level that a child was functioning on would help a speech clinician in developing a meaningful therapeutic program for that child. It often seems that there is a lack of understanding or a communication breakdown between adults and children. The adult is frustrated by the child's lack of understanding and the child may be confused by the reasoning of the adult and the material being discussed. This problem may be

due to the lack of sensitivity the clinician or adult has of the child's level of comprehension.

Prior to beginning speech therapy a clinician engages in some form of case study in compiling pertinent information about the case involved. This information includes who the individual is and where any problems lie. Planning the ensuing therapeutic program would be greatly simplified if the clinician could also include a brief account of the level of communication development and intellectual reasoning that the subject was functioning on. Valuable therapy time would not be wasted on tasks and procedures that were either below or above the client's level of understanding.

A knowledge of the client's role-taking ability and its relationship to his intellectual development and communication skills in a social environment would give the speech clinician a basis for determining the beginning level of the therapy program. This knowledge could be derived from a presentation by the clinician of some short, but pertinent tasks. These tasks would reflect the functioning level of the individual being interviewed and aid the clinician in his diagnostic procedures.

STATEMENT OF THE PROBLEM

This study was an attempt to investigate the role-taking ability of a pre-school child and observe how these abilities were related to the individual's intellectual development and communication skills. Before a child can successfully interact in a social environ-

ment his communication skills must be refined and he must be able to use these skills in his assessment of his listener's role-attributes and informational needs. The assessment of listener role-attributes is termed role-taking and the ability to successfully employ role-taking is dependent upon the child's level of intellectual development (Flavell, 1963).

Piaget's research done on role-taking abilities support the theory that in his communication the child below seven or eight years of age is unable to take into consideration his listener's needs or informational requirements (Flavell, 1963, p. 18). This would indicate an immature intellectual development and a lack of refinement of the role-taking ability.

In this study it was hypothesized that if the stimuli in certain test tasks were presented at a level that was meaningful to the child being observed, that a child of five to six years of age could successfully engage in a form of refined role-taking. The purpose of this study was to assess development of the various intervening factors in the overt communication of a child in this age group, and ascertain the relationship that these factors had to the child's role-taking abilities. To stimulate this communication and the display of any variables the subject was presented with various situational tasks.

THEORETICAL OVERVIEW

Role-taking is the ability to see another person's view-

point while successfully maintaining a self-perspective. Role-taking cannot be observed or discussed as an isolated concept, for role-taking skills are related to and influenced by other developmental levels which the individual is functioning on. For this reason the researcher exploring role-taking must look at such developing stages as the intellectual level of the person being observed and also his skill at communicating in a social situation. Role-taking is a basic response to social interaction and the child begins a refinement of this skill at an early age (Flavell, 1963).

To be successful in role-taking the child must attain certain levels of development, both intellectually and communicatively. According to Vygotsky (1962, p. 76), role-taking requires that the child learn to enter a social situation, abstract the different interactions going on and see these elements as separate from the total situation.

Role-taking abilities are refined through repeated exposure to social interaction (Shibutani, 1961). Before the child can successfully use role-taking in his communicative efforts (in social interaction) he must attain certain levels of cognitive development. Piaget's theories of intellectual development stress the importance of the concepts of "decentering" and "reversibility" in helping the child to remove himself from his egocentric position and view a situation from the standpoint of others (Boyle, 1968). The concepts of decentering and reversibility can be observed by presenting the child with tasks that require that he remove himself from the visual

stimuli presented and assess the task from other than a egocentric position. The realization that there are viewpoints other than his own is the basic level for successful role-taking, and this in turn aids the child in using the concept of reversibility to return to his own perspective.

Piaget elaborated on the concept of removing oneself from a self-centered standpoint. He observed that successful role-taking required that the child not only be able to see the views of others but at the same time maintain his personal perspective. Piaget further hypothesized that the child must attain certain levels of intellectual development before the role-taking abilities are refined. Piaget's concepts of "decentering" and "reversibility" are important aspects of a child's developing abilities in reasoning. Decentering is a slow process that allows the child to recognize that, for example, a change in the height of an object coordinates with a change in width (Boyle, 1969, p. 47). He must be able to decenter his thinking and think of more than one aspect of the situation at a time. Reversibility allows the child to mentally perform the compensating changes of the object or situation and then see how he can return to his starting point. Piaget's theories maintain that the child must be able to successfully maintain his self-perspective while analyzing the incoming data.

The removal of the child's perspective from his self-centered viewpoint is hampered by what Piaget termed "egocentrism". Church (1963) defined egocentrism as an " . . . embeddedness in one's own

point of view, without any awareness that one has a point of view rather than an instantaneous, unlimited, exhaustive, and infallible grasp of reality as it actually is" (Church, 1963, p. 26).

Piaget concluded that the young child (zero to eight years of age) is subject to egocentrism and is frequently not aware that there are points of view or opinions other than his own. He observed that children in this age group made no apparent attempt to assess the role of another person or fill the other person's informational needs. There seemed to be no communicative aims, whether the speech was uttered in solitude or in the presence of others (Flavell, 1963, p. 271). The child may not purposefully ignore the presence of others, he may feel he is fully understood and being attended to; his speech is simply not aimed to this end (Vygotsky, 1962, Piaget's Comments, p. 8).

Shibutani (1961, p. 489) observed that when functioning in groups, many children engaged in parallel speech where they were talking in collective monologues. In this situation no one seemed to pay attention to what the other was saying, although they were talking about the same thing. Shibutani further pointed out that one of the problems in this instance seemed to be that the child didn't bother to tell the listener all that he himself already knew. This would imply a perspective that was entirely personal and void of any use of role-taking abilities.

The young child must then learn self-perception. He must develop his awareness of self-perception as well as his ability to

perceive others. Church (1963, p. 27) wrote that through this dual perspective the child may compensate for his own biased position and thus see things from another person's point of view. When this intellectual level has been attained the child will begin a successful adaptation of role-taking. He will be intellectually mature enough to begin using the role-taking ability in conjunction with his communication skills (Vygotsky, 1962, p. 13).

Vygotsky's (1962, p. 12) theories state that as the child passes from an autistic, self-orientated position his communication skills are affected and naturally expanded. The child is not merely learning to understand words, but to communicate effectively in a social environment. In conjunction with this theory, Piaget has further observed that the child's inadequate role-taking skills may affect his proposed message in two ways. First, a role-taking deficiency may prevent the child from assessing his listener's role-attributes for the purpose of distinguishing the listener's informational needs; and second, Piaget hypothesized that role-taking deficiencies influence the perceptual, cognitive, and linguistic factors of the message (Flavell, 1963, p. 18). Shibusatani (1961, p. 202) substantiated this reasoning by stating that, "Role-taking remains at a rudimentary level unless one can construct categories and refer to them with linguistic symbols, and those who are unable to use a language have difficulties". Piaget agreed with Shibusatani's theory and further reported that language development is crucial for it aids the child in analyzing what he is doing and also assists in

his concept formation. The child may be able to perform or interact in a situation long before he can give linguistic reasons for his actions (Boyle, 1969, p. 49).

As the child grows older and his world expands he necessarily is placed in situations where social interaction is desirable. Both Shibutani (1961) and Vygotsky (1962) wrote that as the need for communication with others becomes more pressing (and because of the gratification that comes from communication, more desirable) the child will refine his communication and become aware of any deficiencies his communicative methods may have. These authors theorized that as the need for understanding between individuals becomes more important, egocentric speech (speech for oneself) seems to diminish and social speech emerges (Shibutani, 1961, p. 489); (Vygotsky, 1962, p. 137). According to Vygotsky the progressive isolation of speech for oneself (Piaget's egocentric speech) makes this inner speech more and more unintelligible and because of its growing cognitive and structural peculiarities, less likely to be verbalized. For this reason Vygotsky's concept (1962, p. 135) of egocentric speech diverges somewhat from the theories of Piaget. Vygotsky wrote that egocentric speech does not disappear with maturity, but instead turns inward and becomes inner speech. Although Piaget agreed with Vygotsky's theory that egocentric speech was the point of departure for inner speech and also the link between early thought and later logic, he also maintained that ". . . egocentricism itself is the main obstacle to the coordination of viewpoints

and to cooperation" (Vygotsky, 1962, Piaget's Comments, p. 7). Piaget and Vygotsky agreed, however, that the egocentric viewpoint a young child has must be expanded before successful role-taking skills can assist him in assessing communicative needs in a social interaction.

As the needs for socialized speech become firmly established the child develops an empathy or feeling for his listener's needs. The message being uttered must be meaningful to the listener as well as the speaker, and successful role-taking would aid the speaker in making this assessment of the adequacy of his messages (Flavell, 1963, pp. 18, 44; Church, 1963, p. 71). Church reported (1963, p. 33) that the empathy-like process, the feeling for the listener's position or informational needs, seems to underlie all communication. The very young child, because of his egocentric orientation, has difficulty assessing other people's positions, but as the child matures he refines these sensitivities (Gates, 1923, p. 453; Shibutani, 1961, p. 165; Flavell, 1963, p. 156).

Shibutani (1961) observed that social interaction necessitates an ability to take the role of another person and use the acquired information in communication. The very young child develops this sensitivity to the role of others only after repeated exposure to interpersonal interactions. It is then that thought becomes aware of itself, able to justify itself and in general to adhere to logical social norms of non-contradiction (Flavell, 1963, p. 157). Piaget concluded that " . . . it is social interaction which gives

the ultimate coup de grace to childish egocentricism" (Flavell, 1963, p. 157). However, this is a developmental level the pre-operational child (two to seven years) has not yet mastered. As the child develops maturationally and socially he is able to differentiate himself more clearly from others and develop an appreciation of other people's perspectives (Shibutani, 1961, pp. 489, 505, 507).

The extent that people are able to coordinate their various interests and needs to function in a social environment depends on the degree of consensus that exists among them. Consensus in this context means " . . . the sharing of perspectives among those cooperating in joint actions" (Shibutani, 1961, p. 141). When there is true consensus the participants can play their own roles and are able to assess the position of others in that situation. This appreciation of other people's positions comes from the ability to project oneself into the role of another person, seeing things from another person's standpoint and thus utilizing skills in role-taking (Shibutani, 1961, p. 48). Consensus, then, allows a prediction of other's responses or communicative needs.

Consensus also enables a person to form a self-image of what he is like from the viewpoint of other people. The child develops this sensitivity through his role-taking skill and his ability to look at his actions as they appear to others and then predict what their response will be (Shibutani, 1961, pp. 91, 92, 199, 250). This in turn aids the child in more effective communication, for he is not only assessing his own position, but also assessing his

listener's role-attributes or informational needs.

To be successful in social interaction the child must develop social perceptions. He must be able to perceive the needs and responses of the other people involved in the immediate situation. The child needs to be able to identify with other people in some way and find some criteria for assessing the situation, and looking at the experiences of others in respect to his own personal experiences (Church, 1963, p. 2). Skill in these areas will allow social assessment, and role-taking, to take place (Gates, 1923, p. 449; Shibutani, 1961, p. 142). In this way the child becomes aware " . . . that other people have feelings, sensitivities, passions and vulnerabilities similar to his own, but may nevertheless have geographical, moral and cognitive perspectives very much unlike his." (Church, 1963, p. 27).

The theories cited have indicated that if the child cannot successfully use role-taking in his communicative efforts he will consequently have difficulty with social interaction. These theories amplify the importance of the child refining his role-taking skills so that he can compile communicative messages that serve his needs and are meaningful to both himself and his listeners. There is also a dependence of role-taking skills upon developed cognitive abilities. Processes of decentering, self-awareness and the ability to coordinate perspectives as parts within a larger interactional unit or whole arises through cognitive development and aid the child in refining his role-taking skills.

REVIEW OF RELEVANT RESEARCH

Research done in the field of intellectual development indicates that there are various levels of development that a child passes through in formulating intellectual concepts. These developmental levels reflect the individual's intellectual development, his communication skills, and his role-taking ability. Role-taking is the ability to see things from another person's point of view, and Flavell (1968) reported observing direct relationships between the developed level of role-taking ability and the level of intellectual development that the individual was functioning on.

Flavell (1968) specifically investigated role-taking and its relationship to cognitive development and communication skills. Flavell presented the reader with a thorough background of the developmental theories of Mead, Piaget and Vygotsky and then made reference to studies done directly on role-taking skills. Flavell's investigation centered around the results obtained after presenting subjects of different age groups with tasks that were designed to reflect at first their basic role-taking skill and then the level of refinement they had attained in this skill. He hypothesized that successful role-taking was necessarily bound together with the test subject's intellectual development and communication skills. The results obtained by Flavell and his associates reflect a definite increase in role-taking skills with age and Flavell concluded that these results were parallel with Piaget's developmental theories

which place the attainment of the requisite intellectual abilities necessary for elementary role-taking processes at above eight years of age.

