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The Ohio State University

Ph.D. 1982

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STUDENTS' PERCEPTIONS OF COMPOSING
AS REFLECTED THROUGH KELLY REPERTORY GRIDS

DISSERTATION

Presented in Partial Fullfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By
Helen Jean Hatley, B.A., M.A.

* * * * *

The Ohio State University
1982

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Susan Goodwin
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CHAPTER I
INTRODUCTION

Personal Observations about Writing

Consider the following semester test question and replies from seven eighth-grade pupils.

Question: Write an essay which includes the following:

What is journal writing? How is it like other writing? How is it different from other writing? How do you select a topic for journal writing? Do you enjoy journal writing? Why or why not? Include any other thoughts or observations about the journal writing which you have done.

M.J.

Journal writing is putting your thoughts on paper. It is like other writing such as stories because your thoughts make up a story. Yet this kind of writing does not have to have a plot. When you get ready to write something in your journal, you don't pick out a topic you just write what is going on inside your head. I like journal writing because it helps you release your worries to something that will never tell anyone. It also makes your problems seem small. You read back over it and you think it is silly. It really does help.

S.M.

Journal writing is putting your thoughts on paper. That way you can have your mind at ease rather than worrying whether the person you told keep the secret.

It is like writing a letter to a friend or telling everyone about your weekend. It helps you figure out a way to tell someone your feelings it it is necessary.
Journal writing does differ from other writings. When writing in your journal, you can say what you really mean or feel. Other writing may be criticized for this.

I usually write about an exciting thing that happened to me or I write about something that is in my mind.

I enjoy journal writing for many reasons. If I'm finding a way to tell someone something it helps me do this. It also gives me courage to tell a person my feelings. It can also help keep me from accidentally hurting someone's feelings.

C.H.

Journal writing is when you have a private book to do what you want to with it or account for your daily activities. It is like other writing because you have to be correct on your punctuation and grammar. If you were writing for fun you wouldn't have to. It is also different from other writing because you can express yourself and not get told on for writing something bad or nasty. I select my topic on what happened the day before or sometimes one of Ms. Hatley's topics. I enjoy journal writing because it helps my grammar and punctuation. Journal writing is like diary writing private and fun. Away to express yourself. No hassles!

B.B.

Journal writing is what you feel about certain things and certain situations. It's like other writing because you can write stories, poems, books, or plays. It's not like other writing because you don't send it off to be published and you don't become famous for it. Just think of whatever happened that day or the day before. Mrs. Hatley gives us topics also. Yes, I like journal writing because it eases my mind and helps me to relax. It kind of "gets it off my chest." Journal writing should not receive a grade below 100 because journal writing expresses feelings.
Journal writing is writing about the things you want in life; your personal experiences, and your ideas about different things. This writing is like other writing because it deals with English in English we write poems, paragraphs, everything in our journal we write that to. In journal writing you can think of your own writing and the teacher can give you ideas if you don't have any. I enjoy journal writing because I can express my ideas and my thoughts and feelings and if I have something bottled up inside me I can let it all out on paper and I will feel better. I put special events, my family favorite songs, trips, enemies, friends and anything else you can think of I put in my journal.

B.W.

Journal writing is putting your thoughts on paper. It's also a lot of fun. You can say anything at all in a journal and not worry about it. Nobody reads journals, but you so you don't have to worry.

Selecting a topic can be easy or hard. All you have to do is write about whatever you are thinking about or have thought on.

It is like writing anything else because you can write poetry or a very formal report, or even a letter. You also follow the rules of writing, if you know them.

It differs from other writing because it's your thoughts and you don't have to follow rules. Usually someone reads other writings but not a journal.

I thoroughly enjoy journal writing because I can let my feelings flow freely. It is fun to reread your thoughts later on because they often seem strange after so long.

*****
When reading these exam answers, I was intrigued by the seeming disparity between what I had conceived as the function of journal writing and how students verbalized their concept of the function of a journal. Using James Britton's (1975) categories of poetic, transactional, and expressive writing, I had envisioned journal writing as a vital step or preparation for more rigorous demands of poetic and transactional writing. However, it appeared to me that students saw journal writing as a psychological or emotional experience which provided a release from tensions and stresses. None of the students quoted emphasized the possibility that journal writing was practice to become a better writer or preparation for other types of writing. I am not suggesting that it is necessary for students to reflect upon or understand professional knowledge about writing. What I am suggesting is that as professionals we need to reflect upon and understand students' knowledge about writing. What are students' reflective, cognitive, and emotional responses about purposes, values, meanings, and components of writing tasks? How do students view tasks of composing in a classroom setting? How can students' perceptions be quantified?
Professional Research About Writing

Much of the recent professional research on composing has reflected professional, rather than student, perceptions of the composing process. One of our basic, almost a priori, professional assumptions is that our concern with composition is warranted. Goody and Watt (1972) in an article entitled "The Consequences of Literacy" set forth some fundamental roles of literacy. They state:

In our view, however, insufficient attention has been paid to the fact that the urban revolution of the Ancient Near East produced one invention, the invention of writing, which changed the whole structure of the cultural tradition. Potentially, human intercourse was now no longer restricted to the impermanency of oral converse. (p. 352)

One of the results of writing is the separation of history and myth. The written word forces an objective view of the differences in the past and the present.

Goody and Watt state:

The pastness of the past, then, depends upon a historical sensibility which can hardly begin to operate without permanent records. (p. 319)

Writing makes the past an "objective reality" in which myth and history are separated. Goody and Watt continue:

Literate societies cannot discard, absorb, or transmute the past...historical enquiry becomes possible. This in turn encourages scepticism,...the next step is to see how to build up and test alternative explanations. (p. 352)
Because writing favors an awareness of alternative choices, scientific cartography, accurate chronologies, and objective measurements of time can be pursued. Another role of writing is to foster political democracy. Goody and Watt point out that political democracy began in Greece concurrent with the first widely literate citizenry. Goody and Watt also observe that in modern society, writing helps to differentiate persons into various social strata. We expect the choices and discoveries offered by our extensive written past to stimulate and interest a person; generally, the more one accepts the challenges of literacy, the higher one is held in esteem and social prestige. An additional role of writing is to objectify words. Goody and Watt describe this process by saying:

Writing, by objectifying words, and by making them and their meanings available for more prolonged and intensive scrutiny than is possible orally, encourages private thought. (p. 346)

Furthermore, they say,

Writing establishes a different kind of relationship between the word and its referent, a relationship that is more general and more abstract, and less closely connected with the particularities of person, place and time, than obtains in oral communication. (p. 331)

A final role of writing has been to move man from mythical to "logico-empirical" modes of thinking as
exemplified in the Greeks. Writing provides a means to examine inconsistencies and to develop an "impersonal mode of discourse." Generally accepting these basic functions of writing discussed above, researchers have examined several areas related to the composing process.

One area of examination is mode. Moving away from traditional divisions of writing, researchers have tried to delineate modes which reflect a modern view of the composing process. Two major researchers who have examined mode are Kinneavy and Britton. Kinneavy in A Theory of Discourse (1971) offers the following categories of discourse.

(1) referential - to reproduce reality in a scientific, exploratory, or informative manner.

(2) persuasive - to prompt an action; focuses on audience

(3) expressive - to articulate the writer's personality or point of view

(4) literary - to create a language structure worthy of appreciation

James Britton in The Development of Writing Abilities (11-18) (1975) offers the following similar categories.

(1) expressive - personal components of writing; reveals the self

(2) transactional - conveys facts, examines philosophical propositions, regulates or persuades

(3) poetic - all literary genres
Related to research on mode is a focus upon the effect of the perceived audience upon writing. James Moffett in *Teaching the Universe of Discourse* (1968) envisions a communication triad of "sender-receiver-message" as the super-structure of discourse. He describes an "I-you relation" of communication. Moffett proposes that the "you" as audience can range from personal to detached and that writing reflects this perceived distance. Britton (1975) formulates five audience categories. They are: (a) self, (b) teacher, (c) wider known audience, (d) unknown audience, and (e) additional categories. Britton subdivided the teacher category to include: (a) child to trusted adult; (b) pupil to teacher, general (teacher-learner dialogue); (c) pupil to teacher, particular relationship; and (d) pupil to examiner.

From a different frame of reference, much research has focused on syntactic components and their role and effect in writing. The Bateman and Zidonis study (1966) showed that understanding of transformational grammar processes aided student composition. The study probably led to O'Hare's study (1973) which discovered that sentence combining which utilized the transformational concepts without a formal study of grammar aided composition. Mellon's (1969) similar study concluding that
sentence combining improved composition is also important. Kellog Hunt's (1965) T-unit measurement is presently accepted as our most viable basic unit for measuring syntactic maturity.

Researchers have also struggled to determine the role of evaluation in relation to writing. Researchers debate whether writing can be adequately evaluated; debate also centers around methods of evaluation. Hillerich (1973; cited in Tway, 1976) suggests that both process and product should be evaluated. Sager (1973; cited in Tway, 1976) suggests self-evaluation. McCraig (1972; cited in Tway, 1976) suggests an M-unit, or meaning unit, to evaluate writing. The now popular Deiderich (1964; cited in Tway, 1976) scale favors a broad evaluation that assesses qualities of stylistic and organizational merit as well as factors of syntax and general usage.

Probably related to the possibility of evaluation is student apprehension about the writing process. Research by John Daly and Wayne Shamo (1978) has shown that the level of one's writing apprehension affects the choice of a major field of study. Also, Powers, Cook, and Meyers (1979) found that compulsory writing courses designed to improve writing skills for remedial students instead produced an increased apprehension about writing.
Research has also been focused upon attempts to isolate specific facets of the actual process of composing. Alex McLeod in The Development of Writing Abilities (11-18) (Britton, Burgess, Martin, McLeod, & Rosen, 1975) outlines the following steps in the process.

(1) conception - The writer relates the task to his "hierarchical construct system."

(2) incubation - The writer integrates the expressive and communicative aspects of his writing.

(3) production - Employing various strategies - writing, pauses, intense concentration, and scanning - the writer produces the written text.

Sharon Pianko (1979), in describing the composing processes of college freshmen writers, also offers three stages of the writing process.

(1) prewriting - This involves the time before any writing is done.

(2) planning - This may involve written as well as mental planning.

(3) composing - This involves writing, pausing, rereading, stopping, contemplating the finished product, and handing in of a draft.

Janet Emig (1971), through the process of having writers compose aloud, investigated the composing process. She concluded that methods explicated in writing texts often do not match the process people actually exhibit when they write.
The Role of Intention

The brief summary given reflects some of our attempts as professional educators and researchers to organize and examine our thinking about the process of composing. Now, the question I am proposing is: How do students organize, examine, and think about composing? One may question how an enquiry into students' perceptions can be fruitful. Ray P. McDermott (1977) in "The Ethnography of Speaking and Reading" makes a point about reading which I think is equally applicable to writing. He states:

The specific strategies teachers use to get this job done have no effect on whether or not children learn to read as long as the strategies make good sense to the children. The issue is not so much how a child is coerced, but whether the teacher is able to communicate that the child can trust the teacher's coercion to be in the child's best interests. (p. 157)

James Britton (1977) in an article in the NSEE 76th Yearbook, defends the need for theoretical bases for any enterprise in order to see "human beings as creatures who take up enterprises that embody their intentions and set up expectations" (pp. 6-7). It appears to me that often we ask students in the composing task to take up the teacher's enterprises, the teacher's intentions, and the teacher's expectations. Proceeding upon the assumption that the teacher's goals are noble, well intentioned, and theoretically sound, I think we must, in addition,
recognize and understand the student's intentions and expectations as he goes about the composing tasks set for him.

I see the role of intention as a key factor upon which to base the observation and examination of students' perceptions of composing. A brief general overview of related research in the area of language learning will help to document the importance of the role of intention. Jerome Bruner (1975) in "The Ontogenesis of Speech Acts" postulates that the role of intention is paramount in beginning speech. The child intends to communicate with the mother/caretaker and thus language emerges. The role of intention has been documented in various studies of early language acquisition. For example, a study by Slobin and Welsh (1973) found that a young child, Echo, could not accurately repeat her spontaneous utterances after a lapse of time if the utterance were long and fairly complex. The child's intent to communicate at the moment of the utterance seemed the crux of the child's power with language. Halliday (1975) calls language learning "learning how to mean" which again implies an intention to transmit meaning through language. Marie Clay (1975), surveying early attempts to write, found that children went through systematic steps in learning to write. Even in the scribbling stage, the child had the
concept that he intended to communicate a message with his marks on paper. Charles Read (1975), examining early spelling efforts, found that children can develop their own categories for spelling and again, intend to form words with what, to the adult eye, seem incongruous combinations of letters. Applebee (1978) in examining the way children learn stories, found a patterned sequence in which children learn about story conventions and structure.

From a theoretical viewpoint, Margaret Donaldson strongly advocates the necessity of understanding the role of intention and the child's mode of structuring the universe. Donaldson (1978) in *Children's Minds* says that a child "actively tries to make sense of the world from a very early point in his life; he asks questions, he wants to know....Also, from a very early stage, the child has purposes and intentions; he wants to do. These questionings and these strivings imply some primitive sense of possibility which reaches beyond a realization of how things are to a realization of how they might be" (p.87). Donaldson goes further to say, "The sense of the possible which arises in conjunction with wanting to know involves, first, a simple realization of ignorance" (p. 87). A child's sense of what is possible is related to understanding the goal as well as understanding the means or actions needed to reach the goal. Often unaware
of language, per se, the child interprets situations. "A child who is trying to figure out what other people mean must be capable of recognizing intentions in others, as well as having them himself," (pp. 89-90) says Donaldson. A child's interpretation is influenced by his knowledge of language, his assessment of what we intend (as indicated by our non-linguistic behavior), and the way he would represent the physical situation to himself if we were not present. Donaldson stresses, "If a child is going to direct and control his own thinking,...he must become conscious of it" (p. 96). She explains in detail by saying:

Education, as it has developed in our kind of culture, requires him to be able to do just that - to call the powers of his mind into service at will and use them to tackle problems which do not arise out of the old familiar matrix but which are "posed" - presented in abrupt isolation and presented, to begin with at least, by some other person whose purposes are obscure.

The process of moving beyond the bounds of common sense is unnatural in the sense that it does not happen spontaneously. The very possibility of this movement is the product of long ages of culture; and the possibility is not realized in the life of an individual child unless the resources of the culture are marshalled in a sustained effort directed to that end.

If the intellectual powers are to develop, the child must gain a measure of control over his own thinking and he cannot control it while he remains unaware of it. (pp. 128-129)
For an adult to aid a child in becoming aware of his intellectual powers, it is first necessary for the adult to understand how the child structures the universe. Although adults are aware of language as a formal system, children use and interpret language spontaneously. The child may abstract as salient features situational and contextual clues insignificant to an adult. To the extent that an adult can anticipate the child's active representation of the world, the adult may further the child's natural quest to make sense of the world. Just as knowing that the child's systemization of language variables may deviate from the adult system has provided researchers insights into early language learning, I am suggesting that similar insights into students' perceptions of composing may prove helpful for the teacher/educator in designing and implementing writing tasks that help students to become proficient writers.

Efficacy of a Case Study Approach

Of course, students' perceptions may vary. Acknowledging the role of individual differences upon students' perceptions of composing, I advocate the case study approach as an effective technique for understanding how the individual student organizes, examines, and thinks about composing. Efficacy of the case study as a viable research method in language arts has been demonstrated
by the studies of Donald Graves, Margaret Sawkins, and Janet Emig. Graves (1976) examined the writing processes of seven-year-olds by observing and interviewing them. Sawkins (1971) interviewed fifth graders about what they did when composing. Emig (1971) used the case study design to collect data about the composing process for twelfth graders, asking them to compose aloud and make statements about how they viewed composing. In the general language arts area, Piaget (1926/1959) stands as a formidable example of the wealth of information which may be garnered from a case study format. Also, many early language acquisition studies, such as Roger Brown's (1973) observations of Adam, Eve, and Sarah utilize the case study design. Prominent scholars cite the need for continued research through the use of case studies. Donald Graves (1981) in an article entitled "Writing Research for the Eighties: What Is Needed?", examines the case study approach.

Too often research contributes to a lottery philosophy of educating. That is, we look for similarities across children, ways of generalizing one child's behavior to aid other children. There is a value in this, but there is also a grave potential weakness. We will look too quickly to see why the child before us is the same as other children rather than look at how the child is different. Or, if the difference is located, we seek to extinguish it in order to integrate the child into a homogeneous mass for more convenient instruction.
In short, we will overlook the one thing that makes the child before us unique. We will overlook the voice – the one experience or knowledge area the child knows well... Research needs to document intra-differences of the components that make children unique. (p. 205)

Agreeing with Graves, Robert Calfee (1976) of Stanford University, states:

The clamor for case-study investigations in English education is not always a thought–ful response, but it is quite possible that this paradigm is needed for the study of writing style. Rigorous, generalizable research is feasible with the case-study model, and this paradigm provides answers to significant questions that are missed by other techniques. A case study entails the intensive investigation of one or more individuals. (p. 64)

This investigation is an exploratory case study approach to examine the feasibility of quantifying and examining students' perceptions of composing. The study is guided by underlying acknowledgement of the potential strength of the role of intention upon the students' perceptions of composing. Chapter II will examine a theory with its accompanying methodology which appears to merit examination as a means by which to fruitfully explore students' perceptions of composing. It is hoped that the theory and methodology outlined in Chapter II can provide a rigorous, generalizable case study model as called for by Robert Calfee.
CHAPTER II
PERSONAL CONSTRUCT THEORY AND METHODOLOGY

Personal Construct Theory

A theory with relevance to the exploration of students' perceptions of composing is George Kelly's (1955) personal construct theory. Since Kelly's personal construct theory will undergird this investigation, I will now present the components of his theory. This theory is thoroughly explicated in Kelly's book, *The Psychology of Personal Constructs*. Kelly develops his psychology of personal constructs within a theory of constructive alternativism. Kelly states that all theories have a priori assumptions. Kelly's theory provides assumptions about man and about the nature of the universe. Intrinsically, man is a scientist, aiming to predict and control his environment. Furthermore, man is an organism "delivered fresh into the psychological world alive and struggling" (p. 37). Kelly assumes four features about the universe into which man is delivered.

(1) The universe is real; it exists.

(2) The universe is integral; everything is related to everything else.
(3) The universe exists by happening; it is measured along a dimension of time.

(4) The universe is active; it is "an event of tremendous proportions" (p. 19).

Man can creatively represent the universe; thus, he can place alternate constructions upon it. Events are in the public domain and can be construed in many ways. Although man may misrepresent real phenomena, his representation is a reality also. Constructive alternativism focuses upon the "psychological reconstruction of life" (p. 23). Man's reconstructions are subject to revision or replacement as he accrues new evidence about his universe. Kelly labels man's representation of the universe as construing and the structures he erects as constructs. Constructs are patterns of construing the world which are organized into systems of subordinate and superordinate relationships. Constructs, which may be verbal or subverbal patterns of representation, are tested by man for predictive efficiency. Kelly embodies his theory of constructive alternativism within one basic postulate and eleven corollaries. Kelly elaborates upon the definition of a postulate as being an assumption, the veracity of which is assumed to be a given within a theory's framework. A postulate is not an "ultimate statement of truth" (p. 47) but a position from which to explore the possible fertility of a theory.
Kelly's Fundamental Postulate is as follows.

A person's processes are psychologically channelized by the ways in which he anticipates events. (p. 46)

In order to tighten one's understanding of the postulate, Kelly comments upon each term in the postulate. "Person" is used to indicate focus upon the individual. "Process" is used to remove the theory from behavioral theories. Kelly sees the individual, not as an inert object, but as a process. He states, "The person is not an object which is temporarily in a moving state, but is himself a form of motion" (p. 48). "Psychologically" implies systematic explanation of behavior under the auspices of the discipline of psychology, as opposed to, for example, the discipline of physiology. By the term "channelized" Kelly wishes to communicate that the processes of the individual operate through "a network of pathways" (p. 49) which is flexible and modifiable but structured. "Ways" indicates that the channels are "means to an end" (p. 49). "He" again places emphasis upon the individual and the way the person is behaving and will behave, as opposed to how a researcher anticipates he should behave. Kelly elaborates "anticipation" by stating that "man seeks prediction" (p. 49). Man's anticipation is to predict the replicative aspects of "events" which are a useful representation of "future reality."
Kelly's first corollary is the Construction Corollary which is as follows.

A person anticipates events by construing their replications. (p.50)

A person construes by "placing an interpretation upon events" (p. 50). What a person construes is abstractive; he builds "constructs of similarity and contrast" (p. 50). Construing may be verbal or nonverbal; however, research using personal construct theory has focused mainly upon verbal constructs. In construing, events are not replicated but recurrent aspects of events are abstracted for predictive purposes. For an event to be replicative, one must accept the abstracted similarity of two events. Kelly gives the example that we develop the "animal" abstraction to construe similarity between "horse" and "cow."

The Individuality Corollary is Kelly's second corollary.

Persons differ from each other in their construction of events. (p. 55)

Usually, the self is the central figure in each event; hence, each person sees some aspects of each event differently.

Next is the Organization Corollary.

Each person characteristically evolves, for his convenience in anticipating events, a construction system embracing ordinal relationships between constructs. (p. 56)
Each individual has a personal hierarchy of his constructs. Kelly states, "One construct may subsume another as one of its elements" (p. 57). When a construct subsumes another, it is superordinal; when a construct is subsumed, it is subordinal.

However, constructs are not infinite in number, as the Dichotomy Corollary clarifies.

A person's construction system is composed of a finite number of dichotomous constructs. (p. 59)

Three elements are necessary to form a construct, two similar and one contrasting. However, the two need be similar only in the abstracted aspect which the person chooses to see as similar. To illustrate range of convenience, Kelly gives the following example.

A = a man
B = a man
C = a woman
D = time of day

One abstracts the quality of gender from A, B, and C with A and B being similar and C being the contrast. However, one would not normally associate the category of gender with time of day. Hence, the time of day is outside the range of convenience of the construct. Man, by channelizing his processes, limits the number of constructs available to him.
Kelly's next corollary is the Choice Corollary.

