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VALIDATION OF THE GENERALIZING-PARTICULARIZING DIMENSION OF COGNITIVE STYLE AND ITS IMPLICATIONS FOR MEANINGFUL LEARNING

by

FERN G. SCHWARTZ

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Abstract

The generalizing-particularizing cognitive style dimension was established as a valid and reliable parameter of information-processing activity by means of demonstrating that (1) the administration of the Cognitive Style Instrument to 146 Hunter High School juniors yielded a distribution of cognitive style scores which could be described as a generalizing-particularizing continuum exhibiting a wide range of variability with individual consistency over items; (2) the cognitive style scores correlated with scores on a task which represented the essentials of corresponding "real-life" activity; (3) corrected split-half reliability of the cognitive style scores was 0.81; (4) the cognitive style was related to a perceptual style which was operationalized as a significant difference in the greater number of details reported by particularizers as compared to generalizers on a perceptual task.

The implications of the generalizing-particularizing cognitive style dimension for meaningful learning was established when the hypothesis that generalizers would transform presented information while particularizers would select presented informational elements verbatim in substantiating their conclusions in a decision-making task was confirmed. It was concluded that generalizers tend to approach potentially meaningful material with a meaningful learning set to utilize information in supporting a decision while particularizers tend to approach potentially meaningful material with a rote learning set to utilize information in supporting a decision.

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Introduction

Aristotle stated in the Metaphysics that all men desire by nature to know. Thus, an essential characteristic of human nature is the drive toward 'coming to know'. In more contemporaneous language we may conceptualize this human activity as "information-storing and processing". And one approach to investigating the cognitive processes in terms of which men come to know is to examine "cognitive styles which reflect self-consistent individual differences with respect to certain general properties or attributes of cognitive organization and functioning that characterize human beings as information-storing and -processing mechanisms" (Ausubel 1968). The term "cognitive style," then, refers to idiosyncratic patterns of cognitive organization and functioning which characterize the human organism's adaptation to his environment. Therefore, any postulated cognitive style should fulfill the operational criterion of generalizability or consistent manifestation across diverse behavioral situations. Cognitive style can thus be construed as a theoretical focal point as well as an empirical determinant of subordinate or derived behaviors. Research concerned with the investigation of cognitive styles is meaningful both in terms of advancing methodological techniques in a "pure" experimental sense as well as developing means in the sense of pivotal or anchor points for exploring and furthering our knowledge of human behavior and specifically, meaningful learning.

The hypothesized cognitive style dimension is conceptually and operationally identified with information-storing and -processing, a major component in meaningful learning. Thus, by undertaking the investigation of this cognitive style we are attempting to identify cognitive processes operative in meaningful learning.

Statement of the Problem

The purpose of this dissertation was (1) to establish that the generalizing-particularizing cognitive style dimension is a valid means of describing how people process and reproduce extended and connected meaningful verbal material and (2) to demonstrate its implications for meaningful learning.

> Cognitive style refers to self-consistent and enduring individual differences in cognitive organization and functioning. The supposition that a generalizing-particularizing dimension of cognitive style exists assumes that there is a relative preference among individuals for focusing selectively on the general or particular aspects of ideas and that this preference has predictable implications for meaningful learning and retention by virtue of differential effects on information processing and storage. (Ausubel and Schwartz, in press)

The dissertation consists of five separate but interlocking phases which were designed to answer the following questions: (1) Presented with the Cognitive Style Instrument which consists of meaningful but unfamiliar information in a format analogous to standard expository written material, will the information-processing activity of an experimental group be described by a generalizing-particularizing continuum

exhibiting a wide range of variability with individual consistency over items? (2) Is the generalizing-particularizing cognitive style dimension an artifact of the Cognitive Style Instrument and structurally-related information processing tasks or is it descriptive of information processing activity in general? That is, is the Cognitive Style Instrument a valid means of assessing an individual's position on a generalizing-particularizing continuum which consistently characterizes his information-processing activity in "real life" situations? (3) Is the generalizing-particularizing cognitive style dimension equivalent or relatable to general intelligence; or is the Cognitive Style Instrument measuring the same capacities that an intelligence test measures? (4) Is the generalizing-particularizing cognitive style dimension generalizable to a perceptual style or does it have implications for distinct modes of perceptual functioning differentiating generalizers from particularizers? (5) What is the relevance or connection between the cognitive style dimension and meaningful learning and retention?

