DOCUMENT RESUME

ED 096 589 95 CG 009 281

AUTHOR Lazier, Gilbert N.; And Others
TITLE A Systematic Analysis of Dramatic Behavior Norms of Florida Elementary School Children. Final Report.
INSTITUTION Florida State Univ., Tallahassee.
SPONS AGENCY National Center for Educational Research and Development (DHEW/OE), Washington, D.C. Regional Research Program.
BUREAU NO BR-1-D-063-FR
PUB DATE Dec 72
GRANT OEG-4-72-0008
NOTE 69p.

EDRS PRICE MF-$0.75 HC-$3.15 PLUS POSTAGE
DESCRIPTORS Behavioral Objectives; *Behavior Patterns; Correlation; *Creative Dramatics; *Creativity Tests; *Dramatics; *Elementary School Students; Research Projects

ABSTRACT

By employing an analytic method developed by the authors entitled the Inventory of Dramatic Behavior, this project set out to accomplish the following goals: (1) to provide a developmental profile of dramatic behavior of Florida elementary school children, (2) to correlate such data with previous results from a New York City sample, and (3) to correlate such data with creativity measures on the same subjects. The project was conducted in three phases. Phase 1 employed a representative sample of children from the Lab School. The testing situation contained maximal university controls, permitting the testing of 28 dramatic dimensions per half-year intervals for ages 6-12. These data were compared to creativity indexes perfected by Torrance. Phase 2 employed similar procedures but tested 260 subjects in their home schools across Florida. Phase 3 provided time for data processing and analysis. Major findings were as follows: (1) among Florida subjects, behavior increased with age (a finding the reverse of that discovered in New York), (2) Florida girls were more active than boys, and (3) the dramatic behavior correlated highly with the creativity measures. Other qualitative information was discovered. Finally, the results demonstrate the efficacy of the measures and procedures employed. (Author)

FINAL REPORT

Project No. 1-D-063
Grant No. OEG-4-72-0008

A SYSTEMATIC ANALYSIS OF DRAMATIC BEHAVIOR NORMS OF FLORIDA ELEMENTARY SCHOOL CHILDREN

Gilbert N. Lazier, Douglas A. Zahn,
and E. Joseph Karioth
Department of Theatre
Florida State University
Tallahassee, Florida 32306

December 31, 1972

The research reported herein was performed pursuant to a grant with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
National Center for Educational Research and Development

CONTENTS

TABLES

I. Introduction

This final report of the year-long research project, "A Systematic Analysis of Dramatic Behavior Norms of Florida Elementary School Children," focuses on two major sources of information original to this document: (1) a detailed description of activities included in Phases II and III of the project, and (2) a full presentation of the results and conclusions of the entire project. Three other sources of information are presented here in part even though they have been referred to elsewhere in other writings: (1) a statement of objectives previously described in our original proposal, (2) a more complete description of the Inventory of Dramatic Behavior, the major methodological tool of the project, than is presently available, and (3) occasional mention of information already reported in the Progress Report pertinent to this research activity submitted April 1, 1972. We feel it unnecessary to repeat *in toto* data already available but wish to give the reader of this document enough of a total picture of our activities so as not to necessitate his going to other sources. If, on the other hand, the reader wishes such a complete view of the development of our research activities begun in New York in 1967, including all antecedent writings, we respectfully refer him to the bibliography included at the end of this document.

A. Project Objectives.

Because of the lack of normative information about children involved in improvisational dramatic activities at a time when such behaviors are being emphasized widely in the classroom (creative drama classes), on television (*Sesame Street*, *The Electric Company*, *etc.*), and in rehabilitative agencies (for the deaf, retarded, and emotionally disturbed), we constituted a research team to provide such data. Further, certain theories of learning and development, principally those of Piaget and his followers, link the mastery of cognitive skills with a kind of role playing (called the "as if," symbolizing, or abstracting). For these reasons as well as many others, we dedicated our efforts to discover a method to provide some normative account of the way children develop in participatory role playing activities as they grow, how these norms might be affected by locale and/or sex, and how they might correlate with similar measures of norms of creativity.

More specifically, we organized an interdisciplinary task force of researchers in drama curriculum (Karioth and

assistants). This team employed recently developed analytic procedures some of them had developed through an HEW supported project based in New York City. The researchers set about to provide systematic data on the developmental character of different age levels of a population sample of Florida children engaged in dramatic improvisational activities in elementary schools, the project being based both at Florida State University in Tallahassee and at selected elementary schools throughout the state. Two overall objectives were affixed: (1) to provide a developmental profile of dramatic behavior which is representative of certain age groups of children from at least ten divergent geographic areas throughout Florida, and (2) to correlate such data with measures of creativity from the same samples. It was felt that the first objective would benefit drama instruction and curriculum in general on the elementary level by supplying essential information on what to expect naturally from different age groups of children. The second objective could provide some bases for demonstrating the relationship between competence in drama and level of creativity and thus could possibly indicate ways of predicting or even increasing basic creativity (as measured by a certain test) through dramatic activities.

B. Proposed Implementation.

We conceived the implementation of the above described objectives in three phases. The first was to be conducted in Tallahassee with a sample of subjects from the FSU University School in a controlled laboratory situation. The second phase facilitated the collection of video samples of dramatic behavior of children from the entire State of Florida in their home schools. The concluding phase provided time for behavior codings, processing, and analyses leading to the final dissemination of project information.

The first two phases had the following six elements in common: (1) Subjects were male and female children enrolled in Florida public schools. They were drawn in thirteen subsets from each locale used in the study, each subset including an equal number of male and female matched according to age in half-year intervals from six to twelve and one-half. They had no prior training in drama and the permission of their parents to participate in the study was obtained. Random selection procedures were used in all other conditions. (2) All subjects participated in improvisational activities described in the explanation of the Inventory of Dramatic Behavior in a later section of this report. (3) The testing environment in each locale of the study replicated that explained in the section on methods and procedures of this report. (4) Video tape

recordings of all subjects were analyzed using the Inventory of Dramatic Behavior (described later in this report). (5) Data processing made use of two-way analysis of variance, correlation coefficients (Pearson's "r"), and discriminant function analysis as major programs. (6) Creativity measures were taken on each subject, the scores of which were correlated to those of the IDB.

The unique dimensions of this project's phases are summarized as follows:

1. Phase one: Preliminary sample research at FSU University School.--With the cooperation of Eddie Bass, Director of the FSU University School, and the appropriate administrative committee of the FSU School of Education, a representative sample of six-to-twelve-year-old children living in the City of Tallahassee was selected from the University School population. Specifically, fifty-two subjects were drawn in thirteen subsets of four (two male, two female), each subset representing half-year age intervals from six to twelve years. The subjects were randomly selected on all other conditions, but were previously selected for enrollment at the school by computer so that the entire student body was a perfect sample of children in the city on socio-economic, ethnic, and geographic criteria.

2. Phase two: Field research at selected schools throughout Florida.--The Director of Elementary and Secondary Education of the Department of Education of the State of Florida, Joseph W. Crenshaw, and the English-Language Arts Consultant for the State of Florida, Kitty Mae Taylor, were consulted in the subject selection samples from the state. Florida was subdivided into ten geographic modules. All schools in each module containing children ages six through twelve and one-half were located. One school from each of the ten lists was randomly selected. From each school, twenty-six children were assigned to thirteen subsets of two according to rules described previously.

The behavior samples were collected by a team of three researchers travelling to the ten locales selected. These researchers are graduate students trained in developmental drama, behavioral research, and the specific procedures of this project.

3. Phase three: Data analysis correlations; results analysis and write-ups.--By the final phase of the study, all individual data samples were analyzed and evaluated separately. In this final stage, study of sample correlations were undertaken. Among other comparisons, the following were

considered major to the project:

A. The construction of developmental norms of dramatic behavior across total study sample.
B. A comparison of developmental norms of dramatic behavior per age groups across three samples: New York (laboratory), Tallahassee (laboratory), and Florida (field environments).
C. A comparison of individual dramatic behavior and psychological measures across the total study population.

These were the goals of our project expressed in a three-phase schedule. The major evaluative instrument employed was the Inventory of Dramatic Behavior (IDB), used to convert the video samples into numerical codes within eight categories of behavior over three samples per subject. Correlated with the IDB in the case of the Tallahassee subjects was the "Just Suppose" task of the Torrance Test of Creativity used with the permission and help of its inventor, E. Paul Torrance.

In sum, basic normative information on how children of various ages react to improvisational dramatic demands exists nowhere in literature on drama or any area of psychological writings, except in anecdotal form. Thus, teachers, diagnosticians, and therapists who employ such techniques have no empirical baseline from which to view the behaviors of individual or groups of children. Further, even though many theoretical assertions have been offered as to the link between dramatic behavior and creativity, little evidence to support such possible correlation is available. We set a precedent for such inquiry in an HEW funded pilot project with one school in New York and wished to continue our work in Florida. This we set out to do in the three-phase sequence briefly defined previously.

II. Methods

A. The Major Evaluative Instrument: IDB.

Because of the importance to this project of our principal evaluation instrument, we present a detailed description of it at the outset of this section. There is at present no single source which discusses the nature of the IDB fully. Thus, it is felt that such a description here would not only be appropriate to the understanding of this project but also might strengthen the value of this report by providing such information to those who wish to use our instrument for purposes other than those of this project. This discussion is based upon an address delivered in simultaneous translation (French, Russian, English) at the ASSITEJ International Childrens Theatre Conference in Albany, New York on June 23, 1972. Materials distributed at that meeting acknowledge the assistance of the funding agency which made the current project possible.

1. Background

In August of 1971, we released a study which presented results of a four-year project to ascertain developmental norms of improvisational dramatic behavior among children from six to twelve years of age (Speech Monographs, 1971). In the course of this project, a methodology was developed which has since indicated much wider potential than was originally envisioned. Sufficient "spin-off" studies were begun by researchers trained in the IDB, the Inventory of Dramatic Behavior, which had only peripheral connection to the original raison d'etre for the technique, to motivate our focusing on specific methodological issues in an attempt to improve the tools for more general applications. We were further obligated to study the implications of the technique and to find a means to express efficiently its possible uses in a wide variety of research problems.

As was mentioned in the first section of this report, the major problem antecedent to the entire course of our research pursuits in improvisational drama is the dearth of systematic normative information about children involved in this activity. Just as there is little empirical research into the nature of the dramatic experience itself, there is even less concerning its relationship to other areas of development. Before the educational implications of any subject-matter can be probed in depth, there must be some normative account of the way children develop in this competence as they grow and how these norms are relative to organismic variables (affected by locale, age, socio-economic group, etc.). Only when these kinds of questions are answered is it possible to find reliable ways of accelerating development along a pre-established scale. In short, we do not have the basic knowledge necessary to predict dramatic

behavior of children and thus cannot relate it to anything else.