A person chooses for himself that alternative in a dichotomized construct through which he anticipates the greater possibility for extension and definition of his system. (p. 64)

In other words, a person makes a choice for what appears to him to best provide a basis for anticipating events. His choice is labeled by Kelly as "an elaborative choice" (p. 65).

The sixth corollary is the Range Corollary.

A construct is convenient for the anticipation of a finite range of events only. (p. 68)

The range is determined by what a person considers relevant similarity and contrast. What is not relevant is excluded from consideration as a part of the contrasting field.

Corollary eight is the Experience Corollary.

A person's construction system varies as he successively construes the replication of events. (p. 72)

Construing is a process taking place over time. Kelly explains this process by saying, "It is not what happens around him that makes a man experienced; it is the successive construing and reconstruing of what happens, as it happens, that enriches the experiences of his life" (p. 73). Man sees the "universe as an orderly unfolding of events" (p. 75) played out along the "essential referent dimension of time" (p. 75).
A person's construction system can vary only to the extent that constructs can be permeated by new elements. The Modulation Corollary formalizes this idea.

The variation in a person's construction system is limited by the permeability of the constructs within whose range of convenience the variants lie. (p. 77)

Kelly clarifies this corollary by stating that a person "learns only what his framework is designed to permit him to see in the stimuli" (p. 79). His framework is changed in the context of the structure of subordinate and superordinate constructs, with subordinate constructs being more easily permeated than superordinate ones. A permeable construct will admit new elements which have not yet been construed within its framework. Or, to quote Kelly, permeability is the "capacity to embrace new elements" (p. 80).

When new elements are embraced, a person may encounter inconsistencies in his construct system. Kelly's Fragmentation Corollary deals with this possibility.

A person may successively employ a variety of construction subsystems which are inferentially incompatible with each other. (p. 83).

New constructs need not be directly derived from old constructs. The relationship of new to old is collateral, not lineal.
To bring constructs into the realm of social interaction, Kelly introduces a Commonality Corollary and a Sociality Corollary. The Commonality Corollary is stated below.

To the extent that one person employs a construction of experience that is similar to that employed by another, his psychological processes are similar to those of the other person. (p. 90)

Kelly points out that the similarity he states is a similarity in construing events, not in the identity of the events. To express a means of communicating this similarity, Kelly frames a Sociality Corollary.

To the extent that one person construes the construction processes of another, he may play a role in a social process involving the other person. (p. 95)

Kelly sees role as a psychological process of construing aspects of the construction system of another in order to join in social relations with that person. One's role is played out in light of one's understanding of the behavior of another. Kelly states that "one does not have to like certain people in order to understand them, but he does have to understand them in certain respects" (p. 101) to play a role in relation to them. One must accept another person's behavior through subsuming the other's perceptions of a situation.

For a concise listing of Kelly's Fundamental Postulate and eleven corollaries, see Appendix A.
After his basic statement and explanation of the Fundamental Postulate and eleven corollaries, Kelly examines the personal usage of constructs, formal aspects of constructs, changing constructions, and the meaning of experience. Kelly re-examines the meaning of the term "constructs" which he formally defines as "a way in which some things are construed as being alike and yet different from others" (p. 105). He reiterates his assumption that constructs are bipolar. He defends the usefulness of dichotomy by examples. He cites the bipolar abstraction in electronics of positive versus negative poles and in genetics of dominant versus recessive genes. Since a construct is an abstraction, constructs may be incompletely expressed with only one pole evident. Just as electronics and genetics develop abstractions relevant to a finite range of natural phenomena, constructs have a personal range of convenience including only relevant similarities and differences. Elements within this range of convenience make up the context of a construct. Borrowing from the thoughts of Dewey, Kelly describes each end of a construct as representing a hypothesis about events. However, these hypotheses cannot always be explicit or even verbal—emotional and affective elements are also part of a construct system.
Turning to the formal aspects of constructs, Kelly states that they can be scaled. Scaling may include: (1) hierarchical scaling, (2) additive scaling, (3) abstracted scaling, and (4) approximation scaling.

Kelly also formalizes several dimensions of constructs. Constructs may be:

A. impermeable - Impermeable constructs are based on a specific context and will admit no new elements.

B. permeable - Permeable constructs admit new elements.

C. preemptive - A preemptive construct preempts elements for membership in one construct only.

D. constellatory - Constellatory constructs fix by rigid definition the elements in their membership.

E. propositional - Propositional constructs are open constructs where new elements may be added, deleted, or belong to other constructs also.

Constructs which are permeable and propositional provide a means for changing one's construction system. What brings about a change is validation in the form of verification of a prediction. This verification can refer to either a positive or negative outcome which was predicted.

Kelly discusses the conditions favorable and unfavorable to the development of new constructs. One favorable condition is to have a new set of elements
unbound to old constructs. Hence, problems of incompatibility need not arise. One also needs an opportunity to experiment and try out new constructs in a controlled situation. Finally, one needs validating data to support one's predictions. If the results of one's predictions are not immediately available, one postpones changing one's constructs. It is possible to become preoccupied with old constructs, perhaps formed in childhood and early years, which are impermeable and will not admit new elements. Also, a limited arena in which to explore the sphere of new constructs can extinguish possible new constructs. For example, a hospital patient cannot try out the construct of social poise.

Only in the development of our construct system do we expand as intellectual beings. Kelly states, "There is a world that is happening all the time. Our experience is that portion of it which is happening to us" (p. 170). Also, "The universe is existing and man is coming to know it" (p. 170). Kelly contends that we do not learn from experience but that experience is learning. Experience is a set of personally construed events which include what we know up to the present moment. Increase in experience results from revision of our construction system towards increased validity.
Kelly aligns himself with no organized philosophical system. The following quotation, although lengthy, probably most succinctly expresses Kelly's concerns about being "labeled" or having his thinking traced through a particular philosophical system.

Realm-wise, constructive alternativism falls within that area of epistemology which is sometimes called gnosiology - the "systematic analysis of the conceptions employed by ordinary and scientific thought in interpreting the world, and including an investigation of the art of knowledge, or the nature of knowledge as such." The emphasis upon the constructs through which the world is scanned suggests positivism, although most of the criticisms that are leveled at Comte are not applicable here. Comte's positivism is too often deprecated in terms of some of his concrete proposals rather than evaluated in terms of the abstract features of the system.

Our emphasis upon the testing of constructs implies our reliance upon the principles of empiricism and, more particularly, pragmatic logic. In this respect we are in the tradition of present-day American psychology. But, because we recognize that man approaches his world through construing it, we are, in a measure, rationalistic. Moreover, since we insist that man can erect his own alternative approaches to reality, we are out of line with traditional realism, which insists that he is always the victim of his circumstances.

Ontologically, our position is identifiable as a form of monism, although in view of the many complex varieties of ontology, the differentiation of its monistic from its pluralistic aspects is hardly worth the effort. If it is a monism, it is a substantial monism that we are talking about; yet it is neutral, and like Spinoza, we are prepared to apply attributive pluralism to the substance whenever our purposes might be served thereby. (pp. 16-17)
There is justifiable criticism of Kelly in the area of philosophical system building. Bruner (1956), in reviewing Kelly's work, chides Kelly for not acknowledging his points of congruence with Piaget, the early works of Werner, Harry Stack Sullivan, Lewin, and Allport. To illustrate, I will briefly summarize points of theoretical congruence of those persons cited above.

Without extensively sketching Piaget's total theory of learning, I will summarize the basic areas which appear to interact with personal construct theory. Piaget (DeNitto, Eden, Mabry, & McElhenny, 1980, pp. 75-77) terms "schemata" as an element in a child's cognitive structure. Schemas are the potential to act certain ways. The number of schemas available to a child constitutes the child's cognitive structure. The process of responding to the environment in accordance with one's cognitive structure is called "assimilation." Assimilation involves the incorporation or matching of a new object into existing schemas and cognitive structures. Schemas that exist at any given moment set bounds on what can be assimilated. Assimilation permits the child to respond to the present situation in accordance with previous knowledge. A second cognitive process, "accommodation," is the tendency to modify existing
schema in order to fit in a new object of the environment. Piaget views the child as trying to make sense of his world by dealing actively with people and objects. One can note the parallels between Piaget's schema and Kelly's constructs and the operational nature of each concept.

Heinz Werner's (1964) theoretical base develops from an organismic-developmental framework. The following details only the aspects of the theory where possible parallels with Kelly exist. Werner's theory develops from two basic assumptions concerning the nature of behavior. One assumption is the "holistic" (p. 3) assumption which maintains "that any local organ or activity is dependent upon the context, field, or whole of which it is a constitutive part; its properties and functional significance are, in large measure, determined by this larger whole or context" (p. 3). The second assumption is "directiveness" (p. 3). It is assumed "that various organs or activities of an organism function in the realization of ends immanent in the activity of the organization as a whole" (p. 3). The organism tends to "conserve" (p. 5) or maintain its existence as an integral entity yet the organism also tends to "develop" (p. 5) toward a relatively mature state. Werner's
holistic concept may approach Kelly's idea of a hierarchical construct system. Kelly's man-the-scientist concept echoes Werner's directiveness concept. Werner's conservation and development may be reflected in Kelly's concept of loosening and tightening of constructs as well as in the permeable/impermeable contrast and the propositional nature of constructs.

Harry Stack Sullivan (Mullahy, 1968, pp. 398-405) is known primarily for his theory of interpersonal relations. Sullivan's theory views human experience as basically consisting of interactions between people. This view would relate especially well to Kelly's Commonality and Sociality Corollary. Sullivan asserted that four generic factors affect any action. They are: (1) biological potentiality, (2) maturation, (3) the results of previous experience, and (4) foresight. Numbers 3 and 4 seem to parallel Kelly's (1955) fundamental postulate that "a person's processes are psychologically channelized by the way in which he anticipates events" (P. 46). The results of previous experience could parallel Kelly's replicative features which are abstracted from events. Foresight could parallel Kelly's prediction or anticipation. Mullahy discusses six assumptions underlying Sullivan's theory. Some of these assumptions do not appear to be accepted by Kelly while others parallel Kelly closely.
Underlying assumptions outside Kelly's theory are that individual differences are to be ignored because people are more "human than unique" (p. 403), that basic drives become conditioned by acculturation, and that human behavior is directed toward maintaining a state of euphoria. However, one assumption converging with Kelly's theory is Sullivan's concept of "dynamism," or "a pattern of energy transformations which recurrently characterize the organism in its duration as a living organism" (1953, p. 103, cited in Mullahy, 1968, p. 403). Another assumption is that man is a sociocultural being. Kelly's Sociality Corollary emphasizes this. Finally, Sullivan assumes "integration in an interpersonal situation is a reciprocal process" (1953, p. 198, cited in Mullahy, 1968, p. 403). Kelly's Commonality and Sociality corollaries follow this thought. Sullivan also viewed psychotherapy as an interpersonal interview in which the psychiatrist is a participant-observer. Here Kelly and Sullivan agree. However, Sullivan sees the situation as a talking through of the client's problems whereas Kelly developed fixed-role therapy in which the psychiatrist asks the client to play out a role devised by the professional and aimed at changing the client's constructs.
Kurt Lewin (DeNitto, Eden, Mabry, & McElhenny, 1980, pp. 48-53) was interested in the relationship of perception, motivation, and individual personality. Lewin's major concept is the life space, or psychological field, which is used to determine the behavior of an individual at a particular time. It encompasses both the individual plus all the various aspects of his environment, not necessarily as they exist in reality, but as they are perceived by him. If a person thinks something exists, even though it does not, his perception of it being real influences his behavior. Lewin's concept of life space is a two-dimensional area in which the individual moves. Behavior is determined by the interaction of the individual with the environmental factors that make up his life space. Elements in a person's environment that have no effect on his behavior are excluded into a "foreign hull" (p. 49). Kelly's (1955) entire concept of constructive alternativism revolves around the idea that man can place alternate constructions upon reality which parallels Lewin's idea that perception affects behavior. Lewin's interaction of the individual and the environment reminds one of Kelly's idea that man seeks validation in the prediction of events. Lewin's "foreign hull" (p. 49) seems similar to Kelly's notion that constructs have a
focus of convenience and a range of convenience so that extraneous features are not included in a construct.

Floyd H. Allport (Katz, 1968, pp. 271-273) refined an event-system theory. The event-system is an open-system approach that sees social structure as being made up of cycles of events that return upon themselves to complete each cycle. A relationship can be seen here in Kelly's assumption that we abstract qualities of events and try to predict by using these abstracted replicative features of events. Allport theorized that the individual is seen as a matrix of involvements in many collective structures with his own personality a tangential structure. Kelly also emphasizes focus upon the individual and data gathering at the individual level. However, Kelly would probably see one's personality as central rather than tangential.

Kelly himself acknowledges that he embraces certain aspects of the neophenomenological systems of Raimy, Lecky, Rogers, and Syngg and Combs. I will provide a brief overview of each theory which Kelly embraces.

Victor Raimy (1971) developed a theory of the Self-Concept. Raimy defines the Self Concept as "a learned perceptual system which functions as an object in the perceptual field" (97). The Self-Concept can change behavior while, conversely, behavior and unsatisfied
needs can change the Self-Concept. Also, a person's Self-Concept may bear little relation to reality. The numerous sub-systems of the Self-Concept remind one of the hierarchical nature of Kelly's constructs. Also, just as Raimy says the Self-Concept may bear little relation to reality, Kelly says that because man can place alternate constructions upon reality, constructs may also misrepresent real phenomena. Raimy indicates that sub-systems of the Self-Concept operate under conditions of dominance and subordination which appears similar to Kelly's hierarchical structure of constructs. Raimy sees the Self-Concept as capable of rapid re-structuring as conditions warrant. This idea suggests the kind of change Kelly anticipates in the loosening and tightening of constructs. Much of the Self-Concept may not be amenable to verbalization just as constructs may be at the subverbal level. The Self-Concept may project into the future imaginary Self-Concepts while personal construct theory embraces the anticipation of events from the replicative features of past events. Anticipation is central to both Raimy and Kelly, but the Self-Concept seems to imply anticipation of the future self while personal construct theory implies anticipation of events which have an effect upon the self.
Prescott Lecky's (Hall & Lindzey, 1970, pp. 329-330) theory of self-consistency is a theory of personality in which personality is defined as an organization of values which are consistent with one another. Lecky believed people crave a sense of unity and self consistency. People try to relate to their environment in a way harmonious with their values. When conflict occurs, a person is forced to change his value system. One assimilates stimuli consistent with one's values or one reorganizes one's values to fit the demands of the environment. Although Kelly speaks of constructs, not values, the structuring Lecky outlines appears to simulate Kelly's notion that change occurs in the construct system through permeable, propositional constructs. However, Kelly, in the Fragmentation Corollary, states that constructs in various subsystems may be inferentially incompatible with each other, seeming to differ from Lecky's contention that man seeks unity above all else. However, Lecky is optimistic about man's potential to develop a self-consistent personality just as Kelly is optimistic in his view of man-the-scientist.

Carl Rogers (Corey, 1982, pp. 80-83) developed a client-centered approach called non-directive counseling. This approach implied that people seeking counseling had the power to control their own lives. When attitudes
of genuineness, acceptance, and deep understanding are communicated to clients, they have an inherent capacity for awareness and decision making. Roger's emphasis upon inner resources of the individual can be seen as similar to Kelly's attitude that every man is a scientist seeking to make sense of the world. The person-centered approach of Rogers emphasizes the phenomenal world of the client. Kelly's constructs also focus upon the individual's perception of self and of the world. Rogers and Kelly part upon how therapy is to be carried out. Rogers emphasizes the importance of the therapist's attitude while Kelly gives the therapist a more active role in the individual's therapy.

Syngg and Combs (Fredenburgh, 1971, pp. 393-396) postulate a phenomenal field with the following basic principles to govern behavior.

1. The phenomenal field causes behavior. That is, a person's behavior is purposeful and pertinent to the immediate situation as he sees it.

2. Behavior is lawful, predictable, and regular.

3. The phenomenal field is the universe of experience in which the individual completes his everyday activities. This is the individual's real world. The phenomenal field is fluid and organized differently for each individual.

Kelly's theory would probably not accept principles one and two. Kelly's theory would hold that people cause behavior, not the environment around them. Also,
Although we attempt to predict a lawfulness and regularity in our world, our predictions can be incorrect. Principle three appears to align with Kelly's concept of individual constructs and his position that man's thoughts about the world are a reality, whether they accurately reflect the "real" world or not. Also, Kelly's saying that each person's construct system is unique would agree with Syngg and Combs's idea of a fluid, individually organized phenomenal field.

Kelly also acknowledges convergence with John Dewey in certain aspects of theory building. Kelly (1955) says,

Dewey, whose philosophy and psychology can be read between many of the lines of the psychology of personal constructs, envisioned the universe as an ongoing affair which had to be anticipated to be understood. (p. 154)

Where Dewey would have said that we understand events through anticipating them, we would add that our lives are wholly oriented toward the anticipation of events. (p. 157)

Also, throughout Kelly's writing are subtle (and not so subtle) denunciations of the tenets of behaviorism. Kelly says,

If man is concerned primarily with the anticipation of events, we need no longer appeal to hedonism, or some disguised form of it, such as "satisfaction" or "reinforcement" to explain his behavior. (p. 158)

Despite Kelly's protest, the overview of various theoretical positions outlined above seem to indicate
that Kelly was influenced by the milieu in which he
developed his theory of personal constructs.

**Kelly's Repertory Grid Test**

Kelly's abstract theoretical position is represented
methodologically by a repertory test. The test,
originally conceived for clinical use by psychotherapists,
is a test aimed at role constructs. I will briefly
explain the original test as background for understanding
the educational test format which has emerged from the
original repertory test. In the original repertory test,
a subject is given a role title list of twenty-four
titles. The subject is asked to name a person identified
with each role. The examiner then prepares thirty-two
sorts of three titles each. The subject is then asked to
tell an important way in which two are alike but different
from a third. The way two are alike becomes a construct
while the way the third is different becomes a contrast.
At this point, Kelly introduces six assumptions about the
repertory test. These are:

1. Constructs which are elicited are permeable.
2. Pre-existing constructs are elicited.
3. Elements are representative.
4. Constructs elicited will subsume, in part,
   the construction system of the elements'
   figures. (Or, it represents the subject's
   understanding of the way other people
   look at things.)
(5) Constructs elicited show roleregnancy, i.e., regnant over the subject's own role.

(6) The constructs elicited are functionally communicable. (Words, as symbols to name constructs, are adequately understood by the examiner.)

To analyze the repertory test, one starts with the construct dimension which, by inspection, appears to be used most. Next one looks for sorts in which one or more of the same terms are used. Next, one looks for terms in the above sorts which may have been represented in additional sorts. When there is no more linkage, one begins a sort B and proceeds as for sort A. Some sorts will yield only one construct. From these sorts, it is possible to analyze the nature of the basic constructs used, figures falling under principal sorts, and construct constellations.

From this original test, Kelly developed a grid form of the Role Construct Repertory Test. He listed role titles along one axis and let the client enter his personal constructs along the other. At this point, Kelly noted, "The Repertory Grid is an approach to relationships which has many possible applications....other kinds of data may be entered in the margins" (p. 270). Whatever application of the test one makes, Kelly lists several assumptions upon which the repertory grid is based. It will be seen that some of these assumptions
overlap the precautions cited earlier for the original repertory test. His assumptions are as follows.

(1) Figures elicited by the Role Title List are representative of those the client interacts with.

(2) Sorting tasks proposed are representative of reality.

(3) It is possible to verbalize constructs related to the area being explored.

(4) The client shows stability of constructs by listing emerging and implicit poles of one construct at a time.

(5) Items chosen for the client to construe are within the range of convenience of his constructs.

(6) Word labels for constructs mean what the experimenter thinks they mean.

To analyze the data, Kelly used a nonparametric form of scanning analogous to what electronic computers can do today. I will not detail Kelly's procedures since they have been replaced by computer computations. Later, I will introduce the FOCUS computer program which can be used to analyze data from repertory grid tests in the field of education.

Examining Reliability and Validity in Relation to the Repertory Grid Test

It is extremely difficult to deal with the traditional concepts of test reliability and validity in the framework of the repertory grid test. D. Bannister and J.M.M. Mair (1968) in The Evaluation of Personal
Constructs devote about one-fourth of their text to two chapters discussing reliability and validity and the complex problem this presents in relation to construct theory and the repertory grid test. I will follow very closely the discussion of Bannister and Mair.

Bannister and Mair point out that a "good" test generally touts high reliability. Bannister and Mair go on to state (regarding traditional notions of reliability),

Grid methods and theory underlying them stand in sharp contrast to this tradition...it is necessary to challenge the orthodox notion of high reliability as an invariably desirable characteristic of tests....We can perhaps substitute...the idea that within a broader context of assessing the validity of grid scores, we are essentially concerned with predictable stability and predictable change. (p. 156).

Furthermore, Bannister and Mair state,

the grid is not a test, but a variable technique: it can be cast into many different forms, involving any number of different types of constructs and elements, and many kinds of scores can be derived. Since there is no such thing as the grid, there can be no such thing as the reliability of the grid. (p. 156)

Because one cannot formulate the reliability of the grid, Bannister and Mair proceed to examine particular studies for evidences of specific reliability.

In brief, Hunt (1951, cited in Bannister & Mair, 1968) asked the following question: "If we elicit constructs at two sessions a week apart, will there be any kind of
detectable similarity between the two samples of constructs elicited?" (p. 157) Hunt found that his subjects reproduced approximately 70% of their constructs. Fjeld and Landfield (1961, cited in Bannister & Mair, 1968) did a similar but more elaborate study. They re-administered the grid after a two week interval. They found the following.

(1) With the same elements, subjects produced equivalent constructs (Pearson r = 0.79).

(2) Also, with new elements, subjects produced equivalent constructs (Pearson r = 0.80).

These two studies give evidence to support the possibility that constructs produced by subjects will generally be reproduced on a second grid, given the same context within which to construe. From the repetition of constructs in these studies, one can infer that normal sampling procedures apply.

