THE EFFECTS OF SIMULATION GAME PLAY UPON ORAL

LANGUAGE DEVELOPMENT AND INTERNALIZATION

OF LOCUS OF CONTROL AMONG MILDLY

HANDICAPPED ADOLESCENTS

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CHAPTER I

THE NATURE OF THE PROBLEM

Introduction

The acquisition of language has a profound affect upon cognitive

skill development. Piaget (1968) writes:

> This (language) has three consequences essential to mental
> development: (1) the possibility of verbal exchange with
> other persons, which heralds the onset of the socialization
> of action; (2) the internalization of words, i.e., the ap-
> pearance of thought itself, supported by internal language
> and a system of signs; (3) last and most important, the
> internalization of action of such which from now on, rather
> than being purely perceptual and motor as it has been here-
> tofore, can represent itself intuitively by means of pic-
> tures and mental experiments" (p. 17).

Language development allows access into avenues that were not previously

open to the individual. The internalization of behavior through a rep-

resentative process, facilitated by language, acts to increase the rate

at which experience and development may take place. This process is

the root of education, both formally and informally.

McGrady (1968) found the most prevalent condition encountered among

individuals exhibiting specific learning disabilities are those in which

language abilities have been impaired. Clements (1966) reported some

of these problems included aphasia, impaired discrimination of auditory

stimuli, slow language development and frequent mild speech disorders.

Bryan and Bryan (1978) felt that language disorders may be the central

problem for learning disabled persons reflected as reading, attentional

and/or behavioral deficits.

Language disorders manifested by the learning disabled are even more severe among the mentally retarded. Characteristically the mentally retarded display increased deficiencies in both receptive and expressive language skills (Payne et al., 1977). The mentally retarded exhibit a discrepancy in one or more steps of the behaviorally defined communication process of (a) initial verbal instruction or message of the speaker; (b) the discrimination response of the listener; (c) the verbal feedback by the listener and (d) the modified response of the speaker derived from feedback (Schiefelbusch, 1965).

Oral language problems found among the emotionally disturbed may be grounded in either the cognitive or affective domains or may be an interaction of both. Cognitive-based language problems among the emotionally disturbed often resemble those discrepancies exhibited by the learning disabled (Swanson and Reinert, 1979). Affectively-bound discrepancies in language may be exhibited as sporadic and usually inappropriate imitation of words and phrases and may be the foundation for confirmation of the emotional disturbance label (Hicks, 1972).

The problem of language competence in many emotionally disturbed students is confounded since the level of ability may be masked by performance variables such as emotional overlay, inadequate background, indifference, etc. (Swanson and Reinert, 1979).

Language development within mildly handicapped populations may essentially be defined as a discrepancy in cognitive-related skills, affective-related skills or as an interaction of both. This discrepancy limits interactions with other people and restricts access to shared knowledge, an important function of language. The discrepancy may be

found within one or all of the three major components of language: content, form and use. Bloom and Lahey (1978) felt that language consisted of some aspect of content or meaning that is coded or represented by linguistic form for some purpose or use in a particular context. Language is three-dimensional in concept and disorders may arise in any facet due to cognitive and/or affective discrepancy.

The oral language problems of mildly handicapped adolescents can affect both academic and social progress. Alley and Deshler (1979) state that secondary students use more formal speaking skills in content area classrooms, i.e., Social Studies and English. If the student's responses are viewed as confused and unclear by the content area teacher over repeated trials, the student is called upon less frequently. In a similar manner, without the development of speaking skills, both formal and informal, an individual's socialization skills will be limited (Bryan, Donahue and Pearl, 1981; Wiig and Semel, 1980). In language development beyond the classroom, studies by Bryan et al. (1976) and Alley and Deshler (1979) have concluded the connotative meanings of words are learned in more informal speech settings, as are colloquialisms and the subtle meanings and shadings of language.

To continue the downward spiral in academic progress, eventually most students failing school develop the opinion that they lack any control over the situation, the behavior exhibited or the contingency for the behavior (Phares, 1976). If they have been in many similar experiences, Davis and Phares (1967) found the potential of answering or asking questions will be almost solely determined by a history of previous successes and failures in those situations. The expected outcome is usually a lack of attention and trying within the classroom, a poor

self-concept and/or self-removal from the hurtful situation, i.e., tru-
ancy, psychophysiological illness, "dropping out," etc. Alley and
Deshler (1979) and Meyen (1978) found mildly handicapped individuals to
be more likely to display an external attitude toward locus of control
and more likely to fail in the classroom environment.

To better explain locus of control, consider the corresponding ex-
ample: at times when life appears bleak at best, one can sometimes call
upon an inner reserve that was previously untapped by recalling the suc-
cessful resolution of a similar situation by oneself or another. While
some persons will yield to stress, there are others who will excel under
the same circumstances. This orientation toward one's life and the be-
lief that individuals may or may not effect events in that life can be
described as the personality construct, locus of control. When speaking
of locus of control, two distinct perspectives are observable, internal
and external loci of control. Rotter (1954) postulates that individuals
learn through social reinforcement. Reinforcement, as it relates to
locus of control, may develop as a result of intrinsic satisfaction (in-
ternal) or as a result of luck, fate and manipulations by others (exter-
nal).

Phares (1976) found that learning and performance in specific task
situations are different when persons perceive that they control the
contingency between behavior and reinforcement than when they perceive
that they lack that control. When people feel that they can control the
situation, they are more inclined to exhibit behavior that will allow
them to cope with potentially intimidating situations as compared to
people who perceive that circumstances are beyond their control or other
uncontrollable forces determine outcomes (Rotter, 1966). Persons learn

more, perform better and are less anxious when they have a measure of

control over aversive stimuli or when consequences to actions are pre-

dictable (Glass, Singer and Friedman, 1969).

The locus of control construct may provide a keener understanding

of how perceptions can alter the nature of experiences for mildly handi-

capped individuals. A great deal of research has been completed in this

area with mentally retarded and emotionally disturbed subjects. Con-

sensus has been that an internal locus of control emerges later among

these groups due to a pain-avoidance mode of behavior that requires oth-

ers to direct and manipulate choices while prolonging adult contact

(Bialer, 1961; Cromwell, 1963; Trigg et al., 1976). The ultimate con-

sequence is rigid and frustrated behavior (Kolstoe, 1972). Very little

research has been conducted among learning disabled persons (Marsh,

Gearheart and Gearheart, 1978).

On occasion, games have been used to instruct and remediate. Simu-

lation games have been criticized by many researchers who felt that

games were not serious, when in actuality, the exact opposite is far

closer to the truth (Abt, 1970; Lindblad, 1976). Jean Piaget (1948)

noted the serious uses of games when he likened them to an introduction

to life because of their more than life-like situation. At the first

Casa dei Bambini, Maria Montessori adapted the curriculum and didactic

materials originally used in France by Edouard Seguin with retarded

children for her use with nondisabled children.

The central ideas of Montessori's educational pedagogy, grounded

in the fundamentals used originally with mentally retarded students, are

found within the framework of the simulation game—a way to make practi-

cal experience possible without actual reality. The crises of the West-

ern educational systems are viewed as schools being information-rich and action-poor (Lindblad, 1976). Simulation can be a technique to bring action through practice into the schools, eliciting language and providing response to decisions (Lindblad, 1976). Beyond the aspect of practice, simulation games can be a laboratory providing a controlled environment for the formulation of hypothesis and operational level testing of various concepts, objectives and behaviors. The testing would be amenable to the incorporation of a taxonomy of the cognitive and/or affective domains such as Bloom's (1956), since the level of play in the game format often can be adjusted.

Simulation games, being utilitarian in nature, can be more broadly defined in relation to use. Twelker (1971) defined the simulation game in a formula:

Simulation = real life - task irrelevant elements
Simulation = real life elements + represented elements of
    real life (p. 133).

This definition states that something in reality or given the appearance of reality is studied, abstracted and reprocessed as a simplified model. Smoker (1971) stated:

However one defines simulation, it is important to remember
that simulation is not necessarily a representation of a
real world or possible real world situation. It is a re-
presentation of a theory or sets of theories about a real
world or a possible real world situation (p. 113).

This definition goes beyond most other explanations in naming simulation as "possible real world situations," thus allowing fantasy realms of reality to be considered, if they possess the criterion of "theory."

The simulation game format also allows a high level of play interaction among the participants. Meyen (1978) stated that an element of social behavior often lacking in the handicapped is play. Bizarre

stereotyped behavior often develops in the absence of play. Flavell (1973) concluded from his research that appropriate play can be developed if toys or activities can be found that provide natural reinforcers. Horrocks (1969) found young children tend to be more nonselective in their play than adolescents, who are more likely to choose play activities more in line with their abilities. When an event or an activity is interesting enough to a person, when the person considers it play, participation is much more willing, more effective and likely to be engaged in for longer periods of time. Hence, simulation game activity was chosen to provide a remediation format, to increase oral language development and improve internalization of locus of control.

Statement of the Problem

The problem of this study was to determine whether simulation game play contributed to the oral language development and internalization of locus of control among mildly handicapped adolescents.

The Research Questions

The following research questions were the focus of this study.

1. Is there greater development of oral language skills among mildly handicapped adolescents involved in simulation game play than for those students who do not participate in simulation game play?

2. Is there a greater internalization of locus of control among mildly handicapped adolescents involved in simulation game play than for those students who do not participate in simulation game play?

Purpose of the Study

The purpose of the present study was to provide empirical and qualitative evidence regarding simulation game play and its effect upon oral language development and the internalization of locus of control in mildly handicapped adolescents. The increase in appropriate content/form/use interactions is one important way of gauging the development of language thought processes (Bloom and Lahey, 1978; Wiig and Semel, 1980). If appropriate content/form/use interactions are developed, this would provide support for the contention that overall oral language has developed. The increase in internal rather than external locus of control is one important way of determining human social behavior and whether the individual believes that what happens to him is dependent upon his own behavior and is controllable by his actions or is contingent upon luck, powerful others, etc. If an internal locus of control is developed, this should contribute positively to the individual's overall development.