The IDB evolved inductively from viewing creative dramatics sessions. Originally, four questions underlay these observations: (1) Can a controlled improvisational context be created to permit behavior comparisons between subjects or groups which preserve the "reality" of the situation and do not impose artificial constraints limiting generalizability? (2) Can specific dimensions or categories of behavior be defined which will subdivide the improvisation Gestalt into meaningful variables? (3) Can an efficient system for coding said variables be created to permit inter-and intra-relational analysis? (4) Can procedures based on the previous questions provide information which is at the same time valid and reliable from a research viewpoint and also useful in the real world of developmental drama training?

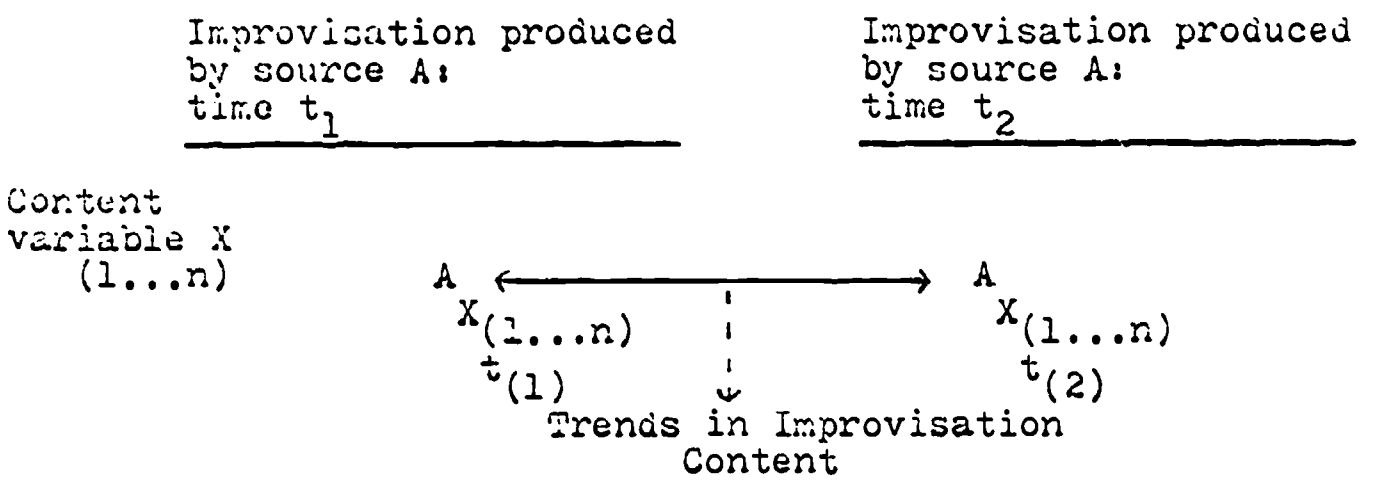
2. Research Models

Since the implications of the IDB are important to clarify prior to an explanation of method, we first illustrate some research design models applicable to the instrument and to the current project. Moving from more simple questions to more complex, we first look systematically at what one child does in an improvisation and interest ourselves only in the changes that the improvisation exhibits over time. If we take a child in a constant environment (a classroom, for example), with the same teacher and same improvisational premise, and we analyze the content over a time period and then compare these contents, we will be able to ascertain changes in said improvisation quite precisely. Since any improvisation is composed of many individual kinds of behavior, all of which can be analyzed separately, if between the first and second times we analyze that child's improvisation we introduce a new factor into the child's experience while attempting to keep others constant, and that new factor is a new teacher or a new teaching procedure, for example, we may be able to infer that any changes in his improvisation are related to this factor. And we can look within the improvisation to its various components to ascertain which of these have changed and in what directions. We could also change the locale to see what effects this could have, or introduce any change as long as the two improvisations were similar enough to be compared and we could somehow isolate the factor or factors which might contribute to changes in the improvisation's content.

In essence we are describing the attributes of dramatic behavior without reference to the intentions of the actor or the effect of the behavior on watchers. We are also limiting our analysis to one source over time. The following

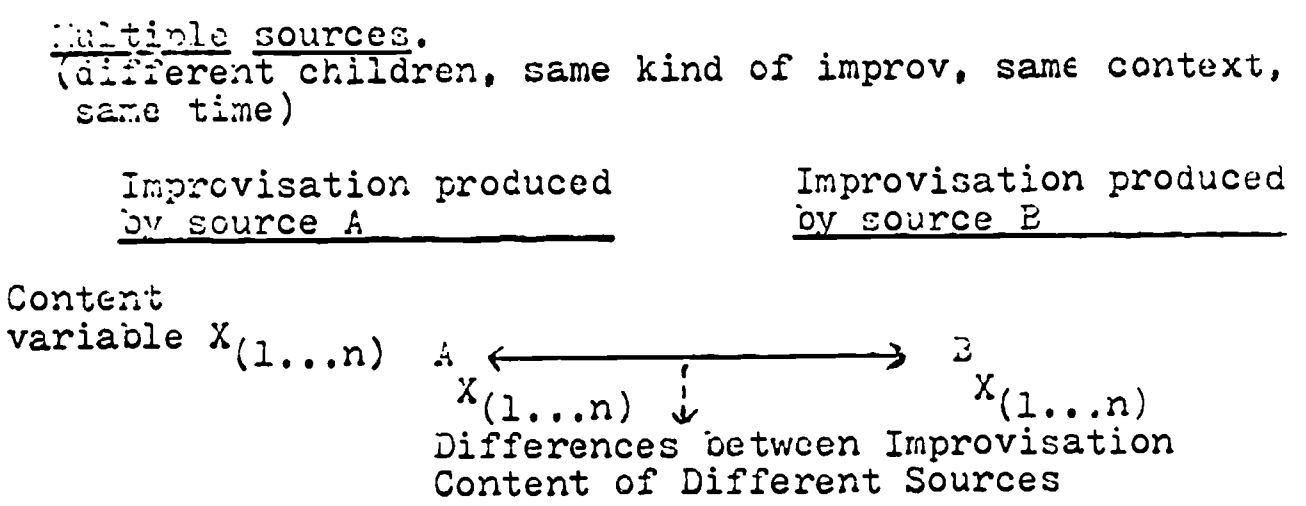
model, adapted from Holsti, might help to illustrate this design (Holsti, 1969, p. 28).

Single source over time.



Of paramount interest to teachers and researchers in creative dramatics are behavior differences between different children. Here we are concerned with whether the improvisations of boys are inherently different from those of girls, whether black children improvise differently from white, whether geographic, socio-economic or other organismic variables seem to produce different improvisational tendencies in children, and/or whether different training procedures produce different improvisations in different children, as well as interactional factors between combinations of these variables. All of these questions may be explored by the systematic comparisons of the improvisation of one child with that of another in a situation in which all other factors are held constant. This permits us to test hypotheses by comparing the improvisations produced by two or more different actors.

Multiple sources.
(different children, same kind of improv, same context, same time)



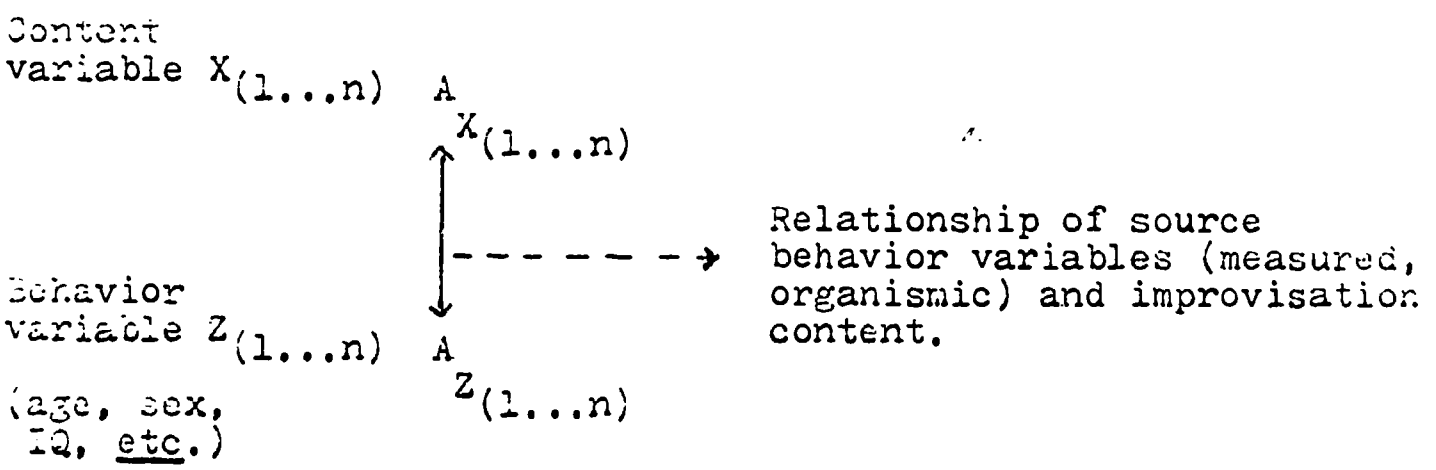
Obviously, this model has great implications within creative dramatics theory. It speaks to the effects of inherent group

differences on what children do naturally in improvisation. It could help us ascertain the need for differing instruction for differing ages, sexes, ethnic backgrounds, etc. And it is the model most applicable to the study of which this is the final project report.

A third type of question frequently discussed in improvisational drama and with important implications to general education involves the relationship between performance in creative dramatics and aptitude as tested by intelligence, achievement, and creativity measures. We ask, "Does a child who performs a certain characteristic way in creative dramatics have a certain IQ level, a certain score on a general creativity measure, a certain grade achievement level in school?" Or we ask more sophisticatedly, "Is there a correlation between a particular configuration of scores of different dramatic variables as tested in an improvisation and a configuration of scores from independent measures of intelligence, creativity, achievement, etc?" In this model, our direct comparison is between content variables in improvisation and behavior variables independently tested from which we infer relationships between creative drama content and said measures of behavior.

Direct comparison between improv data and independent measure of behavior.

Improvisations produced by source A



The most interesting dimension in this model is its prediction implications. If powerful correlations are established, the improvisation may be used as a predictor of intelligence, achievement, and creativity (depending on measures used and magnitude of correlations along certain variables) and vice versa. And, in the present study, this model applies to the correlations between the IDB and the Torrance "Just Suppose" tests.

The last model presented illustrates the interactional effects of the improvisation and is designed to answer the "with what effect?" question. We are always concerned with the impact that one child has upon another in creative dramatics and as teachers are invariably interested in the group dynamics dimension of our discipline. In a somewhat limited manner, the IDB may be used to analyze this interactional effect upon the improvisation as illustrated below.

Message Effect Inferences "With what effect?"

Interaction

Improv produced by source A for recipient B: time t_1	Improv produced by source B for recipient A: time t_2

Content variable $X_{(1...n)}$ A $X_{(1...n)t_1}$ B ⟷ B A $X_{(1...n)t_2}$

Effects of A's improv on B

As in all the other models presented, we ascertain relationships by the detailed analysis of the improvisation through the use of the IDB on video tapes. In this instance, we first analyze the taped improvisation of one child (source A in our model) while another watches; then we analyze the taped improvisation of the second child (source B) as he presents it for the first. With some variations of this paradigm, for example, pretesting both children prior to interaction, we may compare the effect one's presence has on the other and specific interactional influences.