Turning from construct reliability to element reliability, Bannister and Mair comment,

Grids, by their nature, tend to relegate element allotment to a content status, to focus attention on the structure of the network of constructs...and to accord primacy to the investigation of this view. (p. 159)

However, Bannister and Mair examine two studies which relate to element reliability. Pedersen (1958, cited in Bannister & Mair, 1968) found 77% agreement on elements
when the same subjects were asked to provide figures for a role title list on two occasions. Even with no role title list, Fjeld and Landfield (1961, cited in Bannister & Mair, 1968) found that subjects gave 72% of the same figures they had given on an earlier role title list form of the grid. In addition, Mitsos (1958, cited in Bannister & Mair, 1968) suggested a relationship between elements and constructs regarding reliability. Mitsos found that constructs were repeated more often when the experimenter provided a role title list than when subjects selected elements at random. This may reflect that a role title list encourages reliability of constructs elicited.

Next, Bannister and Mair examined the reliability of measuring the matrix pattern of the repertory grid. Because the grid yields a correlational matrix, it is possible to test/retest and obtain a correlation coefficient. From their own research work to examine the reliability of the matrix patterns, Bannister and Mair reflect,

However, as a kind of statistical platitude, it can be said that using elements such as people known personally to the subject, with supplied constructs of a conventional type with either a rank order or split half matching administration, normal subjects, doing repeat grids, tend to yield coefficients of reliability which fall largely within the range of 0.6 to 0.8. (p. 160)

Bannister and Mair tend to view such coefficients as only
a statistical reality because they violate a central tenet of Kelly's construct theory that man is constantly revising his construct system as he is confronted with new experience.

Bannister and Mair conclude that it is not presently possible to measure reliability for cluster analysis scores. They reason that "the attempt to assess the reliability of clusters from a series of grids will remain relatively arbitrary until the psychological meaning of the clusters yielded by a single grid can be better assessed" (p. 160). They also think that total structure scores cannot be reliably assessed. They state, "The reliability of this type of global structure is likely to be low since it is a patently compound measure" (p. 161). Potentially, a variety of grid configurations could yield the same overall outcome.

An artifact of the grid technique is that one must deal with measures of lopsidedness. People can construe in a lopsided manner, at times placing most of the elements at one pole of a construct, i.e., they may construe most people as happy and few as sad. This presents statistical problems in computing relationship scores. Bannister and Mair have done some work which appears to indicate that subjects generally maintain the same pattern of lopsidedness from grid to grid. However,
this does not hold true when a person is experiencing a major transition in his construct system. Since a construct involves prediction, the outcome can be that a construct is validated or invalidated. When a construct is invalidated, a person may:

(1) put the element on the contrast pole of his construct.

(2) turn to another construct in his system and use that construct for prediction.

(3) revise the dimensions of his construct.

(4) tighten or loosen the aspects related to the construct.

Any of the above could affect and change reliability coefficients.

Bannister and Mair detail five types of variance which may affect attempts to establish reliability scores. These are: subsystem variance, construct variance, individual variance, group variance, and administrative variance. Subsystem variance stems from the fact that constructs have a range of convenience. If grids investigate different subsystems, reliability differences will exist. Because construct theory implies that constructs change, construct variance can affect reliability. Theoretically, Kelly thought that superordinate constructs were less likely to change. One could then assume that superordinate constructs would have higher test/retest
reliability than subordinate constructs. Operationally, a problem appears when trying to specify constructs as superordinate or subordinate. In examining this problem, Bannister and Mair found that

any examination of repeat grids, from an individual, tends to reveal that the source of a low reliability coefficient lies largely in radical matrix position changes for one or two out of a large number of constructs. (p. 172)

Individual and group variance must also be recognized. Bannister and Mair attempted to check the "reliability of the individual taking the test" (p. 172). They found test/retest stability correlations for individuals ranging from -0.61 to +0.90. Because of this, Bannister and Mair concluded,

The practice of pooling individual reliability coefficients to give a group coefficient tends to hide the enormous amount of individual variance which almost every grid experiment seems to make manifest. The size of such individual differences in reliability suggests that they might be viewed as matters of psychological interest in relation to the subjects, rather than purely as indices of test merit in relation to official standards. (p. 173)

Bannister and Mair found only one occasion when a group reliability coefficient could be utilized. Bannister and Mair (1960, 1962) did two studies, replicated by Bridges (1965, cited in Bannister & Mair, 1968) and Foulds and McPherson (1966, cited in Bannister & Mair, 1968), in which they used the repertory grid in a test/
retest situation using normal persons and thought
disordered schizophrenics as subjects. It was found
that normal persons had a much higher group reliability
correlation than schizophrenics. The vast differences
allowed use of the repertory grid as a diagnostic
measure for schizophrenic thought disorder. However,
in diagnosis, the reliability coefficient was calculated
individually for each subject diagnosed. Bannister and
Mair see this experiment and its replications as "the
use of the notion of reliability as a measure of the
subjects' psychological processes, rather than as an
estimate of the error variance of the test" (p. 174).
The final variance that Bannister and Mair note is
administrative variance. In this area, reliability
can be affected by: number of elements in the grid,
number of constructs in the grid, whether the constructs
were supplied or elicited, varying constructs from test
to retest, and method of administration.

When considering validity in the framework of the
repertory grid, Bannister and Mair think one cannot
separate logical and empirical validity. According to
Kelly's theory, all validity is logical. Or, as
Bannister and Mair state, "validation or invalidation
happens in terms of the construct system as a whole,
for the construct system also selects and evaluates
its validating criteria" (pp. 179-180). Bannister and Mair frame three questions which they think should provide the framework within which to explore questions of validity of repertory grid techniques. They are:

(1) Does the basic rationale for grids make sense?
(2) Does the application produce results which appear to support the underlying assumptions?
(3) Does the use of grid methods justify continual refinement?

Bannister and Mair begin to answer the first two questions by stating:

A grid is a framework for measuring inter-relationships between a subject's responses - the responses of a single subject are treated as a "population" and population statistics can be applied...The theory rests on the notion that people construe in an organized way. (pp. 180-181)

That the grid can be analyzed even with the constructs and elements removed supports the notion that the repertory grid measures association.

As stated above, grid measures are expected to show (by inference) associations between constructs. One reverse validation of grid techniques has been several studies which show that grids for thought disordered schizophrenics do not evidence the associative structure generally found in the grids of normal persons. One problem posed is whether grids with mostly unrelated constructs might be evidence of cognitive complexity.
Bieri (1955, 1961, cited in Bannister & Mair, 1968), by doing repeat grids, found that normal persons with low intercorrelations produced a second grid with the same pattern of low intercorrelations, while Bannister and Mair (1968) found that schizophrenics produced a different pattern of low intercorrelations on the second grid. From this, Bannister and Mair (1968) felt it was possible to state that complexity and confusion can be validly discriminated. The grid appears to be valid in predicting a structure of association among constructs for normal persons.

The problem of possible subsystem variance has been mentioned earlier in the discussion of reliability. This variance would, of course, affect the validity of the measure. Bannister and Salmons (1966, cited in Bannister & Mair, 1968) structured a study to investigate whether element type affected variability. Subjects were asked to complete repertory grids with people as elements and also asked to complete repertory grids with objects as elements. All subjects showed higher and more stable relationships between constructs subsuming objects than between constructs subsuming people. The inference can be drawn that the repertory grid is more valid for object related than people related construing. This result is interesting in that Kelly originally developed the grid
for clinical use to see how patients construed people in their world.

In addition to considerations of reliability and validity, every methodology has unique problems which must be considered with the frustrating acknowledgement that no solutions at present exist. Repertory grid methodology is no exception. Again following Bannister and Mair, I will outline some problems with grid methodology.

Problems occur when constructs are supplied rather than elicited. If constructs are supplied, the contrast pole must also be supplied. However, the experimenter's contrast may not be a contrast for the subject. Essentially, the experimenter may be providing the subject with the emergent poles of two constructs instead of a construct and its contrast. Also, whole figure constructs (example—like my father; like me in character) present a problem. When the construct is applied to a range of elements, it may be construed across several dimensions. For example, Y is like my father because he is tall, Z is like my father because he is sarcastic; L is like my father because he is a blue collar worker, etc. Another problem is that when any construct is supplied, it may not be in the subject's construct system or may have a different context of meaning and association for the
subject. A reverse problem occurs when subjects are asked to select their own elements with no guidance from the experimenter. Kelly found that supplying a role title list and asking subjects to name persons to fit each role yielded far better reliability than asking persons to name N number of persons with whom they were acquainted. Another problem occurs when elements are not in the range of convenience of the constructs supplied. For example, if one has the construct happy and the element chair, chair would be outside the range of convenience of the construct happy. Because of the problems related to range of convenience, the relation between constructs may depend heavily upon the context in which the subject is asked to use the construct. Two final problems relate to the mathematical basis for analyzing the grid. The process for analyzing the grid does not provide for the possibility of contradiction, yet Kelly's theory allows for contradiction in a construct system. Also, the inference is made that mathematically central constructs emerging from cluster analysis are psychologically central.

Research Studies Utilizing Repertory Grid Methodology

While acknowledging these theoretical and methodological struggles, researchers have found the repertory grid to be a viable means of exploring various research
domains. Bannister and Mair (1968) note the expansion of the repertory grid technique to include such elements as: films, paintings, inanimate objects, emotions, problem situations in a person's life, and types of bread. Although Kelly (1955) introduced the repertory grid for use in clinical psychology cases and used only people as elements, he expressed hope that personal construct theory and the repertory grid technique would prove accessible to many areas of investigation. He said,

One of the criteria of a good scientific theory is its fertility in producing new ideas. It should lead to the formulation of hypotheses; it should provoke experiments; and it should inspire invention....It should also encourage the invention of new approaches to the solution of the problems of man and his society.

Kelly's theory has been fertile in producing new ideas, not only in psychology but also in related fields such as sociology and education. The following section of Chapter II will summarize several studies encompassing a wide variety of content areas which have utilized, often with minor modifications, personal construct theory and repertory grid methodology. The primary unifying factors of the widely diverse studies are personal construct theory and repertory grid technique. Although Kelly published The Psychology of Personal Constructs in 1955, research
applications of his theory outside psychology did not proliferate until the 1970's. The 15 research studies which are reported in the following pages were published between 1970 and 1980. Also, although personal construct psychology was conceived at The Ohio State University in the United States, British researchers have shown more receptivity to Kelly's theory and methodology than their American counterparts. Of the 15 studies reported, seven were undertaken by researchers affiliated with a British university or college at the time of the study; four were undertaken by researchers affiliated with an American university; two were undertaken by Canadian researchers at Brock University in Ontario; one was undertaken by researchers at the University of Cape Town in South Africa; and one was undertaken by a Spanish researcher at the Universidad Nacional de Educación a Distancia in Madrid.

In 1972, while associated with the University of Birmingham, Reid and Holley (1972) examined how attitude affects student selection of a college or university to attend. In a pilot study, Reid and Holley administered grids with twelve universities as elements and elicited constructs. From the constructs produced, Reid and Holley listed nine basic dimensions of attitudes to universities.
These nine dimensions were used as given constructs for the research study. Seventy students were asked to relate these nine constructs to universities to which they had applied as well as to ones to which they had not applied. According to Reid and Holley, measures of association revealed "a well defined relationship between the manner in which the respondents located the universities on the constructs and their decisions on whether or not to apply to them" (p. 56). Reid and Holley surmise that there is an "English idea of a university" (p. 58) which includes antiquity, selectivity, and a small residential community. These attitudes were echoed in the constructs students produced. Reid and Holley conclude that providing students with a wealth of information about varied universities and colleges will be ineffective unless one can deal with the perceptions of students who elect to apply to specific schools by responding to popular stereotypes.

As a doctoral student at the University of London, Applebee (1973) used the theory of personal constructs and the methodology of the repertory grid as one of several techniques in exploring developmental aspects of James Britton's concept of the spectator role. In Applebee's investigation, constructs about stories were supplied while elements, which were titles of various stories, were
elicited. Subjects from ages six, nine, thirteen, and seventeen were used. Some grids were oral while others were written. A principal component analysis was done for each grid. It was found that the first component in each grid accounted for 43% to 55% of the total within grid variation. The first dimension to emerge from the samples was that of evaluation; the second dimension was that of simplicity; the third dimension was that of realism. Applebee concluded that the use of repertory grids can successfully illuminate constructs about the development of the spectator role in responses to literature.

In 1974, two British studies investigated personal construct theory. Duckworth and Entwistle at the University of Lancaster and Hudson, completing a doctoral dissertation in geography at the University of Bristol, used personal construct theory and methodology in their research. A pilot study by Duckworth and Entwistle (1974) interviewed sixth grade pupils to ask why they liked or disliked specific subjects. From these interviews, the authors developed ten constructs related to interest, six related to difficulty, and four to social benefits of school subjects. After administering and analyzing the grids, the authors compared pupil exam marks to attitudes analyzed from the grid. They concluded that high attain-
ment correlated with positive interest while low attainment correlated with difficulty. However, the authors also found that all children, even those who had successful exam scores, rated math, physics, French, and Latin as difficult. The study also pinpointed girls of age twelve with a high interest in the scientific area. The authors conclude that using the grid to measure attitudes to school subjects may help school personnel to guide students in making appropriate choices of subjects to study. Hudson (1974) used the repertory grid to examine the attitudes toward food stores of freshmen college students who moved to Bristol, England from another location. Initially, students kept a ten week diary of where they shopped for food. Grocery stores listed in the diaries became elements of the repertory grids. Constructs were elicited by presenting triads of grid elements to the students. Each element was scaled (1-11) on each construct. Principal component analysis revealed that two attributes, price and convenience of location, were of importance to all students. Hudson concluded that repertory grid methodology may prove valuable to urban planners because it provides valuable information in understanding travel behavior which is crucial to sensible urban planning.
In 1975, Harrison and Sarre (1975), who were both affiliated with British universities, explored the feasibility of using the repertory grid to measure environmental images held by city residents. One study explored the general image which female city residents had of their urban environment. A second study investigated shopkeepers' images of their business environment. In each study, data collected by using the repertory grid was subjected to principal component analysis. In the study of female city residents, analysis indicated that descriptive and relational constructs were greater in number than affective and evaluative constructs. In the study of shopkeepers, the investigators found general agreement by shopkeepers in perceptions of the business environment. Researchers suggest a possible link between image and behavior in the urban environment and suggest further work to investigate the exact nature of these links.

Two years later, Norris, affiliated with the University of Surrey, utilized repertory grids in her research. To determine the relationship of the elements self and ideal self with constructs of rule-breaking and dependency, Norris (1977) administered before and after grids to 58 young men in a detention facility. The
major finding from comparing repertory grids before and after detention was that, after incarceration, the young men had lowered aspirations and self esteem as well as higher self perceptions as being rebellious. The researcher concluded that incarceration appears not to achieve its intended social aims.

Two final British researchers who have been instrumental in the development of repertory grid methodology are Thomas and Harri-Augstein at Brunel University in Uxbridge, England. Directing the Centre for the Study of Human Learning, Thomas and Harri-Augstein have conducted several studies incorporating grid techniques. Also, Thomas has worked extensively on the refinement of computer techniques for the analysis of repertory grids. Thomas and Harri-Augstein (1977a) conducted three action research studies to help college students improve their ability to learn by reading and to investigate the students' consequent ability to implement the techniques and procedures introduced by the research team. The repertory grid was employed as one research technique to allow the student to examine his own perceptions and to make the student aware of his internalized structures and purposes for reading. The researchers concluded that the repertory grid satisfactorily fulfilled the stated purpose. In reviewing the repertory grids of a number of
students, Thomas and Harri-Augstein found a trend for educational experiences to have been bad while experiences outside education were more positively viewed. Also, many constructs were attitudinal as opposed to intellectual.

Four studies from American researchers follow. At the time of the study reported, Monaghan was affiliated with The Ohio State University, Lerch with the University of Florida, Widom with Harvard University, and Culbertson and Scott with Ohio University.

Monaghan (1972) suggests the possibility of using repertory grid methodology to provide an awareness of viewers' perceptions of television programs. Monaghan provides a hypothetical example to show that the repertory grid may provide insightful data which would not be revealed through a straightforward attitude questionnaire. Monaghan suggests the repertory grid may provide a way to examine television viewers' personal construction of reality and provide useful information for researchers in the field of communications.

From communications to athletics, Lerch (1976) suggests that having insight into an athlete's personal perceptions may provide both athlete and coach with important information to capitalize upon the athlete's uniqueness as a competitor. Within this framework, Lerch
used repertory grid methodology to conduct a case study examination of perceptions of four female collegiate track athletes. He asked each woman to complete a grid for pre-season, in-season, and post-season. He found that each person's perceptions did vary from pre-season to in-season to post-season. Lerch concluded that the nature of one's uniqueness as a competitor can provide useful insights to the competitor as well as to a coach.

In 1976, Widom used the original psychological context of the repertory grid. Using a control group of normal persons and a test group of psychopathic individuals, Widom (1976) used repertory grids to examine psychopaths' construing. Thirty elements, which were negative and positive social situations, were used to elicit ten constructs while eight other constructs were supplied. Subjects were first asked to complete a grid reflecting how they as individuals thought, then asked to complete a grid reflecting how people in general might think. Widom's analysis of her data revealed that psychopaths have a significant amount of misperception about how people in general construe. Psychopaths also construe specific situations differently than normal people; for example, they often characterize situations as dull that normal people characterize as exciting. Widom concluded that the repertory grid may be a fruitful means of
exploring psychopathic thinking.

The final American researchers reported here are Culbertson and Scott who examine a student-centered application of the repertory grid. Culbertson and Scott (1978) use the repertory grid in journalism classes to stimulate student self-examination of writing performance and aspirations. Students are asked to rate well known journalists on provided constructs such as socially acceptable/socially unacceptable and also to provide additional constructs of their own upon which to rate the persons listed. Each grid is examined visually by the instructor and then discussed with the student in an individual office conference. When a student does a grid in a basic writing class and also in a later advanced writing class, the instructor compares grids to help the student reflect upon any changes that may have occurred. Culbertson and Scott recommend the grid technique as a one-to-one teaching device.

Three Canadian researchers at Brock University did studies using grid techniques. In 1975, Adams-Webber conducted a study with Benjafied in the area of assimilative projection; then, in 1976 Adams-Webber conducted a study with Mirc which assessed student teachers' role constructs. In a study using the repertory grid, Benjafied and Adams-Webber (1975) found that when persons rate themselves and
others on a repertory grid, many persons rate toward the positive pole. Benjafield and Adams-Webber hypothesized that persons rating predominately toward the positive poles would show more assimilative projection, or see others to be much as they are. To test this possibility, the researchers asked thirty subjects to name twelve personal acquaintances. Each subject was provided twelve constructs and asked to rate the twelve personal acquaintances on the constructs. Each subject was asked to complete a grid for his/her typical self, ideal self, private self, and other person. The typical self grid was scored for number of positive adjectives used and subjects divided into two groups on this basis. Subjects with a high number of positive adjectives on the self grid had a high number of positive adjectives on other grids while subjects with balanced adjective descriptions on the self grid had balanced adjective descriptions on other grids. Scoring assimilative projection as the mean number of matches between self and others, the researchers found that subjects with positive adjectives grids had high assimilative projection scores while subjects with balanced grids had lower assimilative projection scores. Researchers concluded that grids can be used to measure the level of assimilative projection. The researchers also concluded that a high assimilative projection score
reflects less mature cognitive structuring than a low assimilative projection score. In a second study, Adams-Webber and Mirc (1976) used repertory grids to assess student teachers' constructs of their role with professional peers before and after student teaching. Grids were elicited from principals, teachers, and student teachers. Initial grid analyses showed that experienced teachers and principals shared similar conceptions of professional role functions while beginning student teachers' grids did not correlate highly with regular teachers and principals. Student teachers were administered three additional grids, each after two weeks of practice teaching. The researchers found that after six weeks of student teaching, student teachers produced grids regarding professional roles that showed no significant differences from those of experienced teachers and principals.

In a sociological study conducted at the University of Cape Town in South Africa, DuPreez and Ward examined the cultural erosion of traditional tribal values of an African tribe. DuPreez and Ward (1970) used a repertory grid with eighteen elements and two constructs to examine constructs of men of the Xhosa tribe in Africa. The investigators used as elements eighteen photographs
showing traditional, transitional, and modern Xhosa people. The two constructs were "like self" and "like ideal self." Modern and traditional populations were given the repertory grids. Results of the study revealed that modern and traditional Xhosa construe themselves differently. Educated, urban Xhosa show greater incidence of permeable constructs than other groups. More negative correlations between self and ideal self were found in the traditional Xhosa than in the modern Xhosa. The authors conclude the information from the repertory grids reveals the traditional Xhosa culture is eroding and is being replaced by a modern (urban, educated, vocationally skilled) Xhosa society.

Finally, the most recent study of the 15 reported was done by Carmen Huici in Madrid. Huici (1980) used a repertory grid technique to investigate whether "personal constructs that the experiential group participants use in connection with others making up their group initially differ from the constructs they use when referring to the people constituting their 'usual interpersonal context'" (p. 298). Huici asked an experiential group and a control group to complete two grids. For the experiential group, the first grid used roles from the subjects' interpersonal world and the second used group components as elements.
For the control group, the first grid was the same while the second grid was a parallel grid in which the elements were colleagues in a theoretical psychology seminar. All constructs produced were placed into four categories: external constructs, internal constructs, moral constructs, and other constructs. Huici found a significant increase in the use of internal constructs when the grid referred to T-group members in comparison to the grid referring to people known to the subjects. Categories of constructs implying moral judgments decreased for perception of the T-group in comparison to people known. Also, an increase in interaction constructs was found when referring to the T-group but was not found in referring to people known. The author concluded that initial constructs about other members of a T-group are different than constructs about "real" life interactions. T-groups may provide "privileged social space" for examining problems and issues.

The fifteen studies reviewed provide evidence that personal construct theory has proven accessible to many areas of investigation. Such research appears to be fulfilling George Kelly's hope that personal construct theory would be fertile in producing new ideas, provoking experiments, and inspiring invention. Chapter III will explore yet another area, students' perceptions of
composing, in which personal construct theory appears to provide a structure of ingress.
CHAPTER III
METHODOLOGY FOR REPERTORY GRID PROCEDURES

Introduction
Using Kelly's theoretical framework and the repertory grid, this exploratory case study approach was designed to examine the usefulness of repertory grid methodology in the context of students' perceptions of writing. In this study, I collected extensive samples of students' writings so that examples of poetic, expressive, and transactional writing (following Britton's categories) were collected. I then asked each student to analyze nine samples of writing. This was done in an interview situation using the repertory grid technique. Interview data collected via the repertory grid was computer analyzed using the FOCUS computer program. The printed data was examined for insights into how students perceive composing.