Significance of the Problem

Previously cited research indicates two major problems encountered within the field of special education are the less efficient oral language skills and a tendency toward externalization of locus of control among students served by special education classes. This study investigates the viability of simulation game play in remediating these areas. Simulation game play has been investigated in only a few studies with handicapped participants. If viable, simulation game play may be added to more traditional teaching strategies and counselling techniques.

Definition of Terms

The following terms are used throughout the present document and are defined as follows:

Adolescence: The period that begins with the onset of puberty and ends when the individual is relatively independent of the emotional and financial bonds of the family unit and is capable of functioning in the adult culture (Marsh, Gearheart and Gearheart, 1978). For the purpose of this study, adolescence was the period between ages 12 and 18, inclusive.

Emotional Disturbance: Manifest behavior, usually acting-out, withdrawing, defensive or disorganized, that has a deleterious effect on the individual's personal or educational development and/or the personal or educational development of peers. Negative effects may vary considerably in terms of severity and prognosis (Reinert, 1980; Woody, 1969). In this study, emotional disturbance was previously diagnosed by a recognized psychologist and/or competent educational authority.

Learning Disability: A severe discrepancy (usually two or more years) between achievement and intellectual ability in one or more of the following areas: oral expression, listening comprehension, written expression, basic reading skill, reading comprehension, mathematics calculation or mathematics reasoning (Public Law 94-142 Education for All Handicapped Children Act of 1975, Part III, 121 a. 541). In this study, learning disability was previously diagnosed by a competent educational authority using the above guideline as set forth by the State of Oklahoma.

Locus of Control: The personality construct in social-learning theory

referring to the ways in which causation is attributed (Rotter, Chance and Phares, 1972). An internal locus of control refers to a belief that outcomes of interactions between persons and the events that befall them are, at least in part, determinable by the acts of those persons. An external locus of control refers to the belief that events occur for reasons that are irrelevant to a person's actions, and thus are beyond their attempts at controlling them (Lefcourt, 1980). Locus of control operationally was the score obtained on the Intellectual Achievement Responsibility Questionnaire.

Mental Retardation: Significantly subaverage general intellectual functioning existing concurrently with deficits in adaptive behavior, and manifested during the developmental period (Grossman, 1977). For this study, mental retardation was previously diagnosed by a competent educational authority using guidelines as set forth by the State of Oklahoma.

Mildly Handicapped Student: Educable mentally handicapped, emotionally disturbed/behavior disordered and/or learning disabled school age learners with affective and cognitive differences who have a measured intelligence quotient between 60 and 110 (Dunn, 1973; Gearheart and Weishahn, 1976; Suran and Rizzo, 1979). For this study, any student previously diagnosed as educable mentally retarded, emotionally disturbed or learning disabled was included in this larger classification.

Oral Language Development: Improvement in content/form/usage of verbal expressive language and verbal receptive language (Bloom and Lahey, 1978). For this study, oral language development was operationally defined as the score on the Utah Test of Language Development, Revised Edition.

Simulation Game: A gestalt communication mode which contains a game-specific language, appropriate communication technologies and a multilogue interaction pattern (Duke, 1974). The multilogue interaction pattern contains detailed models intended to reflect a situation found in the real world but distorting the reality of the situation by imposing rules, equipment, time and place while usually providing an end and a pay-off (Adams, 1973; Seidner, 1978). The simulation game was operationally defined as the actual game played, Dungeons and Dragons.

Summary

Researchers have found two problem areas often associated with disabled learning groups are: (1) oral language disorders and (2) an externalized locus of control. Communication disorders are central to many educationally-manifested, cognitive problems and may significantly interfere with social relations. Oral language disorders are found among all mildly handicapped groups and have been identified as contributing to other problems in academic and social development (Bryan and Bryan, 1978). Locus of control is more likely to be external in reinforcement. An external locus of control contributes significantly to an undermined self-concept, decreased academic performance and decreased decision making capabilities (Phares, 1976).

Oral language practice and a tendency toward an internalization of locus of control are by-products produced in simulation game play, since it is possible to manipulate the degree of difficulty in such a manner to encourage creative participation on the part of the players (Meyen, 1978; Smoker, 1971). Further, the simulation game promotes free inter-relation of skill development on an individual needs basis in a "possi-

ble real world setting" beyond normal teaching modes as suggested by Montessori (1912) and Piaget (1962). The simulation game itself can be creative, drawing participants into realms of fantasy and imagination based in a theoretical reality. The questions addressed are whether oral language or internalization of locus of control among mildly handicapped adolescents can be developed through the teaching method of simulation game play.

CHAPTER II

REVIEW OF RELATED LITERATURE

The first section of Chapter II provides a review of the related

literature on oral language problems in mildly handicapped adolescents.

The second section includes a review of relevant research on locus of

control problems in mildly handicapped adolescents. The third section

provides a review of the related literature and relevant research on

the concept and characteristics of simulation games and the use made

with special education populations.

Oral Language Problems of Mildly
Handicapped Adolescents

Using language to produce one's own thoughts and to process ano-

ther's message is a function unique to the human psyche. Of all the

problems experienced by the mildly handicapped, language may be the most

pervasive and the most debilitating in affects on all learning and all

interactions (Wiig and Semel, 1980). Oral language deficits may account

for cognitive problems in reading, writing and spelling. Oral language

problems may also be the basis for problems in family and social inter-

actions and underlie problems in self-image (Marsh, Gearheart and

Gearheart, 1978).

Oral language deficits can have a tremendous impact on an indivi-

dual. Besides affecting oral skills, abilities in reading may suffer.

Reading depends upon both oral language and knowledge of the native

language in a working relation between the syntax, the set of rules that relate words, phrases and clauses to one another in sentence formation, and semantics, the system underlying the relationship between words and grammatical forms in a language (Kavanagh, 1968; Mattingly, 1972). The beginning reader depends on relating the previously learned auditory-vocal equivalent to the decoding of the grapheme in a conscious translation process (Spache, 1976). The beginning reader is presented a simple syntax that is expected to be familiar. As the reading material becomes more challenging, the syntax and semantics become more complex. Elaborate phrases and sentences must be interpolated through a system of inner meaning representation back to a simpler message (Wiig and Semel, 1980); or as Bruner (1964, p. 4) stated, "language provides a means, not only for representing experience, but also for transforming it."

Deficits in producing and/or processing oral language often have detrimental effects upon written language expression. Vygotsky (1962) stated the relationship between oral language and written language as:

> Writing ... requires deliberate analytical action ... of the child. In speaking, he is hardly conscious of the sounds he pronounces and quite unconscious of the mental operations he performs. In writing, he must take cognizance of the sound structure of each word, dissect it and reproduce it in alphabetical symbols ... In the same deliberate way he must put words in a certain sequence to form a sentence (p. 99).

The spoken and written language forms are enjoined through the system of inner meaning:

> Written language demands conscious work because its relationship to inner speech is different from that of oral language. The latter precedes inner speech in ... development, while written speech follows inner speech and presupposes its existence. But the grammar of thought is not the same. (Vygotsky, 1962, p. 99).

Vygotsky's attempts to understand the mechanism of inner speech led him to differ with Piaget. Piaget (1968) had observed that egocentric speech, speech that when uttered can be judged to lack a primary communicative intent, begins to decline with age until it finally disappears around the age of six or seven years. Piaget attributes this phenomenon to the declining egocentrism during the first years of school. This is due to the child's improvement in communication and the accommodation and assimilation of viewpoints other than his own.

Vygotsky (1962) felt that a failure to communicate arises from the function of egocentric speech, self-guidance. With the development of the organism, vocalization of egocentric speech is internalized as inner language. Egocentric speech in both cases is a hybrid; it has the structure and function of inner language but is vocalized as social speech.

According to Piaget (1968), egocentrism is not present in the language of the well-adjusted adult. Vygotsky (1962) noticed the opposite trend. Inner language as it adapts to its intended function becomes increasingly egocentric. Kohlberg, Hjerholm and Yaeger (1968) supported many of Vygotsky's findings in their investigation of private speech. They found that private speech emerges and is later internalized. They also found that internal speech increases with task difficulty.

Mildly handicapped individuals may have difficulties in finding or recalling certain words, using the rules for word placement and sentence development or using the correct word in context (Wiig and Semel, 1980). These deficiencies can result in circumlocutions, perseveration and generally abbreviated utterances. Typically a mildly handicapped individual will learn vocabulary items at a later age than a nondisabled peer

(Meyen, 1978). The critical factor is that certain language concepts must be acquired before others. In general, individuals grasp language gradually, acquiring rules, forms and functions in a pattern. This pattern can be summarized as follows: essential is acquired before less essential, simple and short are acquired before long and complex; few is acquired before many; concrete is acquired before abstract; isolated items individually are acquired before items in relation and basic functions are acquired before particular details (Taylor, 1976). In the mildly handicapped adolescent, a failure to grasp one or more of these areas has often resulted in a language deficit, both in inner language and oral language. Language in the mildly handicapped individual may be deficit also due to borderline retarding mental capabilities, learning disability problems, emotional disturbance, social maladjustment, cultural deprivation or poor instruction. A plethora of potential causes exist. Wiig and Semel (1980) suggest that an additional criterion might be added to delineate language deficit learners—these individuals need help from special services if they are to succeed.

For the mildly handicapped adolescent in the middle grades, the problems of oral language may be subtle. Early childhood problems in formulating and producing spoken language may have abated. Gilmore (1968) and Spache (1976) have noticed that though oral language problems appear to decrease, when called upon for oral reading, word substitution is common pointing toward often subtle high-level deficits in language processing and production. The ability to process information at several levels and in more than one modality at the same time is more commonly used in the upper grades (Alley and Deshler, 1979). Language usage becomes more specific and elaborate. Many mildly handicapped

adolescents develop their vocabularies within a normal range but Wiig and Semel (1976) report that close analysis reveals a number of problems. These students tend to assign a very narrow set of attributes to each word so that only a limited meaning is associated with any word. This problem is heightened when they persist in confusing dual meaning words. Words tend to be defined according to the frequency with which the particular word is used (Wiig and Semel, 1976). Definitions of a word more often change as a function of their linguistic environment and not as a function of linguistic refinement or maturity.