3. The Instrument Itself

We now present a description of the Inventory of Dramatic Behavior itself.

The behavior samples.--The first question to be answered in developing our procedures pertains to the kinds of improvisations to be videoed and analyzed. In selecting the dramatic behaviors to be studied, we had to be most careful that said messages were indeed "dramatic," and that they contained a variety of behaviors which were usual to the tasks of creative drama. In order for our analyses to generalize to the instructional field of reference, these experiences to be analyzed had to be as naturalistic as possible within the creative drama context. We first

concerned ourselves with the problem of how to insure that what we were analyzing was "dramatic." We decided that mimesis must be present and operationalized it as the task of "reacting to something imaginary as if it exists," whether that "something" were an object, a larger environment, other characters, a situational relationship, an event, or the endowing of a real element with imaginary qualities (role taking). We further established a series of tasks, all conforming to the mimesis criterion, all including the previous tasks in the following, and all increasing progressively in inclusiveness and difficulty.

The first three of these tasks constitute the theoretical bases for the IDB behavior sample. The children studied must (1) react to an imaginary object, (2) react to the same object in a larger imaginary environment, and (3) react to the object in a larger environment and interact with another character. Once the criterion of "dramatic" was fulfilled, the "improvisational" quality was assured by allowing the most latitude for spontaneous behavior possible while honoring the other criteria. With these theoretical decisions, we were able to begin constructing the actual scenari which would constitute the "messages" to be analyzed.

Presently, we are using three scenari. In the first, the imaginary object is a large brown wallet containing twenty one-dollar bills. A researcher (the drama teacher hereafter referred to as the Leader) instructs each child to do three things with the wallet: to find it, to pick it up, and then to "do whatever you think you might do with it if you really found a wallet." The Leader indicates an area on the floor on which the wallet is to be discovered, cues the child to begin, and then leaves the presentation area. When the child indicates that the event is finished, the Leader returns and initiates Scene Two.

Scene Two involves the same object, the same directions with the object, but adds a larger context. After repeating previous directions, the Leader describes the environment as a "city park." Gesturing toward an area to the right of the "wallet," the Leader says, "Over here...is a sandbox." Pointing to a wall the Leader continues, "Along here...you can see some swings. The wallet is still lying where you found it before. I'd like you to find the wallet...pick it up...and do something with it. But this time you can play in the park awhile before you find it." Indicating the same cues to begin and end, the Leader motivates Scene Two.

Originally, Scene Three culminated with the entrance of a policeman character, played by the Leader, who entered at

the point the child found the wallet. Our previous reports of results included data from this scene which indicated that the policeman figure tended to program responses to such an extent that spontaneity was seriously limited. We have thus changed our Scene Three procedures by telling the child prior to the scene that after he or she finds the wallet, the Leader will walk into the sequence as any character the child wishes. The Leader then asks the child to choose the character and explains that this personage will do whatever the child decides as the scene is in process. This procedure allows the child much more control over the entire context of the scene and seems to eliminate the reticence previously caused by the policeman figure.

Environment controls.--Uniformity of the location of the improvisation samples derived from four years of observation of real classroom drama sessions. An area 20' x 15' was eventually chosen because it permitted the processes necessary to the analytic dimensions of the research while at the same time falling within the "usual" spatial dimensions available in school classrooms for creative drama. At this stage of our work these limits on environment are relatively arbitrary as long as they are preserved from sample to sample. So as to permit the use of the IDB in as many divergent locales as possible, we placed controls on no other environmental variables. In our original laboratory study in New York, we worked in a relatively ideal situation, a locus especially constructed to accomodate the spatial controls of our design. In our present field work, we have simplified these controls (along with sample recording hardware) and seem to be preserving sufficient treatment uniformity to permit place-to-place comparisons. Once the location is selected, a 20' x 15' rectangle is marked by masking tape. This space is further subdivided into twelve 5' squares.

Recording equipment.--Two video cameras and three microphones were used originally in our laboratory studies. We have simplified the system considerably for our field analyses. Currently, we are using only one operator, one video camera (Sony AVC-3200dx1/2") and VTR unit (Sony AV-3600 VTR), and two microphones (Sony F-98 compact cartoid). The camera and operator are placed adjacent to the working area near the downstage right corner (actor's viewpoint).

Subject orientation.--The Leader brings the subject into the area from an entrance midstage right to the center of the area and orients the latter to face downstage without any specific directions.

4. Analytic Procedures

We now discuss the means by which these improvisational dramatic behavior samples may be analyzed. Our primary goal

initially was to evolve categories of analysis which were most salient to the dramatic events presented and most sensitive to inter- and intra-subject differences. Further, we wished to discover a measurement technique which was as close to the reality of the situation as possible, the most direct means of enumerating the behavior of improvisational drama. We immediately discarded rating or ranking scales as being of too "soft" a level of measurement; rather we looked to ways of categorizing actual observable behavior which could be spotted and counted with accuracy and then compared with other relatively "hard" measures of the same system. Once the improvisation is recorded, it must be divided into categories which conform to the criteria of exhaustiveness (all relevant items capable of inclusion within a category), categorical exclusiveness (no item capable of inclusion in more than one category), independence (item assignment in any one category unaffected by items assigned in other categories), and category level consistency (categories derived from single classification principle along one conceptual level of analysis). These conceptual guidelines led us to evolve fifty-two categories originally which were eventually simplified to the eight pertinent to the research questions described earlier in this report.

The Inventory of Dramatic Behavior now consists of the categories time, amount of space traversed, number of stops, dramatic incidents, novel dramatic incidents, dramatic acts, repeated acts, and other characters created.

Time.--This is simple measure, in seconds, of total time spent per scene. Two time measurements are recorded for Scene Three, time from the beginning of the scene to the entrance of the Leader, and time from this point to the end of the scene. Timing for each scene begins when the subject has begun the improvisation. Verbal cues from the Leader are ignored. Further, timing ceases when the subject withdraws from the scene, frequently indicated by a cessation of movement, a shrug, staring at the Leader, or a verbal statement to the effect that the scene is finished. For example, a child is instructed for Scene Two and cued to begin. He thinks, asks a question, stands, thinks a while longer, then walks to the imaginary sandbox. Timing begins when the child starts his walk to the sandbox. After behaviors with the sandbox and slide, the child finds the wallet, puts it in his pocket and sits. Several seconds later the Leader inquires if the scene is finished. The child agrees. Timing ceases when the child sits, not when the Leader intervenes. If, however, the child ignores the question and begins some other improvised activity, timing continues until the child himself indicates that the scene is over.

Space traversed.--This is a description of movement measured numerically by counting the number of spacial units traversed by each subject in the course of each scene. The total space capable of containing movement, the playing area, is subdivided into twelve units, each five feet square, and labeled A1 through D3.

A_1	B_1	C_1	D_1
A_2	B_2	C_2	D_2
A_3	B_3	C_3	D_3

Subjects are scored by the number of squares traversed within the scene, beginning with an automatic score of one indicating the space in which the sequence is begun. A subject is considered to have traversed into a new square when he has committed the majority of his body to that new area. If he slides one foot or simply reaches into an adjoining square he is not credited for a new area. For example, a subject begins in B_2, moves to B_3, then back into B_2. He is scored for three squares. He is scored for each square traversed, regardless of how many times he has previously occupied a particular square.

Number of stops.--Each time a subject ceases gross movement (defined as a change of location within the testing area), he is scored. The reasons for cessation of movement may be either dramatic (i.e., stopping in front of an imaginary lost-and-found table to report the discovery of the wallet) or non-dramatic (losing concentration, asking questions of the Leader, pausing to think what to do next, etc.). For example, a subject begins the scene by walking toward the sandbox, halts and asks a question of the leader, resumes walking, halts and thinks for a moment, continues walking to the sandbox, climbs in and sits, finds the wallet and concludes the scene without rising. He is scored for three stops.

[illegible] incidence.--This is a measure of dramatic sub-[illegible] within each scene. The concept is similar to that of the "motivational unit" as explained by Dietrich (1953, p. 73): "The motivational unit may be defined as an integral scenic unit in which the motivational pattern remains unchanged." Each scene is divided into incidents by counting the number of

times the overall motivation changes, sometimes accompanied by a change in imaginary locale. For example, if a subject begins Scene One as indicated by the Leader, but after picking up the imaginary wallet, takes it immediately to an area which represents a school lost-and-found room, the improvisation contains two incidents at this point. If, after the second incident, the subject creates the environment of his house and engages in imaginary conversation with his mother, the scene now contains three incidents. If, on the way from the "lost-and-found room" to his "home," the subject portrays a sequence in which he tells some of his friends about the discovery, the scene contains four incidents.

The dramatic incident is a measure of each general activity within a scene. Each incident is usually a conglomerate of smaller actions which may be loosely grouped together into an overall single event. It is a complete dramatic subunit.

Novel dramatic incidents.--Once the incidents are scored, those uniquely created by the subject are noted. Operationally defined, any incident not indicated by the Leader in his introductory directions is considered novel. In the examples described above, of the four incidents in Scene one, the last three would be judged as novel.

Dramatic acts.--This is the smallest unit of behavior within each scene, that which comprises the incidents. It is operationally defined as a discernable element of intended physical behavior elicited within each scene. Acts are scored by simple counting per scene. For example, if Scene Two begins with the subject relating to an imaginary sandbox, each unique physical act would be scored: the subject getting into the sandbox, stopping momentarily then getting down on hands and knees, stopping momentarily then "digging a hole" in the sand with repeated hand motions, stopping momentarily then "smoothing the sand around the hole" with repeated hand motions would constitute four acts. Since overall motivation remains constant, the above acts would be included in the same incident. Behaviors idiosyncratic to the subject and out of dramatic context are not scored in this category.

Often behaviors occur simultaneously or are indistinguishably juxtaposed in the course of an incident. For example, a child rises upon picking up the wallet and on the same movement pockets it. Even though two behaviors are occurring either simultaneously or juxtaposed, the actual behaviors are so closely interrelated that they are observably inseparable. In all such cases, only one act is scored.

Repeated acts.--This category covers those acts immediately repeated. Acts three and four described previously would necessitate a score of repeats. Each time a digging or smoothing motion would be repeated, it would be scored for each repeated motion. If a digging act would occur later in the scene, it would be scored initially under the dramatic acts category; those following continuously would be scored as repeats. Behaviors normally repeated as habitual human functions, such as each step in walking from one locale to another, are not counted as repeated acts.

Characters created.--The final category scores imaginary characters created. The process includes the subject personifying others by changing physical attitudes and speaking as another or acting as if he were relating to another person present. Since the only other character in the design is the Leader in the latter part of Scene Three, any indication of characters other than the Leader and the subject himself is considered a unique creation and scored accordingly.

Scoring procedures.--Scorers are trained in the categories explained in the previous discussion over a five hour period (approximately one hour per day) by discussing each dimension as a group while viewing video examples. Following this period, each scorer codes five video samples (five subjects each doing three scenes) independently. These data are analyzed for variance by ascertaining intercoder reliability for the group as a whole as well as by comparing the data of any individual scorer to group scorer norms for each dimension. Over four years, reliability coefficients have ranged regularly from .75 (acts) to .98 (time).