Phases one and two constitute a <u>methodological</u> study directed toward establishing the generalizing-particularizing cognitive style dimension as a valid description of information-processing activity by means of demonstrating the validity and reliability of the Cognitive Style Instrument. The third phase is both methodological and theoretical: it attempts to establish that the generalizing-particularizing cognitive style

dimension is not related to general intelligence by means of demonstrating a statistically nonsignificant relationship between scores on the Cognitive Style Instrument and a standardized intelligence test. The fourth phase is concerned with the theoretical implications of the cognitive style dimension. It was hypothesized that a cognitive style dimension which is reflective of basic information-processing and -storing strategies would be expected to be associated with certain perceptual process characteristics. The fifth phase is concerned with establishing the practical implications of the cognitive style dimension. In order to establish that the cognitive style dimension has a significance beyond itself (i.e., correlates with basic information-processing differences), the preferred style of reporting must be demonstrably implicated in meaningful learning: that is, generalizers should process information differently from particularizers.

Researchers concerned with the area of human learning and retention who accept the position as stated by Irving Paul (1959)

> ...that when psychologists use meaningful and unconnected materials as stimuli (e.g., nonsense syllables), and when they force their subjects to perceive and learn in artificial or unusual ways (e.g., by means of a memory drum), they seriously interfere with their chances of understanding everyday (learning) and remembering, and their conclusions will teach us very little about how people actually deal with complex, extended, and meaningful (material)

must confront the fact that virtually no standardized test instrument consisting of "complex, extended, and meaningful"

verbal material is available which will enable them to study complex phenomena like cognitive assimilation and reporting under the conditions and requirements of their experimental design. Thus, in the course of answering the questions which constitute the substance of this dissertation it was necessary to both create test instruments, and to adapt an experimental task and scoring scheme used by Bartlett in 1932, (one of the few investigators concerned with experimentally exploring the data obtainable under conditions and requirements which approximate "real life" situations), rather than be able to make use of existent instruments and more conventional experimental paradigms. The implicit challenge entailed by electing to use "complex, extended, and meaningful" verbal material instead "of lists of nonsense syllables or unconnected meaningful material" was to define "a middle road that would combine the scientific rigor of the latter with the meaningfulness of the former" (Paul, 1959).

Overview

A general overview of the five phases presenting their main goals and results may function as a useful introduction to the more detailed discussion in the body of the dissertation.

The first phase addressed itself to the problem of whether a generalizing-particularizing cognitive style dimension is descriptive of information-storing and processing activity. The hypothesis that the cognitive style scores would be described as a generalizing-particularizing continuum exhibiting a wide range of variability with individual consistency over items was confirmed.

The second phase was concerned with answering the question of whether tendencies to report generalizations or details constituted "stable and general individual difference parameters" (Paul, 1959). That is, would the identification of generalizers and particularizers by the Cognitive Style Instrument be generalizable to situations which approximate "real life" activities? To answer this question a validating instrument was designed; it consists of seven arguments adapted from Plato's Dialogues, each of which states the theme of the argument, at least three generalizations constituting the development of the argument, and illustrations (i.e., allegory, analogy, example) exemplifying the generalizations.

The validating instrument which approximates the structural design of the Cognitive Style Instrument but differs as a function of dialogue format, content, and length thereby

constituting a method of validation rather than reliability, simulates the essentials of real-life argument in an attempt to measure generalized information-processing activity. Administration of the Plato Instrument occurred one year after the Cognitive Style Instrument testing eliminating the possibility of "carry over" effects.

The Plato Instrument was used as the validation criterion for the Cognitive Style Instrument rather than the reverse (i.e., using the Cognitive Style Instrument to validate the Plato Instrument) because the dialogue format more closely typifies "real life" situations than does a didactic presentation. The generalizing-particularizing cognitive style dimension

> ...grew out of the common observation that whereas some individuals in recounting their altercations with others characteristically give a circumstantial word-for-word, blow-by-blow sequential account, other individuals characteristically give a highly succinct and telescoped synopsis of the main points at issue. (Ausubel and Schwartz, in press)

The results indicated that the identification of generalizers and particularizers by the Cognitive Style Instrument was generalizable to situations which approximate "real life" activity.

The third phase was concerned with answering the question of whether the generalizing-particularizing cognitive style dimension was equivalent or relatable to general intelligence as measured by a standardized intelligence test. That is, if it were found that the Cognitive Style Instrument was measuring the same capacities that an intelligence test measures, then the significance of the cognitive style dimension

would be merely nominal and any hypothesized connection with meaningful learning could be explained by reference to differences in intellectual levels rather than "self-consistent and enduring individual differences in cognitive organization and functioning." The procedure was to compare the cognitive style scores of high generalizers and high particularizers with their scores on individually-administered WAIS tests (Wechsler Adult Intelligence Scale). The main finding was that the cognitive style dimension is not related to general intelligence; the relation of cognitive style scores to WAIS scores was statistically nonsignificant.