Many mildly handicapped adolescents readily comprehend concepts that are orally characterized by gross dimensions, such as size, shape and color. Wiig and Roach (1975) found difficulty among this group when functioning in the finer oral distinctions required to conceptualize space, time and seriation. The latter area is the primary source for pronoun development and accounts in part for difficulties with certain parts of speech and syntax problem in sentence comprehension.

Beyond the more cognitively dominated realms of language, the oral skills possessed by an individual can have a tremendous impact on socialization skills. The assumption once commonly held that the mildly handicapped individual often would outgrow his deficits and join the non-disabled population is proving erroneous. Language deficits in early life were characterized commonly by assignment to "the slow group" and decreased teacher/pupil interactions (Alley and Deshler, 1979). Wiig and Semel (1980) postulated that verbal and nonverbal communication deficits may continue to influence negatively the quality of an individual's interpersonal interactions and ultimately limit the person's potential for self-realization.

The pragmatics of oral language appear to overlap with certain nonverbal aspects of social situations (Johnson and Myklebust, 1967; Wiig and Semel, 1976; 1980). Deficits in social perception often result in people who move inappropriately in space, stand too close to people, misinterpret directional gestures, bump into objects and people, talk at the wrong time and break into closed groups. Such adolescents are often annoying to peers, teachers and other individuals and frequently are socially rejected (Bryan, 1979). Adult sexual identities and roles develop at this time and require adjustment in both mind and body (Alley and Deshler, 1979). Sensitivity to both verbal and nonverbal aspects of other people aids the developing adolescent in assuming an appropriate sexual identity. A failure on the part of the mildly handicapped adolescent may result in a sense of rejection by peers, the opposite sex, significant adults and by strangers (Bryan, 1979). The lack of emotional sensitivity to expressions of love, affection and approval may result in feelings of basic insecurity that potentially remain throughout life (Wiig and Semel, 1980). Inadequacies in using nonverbal cues may in turn contribute in deviant personality development (Sullivan, 1953; 1964).

Remediation of oral language deficits usually involves some element of practice (Dale, 1976). Practice is the mechanism by which features such as inflections, endings, event and time relations are established. Practice and its exact function is still an area of contention among theorists. Practice is viewed as imitation through approximation of the desired sound or as reinforcement for babbling or as an interaction of the two. Regardless of the theoretical justifications, practice is ingrained within Western educational philosophy. Practice is

incorporated into reading, a skill derived from oral language, in the phonetic, linguistic and sight approaches to instruction (Bloom and Lahey, 1978) and into remediation techniques utilized with varying degrees of success with mildly handicapped students (Swanson and Reinert, 1979).

Locus of Control

A personality construct based in Rotter's (1954) work on social learning theory is locus of control, an individual learns through social reinforcement in accordance with the internal-external loci of control (Lefcourt, 1980; Phares, 1976). Social learning theory proposes that a view of the world in young children develops as it relates to success and failure. In time, the child develops a set of standards in this area and comes to compare himself with them. Prior to this development, the child has no real concept of success or failure. The existing standard is normally parental and adult standards imposed upon the child. The child is externally controlled and engages in activities that reap adult praise or discouragement.

Erikson (1968) theorized that as children mature, they seek alternative avenues of approval usually based on values drawn from the peer culture. As the individual matures, Rotter (1954) found the locus of control is internalized. The criteria of success and failure become more personally defined although the individual normally remains cognizant of external, societal values. Ongoing pervasive failure may force the individual into withdrawing from any situation deemed as competitive or potentially demeaning to self. This withdrawing effect may have a strong, detrimental effect on mildly handicapped students who continu-

ally meet with failure and failure-producing situations.

Empirical findings concerning locus of control have been so abundant that Current Digest, an abstracting journal, concluded in 1975, that the locus of control construct had come to be the central preoccupation in personality research (Lefcourt, 1980). Extensive research has been undertaken with the emotionally disturbed and the mentally retarded, however little has been completed in this area using learning disabled subjects. Most findings are generalizable between nondisabled and disabled populations, differences being in severity and cognitive ability to rationalize the problem situation. Based on the few studies currently available, findings are also generalizable between the populations that compose the mildly handicapped grouping.

Phares (1976) detailed the following characteristics generally accepted as determinants of locus of control orientation: (1) Internals are more active, alert and directive in attempting to manipulate and gain control over their environments than are externals (also Seeman and Evans, 1962). (2) Internals possess a higher level of knowledge because they actively seek the acquisition of knowledge. (3) Internals describe themselves as more active, striving, achieving, powerful, independent and effective than externals (also Hersch and Scheibe, 1967). (4) Internals appear more independent and more reliant upon their own judgment. (5) Internals tend to show superior academic achievement (also Rotter, 1966).

Weiner et al. (1972) theorized a major difference in locus of control was found in belief systems. An internal belief system tends to lead to reactions of pride following success or negative emotions following failure. The belief system of externals denies them either

emotional experience, providing little reason for the pursuit of excellence. Internals show a greater tendency to accept responsibility for their behaviors than do externals. As may be seen, most traits usually ascribed to overall positive personality development are associated with internal locus of control characteristics and correspondingly, most negative personality traits are associated with external locus of control characteristics.

The tendency to evolve success-striving activity or to avoid failure by minimizing risk-taking situations is determined by a complex and interrelated set of factors that include the relationships of the ability to perform, the nature of the learning task, response information and rewards inherent in completion of the task. The individual who attempts learning activities that are challenging but not impossible and who is informed of failure and rewarded for success, will have an opportunity to develop a realistic self-concept, be aware of personal strengths and rationally view the world (Marsh, Gearheart and Gearheart, 1978).

The mildly handicapped adolescent may suffer a retardation of development toward internal locus of control because of the many factors that prevent academic success. Coleman (1972) and Marsh, Gearheart and Gearheart (1978) found the mildly handicapped adolescent may be more vulnerable to the influences of the peer culture and, later, of the counterculture. The interaction of cognitive and affective factors contributing to an external locus of control was demonstrated by Hisama (1979), who found that failure reduces performance activity among learning disabled students. The myriad of academic tasks that can be successfully managed by nondisabled students are often extremely difficult

for the learning disabled adolescent, leaving feelings of being academically inferior and contributing to low self-esteem.

Cromwell (1963) investigated locus of control in mentally retarded students. He found locus of control develops at a later age in mentally retarded students. it was determined that few tried to attain success since few recognized failure and success. McGee (1968) demonstrated that locus of control could be internalized in the mentally retarded when immediate feedback was provided and approval from adults was incorporated as a reinforcer.

A common characteristic of the mentally retarded is inadequate social behavior (Kolstoe, 1972). Reynolds (1960) hypothesized that the mentally retarded, like all people, compare their performance in a process of self-evaluation. The mentally retarded are imprecise and frustrated in their own self-evaluation process because there are so few of their own ability level with whom they may compare their abilities. Kuehn (1969) tested this hypothesis and found the mentally retarded to be inaccurate and inefficient in their judgments. He found a need to educate the mentally retarded to make social comparisons. Social comparisons are similar to the same process Vygotsky (1962) found in language; both contribute to a more highly developed function, usually found in those exhibiting an internal locus of control and more completely developed language process.

Simulation Games

The Concept

The literature available on simulation games in education presents a multifaceted concept referring to a model, its representation or con-

struction and the interaction of the educational process with one or more of these aspects. The interactional process is the most common model (Figure 1) and the model upon which all other models are based. This model was proposed by Breznitz and Lieblich (1972) and consists of concrete-behavioral actions and reactions between that which is being simulated, the simulandum, and that which seeks to simulate it, the simulans. The focus of interest is on the relation between the simulandum and the simulans as shown in Figure 1.
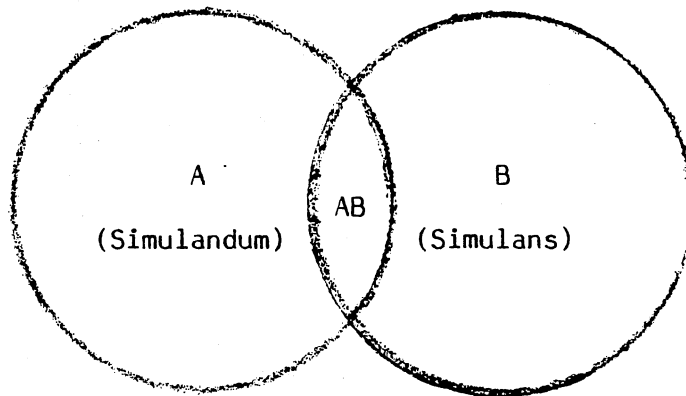
AB = Area of Correspondence

Figure 1. An example of the interactional process model

A simulation game is intended to simulate something, the simulandum. The degree to which a simulation game actually refers to the item being recreated depends on the following factors: the materials, rules and actions of the participants and the theories that make it possible to understand and interpret the relations between the simulation and that

recreated element (Lindblad, 1976). The simulated environment does not make a simulation but rather the theory-dependent scheme by which it is bound to the environment through the element that is being recreated (Smoker, 1971). The choice of some kind of perspective is demanded in the very definition of a simulandum, which includes and excludes certain states and events and determines how they will be viewed.

A two-dimensional classification of simulation would include: (1) information as it relates to states of being and events and (2) transformations between states. Lindblad (1976) argued that these dimensions may emanate from the simulated environment or from the participants in the interactional process. If the informative dimension emanates from the simulated environment, it is said to have a scenario. Simon (1972, p. 3) stated that a "scenario refers to all the descriptive material that provides the context for a game." An operative model exists if the transformative dimension emanates from the simulated environment. The presence of scenario and operative model does not exclude informative or transformative aspects that emanate from the participants.