A technique which has proved beneficial to ascertain the reliability of new scorers who join the coding team following initial training is to add their scores of the samples used for original reliability and ascertain their variance from the group. The same techniques can be used as spot checks of the scorers intermittently throughout the process (using video samples other than those originally scored).

B. Secondary Evaluative Instrument: The Torrance "Just Suppose" Creativity Test.

Selection of measure.--In our original proposal we outlined the methodology for ascertaining a measure of "creativity" outlined by Wallach and Kogan and Wallach and Wing. In consultation with psychology advisors to this project, some doubt was raised as to the efficacy of Messrs. Wallach, Kogan, and Wing's approach for two reasons:

(1) their techniques require an administration interval which might prove inefficient within the tight schedule in lab and field data collection, and (2) we experienced difficulty in locating a concise operating manual for their measures which could increase reliability in administering and processing the measure. After careful consideration and based upon qualified opinion, we decided to substitute the Torrance Tests of Creative Thinking, specifically the "Just Suppose" unit, a measuring procedure with considerable substantiation in the field which could provide the kind of data called for in our study in a very efficient manner.

We then contacted Professor Torrance who gave us his permission and agreed to consult with Professor Karioth on its administration. He suggested our employing the "Just Suppose" section of his creativity test matrix and provided advice and data on said administration.

Administrating the test.--This instrument was administered to each of fifty-one children selected from the Florida State University Lab School. The examiner received each child in a quiet room and began the session by creating a tension-free, non-testing atmosphere. Some variation of the following introduction was used to put the child at ease:

> I believe you will have a lot of fun doing the activities we have planned for this period. We are going to do some things that will give you a chance to see how good you are at thinking up new ideas and solving problems. They will call for all the imagination and thinking ability you have. So I hope that you will put on your best thinking cap and that you will enjoy yourself. (Torrance, Directions Manual, 1966, p.4)

The examiner then distributes response sheets and pencils and reads to the child the following task description:

> You will now be given an improbable situation--one that may never happen. You will have to just suppose that it has happened. This will give you a chance to use your imagination to think out all of the other exciting things that would happen if this improbable situation were to come true.
>
> In your imagination, just suppose that the situation described were to happen. THEN think of all the other things that would happen because of it. In other words, what would be the consequences? Make as many guesses as you can.
>
> The improbable situation--JUST SUPPOSE a great fog were to fall over the earth and all we

could see of people would be their feet. What would happen? How would this change life on earth? (Ibid., pp. 7-8).

Eight minutes are allowed for the completion of the test. During this period the examiner may motivate responses or attempt to reduce test-anxiety with non-specific prompting. Appropriate comments include, "What else might happen?" or "How many different things can you think of?" All responses are recorded regardless of seeming relevance (or lack of it). Approval or disapproval is avoided.

Factors of the test.--The Just Suppose Activity is intended to assess three areas of creative behavior. The following brief descriptions are provided in the Torrance manual:

> Verbal Fluency.--This score reflects the test taker's ability to produce a large number of ideas with words.
>
> Verbal Flexibility.--This score represents a person's ability to produce a variety of kinds of ideas, to shift from one approach to another, to use a variety of strategies.
>
> Verbal Originality.--This score represents the subject's ability to produce ideas that are away from the obvious, commonplace, banal, or established (Torrance, Norms-Technical Manual, 1966, pp. 72-73).

Because of the specificity of scoring procedures, the entirety of the Torrance process will be quoted directly.

Scoring the test.--The following information is provided by Torrance:

> The fluency score for the Just Suppose Activity is determined by counting the number of different consequences or possibilities produced. No credit is given for inappropriate and irrelevant responses. One type of irrelevant response occurs when the respondent merely restates the condition, such as:
>
> There would be a thick fog.
> You could not see people's faces.
> You could not see what other people look like.
>
> Another type of inappropriate response is one that has no special relevance to the improbable situation or describes conditions that already exist and would not be caused by the improbable situation.

Occasionally, respondents may list within one sentence a number of different consequences or ideas. It is believed that here multiple scoring is justified because such consequences could have been written as a separate statement.

Flexibility

Instead of using such status categories as in the other activities, flexibility for the Just Suppose Activity is defined as a change or shift in attitude or focus. For example, the following set of responses would receive no credit because there is no change in the approach of the subject. There is no change in focus, no mental leap from one approach to another.

You could not see people's faces.
You could not see them smile or frown.
You could not tell when they blush.
You could not see someone wink at you.

The following set of responses would receive a score of five on flexibility (asterisks indicate shifts in attitude or focus):

You could hardly breathe.
We would pay more attention to people's feet.*
People would wear fancier shoes.
We could not see where we were walking.*
More people would probably become blind.*
We would depend more upon hearing than seeing.*
Someone would invent reverse periscopes for seeing below water (fog) rather than above water as in submarines.*

Originality

Originality is judged primarily by the rarity of the response. Obvious responses, responses requiring little or no mental leap from the stimulus, however, are not considered original, in spite of rarity. The following alphabetical list contains both the common, unoriginal responses (indicated by "0") and a few samples of original responses (indicated by "1"). Responses not included in this list and getting away from the obvious receive two credits.

Responses	Orig. Weight
Accidents, there will be many more than now.....	0
Animals, will all die out.....	1
Anything, could not/could to anything.....	0

Bad, people would be bad.....	0
Beams, someone would invent to see through fog	1
Blind, more people would become.....	1
Body parts would fall off.....	0
Bump into things and one another, people would	0
Businesses would close up.....	0
Climate would change.....	1
Clothes, would not need.....	1
Clouds, we would think we were in the.....	1
Confusion, there would be.....	0
Crawl, we would have to crawl.....	0
Crazy, we would all go.....	1
Crimes would increase.....	0
Do anything, could/could not.....	0
Drive, could not.....	0
Earaches would increase.....	1
Earth would turn white.....	1
Eat or drink, could not.....	0
Eat or drink, would the wrong things.....	0
Faces, never would see.....	0
Fall (stumble, trip, etc.), more people would	0
Feet would be the only body part seen.....	0
Feet would grow bigger.....	1
Feet, identification would be on the basis of	1
Feet would kiss and caress.....	1
Find things, could not.....	0
Fighting, there would be more.....	1
Friends, could not make or keep.....	0
Glasses, sales of would increase.....	1
Go anywhere, could not.....	0
Grow, nothing would.....	0
Hearing would become more important than now	1
Hide, it would be easy to.....	1
Hit by vehicles, more people would be.....	0
Injuries would increase.....	0
Inventions would be made to stop the fog....	1
Kiss, would wrong person.....	1
Kiss, would be easier to pretty girls.....	1
Know, would not whom you were talking to....	0
Laugh, could not without getting a mouth full of fog.....	1
Lay down, would have to in order to see.....	1
Life would stop.....	0
Live in holes, people would have to.....	1
Lonely, we would be.....	0
Look down, we would have to all the time....	1
Lost, more people would get.....	0

Messy, hair and clothes would be.....	0
Mirrors would be unnecessary.....	1
Names would be more mixed up.....	0
Not know where you're going, you would.....	0
Play/have fun, could more.....	1
Play/have fun, could not.....	0
Read or write, could not.....	0
Recognize people, could not.....	0
Schools would stop.....	0
See, would not be able to.....	0
Sick, people would become and die.....	0
Sports would stop.....	0
Starvation, there would be.....	0
Step on each other, people would.....	0
Stop, everything would.....	0
Sun, would not shine.....	1
Time, could not tell the.....	1
Transportation would stop.....	0
Water would increase.....	1
Work, could not.....	1

(Ibid., p. 11)

Results from an earlier study seem to indicate that ". . . when the scoring guide is carefully studied and accepted, scores of acceptable reliability are obtained." (Ibid.) Pearson product-moment reliability coefficients between the scoring of scorers trained by experts and scorers trained only by reading the manual are: fluency, .99; flexibility, .95; and originality, .91.

C. Phase One Activities Summary.

The preliminary work antecedent to, and the execution of Phase One activities have already been reported in our 1/April/1972 Progress Report. Here we offer a summary of this information to provide continuity to the reader unfamiliar with the aforementioned document.

The Phase One activities were viewed in five developmental steps as follows: (1) the securing of necessary technical equipment (video cameras, VTR units, monitors, tapes, etc.), the training of personnel to operate such equipment, and the locus in which to use the videoing procedures, (2) developing of sample selection protocol (random assignment of subjects within the variable categories of our design actually employed for our laboratory sample), (3) training of video sample coders (the teaching of the

ISS to eleven scorers who were assigned to this phase), (4) data collection rehearsal and final subject random assignment to actual taping schedule, and (5) the actual taping and scoring of Phase One.

This entire procedure was geared to our laboratory setting at the FSU University School. The space used was a remodeled auditorium stage at this locale which was adapted specifically to add as many controls as possible to our procedures while at the same time presenting an estimated norm of what average conditions should be like in the Phase Two stage of the project, when our team would travel to "on site" school settings.

In sum, we rehearsed all stages of our first phase activities from the operating of equipment to the selection of subjects to the improvisations to the scoring of the tapes and ran the entire sequence with few mishaps. Our data was collected and we prepared for the next stage.

Only two problems occurred at this stage, one an external equipment purchasing dilemma which was financially annoying (see Progress Report, pp. 11-12), and one a bit more difficult in relation to our project design. Because of its importance, we explain this in detail here.

An essential prerequisite of all subjects selected for this project was complete lack of prior training in improvisational drama. On the basis of numerous discussions with FSU University School teachers involved, it became clear that accurate information concerning this variable was impossible to obtain except from the children themselves. Thus it was decided that each teacher of a class which involved a potential sample of subjects would ask the students in the class whether or not they had ever participated in creative dramatics. It was then noted that some of the children may have had creative dramatics in Sunday School or church or as part of playground programs. It was further decided to ask the students about any creative dramatics experience, list those students who claimed to have participated, and thus be able to compare the students who had previous creative dramatics experience with those students who did not have experience by building this dimension into the project design as an organismic variable where necessary. Student subjects who claimed previous creative dramatics were listed by sex and age level:

Male			Female		
9.6-10	years	Joe Harbison	9.6-10	years	Lois La Leur
9.6-10	years	Patrick Sullivan	9.6-10	years	Kelly Webb
10-10.6	years	Ben Willis	11-11.6	years	Miriam Gretson
10-10.6	years	Tracy Glover	11-11.6	years	Karen Chester

12-12.6 years	Arnold Rogers	11-11.6 years	Susan Quincy
12-12.6 years	Carl Herold	11.6-12 years	Linda Phiffer
		12-12.6 years	Lisa Kohler
		12-12.6 years	Lou Kohler

It is obvious from the age cluster that all children who had attended University School during the academic year 1970-71 as a fourth or fifth grade student had participated in creative dramatics. A further interesting note is that a set of identical twins, Lisa and Lou Kohler, were selected by a random process to be tested.