The fourth phase of the dissertation was designed to determine the generalizability of the cognitive style to a perceptual style. Witkin and and Klein had extrapolated perceptual styles (i.e., field-dependent and independent, leveling and sharpening) which were based on perceptual or psychophysical tasks to the status of "cognitive styles" without the use of any experimental task which approximated typical or real-life information-processing situations. In the absence of cognitive tasks which conform to some extent to the structure and implicit requirements of typical information-processing situations Witkin and Klein's "cognitive styles" can only legitimately be considered perceptual styles as a function of the nature of the perceptual tasks from which they are derived.

In the present study the generalizing-particularizing cognitive style was measured by an instrument whose format is

analogous to standard expository written material and which thus conforms to the structure and implicit requirements of typical information-processing situations. Thus, having derived a cognitive style from an experimental task which approximates the structure of extra-laboratory situations tapping more typical manifestations of cognitive functioning, we were interested in the question of whether the generalizing-particularizing cognitive style would be generalizable to a perceptual style or have implications for distinct modes of perceptual functioning differentiating generalizers from particularizers. In this phase of the dissertation we were interested in realizing the objective of Witkin and Klein, to demonstrate a "self-consistent and enduring" style of functioning in one mode which has implications or is generalizable to a second mode. Empirical substantiation of this generalizability would (1) expand the scope of the implications of the generalizing-paricularizing cognitive style insofar as correlations with differential styles of perceptual functioning can be demonstrated and (2) indirectly strengthen the argument that the generalizing-paricularizing cognitive style is a valid construct descriptive of "self-consistent and enduring individual differences in cognitive organization and functioning". While cognition is not in any sense theoretically or empirically reducible to perception, the entire range of information-processing activity which extends from sensory input to encoding, assimilation, and storage operations may be viewed as capable of occurring along a continuum of hierarchically-organized

modes of functioning (i.e., sensation→perception→cognition). Thus, although not every cognitive activity presupposes or necessarily depends on perceptual input (e.g., abstract thinking, acts of recall) a cognitive style which adequately describes manifestations of individual differences in cognitive activity might be expected to be related to a perceptual style reflective of "individual differences in (perceptual) organization and functioning" to the extent that information-processing activity does occur along a continuum of hierarchically-organized modes of functioning. That is, it is reasonable to predict that an observable style descriptive of higher-order information-processing activity should be correlated with an observable style descriptive of lower-order information-processing activity for the same groups of individuals. The procedure for determining the generalizability of the cognitive style to a perceptual style consisted of individual Rorschach administrations and utilized a scoring-classification scheme suggested by Bartlett in his studies on imaging. "Imaging consists essentially in the utilization of experiences which are no longer fully presented to perceptual sensory organs, and such utilization is a part of all remembering processes" (Bartlett). The theoretical justification for the use of this procedure in the context of the present problem is based on the hypothesis that a cognitive style dimension which is reflective of basic information-processing and -storing strategies, would be expected to be associated with certain

perceptual characteristics. The Rorschach in conjunction with Bartlett's scoring-classification scheme lends itself to determining the presence of perceptual process characteristics consistently and differentially associated with generalizers versus particularizers. The results confirmed the hypothesis that systematic differences in a cognitive mode of functioning between subjects are relatable to corresponding systematic differences in a perceptual mode.

The fifth phase of the dissertation was designed to answer the question, what is the relevance or the connection between the cognitive style dimension and meaningful learning. The procedure for determining the implications of the generalizing-particularizing cognitive style dimension for meaningful learning consisted of an evaluation of the results from a decision-making task, the Bartlett Passage Test.

The manifestation of the generalizing-particularizing cognitive style dimension may be viewed as a preferred style of information reporting reflective of a preference for certain qualitatively different kinds of informational elements when processing information and in the subsequent reporting of the product. In order to establish that the cognitive style dimension has a significance beyond itself (i.e., correlates with basic information-processing differences), the preferred style of reporting must be demonstrably implicated in meaningful learning: that is, generalizers should process information differently from particularizers. The approach used in this study to reveal the implications of the cognitive style

dimension for meaningful learning was to determine the presence of clearly differentiated encoding strategies for the generalizer as compared to the particularizer. The problem was to devise a method that would reveal the presence of qualitative differences in the manner in which each group cognitively assimilated and processed meaningful information. In the absence of such differential encoding strategies, the connection between the cognitive style dimension and meaningful learning would be extremely difficult to substantiate empirically.