Lindblad (1976) gave the following classification of interactions yielded by the presence or absence of a scenario and/or operative model:

(1) Absence of scenario and operative model: Free drama.
(2) Absence of scenario but presence of operative model: Non-simulation game.
(3) Presence of scenario but absence of operative model: Role Play (scenario given in advance).
(4) Presence of scenario and operative model: Simulation game (p. 212).

When the operative model is weak the laxity of a scenario demands some qualifications on the part of the participants to guarantee the validity of the simulation game and allow a mechanism for the correction of invalid direction.

The implications of the concept of simulation game play in educa-
tion require a distinction between two modes of learning. Coleman et
al. (1973) stated that information-processing is based on symbols and
may in the end lead to concrete action, though rarely. This mode of
learning predominates in the schools. Experiential learning is based
on concrete actions which may be generated and lead to concrete actions
in other situations. This mode of learning predominates outside the
schools. These two modes of learning have much in common with the dif-
ferentiation primarily between reception and discovery learning (Ausubel,
1968; Lindblad, 1976). One serious problem is how to treat the concepts
of concrete and abstract, another is the preparation for discovery/
action (Lindblad, 1976).

Lindblad (1976) stated from his studies that the most essential
problems for simulation in education are:

1. In what way will interaction in a simulation lead to
    theoretical and practical knowledge of the simulation?
2. In what way will interaction in a simulation lead to
    theoretical and practical knowledge of the simulandum?
    (p. 213)

The concept of simulation game play in education seeks to incorporate
experiential learning processes generated from self-discovery of ab-
stract and concrete knowledge through participant interactions within a
theorized operative model scenario that ultimately will lead to other
actions in other situations. Figure 2 best illustrates the complex in-
teractions within a simulation game and the implications for research.
Reality and its contributing factors are abstracted according to various
social and psychological theories and their scope conditions (McFarlane,
1971). Participant behavior is incorporated into the reality in some
varied degree and is allowed to operate within the constraints of the

simulation game rules. The theory is tested by measuring participant

game behaviors with presupposed predictions of the theory.
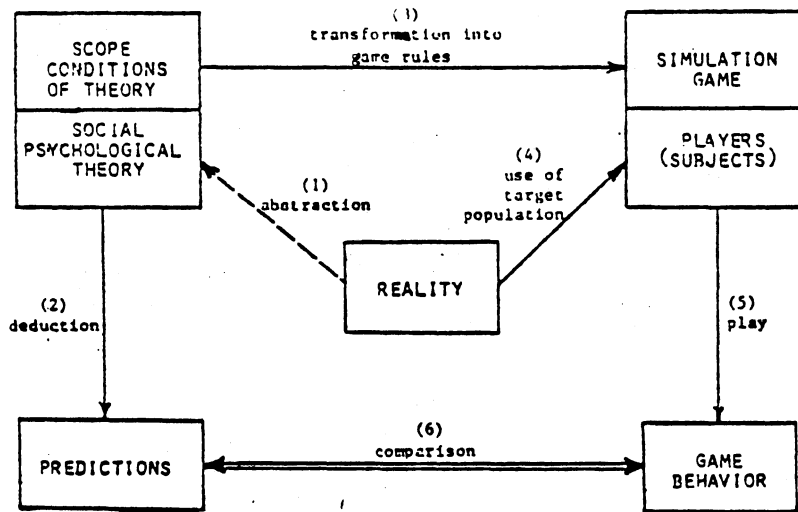
Figure 2. An example of interactions within a
simulation game (Bell, 1975, p. 276).

The Characteristics

Simulation games constitute a new educational technology and new

technology is usually preceded by basic scientific knowledge. However,

Boocock and Schild (1968, p. 22) point out that with simulation game

development the sequence has been reversed: "We have a technology which

works—but we do not really know why." Most of the research in simula-

tion game effectiveness has examined the influence on one or more of the

following variables: (1) motivation, (2) attitude, (3) efficacy, (4)

cognitive learning and/or (5) skill development.

Abt (1968), Boocock and Coleman (1966), Brenenstuhl (1975),

Heitzmann (1974) and other researchers have concluded in their studies that simulation games generate motivation in participants; some maintain to a greater extent than conventional teaching methods. There is little in the results though to suggest why simulation games contain this quality. Both Cherryholmes (1968) and Fletcher (1971) concluded the motivational elements were a Hawthorne effect or that motivation was aroused in the simulation game itself, but not necessarily the content area represented by the simulation game. Edwards (1971) determined that simulation game play increases participant interest in the content area represented.

The most common explanations found in simulation game literature, that seeks to answer the question of motivation, center on participant attitude. A simulation game is more likely to be perceived as realistic than other more conventional teaching methods due to the experiential, self-discovery approach to learning (McFarlane, 1971). Orbach (1979) stated that simulation games provide increased motivation to learn because they deal with subjects of topical relevance to the participant's own life. Unlike a passive traditional classroom, people that participate in simulation games are very active (Abt, 1968; Adams, 1973). Orbach (1979) explained when games are played, students think about the problems and talk about them. They have to make decisions (Anderson, 1970; Nesbitt, 1971; van Sickle, 1977). They have to evaluate feedback information following the receipt of decisions (Nesbitt, 1971). Participants must also be responsible for the consequences of their actions (Lindblad, 1976). Fun and enjoyment are produced in a simulation game setting and are inherent in the process, contributing to the motivation (Abt, 1968; Adams, 1973).

Campbell, Coleman and Mood (1966) reported that an individual's
success in school was strongly related to his feeling of efficacy, the
belief in one's ability to be self-determining and in control of one's
destiny. Studies on simulation game play have varied considerably in
this area. Livingston (1971) found participants' feelings of political
efficacy were significantly higher after simulation game play as did
Vogel (1973). Boocock, Schild and Stoll (1967) and Lindblad (1976)
found that feelings of efficacy were not affected by participation in a
career decisions game. These negative reactions might be accounted for
through other more relevant criticisms voiced of simulation games.

Researchers have found that simulation games are often untested
and unperfected in quality, effectiveness and development (Fletcher,
1971; Greenblat, 1972; Nesbitt, 1971) or present a simplistic view of
the reality the games seek to recreate (Nesbitt, 1971). Some simulation
games do not present a clear relationship between the game structure and
the learning objective (Fletcher, 1971). Nesbitt (1971) also found
that the validity of the simulation game is subject to the personality
of the individual students, a non-motivating game will reap minimal re-
sults and cause little effect toward the participant's realization of
the simulation game objective.

Many studies have been done to measure the influence of simulation
game play on the acquisition of knowledge. The studies primarily in-
volve a comparison between simulation games and traditional teaching
methods. The conclusions drawn from most of these studies indicate
that simulation game instruction is neither more nor less effective than
traditional methods in teaching factual information (Fennessey et al.,
1972) or conceptual information (Cherryholmes, 1966; Heinkel, 1970).

Elder (1973) even concluded that teaching principles and concepts is less practical, less efficient and more difficult using simulation games. Cherryholmes' (1966) study reported no significant retention of learning and no significant gain in problem solving ability. These criticisms might be countered somewhat by two other researchers: Nesbitt (1971) found a significant amount of teacher distrust of simulation games while Boocock (1966) surmised that the inability to measure development in the cognitive learning and skills development areas might result from poor evaluation or inadequate testing instruments, both could unfavorably effect results.

In contrast to the above studies, Baker (1968) found that nondisabled high school students who participated in a history-based simulation game acquired significantly more knowledge than students who received traditional instruction when measured through a teacher-made test. Simulation games were judged by both Adams (1973) and Nesbitt (1971) to be practical tools for introducing terms and concepts, in marked contrast to Elder's (1973) results, and an effective teaching medium when used for training purposes (Coleman, 1968). The results of the various studies are often contradictory and ambiguous.

Research with Mildly Handicapped Populations

The primary use made of simulation game play has been to simulate an educational malady in teacher training programs for educators and counsellors such as Child Care Staff Learning Game (France and McClure, 1972), or measure expectations of student teachers (Zimmerman, 1973). Few studies using simulation game play with a mildly handicapped population appear to have been undertaken. To supplement the meager amount of literature, a nonsimulation game used with a mildly handicapped group

is also reviewed.

One of the few studies using a simulation game format with a mildly handicapped group is the study conducted by Johnson and Nelson (1978). The experimental group consisted of 14 adolescent males that had been adjudicated by the Edmonton, Alberta court as juvenile delinquents. Using three free-form, role-playing games, Roles, Justifications and Penalties, it was sought to increase social interaction. Games were chosen as the instructional medium because the selected games were collectively referred to as games of rapport or verbal socialization games, the deficit area to be concentrated upon. Counsellors interacted with the experimental group by allowing each participant to assume one of four game roles: the counsellor, the delinquent boy, the parent or the case worker. Data indicated that the game playing participants showed an increased willingness to communicate with the counsellor in therapeutic settings and in general. In contrast, communication with the control population worsened in the control setting where counselling was administered. Control subjects registered a decreased willingness to communicate. Game playing subjects became more comfortable talking with their counsellors, while control subjects became more apprehensive. The counsellors perceived the game playing as positively affecting the client-counsellor relationship; the games stimulated discussion on relevant issues and resulted in the clients being more communicative. Counsellors felt that they gained valuable insights into their clients' current life situations.

The use of simulation game play in the Johnson and Nelson (1978) study centers on communication skill development, an element of simulation game play that is generalizable across a wide spectrum of parti-

cipants: the simulation game provides a more realistic research set-
ting for the analysis of information with respect to complex, mutually
contingent, sequential interactions (McFarlane, 1971; Seidner and Dukes,
1976). An optimum balance between control and structure versus freedom
and innovation promotes social interaction and provides the stimulus
material for discussion. Another element of this study that is gener-
alizable to most groups, both nondisabled and special education, is
that all people, at some time in their lives have been exposed to games
and usually perceive games as non-threatening. The non-threatening na-
ture of the simulation game was felt to increase interpersonal contacts
in a most positive manner between individuals labelled by society as
being juvenile delinquents and their counsellors.