Subjects, School, and Community
Ten students volunteered as participants in this study. However, because one student moved from the county, nine students participated in the entire study. I briefly explained to my 8-1 class of 31 students that I was doing research on writing and that I needed volunteers. I explained that I would be collecting samples of their
writing for approximately six months. I also explained that when the collection period ended, I would interview each student and ask questions about the papers written. I further indicated that the students' responses would be number coded and computer analyzed with the final analyses being shared with students to aid them in their writing growth.

The eighth-grade participants were from Louisville High School, Jefferson County, Louisville, Georgia. Louisville (Jefferson County Self Study, 1981-82) is located in east central Georgia on the upper Coastal Plain, 141 miles southeast of Atlanta, 48 miles southwest of Augusta, 80 miles east of Macon and 117 miles northwest of Savannah. From 1794 to 1807, Louisville was the first permanent capital of Georgia. Today, Louisville is at the junction of U.S. Highways 1 and 221 and Georgia Highways 171, 17, and 24. Three freight lines, a non-commercial airport, and a bus terminal serve the town. According to the 1980 census, the population of Louisville is 2,823 which is an increase of 4.9% over the 1970 figure of 2,691. The population of all of Jefferson County is 18,403 which is a 7.2% increase over the 1970 figure of 17,174. Although Jefferson County is classified as rural, agriculture has declined. From 1944 to 1978, the number of farms in Jefferson County decreased from 2,086 to 401 with the
average farm size increasing from 124 to 451 acres. During the same period, total land devoted to agriculture decreased from 295,394 acres to 180,888 acres. Surplus farm workers have been partially absorbed by the three largest industries which are J.P. Stevens, Thermo-King, and Van Tran Corporation. The student population, which is derived from most segments of the community, is 28.6% Caucasian, 71% Black, and .04% Oriental. Parents' formal education varies from 10% who attended elementary school to 3% who hold advanced degrees. Forty-one percent of the student population comes from homes in which parents did not finish high school. Most students are from low income families. Sixty-eight percent receive free or reduced lunches. Forty-two percent come from homes in which one or both parents are missing due to divorce, separation, desertion, or death. The student population is relatively stable with 85% of the seniors having attended seven or more years in the Louisville school system.

Although all the volunteers in this study were from a top-level eighth-grade class, family background and academic achievement did vary. A brief profile of each volunteer will include academic and personal information. For each student, the total language score on the Iowa Test of Basic Skills, which was administered in February, 1982, is given in stanines and percentiles. Score for
the Georgia Criterion Referenced Test in reading is given. The Criterion Referenced Test is a Georgia state-wide test given to eighth graders. The Criterion Referenced Test measures minimal competencies in the language areas of word recognition, language use, classification, comprehension, and study skills. Each student's promotion/retention score for eighth grade is given. The promotion/retention score is a lengthy formula used by all Jefferson County schools. Basically, performance on several factors of academic achievement is given weighted values to determine whether a student passes or fails. One a scale of 10, report card grades for English, reading, and social studies are averaged and given a weighted value of 3; report card grades for mathematics and science are averaged and given a weighted value of 3; a state-wide criterion referenced test in math is given a weighted value of 1; a state wide criterion referenced test in language arts is given a weighted value of 1.5; the Iowa Test of Basic Skills is given a weighted value of 1; and a locally constructed math facts test is given a weighted value of .5. Total weighted scores are divided by 10. A promotion/retention score of 3.0 is perfect; 2.0 is needed for promotion. Also, a final average of the student's grades for all subjects including English, reading, social studies, mathematics, science, and physical education/health is given. Personal information
is self explanatory.

Born April 7, 1968, Sally Martin was 14 at the time of the study. She has lived in Jefferson County for the past five years; prior to that, she lived in Waynesboro, Alexander, and Athens, Georgia. Sally is the middle child with one older sibling and one younger sibling. Sally lives with her mother who is a social worker in a local nursing home. Sally belongs to 4-H Club. She enjoys reading, swimming, biking, and playing tennis. Her career ambition is to be a psychiatrist. Sally placed on the 8th stanine and the 91st percentile on the Iowa Test of Basic Skills. She achieved 20 of 20 objectives on the Georgia Criterion Referenced Test. Her promotion/reten tion score was 2.62. Her final grade average for all subjects was 86. Sally also participated in a county-wide program for gifted students.

Born October 17, 1968, Anna James was 13 at the time of the study. Anna lived in Waynesboro, Georgia until two years ago when the family moved to Louisville. Anna is the middle child with two older and two younger siblings. Anna lives with her mother and her stepfather who is employed by Thermo-King Corporation. Anna belongs to 4-H Club and Future Business Leaders of America. She is also serving as a class officer. Anna's hobbies are basketball, skating, and bike riding. Her career ambition is to work in data processing. Anna placed on the 9th
stanine and the 93rd percentile of the Iowa Test of Basic Skills. She achieved 20 of 20 objectives on the Georgia Criterion Referenced Test. Her promotion/retention score was 2.80. Her final grade average for all subjects was 89.

Born September 15, 1968, Linda Brown was 13 at the time of the study. She has always lived in Jefferson County. Linda is the youngest with five older siblings. Linda lives with both parents; her father is a welder at Thermo-King Corporation and her mother is a nurses' aide at a local nursing home. Linda is a 4-H Club member and a class officer. Linda's hobbies are writing stories, reading, and watching television. Her career ambition is to work in data processing. Linda placed on the 7th stanine and the 85th percentile of the Iowa Test of Basic Skills. She achieved 20 of 20 objectives on the Georgia Criterion Referenced Test. Her promotion/retention score was 2.50. Her final grade average for all subjects was 82. Linda participated in a program for gifted students.

Born May 18, 1968, Karol Sanders was 14 at the time of the repertory grid interview. Karol lives with both parents and one younger sister. Her father is an industrial engineer for Thermo-King Corporation, and her mother is a high school guidance counselor. Karol lived in Oklahoma for two years but has lived in Jefferson County for the past 12 years. She is a member of 4-H Club and
and band. As hobbies, she plays the flute and piano, goes skating, and enjoys talking on the phone. Karol's career ambition is "something to do with fashion." Karol placed on the 6th stanine and the 61st percentile on the Iowa Test of Basic Skills. She achieved 19 of 20 objectives on the Georgia Criterion Referenced Test. Her promotion/retention score was 2.42. Her final grade average for all subjects was 79.

Born January 11, 1968, Carl Barnes was 14 at the time of the study. Carl, who has always lived in Jefferson County, has one older sister. Carl lives with both parents; his father is a salesman and routeman for National Linen Service, and his mother works in the payroll division of Plant Vogtle Nuclear Plant. Carl belongs to 4-H Club and band. He enjoys golf, motorcycle riding, and swimming. His career ambition is to be a doctor or an engineer. Carl placed on the 7th stanine and the 88th percentile on the Iowa Test of Basic Skills. He achieved 20 of 20 objectives on the Georgia Criterion Referenced Test. His promotion/retention score was 2.54. His final average for all subjects was 81. Carl participated in a county-wide program for gifted students.

Born July 24, 1968, Serena Green was 13 at the time of the study. She has always lived in Jefferson County. Serena lives with both parents and has two older brothers. Serena's father is retired, and her mother works as a
seamstress. Serena belongs to 4-H Club and Beta Club. She enjoys shell collecting, stamp collecting, and letter writing. Serena corresponds with a foreign pen pal. Her career ambition is to be a lawyer. Serena placed on the 7th stanine and the 88th percentile of the Iowa Test of Basic Skills. She achieved 20 of 20 objectives on the Georgia Criterion Referenced Test. Her promotion/retention score was 2.54. Her final grade average for all subjects was 81. Serena participated in a county-wide program for gifted students.

Born September 12, 1968, Tricia Johnson was 13 at the time of the study. She has always lived in Jefferson County. Tricia has one older sister who is an aspiring country singer. Tricia's parents are divorced and Tricia lives with her mother who is an aide at Louisville Academy Elementary School. Tricia, who belongs to 4-H Club, enjoys horseback riding, baton twirling, writing (especially poetry), swimming, skating, and modeling. Tricia's career ambition is to become a professional model. Tricia placed on the 5th stanine and the 55th percentile of the Iowa Test of Basic Skills. She achieved 18 of 20 objectives on the Georgia Criterion Referenced Test. Her promotion/retention score was 2.41. Her final grade average for all subjects was 75.
Born December 5, 1963, Lucy Moore was 13 at the time of this study. Lucy, who lives with both parents, is the youngest child with three older siblings. She has spent her entire life in Jefferson County. Lucy's father works as Supply Department Administrator for the Jefferson County Hospital, and her mother is a clerical worker at the Jefferson Electric Corporation. Lucy is a very active 4-H Club member with bike riding and skating as hobbies. Lucy has corresponded with a foreign pen pal for four years. Lucy's career ambition is to be a pediatrician. Lucy placed on the 6th stanine and the 75th percentile on the Iowa Test of Basic Skills. She achieved 20 of 20 objectives on the Georgia Criterion Referenced Test. Her promotion/retention score was 2.38. Her final grade average for all subjects was 72.

Born August 26, 1963, Martha Potter was 13 at the time of the study. Martha has always lived in Jefferson County. Martha has ten older siblings and two younger siblings. Martha's father is dead, and Martha lives with her mother who is not employed. Martha belongs to Future Business Leaders of America. As hobbies, she enjoys singing, dancing, talking, and biking. Martha's career ambition is to join the army and become a doctor or nurse. Martha placed on the 7th stanine and the 81st percentile on the Iowa Test of Basic Skills. She achieved 20 of 20 objectives on the Georgia Criterion Referenced Test. Her
promotion/retention score was 2.40. Her final grade average for all subjects was 75.

Throughout the study, students were regarded as volunteer participants and not as "subjects." As Kelly (1955) states, the purpose of the repertory grid is that the "client's own constructs are to be revealed rather than his efficiency in using the examiner's constructs tested" (p. 213). Laurie Thomas and E. Sheila Harri-Augstein in Conversational Investigation of Reading: New Insights Into Cognition (1977b) offer the following comment upon the subject/experimenter relationship.

The act of observing influences the activity being observed. Experimenter and subject together share the responsibility for the observation and measurement of a continuously changing cognitive process within a "context sensitive" framework. Thus the empirical investigation becomes a cooperative effort. (p. 3)

In Education and the Negotiation of Meaning, Laurie Thomas (1976) makes the following additional comments, albeit in a somewhat lighter context, regarding the subject's role in a research study.

In particular, most "laboratory based" theories of learning ignore the "subjects" ideas about what is happening to him, i.e., they ignore the meaning which the subject attributes to the events in which he is taking part. It is enlightening and sometimes very amusing to talk to, say, the sailors who have just taken part in a "time of day" experiment. Their description of what went on in the experimental room is not formulated in the same language as theorists, nor are their descriptions and explanations concerned with the same phenomena! The pretty
research assistant might be a trifle surprised to hear the results to the experiment as seen through the sailors' eyes. (p.7)

Again quoting from Thomas and Harri-Augstein (1977b), when the subject is an active participant in the research situation, the conversational approach "uses the subject's unique position as observer of his internal events and admits the personal validity of his attempts to understand his own processes" (p. 6). Thomas and Harri-Augstein acknowledge, of course, that the experimenter will have access to data and forms of analysis of which the subject may be unaware. Thomas and Harri-Augstein (1977b) state that in "non-trivial participant investigations....the subject participant is not only aware of the results but that he has actively contributed to their discovery and construction. This is an ideal learning opportunity and is recognized as such by most of the participants" (pp. 22,23). Considering the above statements, I think selecting the subjects for this research from volunteers who know the basic aims of the research will yield a richer data base.

**Data Collection**

For a six months' period, from October, 1981 to March, 1982, I collected and maintained in folders samples of students' writings. In the students' two-hour language arts class which I taught, extensive writing occurred which
covered a broad range of options. For example, all students participated in taking interview notes and writing articles for a junior high school newspaper. All students kept a classroom journal throughout the study. At the end of each six weeks' grading period, participants were asked to select three or four of their best journal entries for inclusion in the research folder which I maintained. Participants had the opportunity to write poems, short stories, and other literary works to be published in a junior high newspaper. Students also wrote summary reports about novels they had read. Participants engaged in persuasive writing assignments such as writing a letter to the editor of the local or regional newspaper. At intervals throughout the study, students were also participants in a staff development inservice. Dr. Warren Combs, former professor at the University of Georgia and presently a private consultant and textbook author, actively worked with students in the classroom to demonstrate techniques of writing. During these sessions, students did conative and informative writing.

At the end of the six months' period in April, 1982, students' folders were examined and pieces of writing selected for further study. So that a variety of writing would be represented for each student, I employed James Britton's (1975) function categories to select pieces of
writing. Britton's three major function categories are transactional, expressive, and poetic. Transactional language is language used to accomplish a purpose. Transactional language is divided into two areas, informative and conative. Informative language covers a broad range of writing from concrete informative documents to abstract hypothetical formulations. Britton defines the range of informative writing in the following way.

1) Record - This is an eyewitness account including minute-to-minute details.

2) Report - A series of events are chronicled.

3) Generalized Narrative or Descriptive Information - The writer sees a repetitive pattern in the events or places described.

4) Analogic, Low Level of Generalization - Generalizations are made but are not tightly structured and related.

5) Analogic - Generalizations are logically classified.

6) Analogic-Tautologic (Speculative) - Logically classified information is openly examined for alternative possibilities.

7) Tautologic - Alternate possibilities of logically classified information are examined for a possible role in building theory.
Conative writing is placed in two sub-categories, regulative and persuasive. Regulative writing implies that directives issued are backed by authority for their implementation. Persuasive writing does not assume the authority for implementation but rather relies upon persuasive reasoning. Expressive writing reveals the personal aspects of the writer and lies close to the streams of consciousness. Private journals are a prime example. Poetic, the third major function category, includes all types of literary productions including poems, plays, short stories, novels, and any other structured presentation of a writer's thoughts and feelings. See Appendix B for Britton's chart showing the nature of function categories.

In order to avoid possible bias of the researcher, student writings were categorized into Britton's function categories by two professional educators who independently read and categorized a total of 228 papers. This independent categorization also insured that Britton's categories were operationally useful in classifying writing. In order to be familiar with Britton's categories, each educator read Chapter 5, "An Approach to the Function Categories," and Chapter 6, "Defining the Function Categories," in The Development of Writing Abilities by Britton, Burgess, Martin, McLeod, and Rosen (1975). I reviewed the chapters with each educator and
answered any questions about the categories. Each piece of writing was coded to match category sheets which the readers used. The function categories which raters were asked to use were:

1. Transactional: Informative
2. Transactional: Conative
3. Transactional: Other
4. Expressive: Journal
5. Expressive: Other
6. Poetic: Poem
7. Poetic: Short Story
8. Poetic: Play
9. Poetic: Other

"Other" was included in each category to provide a means to classify any writings which the readers felt could not be placed in the defined categories. I did not include any writings from the "other" categories in selecting the final nine pieces of writing used to produce the repertory grid. After the readers had completed the category sheets for all writings, a correlation was obtained to determine the percentage of reader agreement.

For each participant, nine pieces of writing—three transactional, three poetic, and three expressive—were selected for further study. Nine papers were selected in order that both Britton's categories and
Kelly's construct theory could be adequately utilized. Recall that three elements are necessary in order to elicit a construct. Using Britton's three categories, it could prove fruitful to see what constructs students produce when asked to compare and contrast three pieces of transactional writing, or three pieces of poetic writing, or three pieces of expressive writing. Hence, the choice was made to have nine papers (or elements) in the grid. The nine papers encompassed Britton's function categories in the following manner.

<table>
<thead>
<tr>
<th>Category</th>
<th>1.</th>
<th>2.</th>
<th>3.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transactional</td>
<td>Book report (summary)</td>
<td>Persuasive article</td>
<td>Newspaper article</td>
</tr>
<tr>
<td>Poetic</td>
<td>Poem</td>
<td>Play</td>
<td>Short Story</td>
</tr>
<tr>
<td>Expressive</td>
<td>Journal entry</td>
<td>Journal entry</td>
<td>Journal entry</td>
</tr>
</tbody>
</table>

**Overview of Grid Elicitation and Analysis**

In order to use the repertory grid technique, a number of sorts must be determined for the student's scrutiny. Kelly gives no standards for designing sorts except that they be fruitful to explore the designated area. I designed the sorts in Table 1 using the nine selected pieces of writing. Although all combinations of individual papers are not used, all combinations of modes are used.
TABLE 1  ELEMENT Sorts

<table>
<thead>
<tr>
<th>Paper Type</th>
<th>Paper Type</th>
<th>Paper Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sort 1</td>
<td>Transactional</td>
<td>Transactional</td>
</tr>
<tr>
<td>Sort 2</td>
<td>Transactional</td>
<td>Expressive</td>
</tr>
<tr>
<td>Sort 3</td>
<td>Transactional</td>
<td>Poetic</td>
</tr>
<tr>
<td>Sort 4</td>
<td>Transactional</td>
<td>Expressive</td>
</tr>
<tr>
<td>Sort 5</td>
<td>Expressive</td>
<td>Expressive</td>
</tr>
<tr>
<td>Sort 6</td>
<td>Expressive</td>
<td>Transactional</td>
</tr>
<tr>
<td>Sort 7</td>
<td>Expressive</td>
<td>Poetic</td>
</tr>
<tr>
<td>Sort 8</td>
<td>Poetic</td>
<td>Poetic</td>
</tr>
<tr>
<td>Sort 9</td>
<td>Poetic</td>
<td>Expressive</td>
</tr>
<tr>
<td>Sort 10</td>
<td>Poetic</td>
<td>Transactional</td>
</tr>
</tbody>
</table>

The following table further specifies the particular papers used for each sort.

TABLE 2  WRITING SAMPLES

<table>
<thead>
<tr>
<th>Paper Number</th>
<th>Type of Writing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Book report (summary)</td>
</tr>
<tr>
<td>2</td>
<td>Persuasive article</td>
</tr>
<tr>
<td>3</td>
<td>Newspaper article</td>
</tr>
<tr>
<td>4</td>
<td>Poem</td>
</tr>
<tr>
<td>5</td>
<td>Play</td>
</tr>
<tr>
<td>6</td>
<td>Short story</td>
</tr>
<tr>
<td>7</td>
<td>Journal</td>
</tr>
<tr>
<td>8</td>
<td>Journal</td>
</tr>
<tr>
<td>9</td>
<td>Journal</td>
</tr>
</tbody>
</table>
The following table indicates the papers used for each of the ten sorts.

**TABLE 3 SORTS USED FOR GRID ELICITATION**

<table>
<thead>
<tr>
<th>Sort</th>
<th>Papers Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1,2,3</td>
</tr>
<tr>
<td>2</td>
<td>1,7,8</td>
</tr>
<tr>
<td>3</td>
<td>3,4,6</td>
</tr>
<tr>
<td>4</td>
<td>1,4,8</td>
</tr>
<tr>
<td>5</td>
<td>7,8,9</td>
</tr>
<tr>
<td>6</td>
<td>1,2,7</td>
</tr>
<tr>
<td>7</td>
<td>4,6,9</td>
</tr>
<tr>
<td>8</td>
<td>4,5,6</td>
</tr>
<tr>
<td>9</td>
<td>4,8,9</td>
</tr>
<tr>
<td>10</td>
<td>2,3,4</td>
</tr>
</tbody>
</table>

Although there are many more possible sorts, it must be remembered that the purpose of the sorts is to elicit constructs. The exploratory nature of this study and the use of a measurement instrument which involved extensive interview time meant that, with limited resources, the number of sorts must, of necessity, be limited. A limit of nine elements (to fully utilize Britton's three function categories as explained earlier) and ten constructs was set to restrict the length of the interview. It was initially postulated that if a student
were unable to produce 10 constructs, the grid would be analyzed with whatever number was produced. However, when the interviews were conducted, all nine participants were able to produce 10 constructs.

To illustrate the steps in grid elicitation and analysis, a step-by-step example will be taken from *The Self-Organized Learner and the Printed Word* by Laurie F. Thomas, Director of the Centre for the Study of Human Learning, and E. Sheila Harri-Augstein, Deputy Director of the Centre (1977a). Dr. Thomas and Dr. Harri-Augstein conducted three research studies in which investigators focused upon:

1) "how to help young adults to improve their ability to learn by reading.

2) how to investigate and measure their consequent ability to organize their own learning"

(abstract).

In these studies the grid was used as a technique to tap the individual student's personal thoughts and feelings. The grid technique is illustrated with one subject, Sybil. In the interview, the researchers set a "universe of discourse" which was "purposes for reading". The subject, Sybil, was asked to name purposes for reading. She named ten purposes:
1. interest/curiosity
2. to pass time
3. examination revision
4. for reference
5. ought to, but don't feel like it
6. knowledge of subject
7. set for discussion
8. because recommended
9. essay/seminar
10. for pleasure. (p.9)

These ten purposes can be seen as elements in the grid which is shown in Table 4. Then, each purpose for reading (element) was written on a card. Sybil was shown three of the cards and asked to determine a way in which two were alike and the third different. Sybil's comparison and contrast is written on the grid. The first phrase is the comparison (or construct) and the second phrase is the contrast pole of the construct. Sybil was then shown a different combination of three elements and asked to again compare two and contrast the third. Her replies became the two poles of construct two in Table 4. Look at construct five in Table 4. It was obtained in the following manner. Sybil was shown the following three cards (elements).

1. because it was recommended
2. revision for exams
3. for reference

Sybil put 1 and 3 together as being "influenced by other people's ideas and choices" and 2 as separate in that it was "set work under pressure." Thus were produced the two poles of construct five. Sybil produced a total of
<table>
<thead>
<tr>
<th>ELEMENTS</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest/Curiosity</td>
<td>✅</td>
<td>✅</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To Pass Time</td>
<td>✅</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Examination Revision</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For Reference</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ought To, But Don't Feel Like</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge of Subject</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Set for Discussion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Because Recommended</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Essay/Seminar</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pleasant</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table 4: Illustration of Grid Technique**

*Sybil's Raw Grid*

**Purposes for Reading**

seven constructs in this manner. After this, Sybil was shown a five point scale as follows.