The Bartlett Passage Test as a decision-making rather than summarizing task requires Ss to use presented information in order to arrive at decisions and thus compels a manifestation of cognitive activity more directly associated with idiosyncratic strategies of information processing than a restatement activity which may or may not be reflective of underlying processing stategies. The task of reporting "the steps and main considerations by means of which decisions were arrived at" was intended to reveal the manner in which S assimilated or encoded and processed the presented information. Thus, the purpose of the Bartlett Passage Test was to determine the presence of encoding strategies which would distinguish the generalizing group from the particularizing group as defined by the Cognitive Style Instrument. Analysis of the results confirmed the presence of two encoding strategies differentiating generalizers from particularizers: Transformation and Selection. Transformation refers to an idiosyncratic

organization or translation of the presented information which functions as a basis for predictive, inferential or interpretive propositions or arguments. Selection refers to the use of details or propositions without any cognitive modification to support decisions; there is no "going beyond" of the verbatim content of the given information.

Background of the Problem

The theoretical objectives of George Klein's work (1959) on cognitive controls and styles approximate the underlying aims and assumptions of the present study. Klein views human behavior as the product of a hierarchically-ordered regulatory system consisting on the lowest level of "specific perceptual and cognitive processes", ascending to superordinate structures or "cognitive controls" conceived as mechanisms intervening between internal motivational states and environmental events, and culminating in cognitive styles or individualized patterns of specific cognitive controls. Klein's systemic conception of personality organization allows for a functionally-dynamic interaction between higher and lower-order subsystems and at the same time acknowledges the relative autonomy of individual subsystems as a function of their "organizational coherence" with respect to such events as retinal adjustment which can be linked to specific properties of situations." Thus, Klein has proposed a process model of personality organization in which internal activation is viewed in terms of the interaction between a network of hierarchically-ordered, relatively autonomous subsystems and the qualitative components of environmental events. His conception of cognitive controls furnishes a method of describing universal anchor of focal points conceptually unifying the multiplicity of behaviors within individuals while his concept of idiosyncratic arrangements of these controls in the form of cognitive styles provides a descriptive method

for conceptualizing patterns of difference between individuals.

Klein factorially isolated the following four cognitive control principles on the basis of seven psychophysical tests (Schematizing, Kinesthetic Time Error, Apparent Movement, Aniseikonic Lenses, Size Constancy, Size Estimation I and II), two classification tests (Object Sorting, Picture Sorting), two perceptual discrimination tests which require inattending to irrelevant cues (Color-Work, Incidental Recall), two personality tests (Rorschach, Free Association), and two of Witkin's tests (Rod and Frame, Embedded Figures): scanning "represents the degree of attention deployment to objects, object properties, and events"; tolerance for unrealistic experience "represents modes of organizing behavior in respect to experiences that violate the normal assumptions of reality"; field-articulation refers to the ability to "penetrate complex (perceptual) configurations and attend selectively to relevant features"; leveling-sharpening "pertains to the subjective criteria used to categorize experiences."

Klein frequently comments on the similarity of mediating function (i.e., between internal and environmental events) which determines the quality and direction of resultant behavior patterns assumed both by his principles of cognitive control and the psychoanalytic defense mechanisms with the exception that his concept like that of Hartmann's allows for a sphere of conflict-free activity. Klein develops a scoring scheme for Rorschach protocols by means of which he demonstrates correlations of leveling with repression and sharpening

with an isolation mechanism. The Rorschach is a projective instrument which assumes that personality diagnostics can be made on the basis of perceptual responses to ambiguous stimuli. Klein assumes that patterns of cognitive functioning which for him subsume personality traits and characteristic defense mechanisms are revealed through perceptual responses to psychophysical and classification-discrimination tasks. We would contend that since Klein has not included in his battery any test that would tap patterns of cognitive functioning which are functionally superordinate to perceptual processes, he has not experimentally demonstrated the theoretical structures or objectives of his model. And since his factors or cognitive controls could be initially inferred from Rorschach protocols with an appropriately devised scoring scheme and then subsequently validated on other perceptual tasks such as those included in his battery, Klein's work may be viewed as a method of validating the Rorschach through the demonstrated generalizability of individual perceptual styles. Insofar as these perceptual styles are empirically shown to correlate with and reflect personality psychodynamics, Klein has succeeded in confirming Rorschach's original hypothesis. However, no substantial evidence has been advanced to demonstrate that the factors are principles of cognitive control and that their idiosyncratic patterning represents cognitive styles. The tests selected by Klein do not tap any areas of higher cognitive functioning (i.e., beyond

rudimentary concept formation processes) such as those measured by information-processing situations in which the assimilation and integration of meaningful material depends on processes more advanced than those required by judgments of perceptual equivalence or disparity. These higher-order cognitive events could be examined inferentially from tests of retention, summarizing style, or transfer. The present study pursues such an approach in its attempt to investigate a cognitive style dimension.