We were thus in the dilemma of restricting our sample cell subject size in the 9.6-10, 10-10.6, 10.6-11, 11-11.6, 11.6-12, and 12-12.6 year cells only to new students (who had not attended during 1970-71), or to simply include and identify this background variable in our study and proceed ahead with randomization based on age and sex. We chose both alternatives. As it turned out, we had inadequate "virgin" subject representation only in the following original cells: 9.6-10 year male and female, 10-10.6 male, 11-11.6 female, 11.6-12 female, and 12-12.6 male and female. In order to rectify this situation, we planned to test again subjects in these categories who were <u>not</u> part of the 1970-71 class and add them to our total subject sample, meaning the inclusion of fourteen new subjects. This we did accomplish during the Phase Two time allotment (post-April, 1972), during which period we collected the creativity measures on the same subjects (see 1/April/1972 Progress Report, p. 11). Consequently, by the time we were passing into the midpoint of our middle phase, we had completed all commitments to the first sequence of our research schedule.

C. <u>Phase Two Activities</u>.

<u>Tour planning</u>.--Through the Florida State Department of Education, we were provided with a map of school district geographic areas of the state. Our task was to select ten districts which represented as diverse geographic points within the state boundaries as possible. In cases of options (in which two areas were equally suitable once they fit the geographic criterion) we chose on the basis of estimated population concentration (attempting to match heuristically rural and urban areas) and route (providing the most direct data collection travel itinerary).

Thus we chose ten areas other than our Phase One locale. We then consulted the Language Arts Supervisor of the state to select a system and school within each district. Strictly speaking, our process was not random, perhaps closer to a stratified sample technique, because of the impossibility of

any school within each district and every district within the parameters of our study having an equal chance of being selected. But we anticipated this phenomenon in this phase of our study because of its field nature. With these qualifications, however, the ten schools finally chosen should emerge as relatively unbiased and perhaps even causally random when compared to analogous research operations. The towns, counties, and schools visited were:

Town	County	Elementary School
1. Bradenton	Manatee	Palma Sola
2. Crestview	Okaloosa	Southside
3. Cross City	Dixie	Anderson
4. Jacksonville	Duval	Englewood
5. Jennings	Hamilton	North Hamilton
6. Ft. Lauderdale	Broward	Nora
7. Miami	Dade	James Bright
8. Ocala	Marion	Eighth Street
9. Pensacola	Escambia	Montclair
10. Sanford	Seminole	Forrest City

Once the districts were selected, a letter from the State of Florida, written over the signature of Mrs. Kitty Mae Taylor Consultant to the English Language Arts, was sent to the Language Arts Supervisors of each area. The correspondence acquaints the respondent with the project by quoting from the grant proposal and then outlines the following design procedures:

1. Select a school in your district containing children ages six through twelve and one-half years.

2. Identify all the children, by sex, in six-month age intervals beginning at six through six and one-half and ending at twelve through twelve and one-half. Through a random process (see accompanying sheet on random process) select one male and one female from each age interval to serve as subjects for the testing. It is probably wise to also select an alternate for each subject in the event of absence on the testing day. A subject sheet is enclosed.

3. Locate a space for the testing. This space should be at least 20' x 20' with electrical outlets for the video equipment. The space will be used for one school day.

4. On the testing day, subjects should be scheduled for individual testing times of ten minutes each in consecutive time intervals. The subject should be sent by the teacher to the testing area five minutes before the subject's test time. When the testing is complete, the subject will be returned to the classroom by the testing team.

Thus, we left the actual school selection up to the Language Arts Supervisor of the area. The only logical bias which was anticipated was an administrator choosing a "model" school. But the Supervisors were cautioned against this practice where possible. In addition, although the larger environment (the entire school) could have some biasing effect on dramatic behavior, each subject was selected on a priority criterion of total naiveté of formal drama training. We also watched carefully once samples were collected for such possible trends by certain empirical techniques discussed later, techniques which should disclose such indigenous behavior similarities as an added check.

Our next task was to plan number of trips to collect data to suit the schedules of the participant schools, our research assistants, equipment loan, and economy. Because our research assistants needed special, intensified training in acting as on camera "Leaders," camera operators, equipment set-up technicians, creativity measures administrators, and other jack-of-all-trades-handymen that most such field projects require, we decided to train only five of our team, three who would count on going out on all data collection trips, and two to act as "swing" utility men who would step in in the event of sickness or the inability of one of the "regulars" to go on a trip because of other commitments. All of these assistants were graduate students carrying classes, which made scheduling even more difficult. At any rate, with some logistical difficulties, we finally set the following tours: April 6-7 to Crestview and Pensacola; April 26 to Bradenton; May 1-5 to Miami, Ft. Lauderdale, Sanford, Cross City, and Jacksonville; May 10-11 to Ocala and Jennings. Robert Jenkins, John Dubard, and Clarence Burbage were trained as improvisational drama Leader, camera operator, and creativity measure administrator (primarily) respectively, with Randy Bolton overall tour supervisor and swing, and Burton Merriam as the other alternate.

Data collection schedule.--In order to work within budgetary limitations, it was necessary to complete total testing in one school in one day. This meant that the format had to be planned carefully so that twenty-six children could be video-taped and tested on the creativity measures in one continuous period, and, in some cases, that all equipment would have to be set up and removed as well. For these reasons, our Phase One experiences were invaluable in perfecting efficient and rapid data collection procedures. Our specific methods are outlined in detail in our Progress Report dated 1/ April/ 1972 (except for equipment set up times at each school). They were adhered to and worked well.

In sum, all Phase Two activities as outlined in our original proposal were conducted and completed, except for one facet as noted in a letter to the NCERD HEW Atlanta Office dated June 6:

> It was originally our intent in Phase II (the field study stage) to collect basic creativity measures on all children being videoed for dramatic improvisational behaviors around the State of Florida. This procedure was completed as planned. However, the Research Assistant in charge of this dimension inadvertently contaminated the creativity data by permitting subjects to hear one another's responses to the questions presented. This automatically invalidates all raw scores taken, involving 260 subjects. Methodological constraints make it impossible to re-collect this information, especially since the design demands that these data must come from the same subjects who were videoed.
>
> Needless to say that I was very disappointed to learn of this complication. My team pursued the possibilities of somehow "cleaning up" the data in order to make it usable. No way was found. Re-collecting was considered and categorically rejected because of prohibitive logistics. Then the major question was considered: How much does this error effect the potency of the study's results? Asked in a more pragmatic manner, can we fulfill our obligation to ourselves as scientists and to the United State Government with the data we will have accumulated and analyzed?
>
> I am relieved to say that the answer is yes. Since our Phase I stage includes the collection and correlation of creativity measures with dramatic data, we are still able to generalize on a sample of 50 subjects. Although this number is less than originally anticipated, we may still make very substantial generalizations because of the parameters indicated. And, although we are very embarrassed by this alteration in intent, we are most happy to be able to fulfill our major obligations in spite of it.

Our analysis of the above-mentioned situation was acceptable to the HEW-NCERD Office and we proceeded ahead with Phase Three of our project accordingly.

III. Results

A. Reliability.

The basic data gathered in this study are the videotaped recordings of the performance of each child. The IDB is then used to translate these videotapes into scores on the eight dimensions for the three scenes for each child. The first step in our data analysis was an investigation of the reliability of the translation from videotape to dimension score. This reliability study consisted of seven raters who independently rated each of five randomly chosen children. The measure of reliability we decided to use is the intraclass correlation coefficient (see Winer, 1971, pp. 283-289, for details). In particular, we have evaluated the reliability of a single observation on each of the dimensions. These reliabilities were all large, with 20 out of 24 being between 0.65 and 1.00. "Characters" was the only dimension with rather low reliability coefficients.

B. Data Preparation.

When we examined the data gathered in this study, it was evident that virtually all of the children could be viewed as having come from a single population of "normal" children. However, there were two subjects, one in the Tallahassee sample and one in the Florida sample, who clearly were outliers. We are using "outlier" in the technical statistical sense that these children definitely have come from a much different population than normal. They appear to have been drawn from a population of hyperactive children, in that their scores are much, much larger than those of the others. There are many statistical procedures for dealing with outliers. We chose to "winsorize" these scores, which means that we replaced the outlying data by the largest scores on the "normals."

Further examination of the data indicated another problem. Two children, who were apparently autistic, did not respond at all to the instructions. Hence, their scores on all dimensions were zero. We have removed these two children from the data, leaving a sample which consists of 34 New York subjects, 52 Tallahassee subjects (one of whom has winsorized scores), and 268 Florida subjects (one of whom has winsorized scores).

C. Developmental Norms.

One of the primary objectives of this research is to construct developmental norms for primary school children on the variables of the IDB. Technically, our objective

can be summarized as follows: We are interested in the scores of the population of Florida primary school children on 26 random variables, the eight IDB dimensions in each of the three scenes, time before the entrance of another character, and time after the entrance of another character. In particular, our objective is to estimate the population mean of each of these random variables for children of various ages and sexes. Thus, the developmental norms which we report will actually be sample means which will be our best estimates of the associated population means. We will also report our estimates of the standard deviations of the various populations.

There are two questions to be answered before constructing the developmental norms:

1. Can the data from Tallahassee and the other 10 counties in Florida be pooled to construct the norms?
2. Are separate norms necessary for various ages? for males and females?

If there are no significant differences among the counties, we can pool the data from the eleven counties to estimate the norms. To answer the second question we will again look for significant differences, this time among the age groups and sexes. If there are no significant differences on the dimensions among the ages or sexes, then one set of norms will do for children of these ages. If there are significant differences, it will be necessary to construct separate norms for various ages and sexes. The second question is essentially asking how many distinct populations do there appear to be among the primary school children, in terms of the 26 variables.

We investigated these questions by computing, for each dimension in each scene, a three-factor, 11x6x2 analysis of variance. The three-factors were counties (11 counties), age (six ages), and sex. In all, three-factor analyses of variance were computed for each of 26 variables, one for each of the eight dimensions in each of the three scenes, one for time before the entrance of another character, and one for time after the entrance of another character. The Colorado University Institute of Behavioral Sciences computer program 222 was used to compute the analyses for variance.

<u>County to county differences</u>.--These analyses indicated that mean values of these 26 variables did not vary by county. Only for Acts-Scene Two and Acts-Scene Three did the F-statistics for counties indicate differences among the counties which were significant at the .05 level. However, using a .05 significance level we expect to see one or two "significant" results, or "false positives," even if there are no differences among the counties. Thus, we do not feel

that the results for Scenes Two and Three constitute substantial enough reasons not to pool the results from the 11 counties. Since, we have pooled the data from the 11 counties in order to estimate our population means and thereby construct our developmental norms. This analysis also serves to verify the methodology used to gather data in the two counties of Florida by indicating that there are not significant differences between information gathered "on the road" and that collected in Tallahassee under more controlled circumstances.