(the construct)          (the contrast)

<table>
<thead>
<tr>
<th>Pole 1</th>
<th>Pole 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔</td>
<td>❌</td>
</tr>
<tr>
<td>✔</td>
<td>❌</td>
</tr>
<tr>
<td>Neutral</td>
<td></td>
</tr>
</tbody>
</table>

For each construct, Sybil was asked to assign each element to a position on the scale. The matrix on Sybil's grid in Table 4 shows her scaling. Using a computer program developed by Laurie Thomas, the grid was focused. This is a procedure whereby elements and constructs are rearranged in cluster sequence. See Sybil's focused grid, Table 5. From looking at the focused grid, the researchers made the following analysis of Sybil's grid.

It is immediately clear that Sybil sees:

- E 9 for Essay or Seminar
- E 3 for Exam Revision
- E 7 for Set for Discussion

as all identical, and as all lying on the X poles of:

- C 4 Anxiety, never feel I have learned anything
- C 1 Specific set work
- C 5 Set work under pressure
- C 6 Set work
- C 2 Set work with reason and purpose
- C 7 Aim and purpose, to gain knowledge
TABLE 5 ILLUSTRATION OF A FOCUSED GRID

Sybil's Focused Grid
Purposes for Reading

From The Self Organized Learner
and the Printed Word by Laurie F.
Thomas and Sheila Harri-Augstein,

<table>
<thead>
<tr>
<th></th>
<th>Because Recommended</th>
<th>Knowledge of Subject</th>
<th>Interest/Curiosity</th>
<th>Pleasure</th>
<th>Ought to, But Don't Feel Like</th>
<th>Essay/Seminar</th>
<th>Examination Revision</th>
<th>Set for Discussion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Own Interest, Independent of Set Work</td>
<td>Specific Set Work</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>X</td>
</tr>
<tr>
<td>2.</td>
<td>No Aim, No Reason</td>
<td>Set Work With Reason and Purpose</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>3.</td>
<td>Curiosity from Own Desire for Knowledge</td>
<td>Curiosity Induced by Others' Ideas</td>
<td>X</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>4.</td>
<td>Pleasure, for Knowledge and Satisfaction</td>
<td>Anxiety, Never Feel To Have Learned</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>5.</td>
<td>Influenced By Others' Ideas By Choice</td>
<td>Set Work Under Pressure</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>6.</td>
<td>Choice, but not Necessarily Pleasure</td>
<td>Set Work</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>7.</td>
<td>No Aim, Not Hoping for Results</td>
<td>Aim and Purpose, to Gain Knowledge</td>
<td>X</td>
<td>X</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
Similarly:–

E6 and E1 are very nearly identical, and E8 and E4 are nearly identical, but together with E10 and E2 they lie at the opposite poles to E9, E3, and E7 on almost all of Sybil's constructs. Sybil, confronted with her focused grid, was very surprised to find that she "really" has only three ways of thinking and feeling about purposes for reading:–

\[\begin{array}{c|c}
C3 & \text{Curiosity from own desire for knowledge} \\
\hline
C4, C1 & \text{Satisfaction Anxiety, Set Work,} \\
C5, C6 & \text{Knowledge Never feel to have learned} \\
C2, C7 & \text{No Aid Aim and Purpose} \\
\end{array}\]

For Sybil this divided her reading experiences roughly into two groups, those assigned to the left hand set of poles and those assigned to the right hand poles. Given this "simple view" as a starting point, she then considered the deviations, i.e., the X's on E8, E4, and E6, and the ✓ on E5. Exchanging her constructs, elements, and experiences with other members of the group enabled Sybil considerably to elaborate her ideas about "purposes for reading" (p. 8).

The above has provided a brief outline of grid elicitation and analysis. Thomas and Harri-Augstein(1977a) offer several suggestions to insure an optimal grid interview. First, the interviewer must adequately structure the "universe of discourse". Both subject and researcher need a clear focus upon the problem area. That the set of elements elicited are representative of the population of elements depends to an extent upon the
researcher's interviewing skill. Thomas and Harri-Augstein wish elements to be "central, specific and meaningful" (p. 13). For example, in obtaining Sybil's elements for purposes for reading, the researcher asked Sybil to think back over what she had read for the past month or two and why she had read it. Although the researcher must attempt to help the subject keep attention focused upon the area being investigated, the researcher must at the same time avoid "putting ideas or feelings into the participant's mouth, head, or heart" (p. 13).

Since the grid may tap personal aspects of construing, subjects should be consulted about possible uses of the grid. Grid procedures should be viewed as a way to reflect upon a problem and not "harshly to bring about premature closure" (p. 14). The results of the focused grid should be offered to the subject to help him explore his own constructs.

Using the Focus Computer Program for Cluster Analysis

Grid focusing has been illustrated with Sybil's grid. Focusing is a computer based technique developed by Laurie Thomas (1976) at Brunel University. The focusing program "resorts the rows and columns of the grid to produce a matrix in which every pair of adjacent rows and columns has more in common than any other arrangement" (p. 1). Focus (Thomas, 1981) is a type of non-inclusive
two way cluster analysis. The method was developed for use in interpreting the grid to the subject without exhibiting any mathematical complexity, complicated computer output, or general problems of understanding factors or components. Focused grids rely upon raw data presented in reordered form to make relationships clear. Thomas suggests three ways to utilize a focused grid. It can be (a) a descriptive tool, (b) a diagnostic tool for negotiating the growth and development of meaning, and/or (c) a cognitive mirror to reveal patterns in a person's thoughts and feelings of which the person is unaware. FOCUS (Thomas, 1976), a manual for the computer program, introduces the program, illustrates a typical run, and illustrates how to interpret the focused grid. The FOCUS manual is included as Appendix C.

**Detailed Instructions for Repertory Grid Interviews**

Table 6 is a sample of the repertory grid which I used in this study. This sample grid varies slightly from the illustrative grid of Sybil in that the construct (Pole 1) and the contrast (Pole 2) have been placed on opposite ends of the grid. The reason for this shift is merely to visually orient the students when they begin to scale each element on each construct. Whereas Dr. Thomas and Dr. Harri-Augstein elicited grids from college students, I elicited grids from junior high students who
<table>
<thead>
<tr>
<th>Construct (Pole 1)</th>
<th>Element #1 (Transactional)</th>
<th>Element #2 (Transactional)</th>
<th>Element #3 (Transactional)</th>
<th>Element #4 (Poetic)</th>
<th>Element #5 (Poetic)</th>
<th>Element #6 (Expressive)</th>
<th>Element #7 (Expressive)</th>
<th>Element #8 (Expressive)</th>
<th>Element #9 (Expressive)</th>
<th>Construct (Pole 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Personal</td>
<td>^</td>
<td>^</td>
<td>^</td>
<td>^</td>
<td>^</td>
<td>^</td>
<td>^</td>
<td>^</td>
<td>^</td>
<td>Personal</td>
</tr>
<tr>
<td>Bad Spelling</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Good Spelling</td>
</tr>
<tr>
<td>Short</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Long</td>
</tr>
</tbody>
</table>

**TABLE 6: Sample Repertoire Grid**
might profit from the visual separation of constructs and contrasts. Using the hypothetical grid in Table 6 as a reference, I will detail the procedure I used to elicit the grid.

To begin the interview, the student was asked to reread the nine pieces of writing selected to elicit constructs. Since the writing was collected over a six months' period, this allowed the student to become familiar with all the pieces selected. The student was then asked to scrutinize three pieces of transactional writing (Sort 1 on Table 6) and to determine a way in which two were alike and the third different. On the hypothetical grid, we assume the student said that two were long and one was short. "Long" was entered on the grid as the first construct and "short" was entered as the contrast. The student was then shown one piece of transactional writing and two pieces of expressive writing (Sort 2 on Table 6) and asked to scrutinize them, comparing two and contrasting the third. On the hypothetical grid, we assume the student said two had good spelling and the third did not. "Good spelling" was entered as the second construct and "bad spelling" was entered as the contrast. The student was then shown one piece of transactional writing and two pieces of poetic writing (Sort 3 on Table 6) and again asked to compare
two and contrast the third. According to the hypothetical grid, the student said two were personal and one was not personal. "Personal" became the third construct and "not personal" became the third contrast. The interview continued in this manner until all ten sorts listed in Table 6 were completed.

After completing this step, I placed all nine pieces of writing in order in front of the student. He was then shown the following scale.

![Checkmark](✓)  ![Dash](−)  ![X](✗)

| Very Much Like Pole 1 | Does Not Fit into Pole 1 or Pole 2 | Very Much Like Pole 2 |

The student was then guided through each construct with the directions to make a ✓ if the writing was like the construct, an ✗ if it was like the contrast, and a — if it fit neither category. For example, the following instructions will illustrate.

Look at the first paper. If it is long, put a ✓ in the box; if it is short, put an ✗ ; if it is neither long nor short, put a — . Do the same for the second paper, the third paper, etc.

In our hypothetical example, papers 1 and 2 were long, while 3, 4, 5, 6, 7, 8, and 9 were short.

Now, look at the first paper again. If it has good spelling, put a ✓ in the box under paper 1; if it has bad spelling, put an ✗ ; if spelling is neither good nor bad, put a — . Do the same for the second paper, the third paper, etc.
In our hypothetical example, 1, 2, 4, 5, 6, and 7 had good spelling while 3, 8, and 9 had bad spelling.

Now, look at the first paper again. If it is personal, put a ✓ in the third block down under paper 1; if it is not personal, put an ✗; if it does not fit either category, put a −.

In our hypothetical example, 4, 5, 6, 7, 8, and 9 are personal while 1, 2, and 3 are not personal. This process continued until all constructs were scaled on all elements.

The next step was grid analysis. The ✓'s, ✗'s, and −'s were converted to numbers for grid refocusing.

\[
\begin{align*}
\checkmark &= 1 \\
- &= 2 \\
\times &= 3
\end{align*}
\]

The hypothetical grid in Table 7 shows how the conversion was done. The entire grid was converted in this manner. The Focus computer program was used to refocus the data for a two way cluster analysis. The nature of the Focus program has been explained previously, and as stated before, the computer manual is Appendix C.

One week prior to the individual grid interviews, students completed a group repertory grid using supplied elements and elicited constructs. This group practice was a part of the language arts final examination for the entire class. The supplied elements were three short passages in each of Britton's three function categories, i.e., three short transactional selections.
### Table 7: Conversion for Grid Analysis

<table>
<thead>
<tr>
<th>Construct (role 1)</th>
<th>Element #1 (Transactional)</th>
<th>Element #2 (Transactional)</th>
<th>Element #3 (Poetic)</th>
<th>Element #4 (Expressive)</th>
<th>Element #5 (Poetic)</th>
<th>Element #6 (Expressive)</th>
<th>Element #7 (Expressive)</th>
<th>Element #8 (Expressive)</th>
<th>Element #9 (Expressive)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not personal</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
</tr>
<tr>
<td>Bad spelling</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
</tr>
<tr>
<td>Short</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
</tr>
<tr>
<td>Long</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
</tr>
<tr>
<td>Personal</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
</tr>
<tr>
<td>Good spelling</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
</tr>
<tr>
<td>Short</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
</tr>
<tr>
<td>Long</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
</tr>
</tbody>
</table>

**Note:** The table continues on the next page.
(two informative, one conative), three journal entries, and three poetic selections (one each from a poem, a play, and a short story). The practice grid was intended to familiarize the students with the basic repertory grid technique.

**Analysis of Focused Repertory Grids**

Since this is a case study approach, the repertory grid for each student was individually examined. The guiding focus of the analysis was whether a Kelly repertory grid can be adapted for use in examining a student's constructions (perceptions) of composing. The repertory grid was examined to see what, if any, clusters of constructs and elements had been produced by the student. Any clustering was grouped and examined as was illustrated in the example of Sybil's grid in Table 5. The repertory grid analysis was shared with each student and with interested parents.
CHAPTER IV
ANALYSIS OF FOCUSED GRIDS

Categorization of Writings

Before proceeding to examine the focused grid for each case study, a short summary of the results of the categorization of the writings will be presented. As was explained in Chapter III, in order to avoid possible researcher bias and to insure that Britton's categories of writing were operationally useful in classifying writing, two professional educators independently read and categorized a total of 223 writings collected from nine students. Using the categories outlined on page 75, each rater assigned 195 of the 223 papers to the same function category and sub-category. This resulted in an 86% rate of agreement. It will be recalled that only nine pieces of writing from each student were needed to produce a repertory grid. Of the 81 papers selected for use in repertory grids (9 papers x 9 students), each reader assigned 79 of the 81 papers to the same function category and sub-category for a 98% rate of agreement. These results would seem to indicate that Britton's categories provide an operationally useful framework within which to view pieces of writing.
Focused Grids

This section will examine nine case studies in which a repertory grid technique was used to examine constructs about writing. For each case study, the raw grid, the focused grid, a tree clustering of elements, and a tree clustering of constructs will constitute a figure. Element clusters and construct clusters will then be listed in groups. Also, using the focused grid, groupings of clusters of interacting elements and constructs will be presented. Next, the integrated clusters will be analyzed. After the analysis, possible applications of the analysis will be examined.

Case Study #1 Sally Martin

Examining Sally's grid in Figure 1 shows that elements clustered in the following manner.

E3 newspaper
E2 persuasive article
E9 journal
E7 journal
E8 journal
E4 poem
E1 book report
E6 short story
E5 play

The following are Sally's construct clusters. Note that C6, C7, C8, and C9 are reversed for optimal clustering.

C6 about a meeting
C2 journals
FIGURE 1 GRID FOR SALLY MARTIN
C5 deals with fun
C9 does not deal with a problem
C7 fact
C1 could be in a newspaper
C3 describes
C8 no dialogue
C9 written by one person
C4 paragraphs

**Grouping of Clusters**

The three elements

E3 newspaper article
E2 persuasive article
E9 journal

were seen as alike on

- C2 reports (noun)
- C7 fact
- C1 could be in a newspaper
- C3 describe
- C4 paragraphs.

The two elements

E7 journal
E8 journal

were seen as alike on

- C2 journal
- C5 deals with fun
- C7 fact
- C3 describes
- C8 no dialogue
- C10 written by one person
- C4 paragraphs.
The element E4 (poem) did not neatly cluster but was midway between E7 and E1. E4 (poem) matches E7 (journal) and E8 (journal) on

- C5 deals with fun
- C3 describes
- C8 no dialogue
- C10 written by one person

while it matches E1 (book report), E6 (short story), and E5 (play) on

- C7 fiction
- C10 written by one person.

The three elements

- E1 book report
- E6 short story
- E5 play

were seen as alike on

- C9 deals with a problem
- C7 fiction
- C1 could not be in newspaper
- C3 tells a story
- C10 written by one person

Analysis of Clusters

From these clusterings, it appears that Sally does not divide writing into categories of transactional, poetic, and expressive. Her first cluster includes two transactional writings - one conative and one informative - and one expressive writing; her second cluster includes two expressive writings; and her third cluster includes one transactional informative and two poetic writings.
The one element not included in a cluster is poetic writing. The one journal included in Sally's first cluster matches her two clustered journals on five of her 10 constructs. E9 (journal) matches E8 (journal) and E7 (journal) on

- C1 fact
- C3 describes
- C8 no dialogue
- C10 written by one person
- C4 paragraphs.

However, E9 (journal) is seen as different that E7 (journal) and E8 (journal) on C2 (reports) and C5 (deals with anger). Sally sees all three of her journals as alike in several ways but appears to separate them by content in the E9 is a report dealing with anger while E8 and E9 are seen as journal entries that deal with fun. Sally clusters E1 (book report) with E6 (short story) and E5 (play). Sally may be reacting to the fact that a book report is derived from a novel when she includes the book report with two poetic works, a short story and a play. That she sees the book report as C7 (fiction) would further substantiate this possibility. A poem appears to merit a category of its own, not clustering with any other type of writing. As noted before, E4 (poem) matches E7 (journal) and E8 (journal) more closely than it does E1 (book report), E6 (short story), and E5 (play). Generally, Sally's constructs do
not relate to a perceived audience. Perhaps C1 (could be in a newspaper), which relates to the elements E3 (newspaper article), E2 (persuasive writing), and E9 (journal), could be a perception that an item in a newspaper has a particular audience. A possible categorization of Sally's constructs shows no neat divisions of meaning. Sally seems aware of varied aspects of the writing process.

Application of Analysis

Since Sally sees E3 (newspaper article) and E2 (persuasive article) as alike in several ways, Sally's teacher might guide Sally to examine the contrasts between E3 and E2. The crucial construct to examine might be C7 (fact) since the use of factual information is used in both E3 and E2 but is formed to serve two different functions, one of information and one of persuasion. Basically, this division covers what Britton conceives as the two areas of transactional writing. Since Sally perceives E3 and E2 as transactional in nature, she may be ready to make the finer distinction between informative and persuasive areas of writing. Because Sally clusters a book report with a short story and a play, Sally's teacher might wish to help Sally examine how a book report differs from a short story and a play. Sally needs to see that her book report, although derived
from a novel which is a poetic work, serves a transactional function of providing information about the original poetic work. Also, Sally's teacher might help Sally to integrate her constructs of poetry by helping Sally to develop a knowledge of the interrelationships of poetry, plays, short stories, and all other poetic works. Sally might be asked to locate examples of various literary techniques shared by several types of poetic works. Since Sally's constructs do not relate to audience, Sally's teacher might work with Sally in developing an awareness of audience. For example, Sally might be asked to project the expected audience for each writing she does. Overall, it seems that Sally is a competent, developing writer and needs only minor guidance, and perhaps major encouragement, to mature as a writer.

Case Study #2 Anna James

Element Clusters and Construct Clusters

Anna's elements clustered in the following manner. (Figure 2)

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>E8</td>
<td>journal</td>
</tr>
<tr>
<td>E7</td>
<td>journal</td>
</tr>
<tr>
<td>E9</td>
<td>journal</td>
</tr>
<tr>
<td>E5</td>
<td>play</td>
</tr>
<tr>
<td>E2</td>
<td>persuasive article</td>
</tr>
<tr>
<td>E4</td>
<td>poem</td>
</tr>
<tr>
<td>E3</td>
<td>newspaper article</td>
</tr>
<tr>
<td>E6</td>
<td>short story</td>
</tr>
<tr>
<td>E1</td>
<td>book report</td>
</tr>
</tbody>
</table>
DOES NOT USE QUOTATIONS 3
PRESENT JOURNALS 9
SPECIFIC TIME OF EVENT LISTED 3
TALENT ABOUT MY FAMILY 2
NEWSPAPER ARTICLE 1
CAME FROM MY FEELINGS 4
MY OPINION 6
SERIOUS WRITING 7
EMOTIONAL FEELING 10
USES QUOTATIONS 6
OF THE PAST 2
NOT A JOURNAL 9
NO SPECIFIC TIME LISTED 3
TALENT ABOUT CHARACTERS IN A BOOK 2
BOOK REPORT 2
NOT MY OPINION 6
COMEDY 2
NOT EMOTIONAL 2

FIGURE 2 GRID FOR ANNA JAMES
Constructs clustered as follows. Constructs 3 and 8 are reversed for optimal matching.

C3 does not use quotations
C8 present (time)
C9 journals
C5 specific time listed
C2 talked about my family
C1 newspaper article
C4 came from my feelings
C6 my opinion
C7 serious writing
C10 emotional feeling

**Grouping of Clusters**

Utilizing the above information and the focused grid in Figure 2, it can be seen that the three elements

<table>
<thead>
<tr>
<th>E8</th>
<th>journal</th>
</tr>
</thead>
<tbody>
<tr>
<td>E7</td>
<td>journal</td>
</tr>
<tr>
<td>E9</td>
<td>journal</td>
</tr>
</tbody>
</table>

were seen as alike on

<table>
<thead>
<tr>
<th>C8</th>
<th>present (time)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C9</td>
<td>journals</td>
</tr>
<tr>
<td>C5</td>
<td>specific time listed</td>
</tr>
<tr>
<td>C4</td>
<td>came from my feelings</td>
</tr>
<tr>
<td>C6</td>
<td>my opinion</td>
</tr>
<tr>
<td>C7</td>
<td>serious writing</td>
</tr>
</tbody>
</table>
The three elements

E5 play
E2 persuasive article
E4 poem

were seen as alike on

<table>
<thead>
<tr>
<th>C3 does not use quotations</th>
</tr>
</thead>
<tbody>
<tr>
<td>C9 not a journal</td>
</tr>
<tr>
<td>C5 no specific time listed</td>
</tr>
<tr>
<td>C4 came from my feelings</td>
</tr>
<tr>
<td>C6 my opinion</td>
</tr>
</tbody>
</table>

The two elements

E3 newspaper article
E6 short story

were seen as alike on

<table>
<thead>
<tr>
<th>C3 uses quotations</th>
</tr>
</thead>
<tbody>
<tr>
<td>C8 of the past</td>
</tr>
<tr>
<td>C9 not a journal</td>
</tr>
<tr>
<td>C5 specific time listed</td>
</tr>
<tr>
<td>C4 came from my feelings</td>
</tr>
<tr>
<td>C6 my opinion</td>
</tr>
<tr>
<td>C10 not emotional.</td>
</tr>
</tbody>
</table>

E1 (book report) did not match any cluster. E1 matched E3 (newspaper article) and E6 (short story) on three constructs which were

<table>
<thead>
<tr>
<th>C3 uses quotations</th>
</tr>
</thead>
<tbody>
<tr>
<td>C9 not a journal</td>
</tr>
<tr>
<td>C10 not emotional.</td>
</tr>
</tbody>
</table>

Analysis of Clusters

Anna seems to have a clearly defined perception of journal writing. All three of her journals comprise one cluster of elements. In addition, not a journal is one
one of Anna's constructs (C9) which she uses to identify all her other writings. Anna sees journals as dealing with a specific time in the present and as coming from her feelings and opinions. The 100% match of C4 (came from my feelings) and C6 (my opinion) indicates that Anna sees feelings and opinions as being totally the same. I was surprised that Anna sees all three journals as serious writing. Often teachers view journals as a means of developing the student's writing fluency in order to tackle what is considered serious writing. The opposite pole of Anna's construct serious writing is comedy. She indicates that her play (E5) and her short story (E6) are comedy while, in addition to her journals, her poem (E4) and her newspaper article (E3) are serious writing. Perhaps Anna is conveying that the treatment of her chosen subject is not to be taken lightly. If so, Anna's journals may be more of a cognitive exploration of thoughts than an affective outpouring of her feelings.