The theories of intellectual development presented by Jean Piaget as early as 1926 have significantly influenced the direction of the research done in this field. Piaget developed his theories by observing children in their natural everyday life situations (Boyle, 1969, p. 17). He distinguishes four distinct phases or stages that a child passes through in his intellectual development: sensory-motor, pre-operational, concrete operational, and formal operational. The sensory-motor phase includes zero to two years of age. During this phase, the child's actions are regulated by his sensory-motor development, are easily observed and are usually for direct purposes like removing an obstacle from his path. As the child passes into the pre-operational phase (two to seven years) he refines his actions and seems to operate on a plane of representation. At the same time the child's cognitive actions become more internalized and schematic. The child below the age of six or seven years has no idea of the permanence of continuous quantities, discontinuous groups, nor any equivalence between two groups that correspond piece by piece. This theory was exemplified by Piaget's observations of children working on experiments on transformations of liquid volume and experiments dealing with visual transformations of the length of rows of beads. The child in the pre-operational phase has not formed any idea of cardinal or ordinal numbers, nor has he defined

his ideas of classes of things in extension, which depends upon the inclusion of parts into a permanent whole (Piaget, 1937, pp. 46-47).

In short, the pre-operational child lacks the principles of permanence and decides that things have undergone a change in mass, volume, weight, etc. whenever their appearance is transformed.

This phase can be divided into two sub-stages: the stage of pre-conception when the child is not yet able to form concepts or handle classes (two to four years), and the intuitive stage (four to seven years) when the child displays the ability to solve simple problems and also is able to enter into cooperative play. The child in this phase of development is usually functioning between different intellectual levels of reasoning. He may solve a problem correctly but be unable to give reasons for his reasoning or actions. Even if he is on the verge of fully comprehending and using a complex level of reasoning, he may revert to a reasoning level that he has already mastered and feels secure in (Boyle, 1969, p. 19). The concrete operational phase (seven to eleven and a half years) is the level of intellectual development where the child's cognitive abilities are organized and systematized. In this way two actions can be combined to produce a third and there seems to be logical sequencing that emerges from past experiences or thoughtful consideration. The concrete operational child begins to conceptually manipulate his surroundings in terms of rules applicable to events and ceases to be a mere observer of what is going on about him. The formal operational phase (eleven and a half onwards) coincides with the onset of adol-

escence. The child at this level of intellectual maturation is more coherently structured in his thinking. He can deal mentally with the conceivably possible rather than just with the actual.

Piaget further observed that though these phases are separate in that they have certain abilities that are developing at that designated time, there is also an element of overlapping or fluctuation between the stages. Each phase is highly influenced by the phase preceding or following it. For this reason the child often seems to be functioning on several different levels at one time. In actuality he is at the threshold of absorbing the new concepts into his intellectual capabilities (Flavell, 1963).

Because of the diversity of the developing capabilities, Piaget's pre-operational phase (two to seven years) has been of interest to recent researchers. The concept of decentering develops during this phase and this was explored by Feffer (1959) and later by Feffer and Gourevitch (1960). Their conclusions coincided with Piaget's theory that as the child grows older he is able to decenter his thinking and is able to think about more than one aspect of a situation at a time.

The ability to decenter one's thinking is necessary before a child can use role-taking in compiling his communicative message. The child must be able to remove himself from his egocentric orientation (decenter himself) and view a situation from the position of the other people involved. This theory is closely aligned with the concepts of Piaget of conservation and reversibility. If the four

to seven year old child (in the pre-operational phase) is able to conserve the idea of the total whole or permanance of a situation he will then be able to decenter his egocentric viewpoint, view the isolated aspects of the situation and return (reversibility) to the concept of the original whole. There is an aspect of perpetual motion that requires the child to attain ideas or concepts allowing processes of decentering, conservation and reversibility before he can successfully use role-taking in his communicative activities. The effective use of one concept depends on the attainment of another concept. Boyle (1969) concluded that as the child observes a situation he must be able to hold on to an aspect of it and be able to return to the starting point of his intellectual reasoning in order to draw meaningful conclusions.

A paper presented by Bruner (1964) reported that Francoise Frank had done a series of experiments that investigated conservation tasks originally done by Piaget and Inhelder (1962) with children between the ages of four and seven years. Piaget and Inhelder had found that children in this age range were not " . . . able to conserve the idea of liquid volume across transformations in its appearance" (Bruner, 1964, p. 6). Frank explored the importance of visual stimuli in conjunction with Piaget's conservation theories and found that children of this age group were highly influenced by the visual cues presented in liquid volume tasks. For this reason Frank presented her test subjects with pre-test tasks where the test vessels were not screened and then the same vessels

were used in the actual test session, but were screened. Frank reported significant increases in correct responses when the vessels were screened. These conservation tasks reflected the subject's ability to decenter his thinking. Screening the test vessels would aid the subject in successfully decentering his thinking by removing the visual confusion presented when the subject saw the liquid being transformed in its appearance. If the vessels were screened the subject could more easily maintain his idea of the permanence of the volume of liquid, which would be the principle of the permanence of the whole, and conserve the original test stimuli. Upon screening the subject must not only try to maintain his idea of the whole, but in some way take into account the change in its appearance. The pre-operational child (two to seven years) cannot resolve the problem of coordinating the two dimensions. Although this study's conclusions substantiated Piaget's theories of conservation, decentering and reversibility, it also presented the idea that the stimuli presented to a child must be directed at a level that he understands and that is meaningful to him (Boyle, 1969, p. 48).

In 1961, Elkind explored Piaget's theories of conservation of mass, weight, and volume. Piaget observed that children below the age of five are not functioning at an intellectual level that gives them a true understanding of conservation of properties (Flavell, 1963, p. 300). He further stated that this intellectual lack is important in the child's role-taking ability because difficulties with conservation tasks reflect the egocentric viewpoint of

the child and his inability to remove himself from visual influences and carry or retain changing properties in his intellectual reasoning. This is once again connected with the problems of decentering. Until the child can remove (decenter) himself from his egocentric point of view he will not be able to conserve the idea of the whole and maintain the concept of the whole's permanence while visually assessing the changes in its appearance. Elkind's study substantiated this theory and concluded that the young child (five years of age) reflected a secure understanding of the initial task objects, in this study clay balls, but became unsure of his reasoning when presented with a visual transformation of that same object.

Vygotsky (1962), Boyle (1969), and Salisbury (1970) investigated language development in children at Piaget's pre-operational level (two to seven years) and found that language development during these years may be crucial in regards to other developing abilities. Boyle reported that while the child in the four to seven year age range is often able to perform or interact in situations long before he can give reasons for his actions, language helps the child analyze what he is doing and assists in concept formation (Boyle, 1969, p. 48). Bruner (1964) further observed that a child must have an internalized verbal formula to shield him from the overwhelming effect of visual displays if he is to succeed in conservation tasks.

There have been many studies done that do not directly

investigate role-taking skills, but have found significance in their research of developmental levels of children. Studies conducted by Gates (1923), Walton (1936), and Gotts (1967) investigated the social perception and development of empathy in children. Their conclusions were in agreement with Piaget's theories that the principle of empathy and social perception are contingent on maturation and that older children have a higher rate of performance on test tasks, relating to these abilities, than do younger children.

Borke (1967) did a study on empathy in children based upon Piaget's theories of intellectual development. She presented a series of pictures that were designed to evoke an empathetic response from her test subjects. Her results while agreeing with the basic theories of age of onset of abilities to decenter, coordinate parts within a whole, etc., hypothesized by Piaget, indicated that children in the three to seven year age range were in fact able to take the position of another person into consideration if the stimuli presented in the test situation were presented at a level meaningful to the test subject. While Borke did not study role-taking explicitly, her conclusions did coincide with Boyle's writings which stressed the importance of the test stimuli and instructions being presented at a level that was both understandable and meaningful to the test subject (Boyle, 1969, p. 48).

Observations of role-taking and developmental skills have not been limited to normal children or adults. Role-taking abilities have also been theorized as reflecting important aspects of social

deviations (Gough, 1948). The breakdown of role-taking skills in schizophrenic patients was explored by Cameron (1939), Dymond (1950), and Milgram (1961). These researchers concluded that role-taking skills were important in the diagnostic problems of schizophrenic patients because these patients showed a definite loss of the ability to take the role of another person and use it as a guide to effective communication with others.

The research cited indicates that there is a relationship between role-taking abilities and the effective use of communication skills. There are also indications by Piaget, Bruner, Elkind, Flavell and Borke that these sensitivities to other people's viewpoints are dependent on the child's age, level of intellectual development and exposure to social interactions. The following case study was designed to observe these variables while presenting a five year old test subject with a series of situational tasks whose manipulation would indicate at what level this child was functioning on.

CHAPTER II

METHOD

Case History

The subject of this case study was Andy, five and a half years of age. Andy was presented with a series of pre-determined tasks and his responses were observed in order to ascertain his level of development in several areas. These tasks were designed to reflect skills in role-taking and its relationship to the subject's intellectual development and communication skills.

Andy's personal background was related to the interviewer by his mother and his kindergarten teacher in separate interviews. It was felt that Andy's mother would be able to give pertinent information about Andy's development since infancy, and the teacher could relate observation of Andy in his school environment.

There are six people in Andy's immediate family. His father, age thirty-five years, is a truck driver and his mother, age thirty-three years, is a housewife, working occasionally on weekend evenings. Andy has three brothers age nine, thirteen, and sixteen years. His mother related that Andy was premature at birth and seemed slow in his physical development until about the age of four years. She did not feel that this slow physical growth pattern affected the onset of other developmental stages, such as language. He began saying his first words at two years and developed self-help skills at a normal age (self-feeding at twelve months).

Andy has never been seen by a speech therapist or had other difficulties related to speech or hearing. His mother reported that he is healthy, having only occasional problems with mild asthma. He has never had a severe injury or serious illness.

Both Andy's mother and teacher related that Andy is shy and quiet until he becomes familiar with the setting and people involved. Although Andy's mother said that he was sometimes hard to get along with at home ("whiney"), his teacher reported that he was very cooperative and considerate of his peers. The teacher also related that Andy is not at all aggressive or overbearing and seems acceptive of rules and directions given in the classroom. She continued that he is very generous and anxious to share anything he has in his possession, but this trait did not include the sharing of "ideas". Andy's teacher also observed that Andy relates best in small groups and tends to become quiet and more withdrawn when placed in larger groups or with people he doesn't know.

Before the school year 1971-1972, Andy's mother reported questioning his social readiness for a kindergarten situation. She decided to send Andy to kindergarten since he was anxious to go to school, and she thought his shyness would lessen when he got used to his teacher and the other children. His teacher related that he has responded very well and that within the last few months he has become much more out-going. She said that Andy quickly grasps instructions and proceeds diligently in his work. She also observed that if he makes an error he is somewhat embarrassed but attempts to

correct it promptly. He does not vary from instructions or rules nor try new approaches or innovations.

During the first three months of the school years the teacher reported seeing some change in Andy's speech pattern. She had the public school speech therapist interview him, but no speech difficulty was found. At this time Andy seemed reluctant to repeat statements if he had been misunderstood the first time. If he did repeat the words, he used a very small voice or mumbled. The teacher reported, during the interview, that this hesitancy in speech seemed to coincide with the presentation of more difficult school work and the concept of "sets". She felt that he would respond more confidently as the new concepts became more familiar. She further reported that although Andy was capable, his shyness sometimes stopped him from sharing ideas. He does excell in the areas of writing, being already quite legible in writing his first and last names.

In the areas of creativity the teacher reported that Andy tends to follow the ideas presented by the teacher in her explanation of the assignment. He seems hesitant in trying new ideas of his own.

Both Andy's mother and his teacher concluded that Andy was a pleasant child, and seemed to be at an average developmental stage for a child of his age.

Observation Setting

Andy was chosen for this case study because of his age and reported relatively normal physical and mental development. The age

range of two to seven years amplifies those developing trends that Piaget placed in the pre-operational phase. An attempt to observe Andy's approach and solving of various test tasks reflected the development of some of the capabilities and skills that Piaget postulated in the pre-operational phase.