Age and/or sex differences.--The analyses of variance indicated several differences between the sexes and the age groups on the IDB dimensions. Table 1 gives the F-statistics from the three-way analyses of variance which test for the significance of differences between the sexes and among the age groups. For each F-statistic Table 1 gives p=observed significance level, which is the probability of observing an F-statistic this large or larger, if in fact the null hypothesis is true. The F-statistics also indicate several differences among the age groups in Scenes One and Two. These results lead us to believe that, in terms of our 26 variables, we are considering 12 different populations: six, seven . . . and eleven-twelve year old boys and six, seven . . . and eleven-twelve year old girls. Thus, we report developmental norms or, more precisely, estimates of population means, for each of these twelve populations. These norms are given in Tables 2-27. These tables give the estimated means and standard deviation for each of the 26 variables for each of the 12 populations.

New York versus Florida subjects.--More differences are apparent among the Florida subjects than the New York subjects. In particular, there are more age differences in the Florida subjects. Also, some sex differences are seen in the Florida subjects. The girls took less time in Scenes One and Two, while the boys created more incidents and novel incidents. Most noteworthy of the differences here is the fact that Tables 2-27 indicate that the type of age variation seen in the Florida subjects is different than in the New York subjects. For the New York subjects, the younger subjects were more active than the older subjects. In Florida, the results are reversed: the older subjects were more active than the younger ones. This difference merits further research.

Correlations among dimensions.--Tables 28-30 give the correlations among the dimensions for Scenes One, Two, and Three, respectively. These are "within group" correlations, where our groups are young (6.0-8.5 years) girls, old (9.0-12.0) girls, young boys, and old boys. We report within group correlations because of the significance of the differences among the group means (see Cooley and Lohnes, 1971, p. 230, for further details). The correlations among the variables

for the Florida children are smaller than the correlations for the New York children reported in Lazier, Sutton-Smith, and Zahn (1971). This may be due to the greater homogeneity of the New York group which may have resulted from their dramatic training.

New York subjects versus Florida subjects on overall means.--Table 31 gives the overall means and standard deviations for the Florida subjects and for the New York subjects. We have indicated in the table which dimensions and scenes yielded significantly different overall means in the two groups. Several differences between the two groups are apparent in Scenes One and Two. The New York children are more active physically and dramatically. However, there are few differences between the groups in Scene Three. Apparently, the presence of the other character serves to suppress the differences between the two groups.

The standard deviations indicate that there is little difference between the variabilities of the two groups of subjects on the dimensions.

D. Creativity and the IDB.

Table 32 reports the correlations between the three creativity scores and the IDB dimensions. Most of the significant correlations were between the creativity variables and dimensions in Scene Two. The correlations among the three creativity scores are so large that it appears that they are measuring one or at most two concepts. Additional research is needed to explore the negative correlations found between flexibility and the Scene Three dimensions.

E. Non-technical Summary of Data Analyses.

Tables 2-27 summarize the average performances on the dimensions found in this study of Florida primary school children. Individual scores are given for boys and girls, aged six years to eleven years. Major differences among these groups of Florida children can be summarized as follows:

1. Girls spent more time playing Scenes One and Two and created more incidents and novel incidents while doing so.
2. Older children (aged 9.0 to 12.0 years) differed in several ways from the younger children (aged 6.0 to 8.5 years) in Scenes One and Two. They covered more squares, made more stops, and created more incidents, novel incidents, acts, and characters. However, in Scene Three with the other character there were essentially no differences between younger and older children.

IV. Conclusion

We embarked upon this year-long research project with some very tangible and important goals in mind. The target quest had to do with providing a systematic profile which described the natural behavior of Florida Elementary School children. We asked the question, "What do these children do when called upon to improvise dramatically?" , and "these children" refers to a scientifically selected sample naive in dramatic matters. We felt that this conformation would be of use to any teacher who wishes to train children by providing a base line of expected behavior.

We discovered, in non-technical terminology, the following information about Florida children:

1. that children from diverse parts of the state perform similarly, that one can compare the behavior of a child from Jacksonville with one from Miami (on the measures used),
2. that children do indeed perform differently if viewed in distinct age increments of one year. Thus, it might be wise for teachers to consider each yearly age group as a distinct class, not pooling all children from six to twelve into one drama class,
3. that the sex of the children does indeed have an effect upon their behavior, that teachers can expect girls and boys to exhibit different behaviors and that these behaviors can be seen in terms of more created plot details by boys, for example,
4. that Florida children react differently than New York children on the dramatic measures which might indicate that geography or prior training (the New York children all had six months of drama classes) can significantly affect dramatic behavior,
5. that the behavior of any one Florida child seems to have been less consistent than that of the New York children, a factor produced possibly by prior training or geographic differences,
6. that the New York children were more dramatically "advanced" than the Florida children because of geography and/or prior training; they were more expressive,
7. that there is a relationship between creative behavior and dramatic behavior, and that the correlations seem to occur throughout individual dimensions of both indices.

These findings, and the more specific and detailed presentation of them on the previous pages, can be food for thought for quite a while among researchers in dramatic behavior and education. We have accomplished our goals as

put forth in our original proposal. Study of our behavior norms of Florida children can help teachers in their expectations when they face their pupils for the first time. Cognizance of the correlations between creativity and dramatic behavior might suggest that drama may be an effective means to stimulate creativity.

We are also pleased to report that the instrument described in detail earlier, the Inventory of Dramatic Behavior, has proved to be an efficient tool for the purposes to which we have applied it. We can go on now to create a larger data base using it, perhaps eventually providing norms of dramatic behavior for children throughout all of America.

In the last analysis, we hope that our work as reported herein can help to accomplish one very important goal: to make the lives of our children freer and happier by letting us know a bit more accurately what is natural to them in the things that they naturally love to do. We feel that drama training can help and that we may be able to help drama training.

BIBLIOGRAPHY

Cooley, W. W. and Lohnes, P. R. Multivariate Data Analysis. New York: John Wiley and Sons, 1971.

Dietrich, John E. Play Direction. Englewood Cliffs, N.J.: Prentice-Hall, 1953.

Holsti, Ole R. Content Analysis for the Social Sciences and Humanities. Phillipines: Addison-Wesley, 1969.

Lazier, Gil, Sutton-Smith, Brian, and Zahn, Douglas. "A Systematic Analysis of Developmental Differences in Dramatic Improvisational Behavior," Speech Monographs, XXXVIII, No. 3 (August, 1971), 155-165.

Torrance, E. Paul. Torrance Tests of Creative Thinking: Directions Manual and Scoring Guide. New Jersey, 1966.

Torrance, E. Paul. Torrance Tests of Creative Thinking: Norms-Technical Manual. New Jersey, 1966.

Wallach, Michael A. and Kogan, Nathan. Modes of Thinking in Young Children. New York: Holt, Rinehart and Winston, 1965.

Wallach, Michael A. and Wing, Cliff W., Jr. The Talented Student. New York: Holt, Rinehart and Winston, 1969.

Winer, B. J. Statistical Principles in Experimental Design (2 ed). New York: McGraw-Hill, 1962.

TABLES

TABLE 1

Age and Sex F-Statistics and Observed Significance Levels from the Three-Way Analysis of Variance of Each Dimension

	Sex		Age	
F-statistic degrees of freedom	1,178		5,178	
	F-statistic	p = Observed Significance Level	F-statistic	p = Observed Significance Level
Scene One				
Squares	2.12	ns*	2.51	$p < .05$
Stops	2.65	ns	4.66	$p < .05$
Incidents	3.54	ns	4.65	$p < .05$
Acts	0.21	ns	3.55	$p < .05$
Repeats	1.35	ns	0.94	ns
Time	4.96	$p < .05$	1.74	ns
Novel Incidents	3.93	$p < .05$	5.33	$p < .05$
Characters	0.64	ns	3.24	$p < .05$
Scene Two				
Squares	1.38	ns	1.37	ns
Stops	0.56	ns	3.17	$p < .05$
Incidents	5.20	$p < .05$	4.54	$p < .05$
Acts	3.61	ns	3.49	$p < .05$
Repeats	0.11	ns	2.50	$p < .05$
Time	4.90	$p < .05$	2.06	ns
Novel Incidents	4.08	$p < .05$	4.51	$p < .05$
Characters	0.17	ns	1.83	ns
Scene Three				
Squares	3.68	ns	1.63	ns
Stops	0.40	ns	1.23	ns
Incidents	2.66	ns	2.02	ns
Acts	0.29	ns	2.65	$p < .05$
Repeats	0.00	ns	2.96	$p < .05$
Time	0.00	ns	0.80	ns
Novel Incidents	7.40	$p < .05$	0.52	ns
Characters	1.21	ns	0.33	ns
Time Before Policeman	1.36	ns	0.58	ns
Time After Policeman	3.75	ns	0.64	ns

*ns = not significant

TABLE 2

Squares, Scene One

Sample means (representing developmental norms for this dimension), sample sizes, and sample standard deviations for various subject groups.

	Boys	Girls
6.0, 6.5 years	1.8 (23) *	1.6 (22)
	1.5	0.9
7.0, 7.5 years	2.4 (25)	1.9 (24)
	2.4	1.3
8.0, 8.5 years	3.8 (24)	2.2 (24)
	5.4	1.3
9.0, 9.5 years	2.9 (24)	3.8 (24)
	1.8	3.7
10.0, 10.5 years	3.6 (24)	3.3 (24)
	3.8	4.2
11.0, 11.5, 12.0 years	4.2 (36)	2.6 (36)
	5.0	2.6

* For each subject group three numbers are given. The first is the sample mean score of this subject group on this dimension. The number in parentheses is the number of subjects in this group. Beneath these two numbers is the sample standard deviation of the scores of this subject group on this variable. The sample sizes of the various groups are not given in Tables 3-27, since they are the same as the sizes presented here.

TABLE 3

Stops, Scene One

Sample means (representing developmental norms for this dimension) and sample standard deviations for various subject groups.

	Boys	Girls
6.0, 6.5 years	0.7 *	0.5
	1.4	0.8
7.0, 7.5 years	1.0	0.8
	1.4	0.9
8.0, 8.5 years	1.8	0.9
	3.4	1.0
9.0, 9.5 years	1.8	2.0
	1.7	2.0
10.0, 10.5 years	2.4	1.8
	2.3	1.7
11.0, 11.5, 12.0 years	1.8	1.3
	1.6	1.4

* For each subject group two numbers are given. The first is the sample mean score of this subject group on this dimension. Beneath this number is the sample standard deviation of the scores of this subject group on this variable.

TABLE 4

Incidents, Scene One

Sample means (representing developmental norms for this dimension) and sample standard deviations for various subject groups.

	Boys	Girls
6.0, 6.5 years	1.3 0.6	1.2 0.4
7.0, 7.5 years	1.6 0.8	1.3 0.5
8.0, 8.5 years	1.9 0.7	1.7 0.7
9.0, 9.5 years	1.8 0.6	1.7 0.8
10.0, 10.5 years	2.0 1.6	2.0 1.4
11.0, 11.5, 12.0 years	1.9 1.1	1.6 0.6

*For each subject group two numbers are given. The first is the sample mean score of this subject group on this dimension. Beneath this number is the sample standard deviation of the scores of this subject group on this variable.

TABLE 5

Acts, Scene One

Sample means (representing developmental norms for this dimension) and sample standard deviations for various subject groups.