Looking at Anna's second clustering, one sees that she knows that conventional usage does not require quotation marks in a play despite the fact that dialogue requires quotation marks in other writings. She does not differentiate between a persuasive article which uses her opinions and feelings to perform a conative function of
transactional writing and a poem and play which uses her opinions and feelings to creatively fashion pieces of poetic writing.

Anna's elements E3 (newspaper article) and E6 (short story) form a cluster. That newspaper articles and short stories use quotation marks reflects Anna's knowledge of a standard usage of quotation marks. However, the remainder of the cluster is noteworthy. Anna sees a newspaper article as of the past and coming from her feelings and opinions. Usually, a newspaper article is expected to deal factually with present events. Also, a short story is seen as not emotional although it comes from her opinions and feelings. This seems to be an apparent contradiction.

Anna's final element, El (book report), did not form a cluster with any other elements. It can be noted that Anna placed El on the contrast pole of eight of her constructs and as neutral on the remaining two constructs. Perhaps Anna sees book report writing as a writing activity isolated from the mainstream of her constructs for writing.

Applications of Analysis

Anna's teacher might begin to work with Anna in structuring the writing factors unique to factual and fictional writing. That is, Anna might be asked to
compare/contrast samples of plays, newspaper articles, short stories, poems, and persuasive articles and to differentiate these into transactional and poetic function categories. Anna seems very aware of the function of time in her writing. Two of her constructs, C8 (present v. of the past) and C5 (specific time of events listed v. no specific time listed), deal with perceptions of time. Anna's teacher might elaborate upon use of time in poetic and transactional works, especially dealing with the use of time as related to newspaper writing. To integrate book report writing, Anna's teacher might ask Anna to write a book review for a newspaper or to convert a portion of a book to a play or to do any other assignment that encompasses other functions of writing. Anna's constructs do not relate to audience so Anna's teacher might direct Anna's thinking about writing to include a perception of audience. Also, Anna could be helped to clarify the affective aspects of her writing by dealing with her perceptions of opinions, feelings, and emotions. If, as Britton postulates, all writing flows from the expressive function, then it appears that Anna has a clear perception of the nature of expressive writing and is ready to refine her already developing awareness of poetic and transactional writing.
Case Study #3 Linda Brown

Element Clusters and Construct Clusters

Linda's elements clustered in the following manner.

See Figure 3.

E6 short story
E5 play
E3 newspaper article
E1 book report

E8 journal
E2 persuasive article
E9 journal
E7 journal
E4 poem

Linda's constructs clustered as follows with C4, C6, C7, and C8 being reversed for optimal clustering:

C10 happens in the future
C7 others talking
C6 facts
C9 poem

C4 outside the home
C5 live and exciting
C1 written out of my head
C3 impersonal
C2 about people

C8 conflict

Grouping of Clusters

The first cluster of elements

E6 short story
E5 play
E3 newspaper article
E1 book report

were seen as alike on

C3 impersonal
C2 about people
The second cluster

E8 journal
E2 persuasive article
E9 journal
E7 journal

were seen as alike on

C10 happens now
C7 me talking
C6 my opinion

C1 written out of my head
C3 impersonal

E4 (poem) did not join any cluster. Subdividing the first cluster of elements provides more information about Linda's perceptions. As can be seen from Figure , E6 and E5 have a 90% match. Considering only

E6 short story
E5 play

they can be seen as alike on

C7 others talking
C5 live and exciting
C1 written out of my head
C3 impersonal
C2 about people

C8 conflict.

When E3 (newspaper article), which had an 80% match, is added to the cluster, they are alike on

C7 others talking
C5 live and exciting
C1 written out of my head
C3 impersonal
C2 about people

As noted before, when E1, which matches 60% of the time,
is added to the cluster of E3, E5, and E6, the cluster is seen as alike on only two constructs

\[
\text{C3} \quad \text{impersonal} \\
\text{C2} \quad \text{about people.}
\]

Analysis of Clusters

It appears that Linda is aware of the literary convention of conflict present in short stories and plays. Although her newspaper article and book report share qualities with her poetic works, Linda sees her short story and her play as more alike than the other two writings in this cluster. It seems a bit surprising that she sees all four works as impersonal although she sees three of them as written out of her head. That all four writings are about people as opposed to being about things may reflect Linda's perception of the role of characterization which appears to have a central focus in her writing. In fact, only one writing, E7 (journal), was perceived to be about things as opposed to people. Linda appears to perceive short stories and plays as live and exciting, whereas newspaper articles and book reports are about quiet things.

In the second clustering, Linda sees all three journals as reflecting her opinions written out of her head. Perhaps this explains why persuasive writing is clustered with the three journals. However, it is again surprising that all four writings of the second cluster
are seen as impersonal, especially since three of the writings in this cluster are journals. It appears that journal writing is writing to express an opinion on something in the present and not writing to explore personal feelings. Also, it is interesting to note that although all four writings in the second cluster are seen as C6 (my opinion) and as C1 (written out of my head), C6 and C1 do not belong to the same construct clusters. Obviously C1 and C6 have distinct meanings for Linda.

The element E4 (poem) is an individual item. When placed beside the other poetic works E6 (short story) and E5 (play), E4 matches the two other elements on only one construct which is C1 (written out of my head). It appears that Linda sees a poem, a play, and a short story as creative writing endeavors, but in other respects, poem writing is not linked to other poetic writings. It can also be seen that only E4 (poem) fell on the contrast pole of C3 (impersonal) and was considered personal.

Applications of Analysis

Linda's teacher might wish to help Linda integrate poems into her perceptions of poetic writing and help Linda to see aspects of poems that parallel aspects of writing short stories and plays. That E1 (book report) is clustered with E6 (short story) and E5 (play) may
reflect a perception that the novel was the central focus from which the book report developed. This possibility could be explored with Linda and she could be shown ways in which a book report differs from poetic writing. It might be helpful to explore Linda's constructs C6 (my opinion) and C1 (written out of my head) to ascertain the specific distinctions of these constructs. It appears that it could be helpful to integrate C6 as a subdivision of C1 rather than having two separate constructs. Construct C3 (impersonal) needs to be explored. Perhaps Linda needs to broaden her understanding of how personal factors influence writing. This could be especially helpful if one subscribes to Britton's theory that all writing flows from the expressive which embraces personal elements of writing. Linda's grid displays no construct relating to audience in writing; to develop such constructs might be helpful to Linda.

Case Study #4  Karol Sanders
Element Clusters and Construct Clusters

Elements clustered in the following manner. See Figure 4.

E4  poem
E6  short story
E1  book report
E5  play
E2  persuasive article
FIGURE 4  GRID FOR KAROL SANDERS
Constructs clustered as outlined below. Note that C2, C6, C8, and C10 are reversed for optimal clustering.

- C4 paragraph form
- C9 journals
- C5 at home
- C6 facts
- C2 long
- C10 tells events that happened
- C7 about two people
- C3 stories
- C1 about books
- C8 read by one class

**Grouping of Clusters**

The four elements

- E6 short story
- E1 book report
- E5 play
- E2 persuasive article

were seen as alike on

**C1 about books**

Since E6 (short story) and E1 (book report) had a 90% match while E5 and E2 had a 75% match in the first cluster, it may provide more information to further subdivide this cluster. The two elements

- E6 short story
- E1 book report

were seen as alike on
Adding E5 (play) to E6 and E1 produces the following matches.

The four elements

E9 journal
E7 journal
E8 journal
E3 newspaper article

were seen as alike on

Analysis of Clusters

An overall view of Karol's grid reveals a large block of 2's in the upper left portion of the grid and a large block of 2's in the lower right portion of the grid. Further scrutiny reveals that every construct except C10 (tells events that happened) was rated as a 2 on at least two or more of the elements. Half of Karol's constructs were rated as a 2 on four or more of the nine elements. Since 2 is a neutral designation signifying that the construct did not apply to the element on either
pole of the construct, the 2's are basically void of useful information for analysis.

E6 (short story) and E1 (book report) clustered very strongly. That they were seen as alike on C4 (paragraph form), C2 (long), C10 (tells events that happened), and C7 (about two people) seems easily feasible. However, C3 (stories) and C1 (about books) seems noteworthy. According to Karol's grid, E6 (short story) is seen as C1 (about books) while E1 (book report) is seen as C3 (a story). When E5 (play) is added to the cluster, it is again interesting to note that E5 (play) is seen as C1 (about books). When E2 (persuasive article) is added to the cluster, the only construct to match all four elements is C1 (about books). Note also that E2 (persuasive article) is seen as a 2 or not applicable on C4 (paragraph form).

In the second cluster, the three journals and the newspaper article were seen as all describing something and as being in paragraph form. That this element cluster did not match more constructs may be accounted for by the predominance of 2's in the lower right portion of the grid.

E4 (poem) did not join a cluster and matched the nearest cluster, E6, E1, E5, and E2, on only one construct, C3 (stories). However, E4 did join a
a subdivision (E6 and El) of the nearest cluster on many more constructs. E4 matched E6 (short story) and El (book report) on C10 (tells events that happened), C7 (about two people), and C3 (stories).

**Application of Analysis**

There is a relative paucity of information from clustering in Karol's grid. Her first cluster was seen as alike on only one construct and her second cluster was seen as alike on only two constructs. This may be accounted for in two ways. It may be attributed to the lack of expertise of the researcher in the grid interview. When the grid was completed and I saw the large number of 2's, I could have continued the grid interview by retracing the steps of the grid elicitation and asking Karol to further clarify each construct until she could have rated more elements at one of the two poles of her constructs. However, at the time of the grid interview, I was unaware of the possibility of renegotiating the grid constructs. This process is called laddering and was explained to me by Laurie Thomas of Brunel University when he examined Karol's grid. Another possibility for the large number of 2's is that Karol's constructs about writing are not closely inter-related and that the 2's reflect Karol's perceptions that each piece of writing is more an entity than a part of a whole. Since laddering
was not attempted, it is impossible to adequately explain the 2's in the grid.

El (book report) would, of course, relate to Cl (about books) and C2 (persuasive article) was a writing attempting to persuade customers to buy a book. However, it might be helpful to explore with Karol Cl (about books) to determine how E6 (short story) and E5 (play) fit this construct. Since E6 (short story) and El (book report) were highly matched (90%), Karol's teacher might wish to ask Karol to compare and contrast short stories and book reports to determine their distinctive attributes. Also, Karol's teacher might wish to have Karol distinguish between qualities of journal writing and newspaper article writing since Karol clustered these together. Also, Karol needs to integrate her perceptions of poetry into her constructs about other functions of writing. Karol has one construct in her grid relating to audience, C8 (read by one class) which might indicate a developing sense of audience.

If Karol's grid accurately reflects her perceptions of writing, it appears that Karol's constructs are very loosely organized and often concretely perceived. Karol needs to broaden or redefine her constructs about writing so that most constructs will encompass a wide variety of writing.
Case Study #5 Carl Barnes

Element Clusters and Construct Clusters

Carl's elements clustered in the following manner.

(See Figure 5.)

- E6 short story
- E4 poem
- E1 book report
- E9 journal
- E8 journal
- E5 play
- E7 journal
- E3 newspaper article
- E2 persuasive article

Carl's constructs clustered as follows. Note that C1, C2, C4, C6, and C9 are reversed for optimal clustering.

- C7 about creatures
- C4 events could not happen
- C8 events could not happen in everyday life
- C3 fiction
- C9 not an experience I had
- C2 from a book
- C6 character's feelings
- C10 statement from newspaper
- C1 a letter
- C5 talked about guns
FIGURE 5 GRID FOR CARL BARNES
Grouping of Clusters

The two elements

E6 short story
E4 poem

were seen as alike on

C7 about creatures
C4 events could not happen
C8 events could not happen in everyday life
C3 fiction
C9 not an experience I had

C2 original

C10 written for pleasure

The six elements

E9 journal
E8 journal
E5 play
E7 journal
E3 newspaper article
E2 persuasive article

were seen as alike on

C4 events could happen
C8 happen in everyday life
C3 fact
C9 experience I had

C2 original

Subdividing this cluster produces the following. The four elements

E9 journal
E8 journal
E5 play
E7 journal

were seen as alike on
The two elements

\( E_3 \) newspaper article
\( E_2 \) persuasive article

were seen as alike on

\[ \begin{align*}
C_4 & \quad \text{events could happen} \\
C_8 & \quad \text{happen in everyday life} \\
C_3 & \quad \text{fact} \\
C_9 & \quad \text{experience I had}
\end{align*} \]

\[ \begin{align*}
C_2 & \quad \text{original} \\
C_6 & \quad \text{my personal feelings}
\end{align*} \]

\[ \begin{align*}
C_{10} & \quad \text{written for pleasure}
\end{align*} \]

\( E_1 \) (book report) did not join a cluster.

**Analysis of Clusters**

Examination of the focused grid reveals that Carl uses constructs which encompass most of his elements. Carl has only seven 2's in the grid matrix of 90 total responses. This may indicate that Carl has a well integrated view of writing. Also, examination of the focused grid reveals that Carl has a very broad, strong clustering of 3's, again indicating that elements and constructs are tightly integrated.

Although the single elements \( C_7 \) (about creatures v. about a person) and \( C_5 \) (talked about guns v. did not talk about guns) did not join any cluster, it is interesting to
see that Carl rated C7 on all but two elements, E3 and E2, and rated C5 on all elements. Creatures, people, and guns seem to predominate as subjects for Carl's writing. Carl enjoys reading science fiction which perhaps helps to explain his references to creatures. Carl also enjoys hunting which may help to explain his references to guns.

E6 (short story) and E4 (poem) share seven of the ten constructs elicited from Carl. It appears that short stories and poems are seen as very much alike. Carl sees short stories and poems as written for pleasure. They are also fictional and could not happen in everyday life. They are both about creatures, again reflecting Carl's interest in science fiction.

Carl's next clustering reflects a total bipolarity in the cluster of constructs just examined (C4, C8, C3, and C9). The six elements E9 (journal), E8 (journal), E5 (play), E7 (journal), E3 (newspaper article), and E2 (persuasive article) were seen as the opposite of E6 (short story) and E4 (poem) on this cluster of constructs. That is, Carl's three journals, his play, his newspaper article, and his persuasive article were seen as events which could happen in everyday life and as experiences which he had had. This may indicate that
Carl sees a strong contrast between short stories and poems as opposed to journals, plays, newspaper articles, and persuasive articles. However, he sees all of the above as original writings and all except newspaper articles and persuasive articles as being written for pleasure. When Carl's second cluster is subdivided, it can also be seen he makes a distinction that journals and a play are his own personal feelings whereas newspaper articles and persuasive articles are not regarded as being his own feelings. This seems to indicate Carl's realization that persuasive writing involves more than stating his own personal feelings.

Two sets of constructs showed a 100% match. C4 (events could not happen) and C8 (events could not happen in everyday life) are matched 100% and probably mean basically the same to Carl. Also, C3 (fiction) and C9 (not an experience I had) are matched 100% and again probably mean basically the same to Carl.

**Application of Analysis**

Carl appears to think about his writing in very concrete terms. For example, C7 (about creatures) and C5 (talked about guns) list subject matter for writing. C4 (events could not happen) and C8 (could not happen in everyday life), which are identical for Carl, deal with
the use of setting. C3 (fiction) and C9 (not an experience I had), which are again identical for Carl, place writings into particular categories of fact and fiction. C2 (from a book), ClO (statement from a newspaper), and Cl (a letter) name specific categories or forms which writing can take. Only C6 (character's feelings) hints at the affective or emotive qualities of writing. Carl's teacher may wish to direct Carl's attention to more abstract literary qualities such as tone, mood, imagery, irony, and conflict and how these qualities may be consciously utilized in writing.

Since Carl saw journals and a play as alike in many ways, his teacher might ask Carl to find the ways in which they are different. Since Carl sees journals as recording facts from experiences he has had in everyday life, his teacher might give Carl journal writing assignments to reflect other types of writings which may be included in a journal, i.e., poetry, his opinions, or fanciful projections of reality. Since Carl's constructs did not deal with audience, Carl's teacher might help Carl to determine a possible audience for each piece of writing and understand how this might affect his approach to a topic. Since El (book report) did not join any cluster, Carl's teacher might give Carl book report assignments which incorporate various functions of writing, i.e., write
a letter to the author, write a poem about the subject matter of the book, or present a scene from the book as a play. Since Carl's grid reveals that Carl enjoys most types of writing, Carl's teacher would want to actively encourage Carl's writing in all categories. The teacher could build upon Carl's interest in people, creatures, and guns and also help him to expand his repertory of topics for writing. The teacher might also suggest high quality science fiction reading for Carl in hopes that he will gain intuitive knowledge of writing techniques to bring to his own interest in writing science fiction.

Case Study #6 Serena Green

Element Clusters and Construct Clusters

Serena's elements clustered in the following way.

See Figure 6.

E2 persuasive article
E5 play
E6 short story
E4 poem
E8 journal
E7 journal
E9 journal
E1 book report
E3 newspaper article

Serena's constructs clustered as follows. Note that C2, C5, C6, C7, and C9 are reversed for optimal matching.
FIGURE 6    GRID FOR SERENA GREEN
Grouping of Clusters

The three elements

E2 persuasive article
E5 play
E6 short story

were seen as alike on

\begin{itemize}
  \item C3 creative
  \item C9 character's point of view
\end{itemize}

C1 imagery
C10 third person objective
C8 dialogue.

The element E4 (poem) did not join a cluster, and E8 (journal) also did not join a cluster. The four elements

E7 journal
E9 journal
E1 book report
E3 newspaper article

were seen as alike on

\begin{itemize}
  \item C6 tells the truth
  \item C3 factual
  \item C4 not a conflict
  \item C8 no dialogue.
\end{itemize}
Analysis of Clusters

According to the matrix of Serena's grid, E5 (play) and E6 (short story) are a 100% match on Serena's ten constructs. This would imply that Serena sees writing of plays and short stories as calling upon identical writing procedures and processes. However, E4 (poem) is only a 55% match with E5 and E6. This may indicate that Serena sees the process of poem writing as different from writing short stories and plays. This possibility is further strengthened by the fact that E6 (poem) does not strongly join any element cluster. Serena also places E2 (persuasive article) with E5 (play) and E6 (short story). It is noteworthy that Serena sees a piece of transactional conative writing as being creative, using a character's point of view, using third person objective, using imagery, and using dialogue.

Looking at Serena's second clustering of elements and constructs, E7 (journal), E8 (journal), E1 (book report), and E3 (newspaper article) are clustered on four constructs which are C6 (tells the truth), C3 (factual), C4 (not a conflict) and C8 (no dialogue). Because C6 (tells the truth) and C3 (factual) appear to be similar phrases, they bear examination. Constructs C3 and C6 match on all elements except E5 (play), E6 (short story), and E4 (poem). C6 (tells the truth) is
neutral, showing 2's on E5, E6, and E4. It appears that
Serena sees literary writing as factual within its
context but not as telling the truth. Perhaps this
indicates Serena's ability to enter the writer's world
with a "willing suspension of disbelief." Certainly, it
appears that C6 (tells the truth) and C3 (factual) have
two distinct meanings for Serena. It also appears that
Serena may have a cognitive rather than affective approach
to her two journals since they are clustered with a book
report and newspaper article. In general, Serena's con-
structs are heavily oriented toward literary conventions.
Examples are C9 (character's point of view), C1 (imagery),
C10 (third person objective), C7 (tells a story), C4
(conflicts), C8 (dialogue), and perhaps C3 (creative).

Application of Analysis

Serena's teacher might encourage Serena to use her
rather well developed knowledge of literary conventions.
However, Serena's teacher might wish to guide Serena to
a balanced view of content versus form to insure that
Serena understands that literary techniques are means to
aid the achievement of a main goal of communicating ideas
via literary works. Serena might be shown ways to
integrate her constructs of poetry with her other writing
constructs. Perhaps, an effective way to do this would be
to indicate to Serena how the literary techniques of
short stories and plays are often the same literary techniques used in poetry. Serena's teacher may wish to expand Serena's construct of the function of journal writing. Since Serena sees journal writing as factual, Serena's teacher might lead Serena to write poetry for her journal or to use the journal for expressly affective writing which expresses her opinions. Since Serena clustered a persuasive article with a poem and a short story, Serena needs guidance in the area of transactional conative writing. Her teacher might ask Serena to compare/contrast persuasive articles with short stories and poems. On C5 (feeling of liking v. feeling of disliking) Serena was neutral, placing 2's on five of her nine elements. Serena might be led to examine the ways in which affective qualities can be integrated into various writings, especially short stories and plays which she rated as 2's or neutral in her grid matrix. Since no constructs relate to audience, Serena's teacher might wish to guide Serena in considering a possible audience for her writing.
Case Study #7  Tricia Johnson

Element Clusters and Construct Clusters

Tricia's elements clustered in the following manner.

See Figure 7.

E4  poem
E9  journal
E7  journal
E8  journal
E6  short story
E5  play
E1  book report
E3  newspaper article
E2  persuasive article

Tricia's constructs clustered as follows. None of Tricia's constructs needed reversing.

C7  easy to write
C6  enjoyed the topic
C3  written by myself
C4  about myself
C2  writings from the way I feel
C5  describes
C10  paragraphs
C8  from my imagination
C9  journals
C1  reports

Grouping of Clusters

The three elements

E9  journal
E7  journal
E8  journal

were seen as alike on
The four elements

- E6 short story
- E5 play
- E1 book report
- E3 newspaper article

formed a very loose cluster and were seen as alike only on

- C6 enjoyed the topic.

E4 (poem) did not join any cluster and E2 (persuasive article) did not join any cluster.