A therapy room in the speech department was chosen for the test setting. It was felt that this would remove most of the distracting surroundings found in other settings, and also allow others to observe the tasks being presented. Andy approached the test sessions shyly, although he was familiar with the test area and the interviewer before the initial test session. Spontaneous conversation was used to set up a relaxed and informal test situation.

A third person was involved in the task presentations, as recorder. Because of the conversation and material manipulation in each task, the interviewer could not adequately present and record each task. The third person did both written recording and handled the tape-recorder. Andy seemed a little nervous about this third person (previously unknown to Andy) but he relaxed and was oblivious to the recorder after the test session was actually begun.

The interviewer (referred to as E_1 in the dialogue: appendix) sat at a small table across from Andy during the first ten tasks presented. All of the materials used in the tasks were placed on the floor next to the interviewer and not obviously (or distractingly) visible to Andy. The tape-recorder was on the floor somewhat behind Andy. The third person (referred to as the "recorder") also sat on

the same side of the table as Andy, but somewhat behind him. This gave the recorder a better view of what Andy was seeing in each task, and hopefully aided her in accurately reporting what was taking place.

Andy (referred to in the remainder of this paper as "S") was introduced to the test setting and told that the interviewer would like him to help her do some school work, but that they would do this work by playing some games. Andy seemed shy but willing to try and do what was asked.

Tasks were presented which had been designed by several researchers to explore varying levels of intellectual development and communication skills as they were reflected in role-taking. These tasks will be discussed in the following order: CD-I through CD-V, and RT-I through RT-VIIb, however any meaningful cross-reference to other tasks will be included to exemplify the developmental level that S is functioning on.

Again, in the following discussion for convenience and clarity Andy will be referred to as "S" (subject) and the interviewer or examiner as "E".

Procedure

The role-taking ability, which is the ability to see another person's point of view, is dependent on intellectual development and communication skills. A series of thirteen tasks were presented to the subject of this case study to try to ascertain how this child

was developing in the areas of these attributes and how these attributes were related to each other. Five of the tasks presented were termed cognitive development (CD). Tasks CD-I and CD-II were taken from research done by David Elkind on the development of conservation concepts, a necessary step for refined role-taking development. Tasks CD-III, CD-IV, and CD-V were adapted from Bruner's work exploring quantitative thinking in children. Seven additional tasks were labeled RT (role-taking). Tasks RT-I through RT-VIIa, b, were adapted from John Flavell's study of role-taking. The first five tasks (RT-I through RT-V) were presented to explore the very basic level required for successful role-taking. The next two tasks (RT-VI and RT-VIIa, b) were presented to observe the level of communication skill developed by the subject. It was felt that a reordering of the tasks for presentation would give more variety and interest to the test session. For this reason the tasks were presented in the following order: RT-I through RT-V, CD-I through CD-V, and RT-VI through RT-VIIa, b.

The subject was interviewed in a small therapy room in the speech pathology department. There was a small table, a small chair on either side of the table, and a chair for the recorder. The subject was briefed on what he and the examiner would be doing. Spontaneous conversation was used to familiarize the subject with the test setting and people involved. After good rapport seemed evident, the tasks were presented in numerical order. The recorder remained seated near the subject during the entire test session. The

recorder was to operate a small cassette tape recorder in an inconspicuous manner and also manually record the dialogue of the test session. It was felt that the examiner and recorder could do a more accurate presentation and observation of the test tasks if they had some preliminary practice. For this reason a series of test sessions were run at Hebler Elementary School, Ellensburg, Washington. A kindergarten teacher assisted this researcher in choosing eight children, who, she felt were varied on performance range, to do the thirteen test tasks. No formal records were kept of these results, although the tasks were presented under the criteria planned for the actual test session to be used later with the subject of this study. These preliminary test sessions greatly assisted the examiner and recorder in familiarizing themselves with the materials and procedures to be followed.

Task RT-I: (Flavell IIIa, p. 163).

Materials: Black and white picture of a standing human figure, drawn in child-like fashion on a 9 x 12-inch piece of tagboard.

Procedure: E and S seated on opposite sides of table.

1. E takes picture to S's side of table, lays it flat and says, "in this game I have just one card. It is a picture of a child. He is standing up".

2. "Now, let's turn the card around (upside down). How does he look now?" (If S does not indicate that the child is upside down, standing on his head, etc., E says, "He is standing on his head isn't

he?").

3. E then rights the card. "Now he is standing up again. Can you make him stand on his head?"

4. As S does so, E returns to opposite side of the table, takes card and places it cross-wise (figure lying down) in front of S.

5. E: "Now you take the picture and show it to me so I can see the child standing on his head. Be sure to show it to me so I can see him standing on his head."

Task RT-II: (Flavell IIId).

Materials: One 9 x 12-inch piece of tagboard with colored pictures of a puppy on one side and a birthday cake on the other.

Procedure: S and E sit facing each other on opposite sides of the table.

1. E says, "I have a card here that has two pictures on it. On this side (demonstrates) is a little dog, and on the other side (turns it over) is a picture of a birthday cake".

2. E then holds card so that E sees the cake and S sees the dog.

3. E says, "In this game I am looking at a picture right now. See if you can tell me what picture I am looking at". (Should the S try to come around to see, E forbids it.)

4. If S does not give the correct response, E says, "Tell me, what picture is on this (S's) side of the card? And what is on

this (E's) side?"

5. If S cannot answer the latter question, E shows him, and turns card back to its initial position. "Now, tell me what picture am I looking at?"

Task RT-III: (Flavell IIIe).

Materials: (a) one piece of 11 x 14-inch tagboard, each side of which contains the same three colored pictures in the same spatial positions: an airplane at the top, a teddy bear in the middle, and a clown at the bottom. (b) One large piece of cardboard hinged in the middle and wider than the tagboard, and long enough to cover the top two figures.

Procedure: E and S are seated facing one another across a table.

1. E says, "This time I have only one card. The pictures are the same on both sides. Here is an airplane, a teddy bear, and a clown, and on the other side they are just the same: an airplane, a teddy bear, and a clown (appropriate card turning and gestures throughout)".

2. E continues, "Here is a piece of cardboard I have folded (the hinged cardboard). First I will put the cardboard over the top of both sides of the picture."

3. E holds the tagboard upright and drops the two halves of the cardboard over it, such that the cardboard sections mask the airplane and teddy bear, both for E and S, leaving only the clown visible to both.

4. E says, "Now can you tell me what picture I can see on my side of the card?"

5. E records S's response and corrects it if necessary.

6. E says, "This time I am only going to put the cardboard on my side of the card, and you see if you can tell me what pictures I can see".

7. E masks the airplane leaving the teddy bear and clown visible to E. This is done by lowering the cardboard on E's side, leaving the wider, protruding sides of the cardboard to give clear, perceptual cues for inferring exactly what pictures are covered.

8. After the child responds, E says, "Now I am going to move the cardboard". (Drops it further so that both airplane and teddy bear are now covered, leaving only the clown visible.)

9. E: "Now can you tell me what I see on my side?"

Task RT-IV: (Flavell IIIc revised).

Materials: Two 6 x 6 x 6-inch cardboard cubes, both identically outfitted with a different colored picture on each of their four vertical faces: a teddy bear, a bird, a chair, and a train.

Procedure: E and S seated on opposite sides of the table.

1. E shows one of the cubes to S and asks him to name the four pictures, giving help where needed.

2. E presents second cube, carefully indicating that it is identical in all respects to the first.

3. E says, "I am going to turn my block around (rotates it

randomly). Now you turn your block around so that you can see on your block the same picture that I am looking at on my block. Be sure to look at the same picture on your block that I am looking at on my block."

4. After the child has turned his block, E asks, "What picture are you looking at? What picture do you think I'm looking at?"

Task RT-V: (Flavell IIIf revised).

Materials: A pencil-like stick with sharp point on one end, and absorbent cotton attached to the other (blunt) end.

Procedure: E and S seated opposite each other at the small table.

1. E: "In this game we have a little stick. I will put my hand out and you put your hand out." E's and S's hands now rest on the table, palms up.

2. E places cotton end of stick on S's palm. "This feels nice and soft, doesn't it?"

3. E places the cotton end on her own palm. "It feels nice and soft in my hand too."

4. E repeats above procedure, placing soft end first in S's palm, then in her own.

5. E: "Now, put your hand up like mine. We will put the stick between our hands." (Stick is suspended, cotton in S's palm, point in E's hand).

6. E: "It feels soft in your hand, doesn't it? Does it

feel soft in my hand too?"

Task CD-I: (Elkind).

Materials: 24 sticks of equal length.

Procedure: E takes 6 sticks and puts them in a row at 1-inch intervals.

1. E: "Let's pretend your mother gave me this many sticks (6). You take the same number, take as many as I have." (Test of intensive quantity).

2. After S takes his sticks E then shortens his row and asks S to do the same. If there is a difference in the number of sticks it will be apparent when E says "make them the same".

3. When the two rows are closed and the same length, E asks: "Do we both have the same number of sticks?" (Test of gross quantity).

4. E spreads his sticks apart, leaving S's sticks in a closed row. E's row is now much longer, but still has the same number of sticks. E: "Do we both have the same number of sticks?" (Test of extensive quantity).

Task CD-II: (Elkind).

Materials: two balls of clay, equal in size and weight.

Procedure: E sits on opposite side of table from S. With two balls of clay on table, E discusses with S if the two balls of clay are the same, do they look the same. If S says they are in any way different, the proper adjustments are made until S and E are in agreement that

the balls of clay are the same.

1. Test for conservation of MASS:

a. E asks, "Suppose I roll one of the balls into a hot dog, will there be as much clay in the hot dog as in the ball, will they both have the same amount of clay?" (Prediction question).

b. E then rolls one ball into a hot dog form, leaving the other ball as it is. E says, "Is there as much clay in the ball as in the hot dog, do they both have the same amount of clay?"

c. Then E asks, "Why is that?" (Explanation question).

2. Test for conservation of WEIGHT:

a. The two balls of clay are again made equal in appearance and S is asked to make any changes he feels necessary to make the two balls of equal size and shape.

b. Looking at the two balls, E asks, "Suppose I roll one of the balls out into a hot dog, will they both weigh the same, do they both have the same amount of weight?" (Prediction question).

c. E then rolls one of the balls out into a hot dog form, leaving the other ball as it is. E says, "Does the hot dog weigh as much as the ball, do they both weigh the same?" (Judgement question).

d. Leaving the hot dog form, E asks, "Why is that?" (Explanation question).

3. Test for conservation of VOLUME:

a. The two balls of clay are again made equal in appearance and S is asked to make any changes he feels necessary to make the two balls of equal size and shape.

b. Looking at the two balls of clay, E asks, "Suppose I roll one of the balls into a hot dog, will both the hot dog and the ball take up the same amount of space, do they both take up as much room?" (Prediction question. In this task the examiner may use appropriate gestures to emphasize the idea of "space").

c. E rolls one of the balls out into a hot dog form, leaving the other ball of clay as it is. E says, "Does the hot dog take up as much room as the ball, do they take up the same amount of space?" (Judgement question).

d. Leaving the hot dog form, E asks, "Why is that?" (Explanation question).

Task CD-III: (Bruner). Test for conservation of liquid volume across transformations in its appearance.

Materials: Two identical beakers; third beaker thinner than original.

Procedure: E and S are seated on opposite sides of the table.

Beakers and water container on floor beside E.

1. E places the two identical beakers on the table and fills these equally full (one-half full is sufficient) of water, which S is asked to judge if he is in agreement that they are equally full.

2. E then pours the contents of one of the two identical beakers into the third, thinner beaker.

3. S is asked whether the amount of liquid is still the same. E asks, "Do you think there is as much to drink in this glass as in the other glass? Do you think there is the same amount of water in this glass as in the other one?" (Appropriate gestures).

4. E pours the water from the thinner beaker back into the water container.

Task CD-IV: (Bruner). Test for conservation of liquid volume across transformations in its appearance.

Materials: Two identical beakers; several smaller beakers of equal size.

Procedure: E and S are seated on opposite sides of the table.

Beakers and water container are on the floor beside E.

1. E places the two identical beakers on the table and fills these equally full (one-half full is sufficient) of water. S is asked to judge if they are equally full and the necessary adjustments are made.

2. E then pours the contents of one of the beakers into the three small beakers, trying to get them at the same approximate level.

3. S is asked whether the amount of liquid is still the same. If there is the "same amount to drink in this beaker as there is in these three smaller beakers?" (Appropriate gestures).

4. E pours the water from all the containers back into the

water container.