	Boys	Girls
6.0, 6.5 years	3.3 *	4.1
	2.0	2.2
7.0, 7.5 years	4.6	5.3
	3.4	2.1
8.0, 8.5 years	6.5	6.0
	4.5	4.0
9.0, 9.5 years	6.5	6.3
	3.4	4.2
10.0, 10.5 years	6.6	6.3
	4.3	5.3
11.0, 11.5, 12.0 years	7.4	5.7
	4.9	3.2

*For each subject group two numbers are given. The first is the sample mean score of this subject group on this dimension. Beneath this number is the sample standard deviation of the scores of this subject group on this variable.

TABLE 6

Repeats; Scene 1

Sample means (representing developmental norms for this dimension) and sample standard deviations for various subject groups.

	Boys	Girls
6.0, 6.5 years	1.3 *	1.4
	4.5	4.1
7.0, 7.5 years	0.2	2.9
	0.8	8.9
8.0, 8.5 years	0.3	0.5
	1.2	1.8
9.0, 9.5 years	1.8	0.7
	4.4	2.6
10.0, 10.5 years	0.7	0.3
	2.0	1.0
11.0, 11.5, 12.0 years	0.4	0.9
	1.0	3.3

*For each subject group two numbers are given. The first is the sample mean score of this subject group on this dimension. Beneath this number is the sample standard deviation of the scores of this subject group on this variable.

TABLE 7

Time, Scene One

Sample means (representing developmental norms for this dimension) and sample standard deviations for various subject groups.

	Boys	Girls
6.0, 6.5 years	18.6 *	13.0
	17.1	10.3
7.0, 7.5 years	25.0	26.5
	23.0	29.8
8.0, 8.5 years	32.0	24.6
	45.7	20.3
9.0, 9.5 years	26.5	24.0
	18.6	18.4
10.0, 10.5 years	35.5	18.4
	22.9	11.9
11.0, 11.5, 12.0 years	26.7	21.6
	29.3	15.7

*For each subject group two numbers are given. The first is the sample mean score of this subject group on this dimension. Beneath this number is the sample standard deviation of the scores of this subject group on this variable.

TABLE 8

Novel Incidents, Scene One

Sample means (representing developmental norms for this dimension) and sample standard deviations for various subject groups.

	Boys	Girls
6.0, 6.5 years	0.2 *	0.2
	0.4	0.4
7.0, 7.5 years	0.6	0.3
	0.8	0.5
8.0, 8.5 years	1.0	0.6
	0.8	0.7
9.0, 9.5 years	0.8	0.6
	0.6	0.8
10.0, 10.5 years	1.0	1.0
	1.6	1.4
11.0, 11.5, 12.0 years	0.9	0.6
	0.9	0.6

* For each subject group two numbers are given. The first is the sample mean score of this subject group on this dimension. Beneath this number is the sample standard deviation of the scores of this subject group on this variable.

TABLE 9

Characters, Scene One

Sample means (representing developmental norms for this dimension) and sample standard deviations for various subject groups.

	Boys	Girls
6.0, 6.5 years	0.0 *	0.0
	0.2	0.2
7.0, 7.5 years	0.2	0.3
	0.5	0.6
8.0, 8.5 years	0.5	0.2
	0.8	0.4
9.0, 9.5 years	0.4	0.4
	0.5	0.7
10.0, 10.5 years	0.5	0.6
	0.9	0.8
11.0, 11.5, 12.0 years	0.5	0.4
	0.9	0.6

*For each subject group two numbers are given. The first is the sample mean score of this subject group on this dimension. Beneath this number is the sample standard deviation of the scores of this subject group on this variable.

TABLE 10

Squares, Scene 2

Sample means (representing developmental norms for this dimension) and sample standard deviations for various subject groups.

	Boys	Girls
6.0, 6.5 years	4.6 *	4.4
	3.1	2.1
7.0, 7.5 years	7.0	5.6
	4.7	2.5
8.0, 8.5 years	6.5	6.0
	4.2	3.0
9.0, 9.5 years	6.5	6.8
	4.1	6.9
10.0, 10.5 years	6.8	6.3
	4.8	3.3
11.0, 11.5, 12.0 years	6.7	5.5
	5.1	3.5

*For each subject group two numbers are given. The first is the sample mean score of this subject group on this dimension. Beneath this number is the sample standard deviation of the scores of this subject group on this variable.

TABLE 11

Stops, Scene Two

Sample means (representing developmental norms for this dimension) and sample standard deviations for various subject groups.

	Boys	Girls
6.0, 6.5 years	2.3 *	2.0
	2.0	1.3
7.0, 7.5 years	2.6	2.5
	2.0	1.4
8.0, 8.5 years	3.0	3.0
	2.0	1.5
9.0, 9.5 years	3.5	3.5
	1.7	2.9
10.0, 10.5 years	3.6	3.4
	1.8	1.9
11.0, 11.5, 12.0 years	3.2	3.0
	1.4	1.5

* For each subject group two numbers are given. The first is the sample mean score of this subject group on this dimension. Beneath this number is the sample standard deviation of the scores of this subject group on this variable.

TABLE 12

Incidents, Scene 2

Sample means (representing developmental norms for this dimension) and sample standard deviations for various subject groups.

	Boys	Girls
6.0, 6.5 years	2.3 1.4	2.1 0.8
7.0, 7.5 years	3.0 2.0	2.5 0.9
8.0, 8.5 years	3.2 1.1	2.9 1.0
9.0, 9.5 years	3.2 1.4	3.1 1.1
10.0, 10.5 years	3.1 1.3	3.1 0.9
11.0, 11.5, 12.0 years	3.2 1.1	2.9 1.0

*For each subject group two numbers are given. The first is the sample mean score of this subject group on this dimension. Beneath this number is the sample standard deviation of the scores of this subject group on this variable.

TABLE 13

Acts, Scene Two

Sample means (representing developmental norms for this dimension) and sample standard deviations for various subject groups.

	Boys	Girls
6.0, 6.5 years	6.6 *	7.2
	3.8	4.6
7.0, 7.5 years	9.3	8.6
	7.1	3.9
8.0, 8.5 years	10.5	10.0
	6.1	5.2
9.0, 9.5 years	14.3	10.0
	15.1	6.2
10.0, 10.5 years	11.5	11.0
	5.7	7.2
11.0, 11.5, 12.0 years	12.3	9.0
	8.3	4.4

* For each subject group two numbers are given. The first is the sample mean score of this subject group on this dimension. Beneath this number is the sample standard deviation of the scores of this subject group on this variable.

TABLE 14

Repeats, Scene Two

Sample means (representing developmental norms for this dimension) and sample standard deviations for various subject groups.

	Boys	Girls
6.0, 6.5 years	6.4 *	6.2
	9.1	11.5
7.0, 7.5 years	6.7	14.1
	14.4	25.8
8.0, 8.5 years	10.2	4.4
	15.2	5.7
9.0, 9.5 years	7.1	2.8
	11.0	3.1
10.0, 10.5 years	4.2	3.1
	6.8	4.2
11.0, 11.5, 12.0 years	5.1	4.3
	11.7	8.9

*For each subject group two numbers are given. The first is the sample mean score of this subject group on this dimension. Beneath this number is the sample standard deviation of the scores of this subject group on this variable.

TABLE 15

Time, Scene Two

Sample means (representing developmental norms for this dimension) and sample standard deviations for various subject groups.

	Boys	Girls
6.0, 6.5 years	35.1 *	31.2
	25.2	17.3
7.0, 7.5 years	61.5	44.2
	95.2	40.5
8.0, 8.5 years	44.4	34.7
	46.1	11.5
9.0, 9.5 years	50.1	36.2
	58.5	42.9
10.0, 10.5 years	43.3	37.0
	31.9	26.3
11.0, 11.5, 12.0 years	38.6	30.9
	30.2	17.2

*For each subject group two numbers are given. The first is the sample mean score of this subject group on this dimension. Beneath this number is the sample standard deviation of the scores of this subject group on this variable.

TABLE 16

Novel Incidents, Scene Two

Sample means (representing developmental norms for this dimension) and sample standard deviations for various subject groups.

	Boys	Girls
6.0, 6.5 years	0.3 * 0.6	0.2 0.4
7.0, 7.5 years	0.5 0.7	0.3 0.5
8.0, 8.5 years	0.9 0.9	0.7 0.8
9.0, 9.5 years	1.0 1.2	0.7 0.7
10.0, 10.5 years	0.9 1.1	0.8 1.0
11.0, 11.5, 12.0 years	0.9 0.9	0.6 0.6

*For each subject group two numbers are given. The first is the sample mean score of this subject group on this dimension. Beneath this number is the sample standard deviation of the scores of this subject group on this variable.

TABLE 17

Characters, Scene Two

Sample means (representing developmental norms for this dimension) and sample standard deviations for various subject groups.

	Boys	Girls
6.0, 6.5 years	0.0 *	0.0
	0.0	0.2
7.0, 7.5 years	0.2	0.3
	0.4	0.5
8.0, 8.5 years	0.4	0.3
	0.7	0.5
9.0, 9.5 years	0.3	0.3
	0.6	0.6
10.0, 10.5 years	0.4	0.5
	0.9	0.8
11.0, 11.5, 12.0 years	0.7	0.3
	1.7	0.5

* For each subject group two numbers are given. The first is the sample mean score of this subject group on this dimension. Beneath this number is the sample standard deviation of the scores of this subject group on this variable.

TABLE 18

Squares, Scene 3

Sample means (representing developmental norms for this dimension) and sample standard deviations for various subject groups.

	Boys	Girls
6.0, 6.5 years	6.7 *	5.0
	3.6	2.1
7.0, 7.5 years	7.0	6.0
	3.6	2.0
8.0, 8.5 years	7.9	8.4
	6.8	11.3
9.0, 9.5 years	9.1	5.1
	6.5	1.7
10.0, 10.5 years	6.7	7.0
	3.9	6.2
11.0, 11.5, 12.0 years	6.4	5.8
	2.8	2.1

* For each subject group two numbers are given. The first is the sample mean score of this subject group on this dimension. Beneath this number is the sample standard deviation of the scores of this subject group on this variable.

TABLE 19

Stops, Scene Three

Sample means (representing developmental norms for this dimension) and sample standard deviations for various subject groups.

	Boys	Girls
6.0, 6.5 years	2.3 2.0	2.0 1.3
7.0, 7.5 years	2.4 1.9	2.3 1.4
8.0, 8.5 years	2.4 1.5	2.5 1.8
9.0, 9.5 years	3.0 2.1	2.3 1.1
10.0, 10.5 years	2.5 1.2	3.0 1.0
11.0, 11.5, 12.0 years	2.7 1.0	2.6 1.4

*For each subject group two numbers are given. The first is the sample mean score of this subject group on this dimension. Beneath this number is the sample standard deviation of the scores of this subject group on this variable.

TABLE 20

Incidents, Scene Three

Sample means (representing developmental norms for this dimension) and sample standard deviations for various subject groups.