Lindblad (1976) constructed a career/vocational guidance simula-
tion game similar to the Life Career Game (Boocock, 1967) and used it
in play during 90-minute sessions with 10 classes of sixth graders.
The classes were composed of Swedish students composed of both nondis-
abled learners and slow learners, who were divided into three groups:
teaching with simulation, conventional teaching and no teaching. A
pretest-posttest comparison using a teacher-made test was made for all
three categories and in knowledge and skills the pupils taught with
simulation games were significantly superior. Pupils with average
school achievement gained most in knowledge but pupils with low achieve-
ment gained most in skills. Two results may have significant impact
for consideration of the simulation technique: (1) Participants who
played simulation games placed more stress on the importance of inter-
ests and intentions and less in their qualifications. (2) Participants
who had simulation game play stated that they consulted more sources of

information compared with other students.

Lindblad's (1976) findings, though accomplished with Swedish students, carry two implications for other Western countries. First, the manifest functions of the school in terms of learning impact might bear re-examination in light of curriculum delivery models. High-achievement students and low-achievement students were able to demonstrate educationally significant gains through simulation game use. Second, a factor which can contribute to academic failure in mildly handicapped adolescents, retardation of development toward internal locus of control, might be developed with simulation game play (Marsh, Gearheart and Gearheart, 1978).

> "The child who attempts learning activities that are challenging but not impossible and who is informed of failure and rewarded for success, will have an opportunity to develop a realistic self-concept, be aware of personal strengths and rationally view the world" (p. 30).

Anderson (1970) used 280 students enrolled in a twelfth-grade Problems of Democracy class to test the effectiveness of teaching a unit titled "Consumer Use of Installment Credit" using simulation game play and traditional teaching methods. Assignment of treatment was made to intact classes that had previously enrolled for either college preparatory or general education courses of study. Two classes of each orientation were assigned as control groups receiving traditional teaching while the remaining classes received the treatment of simulation game play. Both conventional and simulation game teaching were limited to six class meetings with three teachers conducting rotating classes. Two test instruments developed by Anderson were administered. Significant difference was previously found between a student's program of study and intelligence at the .001 level with college preparatory students scoring

20 points higher than general education students. There was no signifi-
cant difference between the experimental group and the control group in
learning factual information.

Within the confines of the experiment, Anderson (1970) concluded
that the simulation game was the more effective technique for teaching
males about credit comparison and that general education students dem-
onstrate this behavior to a greater extent through participation in
simulation game play than through traditional teaching methods, a con-
clusion similar to Lindblad's (1976) study with younger Swedish children.

Pooley (1979) developed a career education model designed to in-
struct emotionally disturbed and learning disabled adolescents in nec-
essary work skills toward the ultimate goal of gainful employment.
Three methods of instruction were used: (1) use of audio-visual re-
sources and materials, (2) use of simulated work experiences and (3)
use of community resources to expose students to various career alter-
natives. At the end of a year's operation in Richmond, Virginia, it
was determined that the use of community resources was not appropriate
for this population. This analysis was based upon self-concept test
scores of subjects given this treatment that did not improve. Scores
of subjects receiving the other two treatments did show gains. Pooley
equated a positive self-concept as an absolute prerequisite to success
in life.

Pooley (1979), like Lindblad (1976), used a simulation format to
develop career orientation skills among mildly handicapped students.
Lindblad focussed his efforts on skill development among lower achieving
students by incorporating experiential learning. An off-shoot result
was an improved attitude toward learning. Pooley, realizing the current

trend away from a print-oriented society toward a media-oriented society, incorporated both media and simulation in an instructional setting with positive results. However, when judging success he evaluated self-concept, the overall category of which locus of control is an integral construct. Students were provided responses for their actions, an important element of the simulation game.

Corder (1977) used a mildly handicapped adolescent population to play a non-simulation game based on Transactional Analysis (TA). The participants were drawn from the Raleigh, North Carolina area and were referred on both an inpatient and outpatient basis. The game-like nature of the tasks presented to the participants was meant to promote simple interaction skills and group feedback capabilities. It was hoped by Corder to develop these limited verbal skills in low normal to borderline intellectual functioning adolescents due to limited access to any type of psychotherapy. In weekly sessions of one hour the participants met to answer and discuss TA-based questions designed to promote interaction. Items were sorted by clinical psychologists into levels of difficulty reflected by level of verbal skill and degree of group intimacy and disclosure required.

Therapists perceived the use of this material in this format as rapidly facilitating interaction and exchange in short-term treatment groups in special education school settings. The advantages of the technique were clinically evident in facilitating the goals of these groups, which focus on social adjustment issues and successfully allowing the inclusion of more adolescents with severe acting-out behavior disorders. It was strongly implied in the conclusions that the game format was motivating since students with severe acting-out behavior

disorders successfully played the game and more individuals exhibiting this trait could successfully interact at one time. Corder's (1977) study using a game carries many of the same implications expressed by Johnson and Nelson (1978) when they employed a simulation game.

The studies reviewed compared nondisabled subjects to mildly handicapped students and international students to American students and found that most studies have concluded similar characteristics presumably associated with simulation game play. Simulation games promote increased verbal interaction compared to conventional teaching methods in the mildly handicapped student and nondisabled student (Adams, 1973; Johnson and Nelson, 1978). The role of the authority figure is altered favorably and allows alteration of locus of control (Boocock and Coleman, 1966; Johnson and Nelson, 1978; Lindblad, 1976; Pooley, 1979). Additionally, a more effective medium of instruction for mildly handicapped populations in skill development areas is provided by incorporating experiential learning in peer-led, self-discovery activities. The present study expanded this research by using simulation game play to develop the oral language skills and the internalization of locus of control of a similar mildly handicapped population.

Summary

A major problem affecting both cognitive skill development and socialization skill development was identified as oral language development. Oral language was found to be the impetus behind development of reading, writing and spelling. Oral language, when joined with nonverbal language, is a major contributory cause to social perceptualization, sex role and self-image development. A second major problem affecting

cognitive and affective development was identified as locus of control. Locus of control was found to be manifested as internal and external in nature. An external locus of control was found to be prevalent among mildly handicapped populations. Problems associated with an external locus of control include inadequacy in social relations, failure to achieve and lack of motivation.

The conclusions of researchers discussed in this chapter have suggested that simulation games have been effective with certain groups defined in the population of mildly handicapped adolescents. The areas where simulation games have been employed most successfully are in development of oral language skills, altering the role of the teacher, favorably altering self-perception, providing a more effective medium of instruction for mildly handicapped populations and increasing learning content among mildly handicapped groups served by special education.

Both oral language deficits and externalization of locus of control contributed to negative factors in both cognitive and affective development. In limited use, simulation game play had been utilized effectively to ameliorate some of these problems. This study investigated the effectiveness of simulation game play upon oral language development and internalization of locus of control among mildly handicapped adolescents.

CHAPTER III

METHODOLOGY AND DESIGN

Introduction

The purpose of this chapter is to describe the research methodolo-
gy used in this study. The research design, the population, the simu-
lation game and the instrumentation used in this investigation are
presented. The operationalized research questions are incorporated
within the research design. Data collection procedures are described
and discussed and the methods of analyses are described.

Research Design

This study investigated the influence of 18 sessions of simulation
game play, the independent variable, upon the oral language development
and internalization of locus of control exhibited among mildly handi-
capped adolescents. The research design utilized in this investigation
to test the research questions was drawn from the Posttest-only Control
Group Design (Campbell and Stanley, 1963). This was recommended to
identify potential differences.

Campbell and Stanley (1963) stated that the most adequate all-
purpose assurance of lack of initial biases between groups is randomi-
zation, which can suffice without a pretest. The inclusion of a pretest,
while allowing examination of the interaction of treatment and pretest

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ability level was considered to be reactive. To facilitate randomiza-
tion, the subjects in this investigation were assigned numbers. Using
a table of random numbers, 13 subjects were then assigned to the exper-
imental group and 13 subjects were assigned to the comparison group. A
relatively equal distribution resulted on the basis of sex, age, grade
placement, educational disability label and distribution by teacher
(see Appendix A).

Subjects

The subjects involved in this study were drawn from students pre-
viously identified by a psychometrist and/or psychologist utilizing the
existing standards in effect in Oklahoma as mandated by Public Law 94-
142, Education for All Handicapped Children Act (see Definition of
Terms). All subjects had been placed at eligibility conferences into
middle school classes for either the educable mentally retarded, the
emotionally disturbed or the learning disabled by independent educa-
tional evaluation teams. All subjects were considered mildly handi-
capped and were enrolled in classes at the time of the study in a
suburban northeastern Oklahoma school district.

The available population for the study consisted of 42 students,
attending one of three schools and served through special education
classes as their primary placement. Many of the students and their
parents were professionally acquainted with the researcher due to prior
involvement in parent groups, Special Olympics and other activities.

Of the 42 students, 12 were eliminated from the study by the re-
searcher because of transportation problems. These students lived eight
to 15 miles from the facilities and transportation was felt to be a

hardship. It was not felt that these 12 students exhibited characteristics appreciably different from other special education students.

Permission was solicited from the remaining students and their parents in the form of a letter requesting participation in the investigation (see Appendix B). Of the remaining 30 students, 26 agreed to participate. Two cited a willingness to participate but were eliminated due to conflicts in scheduling and two declined permission. All of the students solicited for inclusion within the study were advised of the possibility of being either an active participant or a passive participant with either role assuming an important part. A follow-up telephone call was made to each parent to answer any questions and to advise the group assignment.