Task CD-V: (Bruner). Test for conservation of liquid volume across transformations in its appearance before and during screening and upon unscreening displays. The effect of language activation on conservation is also noted.

Materials: Two small, identical beakers; one taller beaker of same diameter as original beakers; one wider beaker of same height as originals; one standing screen which can still show top of original beakers.

Procedure: (F. Frank, in J. S. Bruner, *Studies in Cognitive Growth*).

1. Perform Tasks CD-III and CD-IV to determine whether S exhibits conservation.
2. Perform the following four sub-tasks:
 - a. Using the two identical beakers, one is half-filled and displayed by E to S. The screen is then placed before the beakers, shielding the beakers from S's view. The tops of the identical beakers are visible, and the level of the liquid in the one-half full beaker is marked on the screen. E then picks up the one-half full beaker and pours this liquid into the empty beaker. S can see the process of pouring but is not allowed to look behind the screen. S is then asked to make an estimation of the level of liquid now in the second beaker. The screen is then removed and E asks S to give some explanation for the level of the liquid,

whether the estimation given by S previously was correct or incorrect.

b. One of the original beakers, a taller beaker and the water container are placed on the table. The original beaker is one-half filled by E with S viewing. The taller beaker is then placed near the original one-half filled beaker and the screen is placed between these beakers and S. E then marks the liquid level of the original beaker on the screen. E pours the liquid from the original beaker into the taller beaker. S is asked to estimate the liquid level of the taller beaker and E marks this estimation on the screen. The screen is then removed and E asks S to give some explanation for the level of the liquid, whether the estimation given by S previously was correct or incorrect.

c. One of the original beakers, a wider beaker of the same height, and the water container are placed on the table. The original beaker is one-half filled by E with S viewing. The wider beaker is then placed near the original one-half filled beaker and the screen is placed between these beakers and S. E then marks the liquid from the original beaker on the screen. E pours the liquid from the original beaker into the taller beaker. S is asked to estimate the liquid level of the taller beaker and E marks this estimation on the screen. The screen is then removed and E asks S to give some explanation for the level of the liquid, whether

the estimation given by S previously was correct or incorrect.

d. One of the original beakers, a wider, taller, beaker of the same height, and the water container are placed on the table. The same procedure used in a, b, and c is used in asking S to estimate the liquid level of the taller, wider beaker and to give some explanation.

Task RT-VI: (Flavell).

Materials: Seven pasteboard cards, three are 4 x 5-inches, and four are 5 x 5-inches. On each card was drawn in color a scene in which a boy is the central figure. The pictures were the following:

Card 1: The boy is walking along the sidewalk, whistling and waving a stick.

Card 2: The boy looks frightened and drops his stick as he sees a rather ugly looking dog running towards him.

Card 3: The boy runs, looking anxiously over his shoulder at the dog, who is in hot pursuit.

Card 4: The boy is shown running with arms outstretched towards an apple tree laden with fruit. The dog is not shown in the picture and the boy's face (showing fear in the two previous pictures) is hidden by a branch of the tree.

Card 5: The boy scrambles up the tree, with the dog nipping at his heels.

Card 6. The boy is shown standing up in the tree. The dog can be seen across the street, trotting away (he looks smaller in

this picture and with no visible evidence of ferocity). Although the boy's head is partially turned in the dog's direction, it shows no particular emotional expression.

Card 7: The boy is seated in the tree, munching an apple, with the dog nowhere in evidence.

Procedure: Three people are involved, E₁, E₂, and S.

1. E₁ has familiarized E₂ with the procedure before the test session. E₂ is instructed to enter the test session at the cued time and listen to the introduction to S and instructions with a pleasant, naive appearance.

2. E₁ returns to the test area and begins the task with the following: "He (E₂, who was briefly introduced before the test session) has left the room and he won't be able to see what we are going to do, will he? Here is a series of seven pictures which tell a story just like the comics in the newspaper."

3. The seven cards are then placed in proper sequence on the table. E₁ says, "You tell me what's going on. Begin here at the beginning and tell me the story you see happening on these cards". If the child fails to indicate these things in his narration, he is asked why the boy climbed the tree and what he is doing in the last picture.

4. After S responds, E₁ says, "That's fine. Now Mr. _____ hasn't seen any of these pictures. I'm going to call him back into the room and show him just these four pictures (cards 1, 4, 6, and 7). I want you to pretend you are he and tell the story that you think he

would tell. O.K., I'll go and get Mr. _____."

5. E₁ and E₂ enter the room and there is a brief introduction and E₂ is seated on the same side of the table as S. E₁ then says, (speaking to S) "Now Mr. _____ is here and he hasn't seen our pictures before. You tell me what story Mr. _____ might tell when he looks at these pictures. What story do you think he would see?"

6. If S fails to clarify the pictures spontaneously in the course of his story, he is asked by E₁ several questions about why the boy might climb the tree, or "what about that dog across the street?"

Task RT-VIIa: (Flavell).

Materials: A piece of cardboard, 8 x 16-inches, with eight colored bands or strips running transversely across it in the sequence red-blue-white-red-blue-white-red-blue; the bands are divided by a black line which runs down the middle of the board, simply to give each player a "side" to move on in the game. There is also a cube, 1-inch square with two red, two blue, and two black faces, like colors on opposing sides. There is one plastic cup and two toy rubber pigs, one brown and one blue.

Procedure: S is brought into the test room by E and made comfortable and relaxed at the test table. Materials are on the table, covered.

1. E₁ begins by saying, "We are going to have fun today, we are going to play a game and it is so easy that we are going to play

it without talking. You just watch me for a minute and then you play the game too. We will play it two times to be sure we understand the rules O.K."

2. E_1 then removes the cloth that has covered the materials until this time. E then performs the following actions:

a. He holds the two pigs out, one in each hand, and indicates by gesturing that S should take one.

b. He places the two pigs in starting position at one end of the board.

c. He points in turn to the two red, two blue, and two black faces of the cube, and indicates that there are also red and blue bands on the board.

d. He shakes the cube in the cup, dumps it on the table, and moves his pig to the first band which corresponds to the color of the cube's upturned face, carefully indicating this correspondence to S.

e. He hands the cube and cup to the child, indicating that he should do the same thing.

f. The two continue to take turns in this fashion until one of the players has moved his pig up to the other end of the board and then back to the starting point, at which point E_1 says that that player "won" the game. (The only time he speaks rather than gestures). The game is then played through a second time.

3. The first time someone turns up a black cube face, E_1

indicates that the pig cannot be moved on that turn, since there are no black bands on the board. If such an event appeared to be in danger of not occurring during the two trials E_1 then should try to "bump" the cube or in some way have this event take place.

4. E_1 then covers the game materials again and says to S, "Now we know how to play this game, but do you remember Mr. _____, who came and heard your story? Well, he doesn't know how to play this game, but he wants to learn so he can play it later. I'm going to go and get him so you can tell him how to play this game. There are two rules though, you can't touch any of the things while you are telling him how to play, you can point, though, and he can't say anything to you or ask questions. Now I'll go get Mr. _____." (E_1 leaves for a moment).

5. E_1 brings E_2 into the test room. There are brief re-introductions and E_2 is seated next to S at the test table.

6. E_1 instructs E_2 that S will tell him how to play this game so that he can play it alone later, but that there are two rules. The rule about not touching any of the materials and not talking or asking S any questions. E_1 then says to S, "O.K., now you tell Mr. _____ how to play this game, tell him everything you think he needs to know so that he can play the game alone later."

7. After S responds, E_2 looks interested and attentive and E_1 can give some verbal questions on anything that S has obviously left out, such as "what about the cube?", or "what about the cup?"

8. The materials are then covered again, and E_2 leaves.

Task RT-VIIb: (Flavell).

Materials: Same as used in Task VIIa.

Procedure: The procedure is identical as that used in Task VIIa, except that this time the third person entering the test session, and being instructed by S on the game rules, will be blindfolded.

1. E₁ says to S, "That was fun wasn't it, telling Mr. _____ how to play this game? Well, now there is a little girl outside that wants to learn this game too. I'm going to go and bring her in and you can tell her how to play this game so that she can play it alone later. We will have the same two rules about not touching the things and her not talking or asking you questions. But this time I am going to blindfold her so she can't see any of the game things."

2. E₁ goes and gets E₃. After a brief introduction, E₁ orientates E₃ to the situation and the two rules regulating S's instructions for the playing of the game. E₃ is then blindfolded and S begins giving the game instructions.

3. After S responds, E₁ can give some verbal questions on anything that S has obviously left out, such as "what about the cube" or "what about the cup?"

4. E₃ is then allowed to look at the materials and S and E₃ may play a game.

CHAPTER III

RESULTS AND DISCUSSION

In this case study the subject was presented with thirteen tasks in order to determine any relationship his intellectual development and skill in communication had with role-taking abilities. The ability to utilize effective role-taking in everyday conversation and reasoning seems to be based on the refinement of other developing abilities (Flavell, 1963). The child must apparently be able to group things into wholes as well as maintain the ability to abstract the parts of the whole and examine these while retaining the total concept of the original whole. This concept of the whole thus allows grouping, categorizing and coordinating the information being received. It seems logical that if a child was not at an intellectual level that encompassed these cognitive, coordinating processes then he would not be able to successfully use role-taking in his reasoning and social interaction. To be successful and adept at communication when role-taking is involved, he must be able to see the viewpoint of another person while concurrently maintaining his own perspective. Then his communication coordinates informational differences between these two perspectives.

Because of the interdependence of the different developing levels a child may be functioning on, cognitive development was explored in this case study and is presented in the first part of this

discussion section to give background information regarding the intellectual level that S was functioning on. The five tasks which were presented to observe S's intellectual development were termed cognitive development tasks and are referred to in this paper as CD-I, II, III, IV, and V. These five tasks were taken from the work of three researchers, Elkind (1961), Bruner (1964), and Frank (1964). All of the materials used in the test tasks were made by the examiner (referred to in the discussion as "E") and followed as closely as possible the "materials" descriptions presented in the work done by the above cited researchers.

The first five cognitive development tasks dealt with Piaget's concept of conservation. These tasks were presented to S in order to determine his level of intellectual development and also to observe any correlation intellectual development seemed to have with role-taking skills. The research previously cited (Flavell, 1963; Bruner, 1964; Flavell, 1968; Frank, 1964; and Elkind, 1961) reported that children in the four to seven year age group (Piaget's pre-operational phase) were not able to effectively utilize the concept of conservation.

Piaget hypothesized that a child functions at the pre-operational phase from age two to seven years. This is a time of transition from self-orientated, egocentric actions to more socially oriented action. It is also a time of refinement and the child's cognitive actions become more internalized and schematic. This phase can be sub-divided into two sub-stages: the stage of preconception when the child is not able to form concepts or handle classes (two

to four years) and the intuitive stage (four to seven years) when the child displays the ability to solve simple problems and also is able to enter into cooperative play. The child at this level of development is usually not able to explain why he knows or does things. He is working on a level on which he may fluctuate between understanding and confusion. It is also a stage of development in which the child may grasp certain aspects of a problem or situation but return to a lower level of reasoning because he feels more secure at a level that he has mastered (Boyle, 1969, p. 91).

Task CD-I was a presentation of a set of six sticks to be manipulated and compared visually by S for intensive, gross and extensive quantity. Task CD-II had three parts: (a) the transformation in appearance of two clay balls to test conservation of mass; (b) the same procedure as a test of the conservation of weight; and (c) the same procedure as a test of the conservation of volume. Task CD-III was presented to S to observe his concept of conservation of liquid volume. Task CD-IV explored basic conservation concepts by presenting S with the visual transformation of liquid by pouring it from an original container into three smaller jars. Task CD-V had four parts: (a) using two identical beakers S was asked to judge the level the water would be at when the water was poured from one beaker into the other beaker; (b) using one of the original beakers presented in part (a), and a beaker that was taller than the original, S was once again asked to judge the level the water would be at when it was poured from the original beaker into the taller

beaker; (c) using one of the original beakers and a beaker that was wider, but of the same height as the original, the same procedure as part (b) and (c) was used; and (d) the above procedure was repeated using one of the original beakers and a beaker that was both wider and taller than the original beaker.