The leveling-sharpening factor most closely resembles the generalizing-particularizing cognitive style dimension. Sharpeners may be compared to particularizers for whom details or conceptual elements rather than wholes or the intact concepts are more salient. However, generalizers as defined in our study, are not directly comparable to levelers for whom the assimilation of recent perceptual images seems to be the basis for their inability to make relatively accurate psychophysical discriminations (Klein). Unlike Klein we have used an information-processing test which taps cognitive processes rather than perceptual skills. Thus, generalizers when asked to summarize meaningfully-presented information record stated generalizations rather than illustrative details, have implicitly judged that these generalizations convey or represent the main ideas of the material. Generalizers possibly reveal a more highly differentiated cognitive hierarchy in their selections of "superordinate" principles rather than concrete supportive elements as representative of the content of the presented information. Concentration

on and ability to report detail would seem to indicate a somewhat concrete cognitive orientation rather than ability in handling abstract concepts which are remote from the empirical elements from which they were derived. Klein, on the other hand, equates sharpening with a high degree of differentiated cognitive organization.

We would agree that Klein has demonstrated a distinctive perceptual style and accept his conclusion that "the basic attribute of leveling is a relatively high degree of interaction among memories and present percepts so that elements lose their individuality" on the basis of results from the three psychophysical tests (Schematizing, Kinesthetic Time Error, Size Estimation II) in which perceptual processes appear to be tapped in relatively contamination-free experimental tasks. However, we would not agree that an extrapolation of the leveling-sharpening perceptual style to a principle of cognitive control is warranted on the basis of the tests included in this battery. The differences observed between levelers and sharpeners on the Aniseikonic Lenses, Free Association, and Color-Word Tests may be explained more concretely on the basis of differences in preferred visual cues, verbal facility, general reaction time, and degree of inhibition in experimental settings.

In short, Ausubel and Schwartz (in press) state:

> The generalizing-particularizing dimension of cognitive style is related to but by no means coextensive with the leveling-sharpening dimension. Holzman and Gardner (1960) used the Schematizing Test, with an odd-even reliability coefficient of .84 to .90 to measure leveling-sharpening tendencies.

> They found that sharpeners surpass levelers in ability to recall anecdotal material. Leveling-sharpening, however, is more nearly a dimension of perceptual style. The leveler obliterates deviations from ideal form--those that are irregular, asymmetrical, or incomplete--whereas the generalizer obliterates particular aspects of a general idea that are representative, illustrative, or characteristic of it. The sharpener, on the other hand, accentuates irregular or asymmetrical deviations from ideal form, whereas the particularizer preserves typical and supportive examples of a categorical idea.

Witkin hypothesized that a personality characterized by an articulated and differentiated inner organization, in which the early developmental experience of the "body-field matrix as a more or less fused perceptual mass" has given way to the later developmental experience of "segregation of self from field," would be manifested as a field-independent or analytic perceptual style. Witkin operationally defined his analytic perceptual style in terms of tasks "in which essential elements must be isolated from the context in which they are presented and recombined into new relationships."

> Goodenough and Karp (1961) found that tests of perceptual field dependence were loaded on the same factor as the block design, picture completion, and object assembly subtests of the WISC, subtests which are similar to the perceptual tests in that they require the overcoming of an embedding context. The perceptual tests did not appear on verbal-comprehension or attention-concentration factors, defined by other WISC subtests. (Witkin, 1963)

These results led Witkin to conclude that he had now isolated an analytic <u>cognitive</u> style. However, high factor loadings were obtained on subtests in which <u>perceptual</u> skill is predominantly tapped while low factor loadings were obtained

on verbal-comprehension items in which more advanced cognitive activity is required. Thus, it would appear that while Witkin has successfully isolated two perceptual styles, his evidence for an extrapolation to cognitive styles is not substantial.

This criticism raises the question of the existence of any distinction between perception and cognition as well as the nature of any relationship.