Initially, permission for use of school facilities, involvement with school personnel and access to student information was granted by the Superintendent. Game sessions were to be held immediately after the school day on the school's premises. Within days of gaining the necessary permission from all concerned parties a complaint was registered. Relying upon the information of his child, who was neither solicited for participation nor served through special education classes, a parent criticized the specific simulation game as unsuitable. Wishing to avoid controversy or adverse public opinion, permission for use of the school facilities was withdrawn by the Superintendent.

The same day that permission was withdrawn an alternate site was procured. Application for space was readily granted and a large meeting room was made available at the local community center, a central location about a half mile from the original site. Parents were advised of the change in site by letter (see Appendix C) and again through

a confirmation telephone call made by the researcher. All sessions
were held without further interruption or additional controversy. All
testing was later conducted at this site.

The 26 mildly handicapped students comprising the subjects involved
in this investigation ranged in age from 12 to 16 with a mean age of
13.3 years. While engaged in this study the 17 males and nine females,
all similar in geographic and socioeconomic background, continued their
usual academic coursework at their home school. Four of the subjects,
two in the experimental group and two in the comparison group, were stu-
dents in classes taught by the researcher. The experimental group con-
tained nine males and four females. The comparison group contained
eight males and five females.

Simulation Game Play

The simulation game play consisted of 18 sessions, twice per week
for two to four hours duration per week. The game played was Dungeons
and Dragons (D&D) (Gygax and Arneson, 1974). Unlike most simulation
games, Dungeons and Dragons has been marketed commercially throughout
the United States and Canada since 1974 after play regionally since the
1960's, and has been widely played, distributed and perfected. D&D is
available in most toy and game stores and recently has been adapted for
television and the video arcade.

D&D is a role-playing, adventure-oriented simulation game based on
theories of a fantasy world. Each player assumes the identity of one
or more characters he has created based on a chance roll of oddly shaped
dice (four to 18 sides). Each character is determined according to six
basic personality attributes—strength, wisdom, intelligence, constitu-

tion, dexterity and charisma, which are operationally defined within the game. The player then decides the character's race (i.e., dwarf, elf, halfling or human) and class (i.e., fighter, magic-user, monk, cleric or thief). The players supply their own dialogue and may take either a passive or active role or may participate in group decisions or act independently of other players while incorporating the characteristics of their assumed personna into the game scenario. Any sex may take any character role with equal facility and the game tends to favor non-sexist groupings of characters. Also, cross-gender player characterization is easily possible. The object of the game is to maneuver these characters through an ongoing saga of dungeons or wilderness filled with monsters, magic, ambushes and various assorted adventures, in search of treasure.

The game is designed for two or more players plus a Dungeon Master, a kind of referee who creates a fantasy-based setting, i.e., structures the scenario of the game for the adventure and then maps the layout of obstacles, barriers, hidden rooms, traps and treasure. The Dungeon Master is responsible for directing the activities of the game, deciding disputes between participants and may even resurrect a dead character, at his discretion. Participants learn about the dungeons, and the denizens contained within each dungeon, through a series of questions directed toward the omnipotent Dungeon Master and interactions with other players, who may have special knowledge of the situation (Gygax, 1978, 1979; Gygax and Arneson, 1974, 1978). The game does not require that every character be present at every session and allows the options of allowing the character(s) to be absent and presumed off on their own quest or allows the character(s) to be manipulated by the

other participants and the Dungeon Master.

The Dungeon Master responsibilities were preplanned prior to each session using beginning modules commercially prepared and distributed by TSR Hobbies, Inc. (see Appendix E). The Dungeon Master role was assumed by a nondisabled student of 14 who had played this game for several years. To maintain control over the situations being simulated and to allow occasional benevolent aid to players the researcher was always present. Both dispute control and benevolent intervention were minimal. All players attended all sessions.

Description of Instrumentation

The dependent variables were measured by the following instruments:

1. The Utah Test of Language Development, Revised Edition (UTLD-R) (Meacham, Jex and Jones, 1978) was utilized to measure oral language development. The UTLD-R is an individually administered test of qualitative and quantitative use of oral language for use with students between the ages of one year, six months (1-6) and 16 years. Both expressive and receptive language skills are sampled in a 51-item, nontimed format that was designed for use with handicapped and nonhandicapped students.

Through a series of revisions spanning 25 years, the authors have expanded the original normative data. Using stratified random-sampling technique, the test was standardized in 23 states; approximately 1800 students participated in the standardization. Both handicapped and nonhandicapped students were involved. Raw scores may be converted to language age scores, standard scores or percentiles.

Reliability of raw scores earned on the test was ascertained by

assessing internal consistency, consistency over time and alternate
forms reliability. Internal consistency coefficients are reported as
.937, corrected by the Spearman-Brown prophesy formula. The Pearson
product-moment correlation coefficient after a time interval of three
weeks between test and retest is stated as .808. Alternate form relia-
bility coefficient reported is .967.

Good "face" validity is reported by Meacham, Jex and Jones (1978,
p. 4) since "all items of the scale have been selected previously from
standardized sources." Age-equivalent scores correlate .983 with age
levels in the original tests. Criterion related validity is presented
correlating with the Illinois Test of Psycholinguistic Ability at coef-
ficients of .87 and .912 in two reported studies.

Additionally, effects of cultural differences are addressed among
Caucasians, Hispanics, Blacks and Native Americans. A coefficient of
concordance across the four cultures is reported as .97. This coeffi-
cient represents the estimate of agreement among the four groups.

2. The Intellectual Achievement Responsibility Questionnaire (IAR)
(Crandall, Katkovsky and Crandall, 1965) was used to measure the depen-
dent variable of locus of control. The IAR may be individually or group
administered to measure the personality variable of locus of control.
All test items deal with the subject's belief in responsibility for in-
ternal versus external reinforcement in intellectual-academic achieve-
ment situations in a 34 item forced-choice format. The IAR was designed
expressly for use with children in grades three through 12, inclusive,
and limits the source of external control to those individuals who most
often come in face-to-face contact with a child: parents, teachers and
peers.

Crandall, Katkovsky and Crandall (1965) developed the IAR within the context of research into children's achievement development. The IAR was so constructed that, in addition to a total internal responsibility score, separate subscores could be obtained for beliefs in internal responsibility for successes and for failures. In development, the authors used a sample of 923 elementary and high school students. The variables of socioeconomic status, age, intelligence, grade and sex were controlled by the authors.

Reliability is reported by Crandall, Katkovsky and Crandall (1965) as test-retest correlations after an interval of two months. No overall test-retest correlation is stated, rather this is given using age or grade and varies from .65 to .69. Internal consistency is also reported for the two subscales; the correlation is .54 to .60 for successes and .57 to .60 for failures after correction using the Spearman-Brown Prophecy Formula.

The most significant evidence for construct validity in the IAR comes from previous studies by the authors, Crandall, Katkovsky and Crandall (1965) that were incorporated within the IAR. First, a child may attribute different amounts of power or control to various external agents. Second, variance in children's beliefs in the instrumentality of their own actions may be compared with that of other people within their immediate environment (Crandall, 1963).

Procedures for Data Collection

The data collection process consisted in testing individually the 13 subjects comprising the experimental group and the 13 students comprising the control group. Testing was undertaken using the Utah Test

of Language Development-Revised Edition and the Intellectual Responsi-
bility Questionnaire. No pretest measure was conducted, relying in-
stead upon randomization to produce the desired equivalency between the
two groups. Testing was conducted during a one-week period after the
treatment of simulation game play had been administered. Scores were
obtained for all participants from both measures reflecting oral lan-
guage development and internalization of locus of control (see Appendix
D).

Testing was conducted by the researcher over a period of one week
utilizing facilities made available through the local community center.
Testing was conducted by school groups to minimize possible bias result-
ing from the interaction of the subjects. All testing was completed
during the week between 2:30 and 6:00 p.m. at a scheduled time for each
subject. All participants arrived at appointed times without incident.

Method of Analysis

The statistical procedures used in the analysis of the data and to
test the research questions was analysis of variance. According to Gay
(1981), the analysis of variance can be used to determine if a signifi-
cant difference exists between two or more means at a selected proba-
bility level. The concept underlying analysis of variance is that the
total variation of scores can be attributed to two sources, variance
caused by treatment (variance between groups) and variance due to error
(variance within groups).

The research questions were tested to determine if there was signi-
ficant mean difference between the experimental and comparison group in
oral language development and internalization of locus of control after

the treatment of simulation game play had been administered to the ex-
perimental group. The data was analyzed using the one-way analysis of
variance to test for significant differences at the .05 level as recom-
mended for this purpose (Gay, 1981).

Summary

The subjects of this investigation consisted of 26 mildly handi-
capped adolescents enrolled in various special education classes in a
suburban Oklahoma school district. Through randomization, 13 subjects
were assigned to an experimental group and the remaining 13 subjects
comprised the comparison group. The experimental group received the
treatment of simulation game play during two weekly sessions for nine
weeks. The simulation game used to provide the treatment consisted of
commercially prepared modules of Dungeons and Dragons, a fantasy-based,
role-playing, adventure game. All subjects were evaluated after nine
weeks. The Utah Test of Language Development, Revised Edition was uti-
lized to assess the dependent variable of oral language development.
The Intellectual Achievement Responsibility Questionnaire was utilized
to assess the other dependent variable of internalization of locus of
control. The analysis of variance was chosen as the method of analysis
to distinguish statistically significant differences between the two
groups.

CHAPTER IV

RESULTS

The study investigated effects of simulation game play upon oral
language development and internalization of locus of control. The fol-
lowing research questions were tested in this study.

1. Is there greater development of oral language skills among
mildly handicapped adolescents involved in simulation game play than for
those students who do not participate in simulation game play?

2. Is there a greater internalization of locus of control among
mildly handicapped adolescents involved in simulation game play than for
those students who do not participate in simulation game play?

The results of the posttest scores utilized to measure these re-
search questions are presented in this chapter. An incidental observa-
tion of behavior exhibited during the gaming sessions is noted by the
researcher.