Tasks CD-I and CD-II were taken from a study done by Elkind (1961) on quantitative thinking. Elkind's study was a further exploration of theories presented by Piaget (1952). In Task CD-I the subject was presented with test situations that required comparisons of intensive, gross, and extensive quantity when looking at and manipulating a group of six sticks. E chose six sticks from a group of twenty-four sticks of equal length and asked S to do the same. Through various questions and manipulations S's performance was supposed to reflect his ability to compare these sticks and their placement on the table. S responded correctly to the question reflecting comparison of intensive quantity, correct to the question of gross quantity, but incorrect to the question of extensive quantity (dialogue: appendix). Elkind's discussion of Piaget's observations disclosed that a child of five years of age normally succeeds in comparisons of intensive and comparisons of gross quantities, but is unsuccessful in reasoning involved in comparisons of extensive quantity. S's responses confirmed Piaget's theory. S reflected the ability to perceive the materials (in this task, sticks) as single or two by two relations, but was unable to perceive the same materials as a logical whole, regardless of the fact that they had simply been

transformed in appearance by spreading them apart. S reflected the reasoning that if the sticks were moved apart they in some way "changed" their properties. Piaget reported that ". . . the child below six or seven years of age has no idea of the permanence of continuous quantities, nor of discontinuous groups, nor of any necessary equivalence between two groups which correspond piece by piece . . ." (Piaget, 1937, p. 46). S's response on Task CD-I would substantiate Piaget's observation.

Task CD-II also investigated the concept of conservation, concentrating on the properties of mass, weight, and volume. The purpose of this task was to see if S could tell that a substance remained the same quantity (was conserved) when it changed in appearance. Piaget's conclusions were that the conservation of mass was discovered at ages seven to eight years and the conservation of weight and volume at ages nine and ten and eleven and twelve respectively. He also concluded that conservation of mass was the easiest to discover, weight the next in difficulty and conservation of volume the most difficult. In this task S was shown two balls of clay equal in size and asked to answer the questions of prediction, judgement, and explanation by assessing and discounting the visual differences presented when these balls of clay were transformed in their appearance by E. In part 1 of Task CD-II (involving conservation of mass) S predicted that the clay would be different in amount (mass) if rolled into a hot dog form. This corresponds with Piaget's theory of the first stage in conservation where children have the

general impression that the hot dog is different than the clay ball. S then responded in his judgement question that the hot dog and ball were in fact different and his only explanation was "cause that one's not into a hot dog and that one is" (dialogue: appendix). This reflects a judgement based upon perception being focused on a single dimension, which also confirms Piaget's first stage predictions.

In part 2 of Task CD-II S predicted that the ball and hot dog forms would weigh the same. However, on the judgement question he changed his mind and said ". . . that one's the heaviest and that one's the heaviest (dialogue: appendix). This response coincides remarkably with Piaget's second stage of the conservation concept in which the child seems unable to work on levels that require a two by two judgement (cannot resolve the contradiction of the object being more in length, but less in width) and judges the quantity once again by single dimensions.

S predicted in part 3 the clay changed in volume when it changed in shape. He couldn't give an explanation, but was persistent in his response after visually assessing the two forms.

The next section of the procedure dealt with the conservation of liquid volume across transformations in its appearance. S was presented with Task CD-III to observe his basic level of response in regard to conservation of liquid volume. The task was taken from experiments done by Piaget and Inhelder (1962) in which they concluded that children between four and seven years are not able to conserve liquid volume in this instance. In this task E poured an equal

amount of water into two identical jars. Leaving one jar as it was, E poured the water from the second jar into a taller, thinner jar. S was asked to judge if the original jar and the taller jar contained the same amount to drink. The response given by S in this task coincided with Piaget's and Inhelder's findings. When S was asked by E whether there was the same to drink in the two jars, S seemed to be affected by the visual transformation of the liquid from two identical jars to a set comprised of one original and one taller, thinner jar. S responded that the taller jar had more to drink in it, obviously not being able to resolve the problem of coordinating two dimensions (taller, but thinner) previously mentioned in Task CD-II.

Task CD-IV was of a similar nature and was taken from the experiments done by Piaget and Inhelder (1962) exploring basic conservation concepts. In this task S was asked to judge the amount to drink when the water from one of the original jars was poured into three identical smaller jars. S's responses once again coincided with the above researchers' conclusions. S was not able to retain the concept of the whole amount of the liquid when it was transformed in its appearance by pouring it into the three smaller jars. At this point in the test session it was felt that S was functioning on an intellectual level, in regards to cognitive development, which coincided with previous data gathered on children in his age range.

Research done by Frank (Bruner, 1964) hypothesized that visual cues in the above tasks were a significant factor for confusion in

younger children. Frank conducted experiments that screened the test vessels and thus removed the visual cues. Task CD-V consisted of four parts and followed the experiment design developed by Frank. In the present observation S's response pattern in Task CD-V did not vary significantly when the tasks were presented screened rather than permitting S to view the transformation of the liquid in its appearance. These results did not coincide with those of Frank, however, this writer feels that when taking a subject and testing him as an isolated case and doing the experiment only once the results may be significantly different than a tabulated conclusion drawn from a larger sampling of subjects.

S's response to part (a) of Task CD-V was correct. When presented with two jars of the same diameter but different in height, he replied that the water level would stay the same when water was poured from one jar to the other. This would indicate a concept of conservation of liquid volume across transformations in its appearance, however, due to the inconsistent responses which followed in parts (b), (c), and (d) of this task, the stability of this concept was questionable. The examiner wondered if S was simply making random responses (guessing) or perhaps was functioning at a level that he was just at a threshold of understanding. This fluctuation between levels of reasoning and understanding is characteristic of a child at the beginning of the second stage of Piaget's pre-operational phase. Here the child may begin to contemplate the problem and resolve an answer, at one level of intellectual development, but

drop back to a more familiar reasoning level when pressed to answer. This would explain why a child would seem to handle a concept clearly one time and work in error at another time.

In part (b) S responded correctly but could not give an explanation of his reasoning. This again reflects a fluctuation between levels of reasoning and total understanding. He was not able to give reasons for his actions or opinions. In part (c) (CD-V) S was shown the original water jar and a jar that was both wider and taller. When water from the second original jar was poured into the new test vessel S continued to respond that there was the same amount of water in the second vessel as there had been in the original vessel, but gave no explanation for his judgement.

Part (d) elicited a correct response, but S's verbal explanation reflected that he based his choice of water levels on his memory that the test jar being used was the same jar as was used in a previous task. The observer was left with the distinct impression that S had no concrete intellectual concepts on which to draw conclusions concerning conservation of substances. This would not seem to be an unreasonable assumption for a subject of this age. S is at an age level that falls about in the middle of Piaget's pre-operational phase (four to seven years) and seemed to be able to grasp some properties of each task, but was not able to give accurate and clear explanations of his reasoning.

A brief discussion of Piaget's conclusions on the conservation concept may be helpful in pointing out the relationships the

previously presented tasks have with intellectual development and the role-taking ability.

Piaget concluded that children in the four to seven year level have not formed an idea of ordinal or cardinal numbers. They also do not grasp the idea of classes of things in extension, which depends upon the inclusion of parts in a permanent whole (S's responses reflect this theory in Tasks CD-I through CD-V.) Piaget further concluded that the essential forms that these numbers or logical classes give to the mind of the child are thus bound closely to the process of conservation. The child then proceeds to the ideas of permanence of groups and quantities by the coordination of the relationships involved. This is the process of coordination, at once social and intellectual, by which the child is able to escape from his egocentric point of view and find his place among other people (Piaget, 1937, p. 48)

The next eight tasks were taken from Flavell's study of The Development of Role-Taking and Communication Skills in Children (1968). These tasks dealt more directly with role-taking abilities and are referred to as RT-(role-taking) I, RT-II, RT-III, RT-IV, RT-V, RT-VI, RT-VIIa, RT-VIIb. Tasks RT-I through RT-V were presented to S in order to observe the very basic role-taking skills that he might possess.

The correct assessment of S's role-taking skills used his problem solving or responses to each test task is questionable. There was a probability that a response was evoked that did not directly

reflect the use of role-taking skills. This possibility seemed rather low in Tasks RT-III and RT-IV. In Task RT-III S was required to choose from a large number of options. Because of the large number of response choices in Task RT-IV it also seemed to reflect a fairly selective use of role-taking skills in making a response selection. In Task RT-IV there were four possible answers S might contemplate.

In the remaining three tasks (Task RT-I, II and V) S was presented with only binary choices. Although these three latter tasks may have represented a true utilization of role-taking skills, because the chance of "guessing" it was difficult to make role-taking assessments in the analysis of the response given by S.

For the above reasons, it was felt that of the five tasks exploring basic role-taking abilities, Tasks RT-III and RT-IV were the most explicit in testing or presenting role-taking and any related variables.

Flavell concluded that to do well on these five role-taking test tasks the child must have learned how to do three closely interrelated things (Flavell, 1968, p. 184). First, he has learned to infer whether the presented stimulus is or is not visible to the observer. Second, the child learns that when an object is placed between himself and the observer that the observer will see not what the child sees, but whatever view is presented on the opposite side of the object. This does not suppose that the young child may be able to relate what the observer sees, but simply that the child is

aware that the observer sees a view different than his own. Finally, the child " . . . attains the recognition that, when he and O are at opposite ends of X and are looking down at it, O will see it upside down if he himself sees it right side up and vice-versa" (Flavell, 1968, p. 183). Role-taking thus requires coordination of perspectives on parts within a whole, the intellectual abilities tested for in the CD tasks. With these theories in mind we shall discuss S's performance on the first five test tasks.

On the overall five test tasks S did quite well. In Task RT-I S was asked to show E the tagboard picture of the boy standing on his head. S responded incorrectly, but both the recorder and E felt that this response was due to haste and over-enthusiasm on the part of S to perform rapidly and fluently at the onset of the test session. S's mother and teacher had both reported (see interviews with mother and teacher) that S was anxious to please who ever was giving instructions and usually set about the requested task immediately. This characteristic seemed to be reflected in S's quick and rather hasty answer to the first task of the section.

Task RT-II required that S, after examining both faces of a picture card, interpret what E was seeing on the opposite side of that same card when it was held up by E. This seemed to present little difficulty for S and he appeared pleased with his performance. In Task RT-I all views of the stimuli were visible to both S and E and this required only the very basic beginning of role-taking skills to be used by S. Task RT-II presented a new variable and required

that S realize that E was seeing a view quite different from that seen by S. S seemed to readily observe that there was a perspective visible to E other than S's own. This would indicate that S is emerging from the egocentric stages theorized by Piaget and realizes that others have different views of objects than he himself has.

Tasks RT-III and RT-IV presented quite different response choices to S. In Task RT-III S was shown a card that has the same three pictures, arranged in the same spatial order, on each card face. S was then required to assess what was visible to E as E moved a shield down E's side of the card. S seemed to easily compute what was visible to E through watching the movement of the visible portion of the shield card. It is interesting to note that Frank (Bruner, 1964) reported that by removing the visual cues, which she did by veiling or shielding in liquid volume tasks, the young child (four to seven years) gave a higher rate of correct responses. In Task RT-III S did not appear to be particularly confused by the visual cues being presented, but instead seemed to use these cues in ascertaining the view of E.

E felt that Task RT-IV was perhaps the most difficult of the first five RT tasks to correctly assess what was taking place. In this task S was given a cardboard cube which was identical to one held by E. Both cubes were identically outfitted with a different colored picture on each of their four vertical faces. After E pointed out each picture and emphasized the cubes' identical properties, E made a picture selection and requested S to turn to the same picture

on his cube that E was looking at on E's cube. Although S made a correct response choice with a minimum amount of hesitation, both the examiner and recorder later concluded that the response could have been derived by guessing rather than a method of analysis by S. S turned his block several times and did come up with the correct answer, but there was a feeling of doubt on the part of E if S did in fact use a form of role-taking in arriving at his answer. If S did use role-taking in this instance he would have had to choose between four possible answers. In order to do this he would have had to extract the problem and deduce the answer from the possible choices. Piaget placed this ability to solve simple problems in the intuitive stage of the pre-operational phase (four to seven years). In light of this age grouping S may have been using a role-taking ability in his problem solving task, but he did not visibly do more than randomly turn the cubes in selecting an answer. He did not appear to even contemplate the picture positions that were visible to him on E's cube. After the test session was completed this task (RT-IV) was presented to S again. The second presentation was not tape recorded, but a manual record was kept. At this time S made an incorrect response and apparently had simply made a random selection of the pictures on the cube. The conclusion seems warranted that, although this task was indicated by Flavell as more indicative of refined role-taking skills than some of the earlier tasks (because of the number of response selections possible), in this case it did not provide an accurate assessment of what was actually taking place in

regards to how S made a response choice.