> In perception one is confronted with external stimuli actually present, whereas cognition deals with inferences from such data. Granted that there is a continuum, with relatively clear-cut perception on the one end and relatively pure theoretical constructs on the other, we must not overlook the fact that there is some element of inference in every perception, and that conceptual constructs always relate to perceptual data.(Frenkel-Brunswik, 1951)

Frenkel-Brunswik states the existence of a "continuum" between perception and cognition but fails to suggest any factor(s) determining the progression in terms of information-processing activity. We would suggest that such graded transitions are a function of the interaction between degree of "abstractness" or remoteness from concrete-empirical data of the "processable" stimuli and the intellectual capacity of the processer. Therefore, we would not agree "that every conceptual construct always relates to perceptual data" which in effect denies the existence of a continuum.

Thus the generalizing-particularizing cognitive style dimension differs essentially from Witkin's insofar as it refers primarily to information-processing activity and only secondarily to perceptual components.

However, because we recognize the "continuum" which exists between perception and cognition we have chosen to examine the generalizability of our cognitive style dimension to a perceptual style using the Rorschach as a perceptual task. The use of the Rorschach is frequently criticized on the grounds of validity and virtual lack of reliability. Wayne Dennis (1951) objects to its use because of the influence of cultural factors on the frequency of specific determinants as well as on the content of responses. That is, he regards the Rorschach as a culturally-determined instrument and culturally-independent interpretative techniques as inaccurate. However, Dennis' objection is only relevant for cross-cultural studies. The more general criticism by experimental psychologists is specifically aimed at the clinician's psychodiagnostic use of the instrument. Dealing with this criticism is largely besides the point because for the problem under study the instrument will not be used psychodiagnostically but as a 10-card set of ambiguous stimuli.

Unlike Witkin, Kagan, Moss, and Sigel (1963) initially focused on information-processing by means of a classification task from which they extracted analytic-descriptive, inferential-categorical, and relational cognitive styles. They proceeded to examine the generalizability of these cognitive styles to non-intellectual areas of functioning. The question which may be raised in relation to their work concerns their implicit assumption that cognitive activity is co-extensive or synonomous

with classifying. While concept formation may be defined as a "generalized intellectual construct that has evolved from comprehending many concrete examples of what 'belongs' to the idea and of what does not 'belong'" (Dunham et. al., 1968) and classification tasks are appropriately used to test the acquisition of criterial attributes, it is certainly not clear that all cognitive activity or information-processing is exhausted or defined by the formation of concepts. It would seem more reasonable to regard concept formation as a relatively low level of cognitive activity in terms of the degree of abstraction or remoteness from perceptual data necessary to form concepts.

The instrument designed for this study requires an "interpretation" of meaningful material and is thus more analogous to information-processing in general and less restrictive than a classification task. Therefore, it would seem likely that the two cognitive styles under present investigation would have a much broader base of relevance for cognitive activity in general and meaningful learning in particular than Kagan's styles.

Paul's use of "extended, connected, and meaningful verbal material" in his studies on remembering (1959) parallels the quality of the test materials used in this dissertation more closely than most contemporary research exploring the area of human learning and retention. The theoretical orientation of his research is based on the notion of "schemas" as developed

by Bartlett in Remembering (1932): "internal organizations of past reaction and experiences which function as unified and active organs."

> A schema is an abstraction, simplification, and articulation of experience; part and parcel of its formation and operation are the affective aspects of the experience. An experience is not the resultant of incoming stimuli impinging upon a passive "clean slate," nor of the formation of isomorphic or literal facsimilies: rather it results from the interaction of stimuli and an already-structured, active organization of schemas. An essential feature of this conception is that the mind is conceived of as made up of schemas about the world rather than of images or traces of the world.
>
> According to this conception, recall is not a reproduction of a schema, it is an active construction based upon a schema. While some "dominant detail" does persist, the major compenent of the original situation that persists is the attitude which was involved in it. This attitude--broadly conceived--is the major determinant of the way the person reproduced the original situation. Bartlett showed how reproduction can be understood as an attempt to "justify" this attitude. (Paul, 1959)

Paul adapted verbal material used originally by Bartlett in order to experimentally examine the processes and individual parameters descriptive of subjects' retention and reproductions of "stories". Although he states Bartlett's failure in "dealing adequately with the veridical and detailed recall that people are capable of" as one of the points of departure for his own research, Paul's major objective appears to be concerned with categorizing the kinds of distortions that enter into recall. He concluded that importation (i.e., the Ss' addition of "new material into the reproductions--largely of familiar and explicatory material") and skeletonization (i.e., "stripping,

fragmenting, and segregating") "reflected two basic schema processes."