Results of the Posttest

Summarized in Tables I and II are the results of the posttest
scores of the 13 students in the experimental group and the 13 students
in the comparison group who participated in the investigation. The data
exhibited in Table I are the posttest means, standard deviations and
numbers of students tested by the Utah Test of Language Development-
Revised Edition (UTLD-R). The data exhibited in Table II are the post-

test means, standard deviations and numbers of students tested by the
Intellectual Achievement Responsibility Questionnaire (IAR). All stu-
dents in the experimental group were present for all game sessions.
All subjects in the study were tested.

TABLE I

MEANS AND STANDARD DEVIATIONS OF UTLD-R SCORES

Group	Number	Mean	Standard Deviation
Experimental	13	36.00	2.92
Comparison	13	33.46	2.90

TABLE II

MEANS AND STANDARD DEVIATIONS OF IAR SCORES

Group	Number	Mean	Standard Deviation
Experimental	13	26.85	5.03
Comparison	13	18.23	3.27

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Testing the Research Questions

The data obtained from this investigation were used for the purpose of testing the research questions. The presentation and analysis of data in the present investigation is reported as related to each of the research questions. Where statistical procedures were used to test a research question, it was asserted that a difference was not statistically significant unless it was at or above a .05 level of confidence. The analysis of variance was the statistical test applied to distinguish differences between group means.

In Table III the summary of the analysis of variance for the Utah Test of Language Development, Revised Edition (UTLD-R) is presented. This test was administered and compared to evaluate the research question: Is there greater development of oral language skills among mildly handicapped adolescents involved in simulation game play than for those students who do not participate in simulation game play? The results of the analysis of variance indicated that there is a significant difference between the experimental group and the comparison group ($F = 4.95$, $df=1/24$, $p<.05$). A comparison of means (Table I) revealed that the performance in oral language development of the students in the experimental group significantly surpasses that of students in the comparison group on this test.

Presented in Table IV is the summary of the analysis of variance for the Intellectual Achievement Responsibility Questionnaire (IAR). This test was administered and compared to evaluate the research question: Is there a greater internalization of locus of control among mildly handicapped adolescents involved in simulation game play than for those students who do not participate in simulation game play? The

results of the analysis of variance indicated that there is a signifi-
cant difference between the experimental group and the comparison group
(F=26.80, df=1/24, p<.05). A comparison of means (Table II) revealed
that internalization of locus of control was greater among students in
the experimental group than for those students in the comparison group.

TABLE III

ANALYSIS OF VARIANCE SUMMARY TABLE
FOR UTLD-R SCORES

Source of Variance	df	SS	MS	F
Between groups	1	41.88	41.88	4.95*
Within groups	24	203.23	8.47	
Total	25	245.12		

*p<.05

TABLE IV

ANALYSIS OF VARIANCE SUMMARY TABLE
FOR IAR SCORES

Source of Variance	df	SS	MS	F
Between groups	1	482.46	482.46	26.80*
Within groups	24	432.00	18.00	
Total	25	914.46		

*p<.05

Observation

It was noted by the researcher that an observable change in positive behavior was affected by the participants as a whole, as groups defined by the original handicapping labels and, in most instances, in the individual participants. The subtle changes are not readily apparent when test scores are analyzed. To record these changes, an incidental observation is supplied.

The dynamics of the experimental group remained relatively constant throughout all sessions. The primary authority figure was not the researcher, as might be expected, but rather the student Dungeon Master, the omnipotent referee. Within the group, the ED students were the most active participants. The EMR students were also eager participants following the lead of the ED students. The LD students were often spectators as much as they were participants. This half-hearted interest ended when one LD student wore a costume to the seventh session. All participants eventually began wearing bits of costume as part of the personna of their character. This event seemed to spark the interest of the LD students more than anything else and their participation as a group increased from this point.

After the tenth session, the researcher began to hear evidence of increased interaction outside of the game sessions; "Can you stay over at my house tonight?" and "Call me when you get home" were two of the most common ways of ending a game session. Participants were forming friendships outside of school boundaries. Males and females seemed to interact at an equal rate. The original handicapping label seemed to play an important role. Participants tended to associate with other participants of the same handicapping label, though the specific label

of any student was never discussed at the gaming sessions nor probably known to any but the researcher.

A criticism sometimes made of the simulation game utilized is the aspect of violence incorporated into some of the scenarios. This was never viewed as a problem during the game sessions. When individual participants were called upon to "do battle" with the imaginary denizens of the dungeons, the violence that occurred was symbolic only. Using prederived attributes and "saving points" the participants would use a weapon symbolized by the dice. Damage or "hit points" were computed and the success or failure of an encounter was known. The element of violence might even have been lessened given the conservative nature of the participants and their reluctance to fail. During the earliest sessions, an unspoken philosophy seemed to be "Run away today so we might live to run away another day." By the middle sessions, violence as a solution was still a far second to fanciful and creative solutions; a few creatively divergent enough to require the Dungeon Master to improvise a response to allow a return to the game scenario. With the addition of costumes, it seemed likely that swords might appear and violence would increase, but this never materialized beyond a few fanciful enactments.

Creativity and complexity of solutions increased with play. A realization that major rewards required major risks seemed to come about in the final sessions. The question was asked more than once, "Do we need more treasure if someone is going to be injured?" Males tended to take greater risks than females, though both sexes had representative daredevils. The LD students were often more likely to "charge" without analyzing the situation and the penalties possible. It was also an LD

student who first incorporated costume into the game scenario, sparking a new creative interest.

At the conclusion of the gaming sessions, a common remark made during the individual testing was often one of "When can we do it again?" Participants remarked that they enjoyed the activity and the people, as well as the interaction between the two.

Summary

This chapter has presented the statistical results obtained from the study. Analysis of variance was the statistical test utilized to evaluate the data. Two research questions were tested as is reported below.

1. The oral language development of the experimental group was significantly greater than that of a comparison group ($p < .05$).

2. The experimental group exhibited a significantly greater internalization of locus of control than did the comparison group ($p < .05$).

Both characteristics were seen as essential qualities in successful academic progress.

Additionally, an incidental observation of participant behavior is included.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

This study was designed to determine whether oral language devel-
opment or internalization of locus of control could be influenced by a
nine-week program of simulation game play. Dungeons and Dragons, a
fantasy-based role-playing simulation game was utilized with a daily
remedial course of study provided by the public schools. Simulation
game play is a situational distortion of reality incorporating language
interaction by imposing rules, equipment, time and place while usually
providing an end and a pay-off.

Included in the study were 26 mildly handicapped adolescent stu-
dents, ranging in age from 12 years, 10 months to 16 years of age. All
students were served through primary class placement in classes either
for the educable mentally retarded, emotionally disturbed or learning
disabled in a suburban northeast Oklahoma community. Through randomi-
zation, 13 students were assigned to the experimental group and received
the treatment of 18 sessions of simulation game play. Each session
lasted for two to three hours. All the participants of this group at-
tended each session. A nondisabled student served as the Dungeon Master,
an omnipotent referee that provided clues and meted out rewards and
consequences. The remaining 13 students comprised the comparison group.

At the conclusion of treatment, all subjects were individually

tested. The Utah Test of Language Development, Revised Edition was
utilized to evaluate the research question: Is there greater develop-
ment of oral language skills among mildly handicapped adolescents in-
volved in simulation game play than for those students who do not
participate in simulation game play? The Intellectual Achievement Res-
ponsibility Questionnaire was utilized to evaluate the other research
question: Is there a greater internalization of locus of control among
mildly handicapped adolescents involved in simulation game play than
for those students who do not participate in simulation game play?

Analysis of variance was utilized to analyze the data from the
posttests. A statistically significant difference was determined to
exist with the experimental group showing greater oral language devel-
opment and increased internalization of locus of control.

Based on the findings of the study, it would indicate that simula-
tion game play can be of benefit in oral language development and in-
ternalization of locus of control.

Conclusions

It was found that the students who participated in the experi-
mental simulation game play scored, as a group, significantly higher
than the comparison group. The results as presented in Table III and
Table IV show that oral language development as measured by the Utah
Test of Language Development, Revised Edition and internalization of
locus of control as measured by the Intellectual Achievement Responsi-
bility Questionnaire were statistically significant ($p<.05$).

Although confines must be placed upon any inferences that can be
made from this study, support is indicated for the utilization of

simulation game play as a mode of instruction. This method of instruction was successfully utilized with mildly handicapped adolescent students.

Serendipitous conclusions might also be drawn from an incidental observation conducted by the researcher during the game sessions. The game was motivating. This conclusion may be drawn from the attendance of the experimental group participants. All participants were present for all sessions. Also, all participants began to incorporate elements of costumes into their game activity, something beyond what was requested. The game promoted positive social interaction. This conclusion is supported by the after-game activities brought about among people who had not been acquainted weeks earlier.

Interpretation and Discussion

The findings of this study are in agreement with the majority of the studies reviewed, both with nondisabled populations and populations served in the public schools through special education classes (Anderson, 1970; Corder, 1977; Johnson and Nelson, 1978; Lindblad, 1976). The results of this study lend support to the assumption that mildly handicapped students who augment their remedial courses of instruction with simulation game play tend to have greater development of oral language and increased internalization of locus of control when compared to those mildly handicapped students who do not. Both oral language development and internalization of locus of control have been identified as contributing to success in academic and social situations (Meyen, 1978; Phares, 1976).

As observed from the game sessions, all subjects within the

experimental group indicated that they enjoyed playing the game and
the heightened sense of group identity. Many wished to continue play
on a regular basis after game sessions ended. Many participants began
to form peer friendships of a positive nature that had not existed prior
to the game sessions.

These same observations have been noted by previous researchers.
Adams (1973) and Johnson and Nelson (1978) reported that simulation
games promoted increased verbal interaction as compared to more conven-
tional methods. This may be due to the increased practice afforded in
a relatively nonthreatening environment. Pooley (1979) found simula-
tion game play contributed positively to self-concept development. The
findings of this study are similar since greater internalization of lo-
cus of control occurred for those participants involved in simulation
game play.