Task RT-V was perhaps the easiest task presented in the entire test session. In this task E showed S a stick that was pointed on one end and cotton-tipped on the opposite end. After the stick was suspended between E's and S's hands, S was asked if the stick was soft or sharp in E's hand, and secondly, upon turning the stick, if it was soft or sharp in S's hand. S responded correctly to both questions. This is the only task in which S was presented with obvious tactile cues to augment the visual and auditory cues presented by E.

After completing the first five RT tasks it was concluded that S's performance closely followed the theories on developmental levels that were explored by Piaget and Flavell. S's fluctuating response pattern reflected that he was in the period of transition that Piaget called the pre-operational phase (four to seven years). S gave correct responses frequently and incorrect ones occasionally. His reasoning seemed completely spontaneous and rapid. This ability to take note of differences in perspectives was apparently well developed; ability to reason regarding these differences was not yet developed.

S was able to function at the basic levels for successful role-taking that were outlined at the beginning of this section and presented in Tasks RT-I through RT-V. His failure to respond correctly to Task RT-I (black and white figure of a boy on a card) seemed to reflect over-enthusiasm to answer rapidly. In Task RT-IV he again

gave an incorrect answer to what picture E was seeing on E's cube. S responded incorrectly both times Task RT-IV was presented. These responses indicated that S was not using any role-taking skills in trying to assess which pictures E was seeing from E's point of view. His failure to answer correctly on Task RT-IV did not surprise or disturb S, he seemed to simply accept the fact that he had "guessed" wrong. The correct responses given by S on the other three tasks of this section amplifies the period of fluctuation that S is working on in his problem solving.

It should be pointed out that the examiner minimized any failures on the tasks during the test session, although an incorrect response was acknowledged. It was felt that repeated failures could cause anxiety or boredom in S's attitude towards the test session.

The next three tasks were also taken from experiments presented by Flavell (1968) and were designed to assess the communication skills that S possessed. Again, all materials used were made by the examiner in as accurate a duplication as possible of those described by Flavell. In each task (RT-VI, RT-VIIa, and RT-VIIb) the materials used appeared to be of significant importance in precisely presenting and assessing the variables to be observed.

In Task RT-VI S was presented with seven picture cards that related an obvious story about a boy walking along whistling, a ferocious dog coming up and chasing the boy, who climbs an apple tree and then sits on a limb eating an apple as the dog wanders off into the distance. The cards were designed so that after the removal of

cards numbered 2, 3 and 4, the remaining four cards would give the pictorial impression of a totally different story. Upon the removal of these cards S was asked to relate this new story to a person (E₂) who had just entered the test area.

Flavell hypothesized that this task would reflect role-taking abilities under the following interpretation. In the second part of Task RT-VI S supposedly views the four picture sequence from a cognitive perspective quite different than that of E₂, in as much as S has been previously exposed to the longer more detailed story represented in the original seven cards. S must be able to remove these new story cues from the cognitive whole he has previously seen. Flavell stated that the child could scarcely see the new story except through his previous story influence. The role-taking task then requires S to suppress his own perspective and reflect solely on what is being seen by E₂.

It was difficult to determine whether S was using role-taking skills or simply stating the story as the cards presented it in each part of Task RT-VI. It appeared that S was giving a purely descriptive analysis of the cards presented and not connecting them into a flowing story or narrative. His posture and dialogue throughout the task indicated an abrupt movement from one story card to the next. Only after further questioning by E₁ did S seem to draw any conclusions or connections between the story cards.

S responded clearly and directly on the first part of Task RT-VI (seven picture story). In the first part he was asked to

relate to E the story the seven cards seemed to make up and E was allowed to make suggestions or ask leading questions if any important part of the intended story was eliminated by E. This was not necessary during the actual test session. S related a story consisting of a picture by picture description for each picture involved. In the second part of RT-VI S was supposed to tell E₂, who had just entered the room and not seen the original seven cards, the story depicted by the four remaining cards. In the second part of the task S related a brief descriptive four picture story to E₂, seemingly uninfluenced by the previous seven picture card activities. Flavell concluded that in responses such as those exhibited by S, there is little direct evidence of the role-taking process taking place. When the child operates at the descriptive level a whole is never created which must be broken up in response to the demands of role-taking.

Upon first inspection this task seems very elementary and requires only that the child observe the visual data available to him and draw his story from them. Even a very young child could do this. However the role-taking aspect of this task lies in the fact that the child has just previously been exposed to additional related visual data but in a different setting. If the seven picture experience has resulted in the production of seven picture whole, then this whole must be broken up to create a new four picture story. Successful role-taking in this instance would require the child to search for the perspective of the other person and at the same time

keep his personal perspective from intruding during the search (Flavell, 1968, p. 81). The task is not a test of role-taking ability if the subject operates purely at the descriptive level. Then a whole is never created.

At one point in part two S did regress somewhat to reasoning influenced by the first seven picture story. As he was pressed by E₁ to give E₂ more detail and explanation of the four picture story, S said the boy went up the tree because the dog chased him, but after E₁ questioned whether E₂ would know this fact, S said that he (E₂) would not. In this instance S may have momentarily lost whatever role-taking set he had had before and was functioning on a level of reasoning at which he was not yet comfortable or secure (Flavell, 1968, p. 77).

Flavell was working under the influence of Piaget's theories exemplifying the tendency for older children to link statements by causal and logical connectives, such as "because", "so", and "and then". S's dialogue contains few of these connectives. This would reflect a viewing of the cards from a purely descriptive standpoint and not exhibit anything other than the ability to interpret the visual data presented. Flavell felt that any cognitive phenomena would be reflected in the child's reasoning and choice of wording in regards to the seven and four picture story.

As reported by the subject's mother and teacher (interviews) S is not a particularly aggressive child. He is anxious to please and do what is required, but he is not one to over-exaggerate or

expand on description or directions. These character traits may partially explain S's passive and straight forward approach to Task RT-VI. He followed directions explicitly and did not deviate to any elaboration of what was being presented. It was hoped that Task RT-VIIa and RT-VIIb would elicit more substantial data on which to determine S's role-taking abilities in conjunction with his communication skills and level of intellectual development.

Task RT-VII required that E₁ show S a game and that S become familiar with the game rules and objective through playing the game itself. The game involved the shaking of a dice in a cup and the moving of a small plastic pig to the corresponding color band on a game board that was also indicated by the upturned face of the dice. E₁ gave no verbal explanation, but exaggerated any moves of the game (through gestures) that seemed to be unobvious to S. The lack of verbal communication at this point increased the probability that S would later give explanations of the game in his own words and vocabulary. All possible dice combinations turned up and there was no need of explanation to augment excluded game rules.

Task RT-VII had two parts, a and b. S was to relate the rules of the preceding game to two people with different listener role-attributes. This means that the two additional people involved in the game task had different requirements in gaining information related to the game. In part a of RT-VII the other person used in the task was sighted and able to get supplemental cues from seeing the game materials (E₂). In part b of RT-VII the person entering the

test area (E_3) was blindfolded before the game instructions began and had to rely solely on the verbal explanation offered by S. A child about one year older than S was chosen for the role of E_3 . This researcher thought that having S address an audience that was near his same age would in some way affect his choice of words for the explanation of the game. However there was no significant difference recorded in the explanations offered by S in parts a and b of RT-VII.

Flavell hypothesized that a child who was mature in his role-taking ability would realize the different listener role attributes of his two players (presented separately) and take this into consideration when giving game rules and objectives. In introducing the game procedures S was carefully instructed that E_2 could look at the game materials and later that E_3 was blindfolded and couldn't see what was on the table. There were two stipulations that S was required to follow in his relating the game rules to E_2 and E_3 . First, no one could touch any of the materials; and second, E_2 (and then E_3) couldn't ask any questions during the game explanation.

In their analysis (Flavell and associates) divided the task results into three basic areas: different words used, game information and inadequate information.

S used the minimal amount of words in relating the game to E_2 . His response consisted almost solely of "you get that, you go there" (dialogue: appendix). After this brief explanation S seemed satisfied that he had finished explaining the game. When questioned

by E₁ as to the adequacy of the explanation, S responded negatively to the suggestion that he say more. However, after some more leading questions by E₁, S was more inclined to add some further explanation of the game. However, even when giving further information S still used the minimal amount of words possible. An example was when E₁ pointed to the cup, all S said was "supposed to shake that" (dialogue: appendix).

In the section of analysis designated game-information there was more concern with game materials, method of play and additional information offered. In S's first response or game explanation he didn't mention any game materials. After E₁ inquired further S merely responded with more pointing and repeated such things as "you shake it" (meaning the cup used to shake the dice in).

The method-of-play response section was a more direct reflection of what S seemed to be concerned with. After further questioning S related the facts that you must shake the dice in the cup and move to the same color strip designated by the upturned color of the dice. S failed to relate that the two players should take turns, nor at which point the game is finished or who wins, nor did he explain the playing board and significance of the colored bands. S did include an explanation that if the player shakes the dice and it lands with a black color up then there is no move. S did not give any additional information such as that the white band, on the playing board, was not used.

In the analysis section designated inadequate information

Flavell was trying to find out the negative of game-information, which is a measure of what the listener fails to grasp rather than what he grasps successfully. This measurement (of inadequate information) was hypothesized to reflect that an older child would give more information to the blindfolded participant, after having assessed his listener-needs, than would the younger child. In giving adequate information S would supposedly give information that did not have adequate previous background, or left out critical descriptive terms. In this observation S did give inadequate information, such as "supposed to shake that" (meaning the cup, but not previously mentioning this article) and "get that and stay there" (meaning dice color and corresponding game board band but not having discussed the dice or game board previously.) Flavell felt responses such as these reflected an immature assessment of listener needs. This then would be a measure of role-taking skills.

At the conclusion of this portion of Task RT-VII S was functioning at an immature level of successful role-taking. S felt secure in his brief game explanations, and obviously was not bothered by the fact that E₂ and E₃ were not completely informed about the game. This lack of concern for role-taking requirements was previously exhibited in Task RT-IV when S failed to make any logical deduction of which picture E was viewing on E's cube. If S is in the transitional period Piaget calls the pre-operational phase, then the immature role-taking abilities exhibited in the above tasks are expected for a child his age.

After analyzing the message S gave in Task RT-VIIb it is apparent that if the same message that was inadequate for E₂ (sighted) was given to E₃ it would be doubly confusing because of E₃'s blindfold. The responses recorded for RT-VIIb revealed that S seemed unaware that the blindfolding of E₃ necessarily changed his listener-needs in understanding the game presented. Flavell concluded that a true assessment of the informational needs of the listener, which is a basic criteria in successful role-taking, would be reflected in the difference between S's choice of words and length of explanation in the two listener situations. S did not lengthen his explanation, nor did he use more descriptive words when speaking to blindfolded E₃. E₁ had thought that Task RT-VIIb would reflect a more precise game instruction, if merely for the reason that S had just moments before been given clues for information that was needed by E₂ in Task RT-VIIa.

In his initial dialogue for part b of this task S repeated just about what he had said to E₂, except that this time he included color reference. He did not make reference to the game materials and only seemed to infer methods of play (ie. "if you get a red, you go down here"). When it seemed clear that S had finished his explanation E₁ asked questions of S that elicited further mention of the role of the dice, the cup, and the two pigs (these had not been mentioned to E₂ in the previous part of this task.) During this further dialogue there still seemed to be little continuity or order to the instructions given by S. He appeared to mention objects or game moves as he

noticed each different game material that was spread out on the table before him.

This was an interesting task, originally presented by Flavell to older children (seven to sixteen years) but adaptable, because of its simple nature, to children in S's age range. This task was probably S's favorite and he seemed confident in his role of telling E₂ and E₃ how to play the game. S did not apparently feel confused or inadequate in his role as informant. E₃ (the other child used in these tasks) also exhibited no annoyance or concern about the adequacy of the message related by S. This was interesting to observe, since it seemed obvious to the adult participants that S was not giving adequate information. S and E₃ played several games after the termination of Task RT-VII and had no difficulty with rules or procedure in the game.

Flavell concluded that "where role-taking activity plays no part in the communicative act, the message is little more than an audible self-coding. The speaker says to his audience roughly the same thing he might say to himself, for example, in silently reviewing the message data for some purpose" (Flavell, 1968, p. 95). He further hypothesized that where role-taking does play a part there are several things taking place. First, S would have attended very carefully to his listener, which he did not (in fact he never looked at the listener) and secondly, the resulting assessment of the listener-role-attributes would continuously affect the content of the message, which they did not.