**Analysis of Clusters**

It can be seen that Tricia has one very strong element cluster, E9 (journal), E7 (journal), and E8 (journal), which embraces the majority of her constructs. E7 and E8 are a 100% match with each other while E9 is a 90% match with E7 and E8. Clearly, Tricia sees all her journals as very much alike. Her only mismatch is on C5 (describes) in which E7 and E8 describe while E9 explains. E9, E7, and E8 also match on eight of Tricia's ten constructs. E9, E7, and E8 embrace all the constructs of Tricia's first construct cluster. Tricia sees journals as an individual writing endeavor. She enjoyed the journal topics and found the journals easy to write.
The journal cluster embraced two of the three constructs in Tricia's second construct cluster. Tricia's journals were about her and the writing evolved from her feelings. Journals again embraced all three constructs of Tricia's third construct cluster. Journals were written in paragraph form from her imagination. C9 (journal) is self explanatory. That the three journal elements become one of Tricia's constructs again attests to the primacy of journal writing in Tricia's perceptions of writing.

E6 (short story) E5 (play), E1 (book report), and E3 (newspaper article) form a very loose cluster of elements. All four match only upon the fact that Tricia enjoyed the topic. On the focused grid, Tricia's 2's, or neutral responses, tend to fit under this loosely connected cluster of elements. Obviously, several of Tricia's constructs did not extend to embrace the elements in this cluster. E5 (play) was rated on only four constructs and was seen as neutral on six. Although E2 (persuasive article) did not join any cluster, it can be noted that Tricia rated all three transactional writings, E1 (book report), E3 (newspaper article), and E2 (persuasive article) as neutral on constructs C8 (from my imagination) and C9 (journals). Transactional writing, although not clustering on Tricia's grid matrix, does seem equally set apart from imaginative journal
writing. However, the other element that did not join any cluster, E4 (poem), is seen as sharing several constructs with journals. E4 is seen as like journals on C7 (easy to write), C6 (enjoyed the topic), C3 (written by myself), C4 (about myself), and C2 (writings from the way I feel). Journals and the poem were also seen as neutral on C1 (reports [noun]). Clearly, although not clustering, a poem and journals share constructs in Tricia's perceptions of writing.

Application of Analysis

First, any teacher would probably be delighted to know that Tricia enjoyed the topics of her writings across all modes of writing. Only a persuasive article was seen as a difficult topic while all other writings were ones in which Tricia enjoyed the topic. Also, the fact that Tricia saw almost all her writings as easy to write would indicate a very positive attitude toward writing. Only C6 (short story) and C2 (persuasive article) were seen as hard to write. Tricia's teacher certainly might wish to encourage Tricia's positive attitude toward writing. The one very strong construct cluster revolving around Tricia's journal elements would indicate that Tricia's perceptions of expressive writing are firmly established. However, the constructs about transactional and poetic writing appear to be in a
germinal stage and in need of further refinement. If we accept Britton's theory that expressive writing is the basic foundation for other writings, then Tricia's highly developed sense of expressive writing would indicate that she is ready to further develop her constructs about poetic and transactional writing. Tricia's teacher might ask Tricia to select incidents and people from her journals and to form these materials into a short story. Tricia might be asked to do a book report in which she writes a journal entry as if she were a character from the book. Since Tricia saw E5 (play) as isolated from many of her constructs, she might be asked to rewrite a short story as a play to see how the same literary elements function in the two forms. Viewing films in which short stories have been adapted to this media would be a possible supplement to help Tricia see the shared features of plays and short stories. Since E3 (persuasive writing) was the only writing which Tricia did not enjoy, Tricia's teacher might give detailed explicit instruction in this area. That Tricia found persuasive writing difficult would substantiate the need for expanded instruction in this area. I would conclude that Tricia has a well defined view of the affective aspects which channel into the writing process and now needs to further structure her understanding of the nature of transactional and poetic writing.
Case Study #8  Lucy Moore

Element Clusters and Construct Clusters

Lucy's elements clustered in the following manner. See Figure 8.

- E3 newspaper article
- E5 play
- E1 book report
- E6 short story
- E2 persuasive article
- E8 journal
- E7 journal
- E9 journal
- E4 poem

Lucy's constructs clustered as follows. Note that C2, C6, and C9 are reversed for optimal clustering.

- C10 written to go in a newspaper
- C9 to convince
- C3 describes
- C7 outline to follow
- C2 reports (noun)
- C6 expresses facts
- C8 has characters
- C1 about people
- C4 upsetting subject
- C5 assigned topic

Grouping of Clusters

The three elements

- E3 newspaper article
- E5 play
- E1 book report

were seen as alike on
FIGURE 8 GRID FOR LUCY MOORE
The four elements

E2 persuasive article
E8 journal
E7 journal
E9 journal

were seen as alike on

C7 no outline to follow
C6 expresses feelings

Subdividing this cluster by removing E2 leaves elements

E8 journal
E7 journal
E9 journal

as alike on

C3 tells
C7 no outline to follow
C2 journals
C6 expresses feelings

E6 (short story) did not join a cluster and E4 (poem) also did not join a cluster.

Analysis of Clusters

Lucy's elements fell into two major clusters with two elements not joining a major cluster. Her constructs fell into four paired sets of constructs with two constructs not joining a cluster. Examining the first cluster of elements and constructs, it can be seen that
a newspaper article, a play, and a book report are seen as alike on C9 (not to convince). Viewing Lucy's focused grid shows that C9 (to convince v. not to convince) applies to all of Lucy's elements. In addition to the new newspaper article, play, and book report, two journals and a poem were also seen as not to convince. However, a short story, a persuasive article, and a journal were seen as to convince. It appears that Lucy's construct C9 is perhaps guided by the content of a particular paper and is not related to the mode of writing. The three elements (E3, E5, and E1) are also seen as telling as opposed to describing. Lucy sees only a short story and a persuasive article as describing. Lucy's constructs C8 (has characters) and C1 (about people) seems a bit puzzling. With a 66% match, these two constructs are obviously not identical to Lucy. Since they are not the same, it is noteworthy that a newspaper article has characters. That a play and a book report deals with characters is, of course, not unusual. Lastly, the three elements in the first cluster were seen as alike on C5 (assigned topic). Only one journal and a poem were seen as evolving from a free writing. Considering the nature of public education, it seems not unusual that most of Lucy's writings would be designated as assigned topics.
Looking at Lucy's second clustering of elements and constructs, her three journals and a persuasive article formed an element cluster. However, they were seen as alike on only two constructs, C7 (no outline to follow) and C6 (expresses feelings). None of Lucy's other elements are seen as expressing feelings. In light of the nature of journal writing and persuasive writing, C6 (expresses feelings) seems an appropriate construct. However, it can be noted that C6 (expresses feelings) did not include a play, a short story, or a poem. It appears that Lucy does not see literary works as a vehicle for expressing feelings. That C7 (no outline to follow) matches the journals indicates that journals are seen as having no formal structural restrictions. When persuasive writing is removed from this cluster, it can be seen that journals (E8, E7, and E9) were seen as alike on C3 (tells) and C2 (journals). Only her persuasive article, short story, and poem were seen as describing while all other writing, including the three journals, were telling. That the journal elements (E8, E7, E9) were also a construct (C2 journals) attests to the possibility that journal writing is a central focus in Lucy's perceptions of writing.

E6 (short story) did not join any cluster. It matches the first clustering of elements and constructs
on three constructs but does not join the second clustering of elements and constructs on any construct. E6 (short story) joins E3 (newspaper article), E5 (play) and E1 (book report) on C8 (has characters), C1 (about people), and C5 (assigned topic). E4 (poem) also did not join a cluster. It also did not join the nearest cluster in matching a single construct.

**Application of Analysis**

Lucy's teacher might wish to explore with Lucy C8 (has characters) and C1 (about people) to learn how Lucy uses these constructs. Perhaps Lucy needs guidance in understanding that factual writing can be about people while fictional writing uses characters. Sorting out the essential likenesses and differences might be useful to Lucy. Since assigned topic v. free writing topic was verbalized as one of Lucy's constructs (C5), her teacher might explore this construct to see how Lucy views assigned and unassigned topics. Is her perception of assigned topics positive, negative, or neutral? Since C6 (expresses feelings) did not apply to literary works - E5 (play), E6 (short story), C4 (poem) - Lucy's teacher might help Lucy to see how her feelings can be transferred into the feelings of characters that she develops in her literary writings. That her poem (C4) was seen as neutral on C6 (expresses feelings) might indicate
that Lucy could use guidance in exploring the affective aspects of poetry. Lucy saw her journals as telling as opposed to describing. Lucy could be aided in expanding her perceptions of journal writing to include various types of descriptive writings. Lucy might be guided to examine the aspects of short stories and poems which are related to other functions of writing. Comparison and contrast of selected pieces of writing might accomplish this purpose. Because Lucy's constructs clustered in pairs, Lucy's teacher might wish to help Lucy see ways to further integrate her constructs. Examination of Lucy's tree diagram for constructs shows that Lucy has begun this integration. C10, C9, C3, C7, C2, and C6 form a very loose cluster as do C8, C1, C4, and C5. These large, loose clusters in Lucy's grid indicate a potential for further growth and maturity as a writer.

Case Study #9 Martha Potter

Martha's elements clustered in the following manner.

See Figure 9.

- E8 journal
- E2 persuasive article
- E7 journal
- E9 journal
- E4 poem
- E5 play
- E6 short story
- E1 book report
- E3 newspaper article
FIGURE 9 GRID FOR MARTHA POTTER
Martha's constructs clustered as follows. Note that C6 and C10 are reversed for optimal clustering.

C7 deals with a lifestyle
C3 about persons
C8 long
C1 deals with a problem
C4 describes
C9 aggravating
C2 journal
C5 something you own
C10 at home
C6 fact

Grouping of Clusters

Martha's first element cluster was very loosely connected. The five elements

E8 journal
E2 persuasive article
E7 journal
E9 journal
E4 poem

were seen as alike only on

Subdividing the cluster, her journals

E8 journal
E7 journal
E9 journal

were seen as alike on
Further subdividing

C7 journal
C9 journal

were seen as alike on

| C4 describes |
| C9 aggravating |
| C2 journal |
| C5 something you own |
| C10 at home |

Martha's second major cluster

E5 play
E6 short story
E1 book report
E3 newspaper article

were seen as alike on

| C8 long |

Subdividing this cluster,

E6 short story
E1 book report
E3 newspaper article

were seen as alike on

| C7 deals with a lifestyle |
| C3 about persons |
| C8 long |

Analysis of Clusters

Martha's first cluster was very loosely integrated. E8 (journal), E7 (journal), E9 (journal), E2 (persuasive article), and E4 (poem) were seen as alike on only one construct, C4 (describes). When E2 (persuasive article) and E4 (poem) were removed from the element cluster, the three journals were seen as alike on C9 (aggravating)
and C2 (journals). That Martha has a construct for journals as opposed to reports seems to indicate that Martha considers a journal a particular category of writing. Only E3 (newspaper article) and E1 (book report) were considered reports, and Martha rated all other writings except her journals as neutral on C2 (journals). The 2's would also seem to indicate that Martha considers journals as a particular type of writing. All three journals matched C9 (aggravating). Martha seems to see the journal as a place to explore topics which are irritating to her. Two of Martha's journals (C7 and C9) match C10 (at home) and C5 (something you own), perhaps indicating that things you own and things at home can be aggravating. If you recall Martha's profile, she has 12 siblings which could account for aggravation related to ownership of property and to situations at home.

It is interesting to note that C1 (deals with a problem) and C9 (aggravating) do not cluster. In fact, these two constructs match on only two elements, E8 (journal) and E2 (persuasive article). Obviously, C1 (deals with a problem) and C9 (aggravating) are quite different to Martha.

Although the elements on Martha's second cluster are rather integrated, they match on only one construct C8 (long). E5 (play), E6 (short story), E1 (book report),
and E3 (newspaper article) are all seen as lengthy. E6 (short story), El (book report), and E3 (newspaper article) match on two more constructs, C7 (deals with a lifestyle) and C3 (about persons). One explanation for the lack of construct clustering is the predominance of 2's, or neutral ratings, on the lower right side of the focused grid. Many of Martha's constructs could not be applied to plays, short stories, book reports, and newspaper articles. The 3's are also scattered throughout the focused grid again indicating very loose construct formation. Martha's clustering of disparate modes of writing in her element clusters may account, in part, for the lack of major construct clustering. Martha's constructs also seem to revolve around an emphasis upon concrete features. Much emphasis is given to topic. For example, C7 (deals with lifestyle), Cl (deals with a problem), C9 (aggravating), C5 (something you own), and C10 (at home) all appear to relate to topic. C8 (long), C2 (journal), and C6 (fact) are also concrete aspects of writing.

Application of Analysis

Martha's teacher might wish to work with Martha to restructure her constructs of mode in poetic and transactional writing. Martha does seem to understand expressive writing which gives her a firm foundation to
begin explicating the features particular to poetic writing and transactional writing. Martha might be asked to determine ways in which a poem is unlike a journal.

Similarly, Martha might profit from examining plays and short stories to determine their differences from book reports and newspaper articles. Martha's teacher might wish to help Martha move beyond topic as a structuring factor in writing to consider more abstract literary techniques. Martha might be asked to consider poetic works in terms of characterization, point of view, use of figurative language, plot development, and stylistic techniques. Martha needs help in broadening her constructs to cover the full range of writing modes. Martha might be asked to examine the constructs she used in her grid and be asked to see if she can develop alternate, perhaps related, constructs which would apply to all the elements in her grid. This would probably lead to much tighter clustering of a focused grid. If such constructs could be produced, a second grid analysis might reveal more clusterings which, in turn, would produce more depth in analysis of the grid and, in turn, would be more beneficial in helping Martha mature as a writer. Since none of Martha's constructs relate to audience, Martha's teacher might help Martha to project a possible audience for each piece of writing.
which she does. Martha's construct C6 (fact v. opinion) might be examined since it seems unusual that a poem (E4) would fit under the construct pole of C6 (fact). Since C1 (deals with a problem) and C9 (aggravating) seem to have different meanings, Martha's teacher might guide Martha in a detailed semantic exploration of what these two constructs mean. The expressive area of Martha's writing seems well established and she now needs guidance to integrate poetic and transactional writing into her construction of writing.

An Overview of Nine Grids

The following table presents a composite meaning structure of the nine grids. Areas where students share constructs can be seen. It is interesting to note that the only construct shared by all nine students is report (noun). A composite meaning structure might be helpful for a teacher as a diagnostic tool in planning group instruction. It might also be helpful to an individual student to see what constructs he shares with others as well as to examine constructs he does not share and may wish to integrate into his constructs of writing. A fruitful group discussion might grow from shared student insights about their constructs.
TABLE 8

COMPOSITE MEANING STRUCTURE OF NINE GRIDS

<table>
<thead>
<tr>
<th>Category of Construct</th>
<th>Grid Number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>#1 #2 #3 #4 #5 #6 #7 #8 #9</td>
</tr>
<tr>
<td><strong>Mode</strong></td>
<td></td>
</tr>
<tr>
<td>Journal</td>
<td>* * * * * *</td>
</tr>
<tr>
<td>Newspaper</td>
<td>* * * * * *</td>
</tr>
<tr>
<td>Report</td>
<td>* * * * * *</td>
</tr>
<tr>
<td>Letter</td>
<td>* * * * * *</td>
</tr>
<tr>
<td>Poem</td>
<td>* * * * * *</td>
</tr>
<tr>
<td>Story</td>
<td>* * * * * *</td>
</tr>
<tr>
<td><strong>Literary Conventions</strong></td>
<td></td>
</tr>
<tr>
<td>Fiction</td>
<td>* * * * * *</td>
</tr>
<tr>
<td>Character</td>
<td>* * * * * *</td>
</tr>
<tr>
<td>Dialogue</td>
<td>* * * * * *</td>
</tr>
<tr>
<td>Conflict</td>
<td>* * * * * *</td>
</tr>
<tr>
<td>Verse</td>
<td>* * * * * *</td>
</tr>
<tr>
<td>Imagery</td>
<td>* * * * * *</td>
</tr>
<tr>
<td>Form (Tragedy/Comedy)</td>
<td>* * * * * *</td>
</tr>
<tr>
<td>Point of View</td>
<td>* * * * * *</td>
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<tr>
<td><strong>Grammatical Conventions</strong></td>
<td></td>
</tr>
<tr>
<td>Quotations</td>
<td>* * * * * *</td>
</tr>
<tr>
<td>Paragraphs</td>
<td>* * * * * *</td>
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<tr>
<td>Outlines</td>
<td></td>
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<tr>
<td><strong>Purpose of Writing</strong></td>
<td></td>
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<tr>
<td>Persuasion</td>
<td>* * * * * *</td>
</tr>
<tr>
<td>Describe/Tell</td>
<td>* * * * * *</td>
</tr>
<tr>
<td><strong>Content</strong></td>
<td></td>
</tr>
<tr>
<td>Person(s)</td>
<td>* * * * * *</td>
</tr>
<tr>
<td>Object(s)</td>
<td>* * * * * *</td>
</tr>
<tr>
<td>Time</td>
<td>* * * * * *</td>
</tr>
<tr>
<td>Problem Situation</td>
<td>* * * * * *</td>
</tr>
<tr>
<td>Topic</td>
<td>* * * * * *</td>
</tr>
<tr>
<td>Specific Location</td>
<td>* * * * * *</td>
</tr>
<tr>
<td>Lifestyle</td>
<td>* * * * * *</td>
</tr>
<tr>
<td>Personal Experience</td>
<td>* * * * * *</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td></td>
</tr>
<tr>
<td>Affective Response</td>
<td>* * * * * *</td>
</tr>
<tr>
<td>Fact/Opinion</td>
<td>* * * * * *</td>
</tr>
<tr>
<td>Audience</td>
<td>* * * * * *</td>
</tr>
<tr>
<td>Length</td>
<td>* * * * * *</td>
</tr>
<tr>
<td>Authorship</td>
<td>* * * * * *</td>
</tr>
<tr>
<td>Originality</td>
<td>* * * * * *</td>
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</table>
CHAPTER V
SUMMARY AND CONCLUSIONS

Summary of Research

Using George Kelly's (1955) theoretical framework and his repertory grid methodology, I employed a case study approach to examine the usefulness of a repertory grid in eliciting students' perceptions, or - in Kelly's terms - constructs, of writing. Following Britton's (1975) function categories, I collected extensive samples, a total of 228, of nine students' writings so that examples of poetic, expressive, and transactional writings were represented in each students' collected writings. In an interview situation using a repertory grid, each student was asked to provide constructs about nine samples of writing which encompassed Britton's three function categories. The interview data collected by using the repertory grid was computer analyzed using FOCUS, a computer program which reorders the raw data into clusters, grouping by a two-way clustering technique in which both elements (the nine samples of writing) and constructs (bipolar descriptions elicited in the repertory grid interview) are optimally matched. Groupings of clustered elements and constructs from the
focused grid were examined for insights into how each student perceives composing. Possible applications of the analysis of clustered constructs was provided.

**Implications and Limitations**

It is the conclusion of this researcher that a repertory grid is a useful technique to examine students' perceptions of composing. The FOCUS computer program makes a repertory grid especially appealing because FOCUS clusters the raw data using the original construct poles elicited from the volunteer participant. Thus, a volunteer participant can share in a conversational feedback about the meaning structure of the grid. Prior to FOCUS, statistical techniques such as factor analysis and principal component analysis were used to examine grids preventing anyone uninitiated in statistics from benefitting from the grid analysis. However, with FOCUS, a teacher or researcher may help the student to see and understand his perceptions about writing by sharing the grid analysis with the student. Through this self analysis, the student may be able to focus upon areas where he would like to expand his understanding and thus to improve his writing. I would caution that the efficacy of such self analysis would depend upon the maturity of the student. For example, I was mildly surprised at the reaction of my
volunteer participants to their grid results. They were all very eager to arrange a conference time with me so that I could share their results with them. However, there was very little conversational interaction to the feedback. Perhaps the steps in grid analysis are too abstract for junior high students, and a grid can be more profitably shared with a more cognitively mature student. Laurie Thomas (1977a) of Brunel University has reported excellent results when engaging in conversational feedback of grids with college age students. At the junior high level, a focused grid may be more suited as a diagnostic instrument to aid teacher planning and instruction.

Since the repertory grid appears to provide a viable means of examining perceptions of writing, it can be valuable as a diagnostic tool to provide insights for a teacher. It can help the teacher to see areas where the student has a fully developed construct system about writing and to pinpoint areas where construct formation is weak. This would guide the teacher in helping the student to develop his weaker areas. The teacher may attempt to change the student's constructs by: (a) rerouting through the same system of dichotomous constructs, or (b) through a reconstruction of the system of channels. Also, according to Kelly, the
contrast to the construct indicates the most likely
direction in which one can expect to see change occur.
Knowing this, the teacher can anticipate the direction
of student change and decide whether the change would
be beneficial to the student. Also, as was illustrated
in Chapter IV, the teacher can prepare a composite
meaning structure for a number of grids. By reviewing
the composite, she can pinpoint areas where small group
and class instruction might be beneficial.

Even though a composite meaning structure can be
utilized, one must recognize that a grid is basically
a way to examine the constructs of an individual. Use
of the nine case studies in Chapter IV illustrates that
each grid interview produced a unique set of responses.
Since each grid requires individual scrutiny and analysis,
the guiding principals and structure of analysis will
depend upon the teacher's/researcher's philosophy and
theory of writing. In the nine grids I analyzed, it is
possible that another researcher would see patterns
other than those I have described. Such patterns would
find congruence with an individual's perceptions of
composing. For example, although I was not concerned
when students produced few constructs about grammatical
conventions, another teacher/researcher may see this as
a cause of concern and prescribe intensive instruction
in grammar before proceeding to more writing. The grid is highly dependent upon the theoretical background that one brings to it. I think a thorough understanding of Kelly's (1955) theory which engendered the development of the grid would aid immensely in one's approach to analysis of grids.

There are several assumptions which Kelly (1955) emphasizes about grid methodology which one must bear in mind. First, we assume that constructs elicited are representative of the population of constructs which the volunteer participant possesses in the area covered by the elements being examined. Second, we assume that words can name constructs adequately. A construct is an abstract, theoretical pattern of understanding which we project upon the world. Words can never capture all the nuances in a construct. However, we accept words as an operational necessity in order to further our understanding of constructs. We also assume that elements used to elicit the grid are representative of all the elements in a particular area of inquiry. We also assume that elements selected for the participant to construe are within the range of convenience of his constructs. Finally, we assume that the participant does produce the emergent and implicit pole of each construct independently. The FOCUS computer program also adds an additional assumption that the emergent and implicit poles of a
construct are reversible. The FOCUS computer program reverses constructs when this would produce a better optimal clustering of constructs and elements. Although the grid has not previously been used to explore students' perceptions of composing, the review in Chapter III of studies using repertory grid methodology indicate that many researchers have been able to work within the assumptions necessary to grid research.