When properly controlled and supervised, simulation game play
seems to offer a means to satisfy the instructional needs of mildly
handicapped students. It provides an experiential outlet to test ac-
tions and determine consequences, allows direct interaction with peers
in a nonthreatening environment; it allows the student to be as crea-
tive as possible and does so in an environment that may be structured
toward success. Simulation game play, while not a panacea for educa-
tion, does provide a positive and motivating approach to working with
mildly handicapped students.

Limitations of the Study

Evident among the flaws of this study is the failure to adhere to-
tally to the posttest-only control group design as outlined by Campbell

and Stanley (1963). All assumptions of this design were met with one exception, no corresponding activity was introduced for an equal time period for the comparison group. This omission opens the door to the criticism that any effect is equally attributable to a Hawthorne effect.

Further explanation is required. The students comprising the comparison group were left to follow their usual afternoon routine. No afternoon activity such as a study hall or athletic games was implemented. In this particular school district, a supervised after school study hall already existed in the form of "detention," a punishment. After school athletic games or other activities were ruled out due to tort liability of the researcher, potential medical emergencies that might arise from the activity and the very nature of the behaviors exhibited by the subject population.

While a Hawthorne effect is a possibility, it should be remembered that all subjects were special education students. Special education students, by their very inclusion in a special education class, receive greater teacher-student interaction and personal observation. Potential reactive results from the subjects' knowledge that they were in an experiment may or may not be involved. It was attempted to make all participants, experimental and comparison, feel that their participation was valued.

Contamination and experimenter bias arising from the researcher's familiarity with the subjects may have affected the outcome of the study. Participation in the study by the subject or the subject's parents may have been motivated by a desire to receive "special" attention. This cannot be known. However, to minimize interaction with the subjects, students enrolled with five teachers other than the researcher

were included. Four students were included in the study that were en-
rolled in classes taught by the researcher, two students were included
in the experimental group and two students were included in the com-
parison group. The students enrolled with the researcher did not per-
form noticeably different as compared to other participants of the study.

No discussion of the game sessions with the researcher were al-
lowed outside of the game site. During the actual game sessions a non-
disabled peer was utilized as the Dungeon Master, the omnipotent ref-
eree incorporated into the game scenario. While the researcher was
present at all sessions, a conscious effort was made to minimize that
presence. After the first two sessions, interaction with the partici-
pants was limited.

Replicability of exact details of individual sessions would be
nearly impossible. Inherent within the composition of the simulation
game used in the study was choice. Any choice required of participants
could have multiple consequences leading to additional decisions and
consequences culminating at the end of the session. Though specific
features would be difficult to duplicate, all sessions were basically
similar in format. Commercially prepared and distributed modules were
used throughout to allow close approximation of individual sessions.

The results and conclusions of this study are limited to the popu-
lation of mildly handicapped adolescents having similar characteristics
as the subjects utilized in this study.

Recommendations

The results contained within this study might be likened to the
first efforts of a child. Numerous variables were identified after the

study was begun which could relate to the study but have not been in-
cluded. Recommendations may be made for the researcher or the practi-
tioner or the individual who wishes to combine the two. Other
suggestions may be gained from the limitations of this study noted by
the researcher.

1. Studies should be made incorporating an activity of equal dur-
ation for the comparison group while minimizing researcher bias by in-
corporating neutral parties to conduct sessions, engage in the actual
experimental situation and conduct the testing.

2. Studies should be conducted to determine the specific variables
to be manipulated: differing amounts of time spent in game activity
per session, per week and over extended periods of time; effectiveness
of different simulation games; and effectiveness with specific special
education populations, ages and sex differences.

3. Simulation game usage should be investigated for instruction
of specific subjects such as mathematics, social studies, science, etc.
as mildly handicapped learners are involved.

4. Practice as an effect of the simulation game should be analyzed.
Within the context of oral language, analysis might be conducted on
content/form/use interactions and relative changes of each as outlined
by Lee (1974).

5. The element of violence incorporated into the scenario of the
game utilized should be investigated to determine if the amount of ac-
tual violence in participants' lives changes. The role of morality and
identification with the realms of fantasy should also be investigated.

6. Studies incorporating simulation game play into the curricu-
lum of mildly handicapped students should be undertaken. Given the

controversial nature of the simulation game utilized in this investigation, a strong recommendation is made to the practitioner or researcher to utilize a community acceptable alternative.

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APPENDIX A

STUDENT SEX AND EDUCATIONAL LABEL

TABLE V

STUDENT SEX AND EDUCATIONAL LABEL

Experimental Group

Student Code	Sex	Educational Label	Teacher Code
1	M	ED	6
2	M	EMH	1
3	M	LD	3
4	M	EMH	1
5	M	ED	5
6	M	LD	2
7	F	LD	3
8	M	ED	6
9	M	LD	2
10	M	LD	4
11	F	ED	5
12	F	LD	4
13	F	LD	3

Comparison Group

Student Code	Sex	Educational Label	Teacher Code
14	M	ED	6
15	F	LD	3
16	M	ED	6
17	F	EMH	1
18	M	LD	3
19	M	LD	4
20	F	ED	5
21	M	EMH	1
22	F	LD	4
23	M	LD	2
24	M	ED	5
25	F	LD	2
26	M	ED	5

APPENDIX B

SOLICITATION LETTER

Dear Parent,

My name is Michael Kallam and I am a PSA teacher at (School) Middle School in (City) . I am conducting a research project on the effective use of simulation games as a teaching method.

I would like to include your student in this research project, either as an active or a passive participant. This will be decided upon at a later date and you will be notified. No school or class assignments will change as a result of this project—it is purely to measure the effectiveness of the game situation as a teaching device. No time will be lost from the regular academic day.

All game sessions will be after school from 2:45 - 4:00 p.m. in Prefab 14W at (Site) . I will be present at each session. Your student will need to provide transportation home after each session.

Your student will be assigned to either a game playing group or a non-playing group. Those playing games will play twice weekly beginning the week of 16 March. All participants will be tested at a time to be arranged during the week of 17 May. Test results will be made available to you. Results of the study may be used in a research document but anonymity is assured.

If, for any reason, you or your student should decide not to participate or later decide not to continue in this research project, withdrawal carries no penalty or prejudice. I look forward to your student's participation. If you should have questions or concerns, please feel free to telephone me at ## - ### .

- -

I give my permission for _____ to participate

in this research project. I understand the conditions as outlined

above.

_____

Signature of Parent or Guardian

APPENDIX C

FOLLOW-UP LETTER

Dear Parent,

Due to a conflict with use of school facilities, all game sessions and testing will be conducted at the   (City)   Community Center at ### South Main. Sessions will be held from 3:00 - 4:30 p.m. on every Tuesday and Thursday beginning 16 March.

I regret any inconvenience this may cause. If your student will be unable to participate because of this change, I would appreciate your call.

                              Michael Kallam

APPENDIX D

RAW SCORES AND DATA

TABLE VI

UTAH TEST OF LANGUAGE DEVELOPMENT, REVISED RAW SCORES

Experimental Group

Student Code	Score
1	32
2	31
3	38
4	33
5	37
6	36
7	38
8	36
9	37
10	40
11	40
12	33
13	37

Comparison Group

Student Code	Score
14	33
15	35
16	34
17	29
18	37
19	28
20	37
21	35
22	36
23	34
24	35
25	31
26	31

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TABLE VII

INTELLECTUAL ACHIEVEMENT RESPONSIBILITY QUESTIONNAIRE RAW SCORES

Experimental Group

Student Code	Score
1	16
2	19
3	31
4	30
5	31
6	25
7	25
8	29
9	23
10	32
11	31
12	27
13	30

Comparison Group

Student Code	Score
14	18
15	20
16	18
17	14
18	22
19	13
20	22
21	21
22	23
23	18
24	18
25	15
26	15

APPENDIX E

ACTIVITY PER SESSION

All modules of <u>Dungeons and Dragons</u> are commercially prepared and marketed by TSR Hobbies, Inc. and were played during the following sessions:

Session #	Activity	Module #
1	Orientation and Character Development	none
2	Adventure in the Dungeon	none
3-4	In Search of the Unknown	B1
5-6	The Keep on the Borderlands	B2
7-8	Palace of the Silver Princess	B3
9-10	The Sinister Secret of Saltmarsh	U1
11-12	Danger at Dunwater	U2
13-14-15	The Isle of Dread	X1
16-17-18	Castle Amber	X2

VITA *2*

Michael L. Kallam

Candidate for the Degree of

Doctor of Philosophy

Thesis: THE EFFECTS OF SIMULATION GAME PLAY UPON ORAL LANGUAGE
          DEVELOPMENT AND INTERNALIZATION OF LOCUS OF CONTROL
          AMONG MILDLY HANDICAPPED ADOLESCENTS

Major Field: Applied Behavioral Studies

Biographical:

    Personal Data: Born 13 August, 1951, the son of Louis R.
      and Bonnie (Raulston) Kallam.

    Education: Graduated from Nathan Hale High School, Tulsa,
      Oklahoma, in May, 1969; attended Oklahoma State University,
      1969-1970; attended the University of Oklahoma, 1970-1972;
      received the Bachelor of Science degree in English from
      the University of Tulsa in 1979; received the Master of
      Arts degree in Learning Disabilities from the University
      of Tulsa in 1980; completed requirements for the Doctor
      of Philosophy degree at Oklahoma State University in
      May, 1984.

    Professional Experience: Graduate assistant for respite care
      at Childrens Medical Center, University of Tulsa, 1980;
      taught classes for severely emotionally disturbed children
      grades six to twelve, Shadow Mountain Institute, Tulsa,
      Oklahoma, 1981; taught class for emotionally disturbed
      students grades six through eight, Charles N. Haskell
      Middle School, Broken Arrow, Oklahoma, September, 1981
      to the present.