Using Flavell's above mentioned criteria for assessing S's use of role-taking abilities, we must conclude that in Tasks RT-VIIa and b, S was egocentrically oriented and approached the problem of transmitting the game information in little more than a self-coding manner. What is significantly related in the two parts of this task is whether S sees that there are different informational needs for E₂ (sighted) and E₃ (blindfolded). S, in this study, showed literally no concern or even knowledge that his listener's did in fact have varying informational needs. Hence, in both this task, RT-VII, and in the picture task, RT-VI, S appeared to lack a role-taking orientation. Rather than communicating to inform in terms of assessed listener-needs, S produced self-encoded messages consisting of descriptions. The first five tasks, RT-I, II, III, IV, and V indicated an ability to take note of differences when confronted with the task of communicating and designing messages in terms of such differences in informational perspectives. Instead, S reverted to operating and communicating at a descriptive, egocentric level. S would appear to be at a transitional stage for all of the tasks presented.

CONCLUSIONS

The objective of this case study was to observe a subject while he was presented with various tasks that had been hypothesized in previous research (Flavell, 1968; Piaget, 1937; Bruner, 1964; Frank, 1964; and Elking, 1961) as reflecting a child's level of

intellectual development, role-taking ability, and communication skill. It was felt that by observing a single subject throughout the various tasks that subtle variables in developmental levels could be more easily observed.

After completing the thirteen tasks in this observation it was concluded that S's performance closely followed the theories on developmental levels explored by the above cited researchers. S was able to function at the basic levels for successful role-taking which were presented in Task RT-I through RT-V. The two tasks in which he was not successful (RT-I and RT-IV) seemed to reflect over-enthusiasm, rather than inability, in Task RT-I, and a simple lack of role-assessment in Task RT-IV.

Although S was basically unsuccessful in his attempts at solving the tasks introducing concepts of conservation (Tasks CD-I through V), it was concluded that he was functioning at the levels for his age group that had been outlined by Piaget and explored by Elkind. Further investigations of concepts involving conservation of liquid volume across transformations in its appearance (Bruner, 1964) reflected that S was almost exclusively oriented to visual cues (dimensions) in his problem solving methods.

S successfully related the stories that were presented in Task RT-VI, but at a descriptive level of functioning. This researcher concluded that although S successfully told the story reflected in the last four picture cards, this was not due to analysis of the visual cues available to E₂, but simply a viewing of the visual

cues from a strictly egocentric standpoint. S apparently had divorced himself from the first seven picture story cards and saw the four picture story cards as a new sequence of events. It was difficult to ascertain what was taking place here, for although S was successful in the solution of the story problem, his problem solving methods did not seem to reflect role-taking.

Task RT-VIIa and RT-VIIb explored communication skills and their relation to role-taking abilities. In these tasks S literally seemed oblivious to his listener's informational needs. Even after questioning he gave very brief and inadequate directions for the game presented. It was concluded that there was a total lack of any role-taking skills used in compiling his communicated messages.

All of the above conclusions place S's performance at about the levels postulated for a child of his age. He was able to see that in simple situations involving objects another person sees a view other than S's own, but he was not able to carry his view or assessment of various properties (conservation of mass, weight, and volume) across any transformations in their appearance, the coordination of parts within a larger whole necessary to role-taking. This lack was again reflected in his communication inadequacy when he was not able (nor concerned with) transmitting messages that reflected an assessment of his listener's role attributes, and different informational needs.

The awareness of a child's level of functioning and comprehension would aid a therapist in both diagnostic interviewing and

decisions on where to begin therapy. If the therapist could recognize the levels of development, intellectual and communicative, that the child was functioning on, more meaningful and efficient therapy sessions might be planned. These two developmental areas (intellectual and communicative) are often reflected by role-taking skills and this offers a therapist a means of determining functioning levels by presenting simple tasks to the child during the initial diagnostic interview.

This researcher concludes that further research is needed to create tasks that are tightly controlled and that the therapist or interviewer could feel confident were actually a reflection of what is being questioned or sought.

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APPENDIX A. Dialogue

Task RT-I: Black and white drawing of childlike figure

E₁: I'm going to show you a picture first, O.K.? See this picture, the boy is laying down, and here he is standing up. What's he doing here?

S: He's standing on his head.

E₁: That's right. Now, I'll come back over here. This time we'll lay the boy down, and you show me the boy standing on his head. So I see the boy standing on his head. Can you turn it so I see the boy? I want to see the boy standing on his head, O.K.?

Task RT-II: Tagboard with dog on one side, and birthday cake on the other side

E₁: But this one has two pictures. One on this side, a dog; and one on this side . . .

S: A birthday cake.

E₁: That's right, with four candles. O.K., now I'm going to look at a picture. Now I want you to tell me what picture I'm looking. Which one am I looking at?

S: Um, cake.

E₁: That's right! Which one are you looking at?

S: Dog.

E₁: Good.

Task RT-III: Tagboard with airplane, teddy bear and clown

E₁: This one is a little different. This one has three pictures. There's an airplane, a teddy bear and a clown. Look on this side, it's the very same: airplane, teddy bear and clown. See, they're in the same spot. O.K., now, if I covered these up; watch, I'm going to cover these up, what do you see on your side?

S: Clown.

E₁: And what do I see on my side?

S: Clown.

E₁: That's right. I see the same one, don't I? Now, this time I'm only going to cover it on my side. O.K., now you tell me what I see on my side. What do I see on my side?

S: A clown and the bear.

E₁: Right, O.K.. Now I'm going to cover it up again. Now what do I see on my side?

S: Clown.

E₁: Well, that's right. Andy, boy you're getting fast.

Task RT-IV: Two cubes, each having four identically placed pictures:

bird, bear, chair, and train

E₁: Now we have some big blocks. Here is one, let's look at the pictures on it. What do you see here?

S: A bird, a train, a bear and a choo-choo . . . train.

E₁: Right. Now look, I've got another block just like this one.

Look, they've got the same pictures on them. Now, you take this block, and I'll keep this one. They are just the same aren't they? Like twins. Now, I want you to hold your block and watch me. I'm going to turn my block all around and pick a picture. What will I look at? O.K., I'll look at this picture. Now, I want you to look at the same picture on your block that I'm looking at on my block. You decide what picture you think I'm looking at and then you turn your block until you see the same one I'm seeing. O.K.?

S: The train.

E₁: You say I'm looking at the train? O.K., what picture are you looking at?

S: The train.

E₁: And what picture am I looking at?

S: The train.

E₁: Right! That one was fun, wasn't it? We'll have to try this game with Brandy.

Task RT-V: Stick that is pointed at one end, and cotton-tipped at the other

E₁: Here we have a stick. Put your hand out here. It is sharp in my hand, feel it in yours? Now it is soft, isn't it? Well, put your hand up like mine. That's right. Now I'll put the stick between our hands. Will it stay up? Yep. Now, is it soft in my hand?

S: Nope.

E₁: Then is it soft in your hand?

S: Yes.

E₁: Let's turn it around. Now is it soft in my hand?

S: Yes, and it is sharp in my hand!

E₁: Right! That was an easy one, wasn't it?

Task CD-I: Twenty-four sticks of equal length

E₁: Shall we do that sticks one again? Remember the green sticks, and we counted them out? We counted those out. O.K., here we go. I'll take this many, and you take the same as I do. Right. Now let's put them together and be real sure that there just the same amount. Put them up close and you can tell. Are they the same now? O.K., now you leave yours there. Now do you think I've got the same number of sticks as you've got? Do we have the same number? You don't think so? What happened?

S: Your's is spreaded out, and mine isn't.

E₁: So, we don't have the same number anymore? Do I have more or less than you do? Do you think I have more or less than you do?

S: Less.

E₁: You think I have less than you do? Well . . . that's too bad! Because we started out the same, didn't we? Good, well now, we are done with that one.

Task CD-II: Two balls of clay, equal in size and weight

- E₁: Now, we're going to do the clay a little bit again, because we didn't get to write down all the things we thought about, O.K.?
Oh, those hotdogs, roll that one in a ball again. I better move the water before I knock it over.
- S: Oh, yeah.
- E₁: We're getting better at this, they're not so squishy.
- S: Well, I like to roll them out.
- E₁: O.K.. There we go. Well, that's probably good enough, let's look at them. Bring one over here and let's see if they're, think they're almost the same size again? Hum? The same size, this one's the same as this one. O.K., now. We'll talk about it again. What do you think, if I rolled this one into a hotdog, do you think there'd be the same amount of clay here as there is over here? The same amount? You don't think so? O.K., let's look. Now, there's the hotdog. Do you think there's the same amount of clay in the hotdog as there is in the ball? Is it the same amount? What do you think?
- S: That one's the same, and that one's just about the same.
- E₁: So what do you think, are they the same or are they different?
- S: Different.
- E₁: There's a different amount? Oh. Which one do you think is different? Different amount? That one? What d'da think about it?

S: That's 'cause that one's not into a hot dog and that one is.

E₁: Hum, that one's not in a hot dog, and this one is. O.K.,
we'll just leave this one right here in a ball.

Task CD-II: Part two

S: I can finish that one.

E₁: You try to get that one, O.K.. They don't have to be perfect,
but we want them close to perfect! These look pretty good.
Yep, they're the same size again. Do you think they are?
O.K., now, if I roll it into a hotdog this time, this one, do
you think they'd weigh the same? If you picked this ball up,
and this hotdog up, do you think they'd weigh the same?

S: I think so.

E₁: You think they would, huh? Let's look at what we think after
we get it in a hotdog. O.K., now it's in a hot dog. Now look
at it. Do you think if we picked up this one, and this one,
they'd weigh the same? What do you think? Think they would,
huh? Why do you think they'd weigh the same?

S: Ummm, that one's the heaviest, and that one's the heaviest.

E₁: Think they're both heaviest? Think they're both the heaviest?
Humm, O.K..

S: How about this?

E₁: Yeah, you want me to put this one into a ball? Now this is the
last one with the clay.

Task CD-II: Part three

E₁: This one we have to talk about a little bit more. Here they are the same again. Two globby balls. O.K., now if I roll this one into a hotdog, do you think it'd take up the same amount of space? Huh? You don't think so? Well, let's look. The same amount of space, take up the same amount of room, in the air. Now, do you think it takes up the same amount of space as this one? The hotdog. Why don't you think that?

S: I don't. This one, they don't have the same amount of room.

E₁: The round one's not the same as the hotdog? So you don't think they take the same amount of room? Huh? Well, you know, you could be right. I hadn't made up my mind on it yet, and I wondered what you thought. Well, we're finished.

Task CD-III: Conservation of liquid volume across transformations in its original appearance. Two identical beakers, third beaker thinner than original

E₁: These two jars are the same size. Let's pour some water in here, pour this much. Now, I'm going to pour the same amount over here, Andy. About the same.

S: Same.

E₁: Is it? Good. Now this time I'm going to get a tall one. Now, these two are the same, aren't they? O.K., now I'm going to pour this one into the tall one. Now, do you think there is the same amount to drink in these two jars, is there as much to

drink in here as there is in here? Are they the same?

S: That one's the much.

E₁: Much what?

S: Water.

E₁: More water? Do you think there is more to drink in here?

S: Umm hmm. That one's little, and that one's big.

E₁: They're not the same, to drink, huh? Not as much to drink.

O.K., we'll pour it back in here.

Task CD-IV: Conservation of liquid volume across transformations in its appearance. Two identical beakers; several smaller beakers of equal size

E₁: This time we will use three little jars. Now, there's the same amount of water in these two, aren't there? There's as much water in this one as there is in this one. O.K., now I'll pour it in here. Now, do you think there's the same to drink in all of these jars as there is in this one? All of these jars.

S: That one's the much.

E₁: Which one? You think there's more to drink in here than in all of these?

S: That one's got much water, and these got too.

E₁: All of these together, huh? O.K..

Task CD-V: Conservation of liquid volume across transformations in its appearance before and during screening, and upon unscreening

displays. Two small, identical beakers; one taller beaker of same diameter as original beakers; one wider beaker of same height as originals; one standing screen which can still show top of original beakers

- E₁: You know, you might be right. Umm, I'll pour these back and we'll take . . .
- S: What about that?
- E₁: Right. Now this time, pay attention. O.K., this time I've got two little jars just the same, aren't they?
- S: Uh huh, that one's standing low and that one's up.
- E₁: That's right, but they're the same size. O.K., now I'm going to mark on here with the pencil, right here. That's how much water's in that one. O.K., see that little mark? O.K., that's how much water's in this one. Now, I'm going to take this water and pour it in the jar like this. Now, you tell me on this paper, you look, you tell me where you think the water is on this jar. Where do you think it is?
- S: Here.
- E₁: Do you think they are the same? Why do you think they are the same?
- S: That one's up there, and that one's up there.
- E₁: And I just poured one from the other? Huh, you were right! You knew, didn't ya? O.K., let's try it with another size jar.