	Boys	Girls
6.0, 6.5 years	3.0 *	2.8
	0.9	0.7
7.0, 7.5 years	3.2	3.1
	1.2	0.7
8.0, 8.5 years	3.4	3.2
	0.7	0.8
9.0, 9.5 years	3.5	3.1
	1.2	0.9
10.0, 10.5 years	3.3	3.5
	1.4	0.7
11.0, 11.5, 12.0 years	3.4	3.2
	0.9	0.7

*For each subject group two numbers are given. The first is the sample mean score of this subject group on this dimension. Beneath this number is the sample standard deviation of the scores of this subject group on this variable.

TABLE 21

Acts, Scene Three

Sample means (representing developmental norms for this dimension) and sample standard deviations for various subject groups.

	Boys	Girls
6.0, 6.5 years	11.5 * 4.7	12.9 6.6
7.0, 7.5 years	11.8 6.9	13.5 4.7
8.0, 8.5 years	14.0 6.1	14.6 6.8
9.0, 9.5 years	16.5 5.8	12.4 6.1
10.0, 10.5 years	13.6 6.3	15.6 5.4
11.0, 11.5, 12.0 years	16.4 8.8	13.8 4.5

*For each subject group two numbers are given. The first is the sample mean score of this subject group on this dimension. Beneath this number is the sample standard deviation of the scores of this subject group on this variable.

TABLE 22

Repeats, Scene Three

Sample means (representing developmental norms for this dimension) and sample standard deviations for various subject groups.

	Boys	Girls
6.0, 6.5 years	7.4 *	9.5
	9.7	19.6
7.0, 7.5 years	6.9	8.6
	13.7	9.3
8.0, 8.5 years	5.1	5.3
	8.0	6.6
9.0, 9.5 years	4.5	3.3
	4.5	4.2
10.0, 10.5 years	3.2	4.3
	3.2	5.7
11.0, 11.5, 12.0 years	5.6	2.9
	10.4	4.1

*For each subject group two numbers are given. The first is the sample mean score of this subject group on this dimension. Beneath this number is the sample standard deviation of the scores of this subject group on this variable.

TABLE 23

Time, Scene Three

Sample means (representing developmental norms for this dimension) and sample standard deviations for various subject groups.

	Boys	Girls
6.0, 6.5 years	69.0 * 20.8	69.0 34.5
7.0, 7.5 years	61.4 24.2	64.5 27.6
8.0, 8.5 years	59.5 20.9	61.3 17.4
9.0, 9.5 years	64.3 21.0	60.0 20.9
10.0, 10.5 years	62.0 26.7	62.2 31.5
11.0, 11.5, 12.0 years	61.1 26.5	59.0 19.4

*For each subject group two numbers are given. The first is the sample mean score of this subject group on this dimension. Beneath this number is the sample standard deviation of the scores of this subject group on this variable.

TABLE 24

Novel Incidents, Scene Three

Sample means (representing developmental norms for this dimension) and sample standard deviations for various subject groups.

	Boys	Girls
6.0, 6.5 years	0.2 *	0.0
	0.7	0.2
7.0, 7.5 years	0.2	0.1
	0.5	0.3
8.0, 8.5 years	0.2	0.2
	0.5	0.4
9.0, 9.5 years	0.6	0.0
	1.1	0.2
10.0, 10.5 years	0.4	0.2
	1.1	0.4
11.0, 11.5, 12.0 years	0.3	0.1
	0.6	0.3

*For each subject group two numbers are given. The first is the sample mean score of this subject group on this dimension. Beneath this number is the sample standard deviation of the scores of this subject group on this variable.

TABLE 25

Characters, Scene Three

Sample means (representing developmental norms for this dimension) and sample standard deviations for various subject groups.

	Boys	Girls
6.0, 6.5 years	0.0 *	0.0
	0.2	0.2
7.0, 7.5 years	0.0	0.3
	0.0	1.2
8.0, 8.5 years	0.0	0.9
	0.0	3.2
9.0, 9.5 years	0.1	0.0
	0.3	0.0
10.0, 10.5 years	0.0	0.1
	0.0	0.3
11.0, 11.5, 12.0 years	0.0	0.0
	0.2	0.2

*For each subject group two numbers are given. The first is the sample mean score of this subject group on this dimension. Beneath this number is the sample standard deviation of the scores of this subject group on this variable.

TABLE 26

Time Before Other Character, Scene Three

Sample means (representing developmental norms for this dimension) and sample standard deviations for various subject groups.

	Boys	Girls
6.0, 6.5 years	27.6 *	26.0
	18.8	31.8
7.0, 7.5 years	23.7	23.5
	20.2	28.0
8.0, 8.5 years	22.6	22.1
	17.4	15.5
9.0, 9.5 years	25.5	22.4
	15.4	19.9
10.0, 10.5 years	24.0	20.6
	22.1	15.6
11.0, 11.5, 12.0 years	23.8	18.1
	22.6	10.7

* For each subject group two numbers are given. The first is the sample mean score of this subject group on this dimension. Beneath this number is the sample standard deviation of the scores of this subject group on this variable.

TABLE 27

Time After Other Character, Scene Three

Sample means (representing developmental norms for this dimension) and sample standard deviations for various subject groups.

	Boys	Girls
6.0, 6.5 years	41.3 *	42.5
	7.7	7.5
7.0, 7.5 years	38.0	40.8
	8.3	7.1
8.0, 8.5 years	36.8	39.2
	6.6	7.6
9.0, 9.5 years	38.8	37.8
	9.7	6.8
10.0, 10.5 years	38.4	41.6
	8.9	21.3
11.0, 11.5, 12.0 years	37.3	40.9
	7.4	14.4

* For each subject group two numbers are given. The first is the sample mean score of this subject group on this dimension. Beneath this number is the sample standard deviation of the scores of this subject group on this variable.

TABLE 28

Correlation Coefficients Between the Dimensions and Between the Dimensions and Age in Scene One for the Florida Subjects (n = 310)

	Age	Squares	Stops	Incidents	Acts	Repeats	Time	Novel Incidents
Squares	.00							
Stops	.03	.81*						
Incidents	.05	.61*	.58*					
Acts	.03	.59*	.61*	.59*				
Repeats	-.12*	-.06	-.08	-.04	.04			
Time	-.05	.38*	.36*	.27*	.44*	.10		
Novel Incidents	.04	.60*	.55*	.96*	.55*	-.04	.26*	
Characters	-.06	.15*	.23*	.50*	.27*	.02	.11	.54*

*p < .05

TABLE 29

Correlation Coefficients Between the Dimensions and Between the Dimensions and Age in Scene Two for the Florida Subjects (n = 310)

	Age	Squares	Stops	Incidents	Acts	Repeats	Time	Novel Incidents
Squares	-.06							
Stops	-.03	.75*						
Incidents	-.06	.52*	.64*					
Acts	-.09	.37*	.38*	.41*				
Repeats	-.14*	.07	.01	.11	.36*			
Time	-.15*	.40*	.41*	.37*	.60*	.40*		
Novel Incidents	-.09	.43*	.45*	.63*	.20*	-.03	.14*	
Characters	.04	.27*	.18*	.24*	.18*	.00	.05	.34*

*$p < .05$

TABLE 30

Correlation Coefficients Between the Dimensions and Between the Dimensions and Age in Scene Three for the Florida Subjects (n = 310)

	Age	Squares	Stops	Incidents	Acts	Repeats	Time	Novel Incidents
Squares	-.08							
Stops	.05	.51*						
Incidents	.06	.33*	.54*					
Acts	-.03	.28*	.46*	.52*				
Repeats	-.09	.07	.07	.22*	.41*			
Time	-.10	.47*	.34*	.41*	.57*	.47*		
Novel Incidents	.02	.32*	.30*	.48*	.16*	-.04	.25*	
Characters	.01	.06	.15*	.01	.05	.04	.04	.02

*$p < .05$

TABLE 31

A Comparison of the Means and Standard Deviations of New York and Florida Subjects on the Eight Dimensions in the Three Scenes

	New York (n=34)		Florida (n=310)		Observed Significance Level of Difference Between Means
Scene One	$\bar{x}$	s	$\bar{x}$	s	
Squares	3.9	2.8	2.9	3.3	ns
Stops	2.6	1.7	1.4	1.8	$p < .05$
Incidents	2.3	1.1	1.7	.9	$p < .05$
Acts	12.1	10.7	5.8	3.9	$p < .05$
Repeats	4.4	7.4	0.9	3.6	$p < .05$
Time	39.1	26.9	24.4	24.0	$p < .05$
Novel Incidents	1.4	1.2	0.6	0.9	$p < .05$
Characters	0.9	1.2	0.4	0.7	$p < .05$
Scene Two					
Squares	6.5	4.4	6.1	4.2	ns
Stops	3.9	1.8	2.9	1.8	$p < .05$
Incidents	3.7	1.3	2.9	1.2	$p < .05$
Acts	16.9	7.5	10.1	7.3	$p < .05$
Repeats	11.4	13.5	6.1	12.2	$p < .05$
Time	63.4	30.9	40.3	42.3	$p < .05$
Novel Incidents	1.2	1.1	0.7	0.8	$p < .05$
Characters	1.1	1.3	0.3	0.8	$p < .05$
Scene Three					
Squares	5.9	4.4	6.7	5.1	ns
Stops	2.7	1.0	2.5	1.5	ns
Incidents	3.2	0.9	3.2	0.9	ns
Acts	12.9	5.6	14.0	6.3	ns
Repeats	7.2	7.3	5.4	9.3	ns
Time	75.1	26.6	62.5	24.4	$p < .05$
Novel Incidents	0.3	0.6	0.2	0.6	ns
Characters	0.1	0.3	0.1	1.0	ns
Time Before Policeman	31.0	24.7	23.1	20.1	$p < .05$
Time After Policeman	44.5	15.3	39.4	10.4	$p < .05$

TABLE 32

Correlation Coefficients Between the Dimensions and the Creativity Scores for the Tallahassee Subjects (n = 51)

	Fluency	Flexibility	Originality
Scene One			
Squares	.18	.09	.14
Stops	.30*	.17	.11
Incidents	.30*	.25	.21
Acts	.39*	.22	.22
Repeats	-.22	-.13	-.05
Time	.09	.17	.18
Novel Incidents	.32*	.28*	.26
Characters	.21	.31*	.27*
Scene Two			
Squares	.01	-.02	.11
Stops	.20	.12	.12
Incidents	.10	.01	.03
Acts	.36*	.28*	.27*
Repeats	.34*	.51*	.38*
Time	-.02	.14	.07
Novel Incidents	.09	.03	.07
Characters	.11	.16	.14
Scene Three			
Squares	-.19	-.30*	-.15
Stops	.03	-.19	-.09
Incidents	-.25	-.30*	-.20
Acts	.03	-.09	-.04
Repeats	.07	-.08	-.05
Time	-.10	-.20	-.10
Novel Incidents	-.28*	-.27*	-.15
Characters	.27*	-.04	.25
Time Before Policeman	-.05	-.23	-.12
Time After Policeman	-.09	-.04	-.02
Fluency	1.00	.66*	.52*
Flexibility	.66*	1.00	.82*
Originality	.52*	.82*	1.00