Future Research

Researchers have suggested general directions for future grid research. Adams-Webber and Mire (1976) suggest it would be beneficial to explore a "method of measuring progressive changes in the structure of individual's construct systems" (p. 340). DuPreez and Ward (1970) suggest "a Piaget-type analysis of the development of constructs" (p. 159). In the area of reading, James Ewing (1977) suggests the grid as a way to measure students' attitudes to reading to determine if particular attitudes correlate with reading success.

Specifically, in relation to my work using the repertory grid to measure students' perceptions of composing, I would make the following suggestions for future research. Since all of my case studies were from a group of academically capable students, it would be interesting to do several case studies with students who
have not achieved academic success. In all of my case studies, all participants produced clustering of elements and constructs. Would less academically capable students produce clusters of elements and constructs?

I would also suggest the use of the grid as a teacher education tool to help teachers explore their constructs of writing. Understanding of their own systemization of the variable of writing might create an explicit awareness of what they may be communicating to their students about writing. Where necessary, the grid analysis might prompt teachers to restructure their own constructs which would in turn result in a re-structuring of their techniques of teaching writing.

Long term implications for future research might include a comparison across children of:

1. common constructs in writing. (The composite meaning structure of grids in Table 8 is a technique in this direction.)

2. categories of constructs about writing produced by children at various ages (a developmental view of construct theory).

3. relationship of writing constructs to other measures such as,
   a. I.Q.
   b. achievement tests
   c. reading scores
   d. criterion referenced tests
   e. other writing scores.
It is my hope that bringing the repertory grid into focus as a technique for examining perceptions of writing will be a substantive contribution to the methodology for examining writing. It is also my hope that utilizing George Kelly's (1955) psychologically based construct theory in the realm of writing research will enhance this theoretical framework within which to examine writing. Regarding theory and methodology, George Kelly (1955) states:

The kind of data we lift from the realm of the individual has a great deal to do with the kind of generalizations we are able to make regarding groups of individuals. What we lift can range all the way from muscle twitches to philosophical systems. If we lift muscle twitches we need only compare and contrast the muscle twitch of this person with the muscle twitch of that person and the muscle twitch of yonder person, and so on. But if we lift this person's whole philosophical system as a single datum, we are suddenly confronted with the breath-taking task of plotting it on continua with the philosophies of our acquaintances. Do any of us have reference axes for such an undertaking? (p. 277)

George Kelly's construct theory is a compendium of a lifetime of his searching for such references axes. I think his repertory grid technique offers a methodology firmly rooted in and growing from his construct theory. It is my conclusion that the repertory grid is a powerful and viable technique to explore students' perceptions of composing.
BIBLIOGRAPHY


Norris, M. *Use of Repertory Grid in Investigating Change in Trainees at a Detention Centre.* *British Journal of Criminology,* July, 1977, 17 (3), 274-279.


APPENDIX A

SUMMARY OF ASSUMPTIVE STRUCTURE
Summary of Assumptive Structure

FUNDAMENTAL POSTULATE AND ITS COROLLARIES

a. **Fundamental Postulate**: A person's processes are psychologically channelized by the ways in which he anticipates events.

b. **Construction Corollary**: A person anticipates events by construing their replications.

c. **Individuality Corollary**: Persons differ from each other in their construction of events.

d. **Organization Corollary**: Each person characteristically evolves, for his convenience in anticipating events, a construction system embracing ordinal relationships between constructs.

e. **Dichotomy Corollary**: A person's construction system is composed of a finite number of dichotomous constructs.

f. **Choice Corollary**: A person chooses for himself that alternative in a dichotomized construct through which he anticipates the greater possibility for extension and definition of his system.

g. **Range Corollary**: A construct is convenient for the anticipation of a finite range of events only.

h. **Experience Corollary**: A person's construction system varies as he successively construes the replication of events.

i. **Modulation Corollary**: The variation in a person's construction system is limited by the permeability of the constructs within whose range of convenience the variants lie.

j. **Fragmentation Corollary**: A person may successively employ a variety of construction subsystems which are inferentially incompatible with each other.

k. **Commonality Corollary**: To the extent that one person employs a construction of experience which is similar to that employed by another, his psychological processes are similar to those of the other person.

l. **Sociality Corollary**: To the extent that one person construes the construction processes of another, he may play a role in a social process involving the other person.

Reprinted from:

The Psychology of Personal Constructs by George Kelly, pp. 103-104.
APPENDIX B

FUNCTION CATEGORIES
Reprinted from: The Development of Writing Abilities by James Britton, Tony Burgess, Nancy Martin, Alex McLeod, and Harold Rosen, final page after Index.

FUNCTION CATEGORIES

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>INFORMATIVE (1.1)</td>
<td>Language to get things done, i.e., it is concerned with an end outside itself. It informs, persuades and instructs.</td>
</tr>
<tr>
<td>TRANSACTIONAL (1)</td>
<td>Language close to the self, revealing the speaker, verbalizing his consciousness, displaying his close relationship with the reader. Possibly not highly explicit. Relatively unstructured.</td>
</tr>
<tr>
<td>REPORT (1.1.2)</td>
<td>The writer gives an account of a particular series of events or the appearance of a particular place (i.e., narrative and/or descriptive).</td>
</tr>
<tr>
<td>EXPANSIVE (2)</td>
<td>Language close to the self, revealing the speaker, verbalizing his consciousness, displaying his close relationship with the reader. Possibly not highly explicit. Relatively unstructured.</td>
</tr>
<tr>
<td>ADDITIONAL CATEGORIES (4)</td>
<td>Categories created by the special contexts of education.</td>
</tr>
<tr>
<td>PERSUASIVE (1.2.2)</td>
<td>Since compliance cannot be assumed, an attempt is made to influence action, behaviour, attitude by reason and argument or other strategy.</td>
</tr>
<tr>
<td>RECOGNITION (1.1.1)</td>
<td>Eye-witness account or running commentary.</td>
</tr>
<tr>
<td>RECORD (1.1.1)</td>
<td>The writer gives an account of a particular series of events or the appearance of a particular place (i.e., narrative and/or descriptive).</td>
</tr>
<tr>
<td>ADDITIONAL CATEGORIES (4)</td>
<td>Categories created by the special contexts of education.</td>
</tr>
<tr>
<td>IMMATURE CATEGORIES (4.1)</td>
<td>E.g., undissociated categories, practice play, etc.</td>
</tr>
<tr>
<td>GENERALIZED NARRATIVE OR DESCRIPTIVE INFORMATION (1.1.3)</td>
<td>The writer is tied to particular events and places but he is detecting a pattern of repetition in them; and he expresses this in generalized form.</td>
</tr>
<tr>
<td>GENERALIZED LEVEL OF GENERALIZATION (1.1.4)</td>
<td>Genuine generalizations but loosely related, i.e., the relationships are not perceived and/or not made explicit.</td>
</tr>
<tr>
<td>ANALOGIC, LOW LEVEL OF GENERALIZATION (1.1.5)</td>
<td>Generalizations related hierarchically or logically by means of coherently presented classificatory utterances.</td>
</tr>
<tr>
<td>ANALOGIC (1.1.6)</td>
<td>Speculation about generalizations; the open-ended consideration of analogic possibilities.</td>
</tr>
<tr>
<td>TAUTOLOGIC (1.1.7)</td>
<td>Hypotheses and deductions from them. Theory backed by logical argumentation.</td>
</tr>
<tr>
<td>DUMMY RUN (4.2.3)</td>
<td>Exercise and demonstration of the ability to perform a writing task, which fails to take up the demands of that task.</td>
</tr>
</tbody>
</table>
APPENDIX C

FOCUS
FOCUS

A MANUAL for the "Focus Computer Program"
which cluster analyses both the elements
and constructs of a repertory grid and
re-orders the original responses according
to the new cluster sequences.

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and
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SECTION 1

Introduction
A Kelly Repertory Grid is a two-dimensional table or matrix in which any cell \( a_{ij} \) specifies a rating of element \( j \) on construct \( i \).

The focusing program re-sorts the rows and columns of the grid to produce a matrix in which every pair of adjacent rows and columns has more in common than any other arrangement. The procedure used is based on the calculation of the absolute or city block metric

\[
d_{ij} = \sum_{k=1}^{n} |a_{ik} - a_{jk}|
\]

which is a special case when \( r=1 \) of the Minkowski metrics defined by

\[
d_{ij} = \left( \sum_{k=1}^{n} |a_{ik} - a_{jk}|^r \right)^{1/r}
\]

This distance measure is then mapped into a construct percentage matching score, using the mapping

\[
d_{ij} \rightarrow \frac{100}{(n-1)c} d_{ij} + 100
\]

where \( c \) is the maximum of the rating scale and \( c \) is the number of elements. This produces a value of 100 for perfect match, 0 for no similarity, through to -100 for negative match. Unless the ratings on each construct are symmetrically distributed, matching scores are not necessarily balanced about zero. As a construct is a bipolar linear entity it is included twice, once with all the ratings reversed, and the actual choice of original or reversed form is made at the time of incorporation into a cluster.

When computing matching scores for elements, the mapping

\[
d_{ij} \rightarrow \frac{100}{(n-1)c} d_{ij} + 100
\]

is used as elements are not bipolar. This produces values from 100 for perfect match to 0 for no similarity, \( (c \) is the number of constructs).

Using the matching scores matrix to identify successively the most highly related pairs, the items are clustered and re-ordered on the basis of the clustering. A tree or dendrogram is printed, showing the relationships involved, followed by a listing of the clusters. After both constructs and elements have been re-ordered, the focused grid is produced. The tree diagrams are scaled to fit this (see P.6, 9)
SECTION 2

The Run
The Run

1. Explanations, Instructions and Data Input

FOCUS
******
******

A PROGRAM DESIGNED TO ANALYSE AND FOCUS A REPERTORY GRID
MAY 1976. UPDATED VERSION OF MCQUIT 1968
DEVISED AND WRITTEN BY
LAURIE F. THOMAS AND MILDRED L.G. SHAW
CENTRE FOR THE STUDY OF HUMAN LEARNING
BRUNEL UNIVERSITY
UXBRIDGE
LONDON

HOW MANY GRIDS DO YOU WANT TO RUN NOW? 1
DO YOU WANT FULL PRINTOUT? TYPE 1 FOR YES, 2 FOR NO? 1
TYPE IN YOUR DATA, A GRID AT A TIME, AS IT IS REQUESTED
GRID 1 --WHAT NAME? MILDRED
HOW MANY ELEMENTS? 10
HOW MANY CONSTRUCTS? 8
WHAT IS THE HIGHEST RATING YOU HAVE USED? 5
TYPE IN YOUR GRID
WHEN THE COMPUTER TYPES A QUESTION MARK, TYPE IN A CONSTRUCT AS A LINE OF RATINGS WITHOUT SPACES OR COMMAS E.G. 22131

1 ?5115424452
2 ?5414215322
3 ?4115314521
4 ?4513414415
5 ?1234211255
6 ?5411233221
7 ?5215445251
8 ?4112552251
2. Raw Grid

This reproduces the input data in its original form for checking.

CENTRE FOR THE STUDY OF HUMAN LEARNING

GRID NUMBER 1

ELEMENTS CONSTRUCTS RATINGS
10 8 1 TO 5

C.S.H.L.

RAW GRID 1

* 1 2 3 4 5 6 7 8 9 10
1 * 5 1 1 5 4 2 4 4 5 2
2 * 5 4 1 4 2 1 5 3 2 2
3 * 4 1 1 5 3 1 4 5 2 1
4 * 4 5 1 3 4 1 4 4 1 5
5 * 1 2 3 4 2 1 1 2 5 5
6 * 5 4 1 1 2 3 2 2 1 1
7 * 5 2 1 5 4 4 5 2 5 1
8 * 4 1 1 2 5 5 2 2 5 1
3. Construct Matching Scores

IN THE FOLLOWING MATRIX OF CONSTRUCT MATCHING SCORES
THE UPPER RIGHT HALF SHOWS THE MATCHING SCORES.
THE LOWER LEFT HALF SHOWS THE MATCHING SCORES
WHEN THE COLUMN OF CONSTRUCTS IS REVERSED. (SEE MANUAL)

C.S.H.L.

CONSTRUCT MATCHING SCORES -- GRID 1

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>*</td>
<td>40</td>
<td>60</td>
<td>25</td>
<td>5</td>
<td>5</td>
<td>65</td>
<td>35</td>
</tr>
<tr>
<td>2</td>
<td>*-10</td>
<td>50</td>
<td>45</td>
<td>5</td>
<td>45</td>
<td>35</td>
<td>-5</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>*-40</td>
<td>-30</td>
<td>35</td>
<td>-5</td>
<td>15</td>
<td>35</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>*5</td>
<td>-15</td>
<td>-5</td>
<td>0</td>
<td>20</td>
<td>0</td>
<td>-10</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>*15</td>
<td>35</td>
<td>15</td>
<td>30</td>
<td>-10</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>*35</td>
<td>-15</td>
<td>5</td>
<td>10</td>
<td>40</td>
<td>20</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>*-35</td>
<td>-5</td>
<td>-25</td>
<td>20</td>
<td>30</td>
<td>20</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>*-15</td>
<td>25</td>
<td>5</td>
<td>50</td>
<td>20</td>
<td>-10</td>
<td>-40</td>
<td></td>
</tr>
</tbody>
</table>

Each construct is stored in two forms, one as it was read in and the
other with the poles reversed, i.e.

1 2 3 4 5

became 5 4 3 2 1 respectively, and two matrices

of matching scores are therefore computed. Each is symmetrical about its
leading diagonal. To reduce printing time, the print-out carries halves
of these two matrices. + with + on the top right and + with - on the bottom left.

In determining clusters the maximum positive matching score (either + or
+ -) is used as the basis for choice. For example:-

C1 and C7 match 65%
-C1 and C7 match -35%
i.e. + + is chosen.
-C6 and C9 match 50%
C6 and C8 match -10%
i.e. - + is chosen.
4. List of Reversed Constructs

CONSTRUCT 4 REVERSED
CONSTRUCT 5 REVERSED
5. **Tree for Constructs**

This tree is designed to fit on the right hand side of the focused grid. It is interpreted and drawn from the construct clusters.

C.S.H.L.

**TREE FOR CONSTRUCTS -- GRID 1**

Starting with the lowest numbered cluster, in this case 9, the lines are drawn in by hand. The numbers at the top indicate the scale of decreasing matching score.
6. **Construct Clusters**

**CONSTRUCT CLUSTERS -- GRID 1**

<table>
<thead>
<tr>
<th>CLUSTER</th>
<th>NODE 1</th>
<th>NODE 2</th>
<th>WEIGHT</th>
<th>PERCENT MATCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>14</td>
<td>5</td>
<td>8</td>
<td>40</td>
</tr>
<tr>
<td>14</td>
<td>13</td>
<td>6</td>
<td>7</td>
<td>45</td>
</tr>
<tr>
<td>13</td>
<td>4</td>
<td>12</td>
<td>6</td>
<td>50</td>
</tr>
<tr>
<td>12</td>
<td>8</td>
<td>11</td>
<td>5</td>
<td>50</td>
</tr>
<tr>
<td>11</td>
<td>10</td>
<td>2</td>
<td>4</td>
<td>50</td>
</tr>
<tr>
<td>10</td>
<td>9</td>
<td>3</td>
<td>3</td>
<td>60</td>
</tr>
<tr>
<td>9</td>
<td>7</td>
<td>1</td>
<td>2</td>
<td>65</td>
</tr>
</tbody>
</table>

The first column indicates the cluster numbers. The second and third columns show the constructs or clusters which combine at this level. Column four (weight) contains the number of constructs in the cluster. In column five is the percentage matching score.
### Element Matching Scores

Elements are single items. Not being bipolar the matrix is symmetrical.

#### C.S.H.L.

**ELEMENT MATCHING SCORES -- GRID 1**

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 *</td>
<td>46</td>
<td>15</td>
<td>62</td>
<td>65</td>
<td>46</td>
<td>81</td>
<td>59</td>
<td>46</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>2 *</td>
<td>46</td>
<td>62</td>
<td>40</td>
<td>50</td>
<td>50</td>
<td>53</td>
<td>62</td>
<td>25</td>
<td>68</td>
<td></td>
</tr>
<tr>
<td>3 *</td>
<td>15</td>
<td>62</td>
<td>40</td>
<td>43</td>
<td>62</td>
<td>34</td>
<td>50</td>
<td>50</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>4 *</td>
<td>62</td>
<td>40</td>
<td>40</td>
<td>59</td>
<td>34</td>
<td>75</td>
<td>71</td>
<td>65</td>
<td>46</td>
<td></td>
</tr>
<tr>
<td>5 *</td>
<td>65</td>
<td>50</td>
<td>43</td>
<td>59</td>
<td>68</td>
<td>71</td>
<td>75</td>
<td>68</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>6 *</td>
<td>46</td>
<td>53</td>
<td>62</td>
<td>34</td>
<td>68</td>
<td>46</td>
<td>43</td>
<td>62</td>
<td>43</td>
<td></td>
</tr>
<tr>
<td>7 *</td>
<td>81</td>
<td>53</td>
<td>34</td>
<td>75</td>
<td>71</td>
<td>46</td>
<td>78</td>
<td>46</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>8 *</td>
<td>59</td>
<td>62</td>
<td>50</td>
<td>71</td>
<td>75</td>
<td>43</td>
<td>78</td>
<td>43</td>
<td>56</td>
<td></td>
</tr>
<tr>
<td>9 *</td>
<td>46</td>
<td>25</td>
<td>50</td>
<td>65</td>
<td>68</td>
<td>62</td>
<td>46</td>
<td>43</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>10 *</td>
<td>21</td>
<td>68</td>
<td>75</td>
<td>46</td>
<td>50</td>
<td>43</td>
<td>40</td>
<td>56</td>
<td>50</td>
<td></td>
</tr>
</tbody>
</table>
This tree is designed to fit above the focused grid. The scale of percentage match is therefore shown on the left.
9. **Element Clusters**

### Element Clusters -- Grid 1

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Node 1</th>
<th>Node 2</th>
<th>Weight</th>
<th>Percent Match</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>16</td>
<td>18</td>
<td>10</td>
<td>62.5</td>
</tr>
<tr>
<td>18</td>
<td>15</td>
<td>17</td>
<td>7</td>
<td>62.5</td>
</tr>
<tr>
<td>17</td>
<td>4</td>
<td>9</td>
<td>2</td>
<td>65.625</td>
</tr>
<tr>
<td>16</td>
<td>2</td>
<td>14</td>
<td>3</td>
<td>68.75</td>
</tr>
<tr>
<td>15</td>
<td>6</td>
<td>13</td>
<td>5</td>
<td>68.75</td>
</tr>
<tr>
<td>14</td>
<td>10</td>
<td>3</td>
<td>2</td>
<td>75</td>
</tr>
<tr>
<td>13</td>
<td>5</td>
<td>12</td>
<td>4</td>
<td>75</td>
</tr>
<tr>
<td>12</td>
<td>8</td>
<td>11</td>
<td>3</td>
<td>78.125</td>
</tr>
<tr>
<td>11</td>
<td>7</td>
<td>1</td>
<td>2</td>
<td>81.25</td>
</tr>
</tbody>
</table>

This is used to interpret and draw the tree.
10. The Focused Grid

The cluster trees for elements and constructs determine the re-ordering by which focusing is achieved. "Contour" lines (as shown) can be drawn by hand to highlight the pattern of similarities and differences.
11. The Final Form for Conversational Feedback

TREE FOR ELEMENTS -- GRID 1

ATTRACTIVE 1 2 3 4 5 6 7 8 9 10 LESS ATTRACTIVE

Cognitively Impact 1 2 3 4 5 6 7 8 9 10 Impactful Impact

Facts More Important 1 2 3 4 5 6 7 8 9 10 Ideas More Important

Familiar 1 2 3 4 5 6 Familiarity

Low Lasting Influence 1 2 3 4 5 6 7 8 9 10 High Lasting Influence

Rise Up Quickly 1 2 3 4 5 6 7 8 9 10 Agile

Serious 1 2 3 4 5 6 7 8 9 10 Entertaining

Difficult 1 2 3 4 5 6 7 8 9 10 Easy

TREE FOR CONSTRUCTS -- GRID 1

CENTER FOR THE STUDY OF HUMAN LEARNING

YOUNG, LONDON

grid 1
The previous diagram shows how parts of the print-out are combined into a completely focused repertory grid. In the example the element and construct descriptions have been typed in. The example refers to Mildred's construing of ten books.

Note:

Constructs 4 and 5 were reversed during the run. Therefore the pole descriptions have also been reversed.
SECTION 3

To Use this Program
To Use this Program

The program is written in BASIC. Storage requirements have been minimised and only standard BASIC facilities have been employed. During the run of the program, instructions are provided for inputting the data. One or more grids may be run at once. Print-out can be obtained in one of two forms:-

1. Full print-out:

   raw grid
   construct matching scores
   list of reversed constructs
   tree for constructs
   construct clusters
   element matching scores
   tree for elements
   element clusters
   focused grid.

2. Reduced print-out:

   raw grid
   focused grid.
Data Input

Data is called in the following order:-

initial specification

Number of grids
Choice of print-out

for each grid

Name or Identification
Number of Elements
Number of Constructs
Highest Rating

for each construct

A list of ratings.

All grids are called before processing commences.

N.B. Each cell of a grid must contain a value. Omissions or "not applicables" must be entered at the centre of the scale, e.g. rating scale 1 - 5 are centred at 3.
Size of Grid

The number of elements and the number of constructs is each restricted to a minimum of fifteen when a teletype is used for output. A maximum of twenty-five is acceptable on a line printer.

Further details and advice are available from:-

The Centre for the Study of Human Learning,
Brunel University,
Kingston Lane,
UXBRIDGE, Middlesex.

A number of variations of this program exist for users with special requirements.