It is true that distortions and inaccuracies frequently contaminate or shape products of recall and that these distortions or reconstructions are probable reflections of idiosyncratic constellations of accumulated experiences, attitudes, and emotions (or schema). However, it is equally true that veridical recall and reproduction, in which personalized affective experiences appear to have no manifest influence, can also occur. The question then is, what are the process characteristics of encoding verbal material which is reproduced without flagrant distortion? It would seem as if Paul suggests that the amount and quality of distortion produced is partially a function of the coherence and structure of the presented material, and he explores this variable in his research. However, a related variable which Paul does not explore concerns the implicit purpose and general content classification of the experimental material. A reasonable supposition might be that "stories", which in general are intended to entertain or provoke the imagination, would be more likely to elicit the free play of imaginative, attitudinal, and affective factors in subjects' reproductions than would "the impersonal substance of subject-matter content" (Ausubel, 1968) which in general is intended to instruct or inform. Thus, when stories, pictures, and figures are presented rather than didactic material it is not surprising that an "attitude is the major determinant of the way the person reproduces the original situation" rather than cognitive

factors. However, if the researcher's intention is to explore cognitive processes and to substantiate the validity of a cognitive style, then the expression and influence of non-cognitive components such as affect and attitudes should be minimized insofar as they do not appear to directly enter into the processing of impersonal subject-matter content; this intention may be achieved by avoiding experimental material which tends to elicit "imaginative reconstruction" rather than veridical reproduction. The question raised above, i.e., what are the process characteristics of encoding verbal material which is reproduced without flagrant distortion, may also be formulated as, what are possible stable general individual parameters descriptive of the cognitive processing of potentially meaningful verbal material that is analogous in format to standard expository texts? This question is not answered by Paul's research. The present study attempts to explore this question. Only insofar as a cognitive style can be shown to be related to or methodologically derived from material which approximates typical texts, does exploration of its implications for meaningful learning appear plausible. And insofar as a cognitive style refers to patterns of cognitive functioning it would appear that research in the area should be ultimately directed toward understanding the processes underlying cognitive assimilation of potentially meaningful verbal material or meaningful learning.

By way of summarizing and clarifying some of the issues raised in reference to Paul's research, Bartlett's theory of

remembering (upon which Paul bases his studies) will now be discussed. Given Bartlett's conception of the schema as an actively-orienting response organization mechanism which undergoes continuous reciprocal change, his notion of remembering as "imaginative reconstruction" rather than veridical reproduction is not surprising. However, as Ausubel (1968) indicates Bartlett's theory in its exclusive emphasis on the attitudinal and affective determinants of memory related to the nature of his choice of experimental tasks (e. g., stories, pictures, and figures) ignores the cognitive variables involved in the assimilation and recall of logically meaningful and substantive information. Clearly here too the prior experiences of the individual exert an influence on his assimilation of new material, but these experiences are more appropriately conceptualized as cognitive structures or anchoring ideas (Ausubel) which interact with the potentially meaningful stimulus and determine its conversion to actual psychological meaningfulness rather than attitudinal or affective components.

Thus, for Bartlett the idiosyncratic process of dynamically structuring and restructuring attitudinal and affective components underlies the organization of both perceptual and recall processes, interacting with and shaping the qualitative nature of their products. His theory is neither comprehensive insofar as it ignores cognitive variables nor is it exhaustive even within its own target area. Bartlett accounts for the distortion effects of recalled stimuli in terms of the "connotative"

aspects predominating over "denotative" dimensions. However, we are left with the problem of accounting for instances of "unbiased" recall as well as the apparent absence of a cognitive-affective interaction especially in the case of non-fantasy or image-evoking situations in which the salient requirement is objective information processing and retrieval. And given Bartlett's emphasis on the preeminence of constellations of idiosyncratic schema in affecting the perception and recall of stimuli, it is difficult to account not only for "objective" recall but for any uniformity of response production occurring between individuals. Thus, while individual differences exist both in terms of prior experiential histories as well as with respect to response style to an immediate stimulus so do uniformities occur. Holding cognitive sophistication relatively constant, students sitting in a lecture can report with varying degrees of thoroughness the <u>substance</u> of that lecture. Barlett's theory does not adequately explain such uniformities and we would argue that "imaginative reconstructions" which he observes are restricted to the types of tasks he investigates in which attitudinal and affective processes are called into play. In short, the generalizability of Bartlett's theory is confined to the types of tasks used in his studies.

In general, as far as cognitive style is concerned:

> ...a serious methodological weakness common to many of the studies in this area is the fact that the intra- or intertask generality of function of the measures which they use for cognitive style, its determinants, and its functional consequences has not been adequately established. It is questionable,

> therefore, whether these measures are actually indicative of stable and generalized cognitive traits. (Ausubel and Sullivan, 1970).