Task CD-V: Part two

E₁: This time I'm going to use another size jar. Wahoo.

S: That one's little and that's the big one!

E₁: That's right, a little one and a big one. O.K., now I'm going to mark here again, where the water is, is that the same? Is there a mark on this paper where the water is? O.K., now this time I'm going to pour this into the taller one. Now, where do you think the water's going to be this time. Think they're going to be the same? Why do you think they are going to be the same?

S: I don't know.

E₁: You just think they are, huh? You don't want to guess? O.K., you were right! They're still the same. Now we'll put the water back in again.

Task CD-V: Part three

E₁: And this time I'm going to get a jar, this is taller'n this one. But they're different. Think they're different? O.K., well, let's mark it again. O.K., that's where it is on that little jar. Right? Now let's pour it in this other jar. That's right, this is how you folded it yesterday. O.K., let me, there, now you can see the top of this one, O.K.. O.K., now you watch on the paper, and we have to decide. I'm going to pour it in this one, pour the water, now, where do you think the water is this time? You still think it's the same? What

happened? It went down, didn't it? Yeah, well. Let's try it with the last jar.

Task CD-V: Part four

E₁: Now this jar is taller.

S: And this tiny one.

E₁: And it's littler. O.K., here we go again. Watching? Same place, here's the water, in that little one. O.K., I'm going to pour the water into this bigger one. Now, where do you think it is? Down here?! Why do you think it's way down there?

S: Because . . . that's where the others are.

E₁: The same as the others are? What, oh, the same as the jar we used over here? Oh, they were the same size? Oh, well, I didn't even notice that. See you were right, it's down at the bottom. You did a pretty good job on that one, didn't ya.

S: Uh huh.

Task RT-VI: Presentation of seven story cards to S on initial task; removal of three picture cards with the requirement that S give a brief story representation to E₂ from the remaining four card series.

E₁: Now I want you to tell me a story. What do you think is going on here? It starts right here.

S: He's walking along using a switch, and the dog is chasing him

up the hill, and then up the tree, and that's why he's up there, and then he balances up there, and then he climbs down from the tree and into the house.

E₁: That's right. Look over now.

S: The dog's.

E₁: Umm. So, he was walking along and there was that dog there. Oh, he dropped his stick, and what goes on here?

S: Chased him.

E₁: And he goes up that tree. Oh! Look there! O.K., that's a good story. I think you did a good job. Well, I guess that's what happens. Now, here you go. Now we are going to ask Mr. Hawkins to come back. O.K.? And, then you can tell him. Andy, I'm going to take pictures away. I'm going to take these pictures, and he won't see 'em. Let's put 'em over here. Now, I'm going to get Mr. Hawkins. I think he's right out here. Hi, he's right outside the door! He can sit right over there by Andy. He's got something to tell you. O.K., Andy. We did this before, didn't we. Now, I'm going to put these pictures out. Now, Andy, you tell me . . . you tell me the story you think Mr. Hawkins sees about these pictures. He'd probably tell us a story about these pictures, so you tell me what you'd think he'd say. You take a look at these pictures and tell me what you think he'd say.

S: I don't know.

E₁: Well look, what do you think he'd say about these pictures.

Let's just start. Read these the same way. We'll just go right across here. We'll start on this one. What's this boy doing?

S: He's walking down the sidewalk, and then he runs up into the tree, and the dog, he goes home.

E₁: Well, that's right! I wonder why he ran up this tree? Why do you suppose he ran up the tree?

S: I don't know.

E₁: Maybe he just wanted to get up in the tree, huh?

S: Huh uh, the dog chased him.

E₁: Do you think Mr. Hawkins thinks the dog chased him? You don't think he thinks that. Just you and me, huh? Oh. O.K., over here though. Oh, he does see the dog over there. What was that dog doing?

S: Just . . .

E₁: How about the boy, what's he doing in the tree?

S: Eating an apple.

E₁: Oh, he's just sitting there eating an apple! Mmmm. Oh, I think you did a good job! Did you like that story, Mr. Hawkins?

E₂: Yes, that was a good one.

E₁: I wish we all had apple trees in our yard, huh, Andy?

E₂: He's probably got some salt in his pocket to shake on the apple.

E₁: Ummm. Is it a green one? Is that what you'd put it on? Well, we can put these away then. I think you did a really good job!

Task RT-VIIa: S was required to explain the rules of a game to E₂ in as accurate a manner as possible. S and E₂ could not handle the game materials during the instruction period and E₂ could not ask S any questions

E₁: Now, this time we're going to play a game.

S: I think this is going to be fun.

E₁: Yes, this is really a fun game. You'll recognize all kinds of things to do. And, it's such an easy game, Andy, that we're not going to use any words. I'm just going to show you how to play it by handing you things and showing. How's that?

S: O.K..

E₁: We're not even going to use words, O.K.? Oh, who won that game?

S: You did.

E₁: Shall we play it again? I bet you win this time! You start. O.K., that's fun isn't it? Ummm.

S: Oink-oink!

E₁: Wow! Come on, Andy! Hurry up. Your big chance. Uh, you get another chance, though. You keep doing it until you get to the end. We're done with the game, but you keep doing it to the end. There you go. When we get home, you play it with Brandy.

Task RT-VIIb: S was required to explain the rules of a game to E₃ in as accurate a manner as possible, E₃ was blindfolded. S and E₃ could not handle the game materials during the instruction period, and E₃ could not ask S any questions

E₁: Now, Andy, let's cover these up because we have someone else coming in here. You remember Mr. Hawkins . . . that told the story to?

S: Yes.

E₁: Well, I told him we had this game, and he doesn't know how to play it, and he wants to be able to show his girls. So, just a minute and I'll go get him, and I'll . . . you leave the cloth there, O.K.? Oh, here he is.

S: Hi.

E₂: Hi there.

E₁: Hum, what's under there? Now, Andy, Mr. Hawkins wants to learn how to play this game, so I want you to tell him how. But we have two little rules. You can't touch anything . . . you can't pick 'em up. You can point at them if you want to when you're telling him, but you can't pick them up. And another rule: he can't say anything. He can't ask any questions. So, if he starts asking questions, you stop him, O.K.? You tell him as much as you can about this game, so that when he gets home, he can show his girls how to play it, all right?

S: O.K..

- E₁: Here, I'll take these things out. We'll lay 'em all out so that you can point at the things you want to tell him about. O.K., now we can't touch them. O.K., now you start telling him. No . . . you can't touch them. You start telling him how to play it, O.K.? How would he play it if he were going to tell his girls?
- S: Get that, go there. You get that and go there. If you get that you stay there. If you get that you stay there; get that and stay there; you can't move.
- E₁: Is that all you have to tell him, do you think? Do you think we should tell him something more? What about this. What do you think about this?
- S: Was over the . . . over there.
- E₁: Oh, he wasn't. Oh, what about this?
- S: Supposed to shake that.
- E₁: Oh.
- S: That does it.
- E₁: Uh. He just shakes the cup? What about this?
- S: Oh. Put that in there and shake . . . and . . . if you get a red one you jump.
- E₁: Oh. If you get a red you go. O.K., then if you get . . . what about the other colors?
- S: I don't know about them very much.
- E₁: You just shake it in the cup, huh? Well, do you think he could

go and tell his girls how to play it, if you told me what to . . .

S: Oh, one thing: get a black, you stay.

E₁: Oh, that's right. Now do you think he'd know enough to tell his girls? Think you could tell him all the things you said and they could play it, huh? O.K., well, do you want to take it home after we're done and show your girls?

E₂: We could make one!

E₁: Oh, it would be easy to make one, wouldn't it? It's a fun game, huh Andy? Did you enjoy it? Good. It was fun, more than we thought it was going to be. Well, we'll put things back in the cup . . . and, we'll help you make one someday, and you can show your girls.

E₂: That would be fine.

E₁: Thank you for coming.

E₂: See you again! Goodbye!

E₁: Now I'm going to go out and get one of the girls, O.K.?

S: O.K..

E₁: You stay there . . . I'll be back in a minute! We have a game to play. Andy learned this game a few minutes ago, didn't you? And, then, he told your dad about it, too. And now, he's going to tell you about it, huh; we're going to tell her so she'll know how to play. But guess what we're going to do. We're going to cover her eyes up. So this time she won't be

able to see. So you won't be able to point at anything. You'll just have to tell her about it. We'll have to tell her about all the things so she learns how to play the game, O.K.?

S: O.K..

E₁: You turn this way so you don't see anything, and I'll put the blindfold on her, just like she says pin the tail on the donkey with the blindfold on, too. Now, you tell me, Jenny, if you can see. Can you see?

E₃: No.

E₁: Oh, good. We don't want you to see. Andy's going to tell you a story, O.K.? Can't see, huh? Good. But we'll turn you back around so that you're going the right way to talk to you. O.K. here we go. Just a second while I get the things out for Andy. Now, Andy, the rules are the same. You can't touch these. We'll just talk about them, O.K.? And, you can't ask questions Jenny. O.K.?

E₃: Uh huh.

E₁: You just listen, and Andy is going to tell you all about this game so that you will know how to play it when we take the thing off your eyes. O.K., Andy. You tell her everything she has to know in order to know how to play this game.

S: If you get a red, you go down here, and then this player stay there, and that player will go and stay there, and that player wins.

E₁: Now do you think you told her everything?

S: Oh. And there is a cube, and if you get a black you stay there.

E₁: Oh. What do you do with the cube?

S: Put it in the cup and shake it.

E₁: That's right.

S: Then there are some pigs.

E₁: How many, do you think? How many pigs do you think we should tell her about?

S: Two.

E₁: Two pigs. You think you told her everything, so that if we took the blindfold off she would play the game with us?

S: Yeah.

E₁: Do you want to try that?

S: O.K..

E₁: O.K., now, Jenny, he told you the rules, so I'm going to take this off. There. And you guys can play a game. You want to? O.K., Andy, you start. O.K., Jenny. He'll start, and you kids can play this game. Good, Jenny won that one. I bet I know someone you can beat, Andy. Brandy. I bet you can, can't you? Shall we play it when we get home?

S: Ho-kayyy.

E₁: Was that a fun game?

APPENDIX B. Interviews

Description of Subject by Mother

Andy is the youngest of four boys. He seems more attached to his mother than his father, but the mother feels this is because he is the youngest child in the family. Andy's thirteen year old brother is his favorite and seems to help Andy more with dressing, etc. Although Andy was a premature baby, his physical development was normal. He remained smaller than average for his age group until about four years of age. He developed his speech and mental interests at an average rate for a child his age. Andy was left-handed as an infant, but shows a primary use of his right hand at the present time. He has had few childhood problems, no diseases, and mild asthma that occurs instead of a cold in the winter months. Andy is cooperative at home, easy to get along with, although he is sometimes whiney. After some consideration of his shyness his parents decided to have him begin kindergarten in September of 1971. He apparently enjoys school and has become more outgoing with other children. Andy is not a strong leader in groups interaction, but enjoys sharing and being with others. He is also content to play by himself at home. His mother feels he is a pleasant average child.

Description of Subject by Teacher

Andy is very cooperative and pleasant in school. He is gradually growing out of an initial shyness, but still is very quiet in large groups. He is hesitant to share ideas, although he is

capable. Andy is conscious of school rules and wants to conform without being reminded.

Andy's understanding of his school work seems to be good. His speech is good, although there was a change when consonants were used more often. He seemed reluctant to repeat statements if they were misunderstood, and if he did repeat them he did so with a very small voice and with his hand up to his mouth or in front of his face. The school speech therapist was consulted, but he found no speech difficulties. The change in speech coincided with the introduction of the more difficult schoolwork that included the concept of "sets".

Andy does not push to be first in lines, etc. at school. He will follow instructions, and will go ahead on his own if he understands the task presented. There are not many errors in his work, and if he does make an error he quickly recognizes it and feels embarrassed for making a mistake.

Andy is thorough and diligent in his school work. He is neat and clean. Although Andy has the usual problems in making letters he has mastered the writing of his first and last names.

Regarding creativity, Andy tends to follow the ideas presented by the teacher during the task instructions rather than create new ideas on his own.

Andy is polite and courteous to his classmates. He inter-relates best in small groups. When put in larger groups he is quiet and shy. He seems to enjoy sharing things, often bringing a game or

toy from home to show his classmates.