Other cognitivists working in the area of cognitive styles have generally only used a single instrument (e.g., Kagan) or a series of highly intercorrelated techniques (e.g., Witkin) in extracting their variables. Thus, the present study differs from other research because a second instrument was constructed to validate the first. In addition, unlike the instruments used by other researchers, the Cognitive Style Instrument is a direct measure of information-processing and does not presuppose an identity between perception and cognition or between classification and all cognitive activity.

Hypotheses

I. The cognitive style scores are described as a generalizing-particularizing continuum exhibiting a wide range of variability with individual consistency over items.

II. The identification of generalizers and particularizers by the Cognitive Style Instrument is generalizable to situations which approximate "real life" activity.

III. The generalizing-particularizing cognitive style dimension is not related to general intelligence.

IV. Differential styles of perceptual functioning distinguish generalizers from particularizers: particularizers report more details than generalizers on a perceptual task.

V. Generalizers transform presented information while particularizers select presented informational elements verbatim in substantiating their conclusions in a decision-making task.

Method

PHASE I

Subjects

The Cognitive Style Instrument was administered to the Hunter High School junior class which consisted of 146 female students.

Students admitted to Hunter High School are required to pass an entrance examination which presupposes an above-average intellectual level. Hunter High School was selected for this study because it was assumed that more sharply-defined results would be produced if a sample with above-average intellectual level were used.

High school students were selected in preference to younger subjects in order to avoid the confounding effects of earlier developmental unevenness on information-processing activity. That is, we wished to test Ss whose cognitive organization and functioning were relatively stabilized.

Procedure

Pilot Studies: Two pilot studies were conducted in order to test and refine the Cognitive Style Instrument. The first pilot included nine college students employed on a part-time basis at the Graduate Center. The second pilot included 13 graduate students and graduate research assistants in attendance in the Educational Psychology Doctoral Program at City University.

The original instrument consisted of eight paragraphs. Results from the first pilot study indicated the advisability of eliminating one of the paragraphs. A modified index of discrimination which correlated Mean Total Score with individual Item (paragraph) Score indicated that scores on two paragraphs correlated rather low with total score. Refinement of the scoring schema using the second pilot data proved successful in eliminating these weaknesses.

The Cognitive Style Instrument consists of a series of seven paragraphs dealing with anthropological themes and customs selected and rearranged from Frazer's Golden Bough. Each paragraph contains a stated main generalization and three subgeneralizations each exemplified by two specific cultural practices.

After each untimed paragraph reading which permitted S to proceed at his normal reading rate, S signalled to E that he had completed a single reading of each paragraph by looking up. When the entire group was judged as having finished reading each paragraph, they were instructed to write within a 4-minute period whatever they chose about the content of the paragraph (rather than evaluative reactions) that would convey to another person what they got out of reading it. The approximate lapsed time between the first and last readers' completion of individual paragraphs did not exceed two minutes.

The instructions to Ss which appeared on the cover sheet of the Cognitive Style Instrument read as follows:

> I am going to ask you to read a number of paragraphs. In each case write whatever you choose about the content of the paragraph you just read that would convey to another what you got out of reading it.
>
> Each paragraph is to be read only once at your normal rate. Please turn the page over when you have finished reading the paragraph and do not refer back to it. Do not begin to write until you receive instructions to do so.

Credit for generalizations was given on the basis of reference to the substantive content of the main and/or subordinate themes; credit for particulars was given for reporting correctly any element of a custom. Credit for generalization consisted of one point for correct reference to the main theme of the generalization and one point for correct reference to the main theme of each of the subgeneralizations. Credit for particulars consisted of one point for correctly reporting any element of one of the customs. Credited responses may range from mention of single names to reconstructions of the entire custom. If two or more elements of one custom are reported, the score is one point. Credit for generalizations and particulars was tabulated separately.

The G-P difference score was computed as follows:

$$\frac{\text{Reported number of generalizations}}{\text{Total possible number of generalizations}} - \frac{\text{Reported number of particulars}}{\text{Total possible number of particulars}} \times 100$$

The range of possible scores extends from +100 to -100, with generalizers located in the positive end of the distribution

and particularizers in the negative end. As scores depart from the extremes (+100 and -100) and approach zero, the difference between the generalizing versus the particularizing tendancy becomes less pronounced with a 0 score indicating approximately no difference.

The reliability of the Cognitive Style Instrument was evaluated by the split-half (or odd-even) statistic which consisted of correlating the G-P difference $score_{odd}$ computed on the basis of combined scores from paragraphs # 1, 3, 5, and 7 with the G-P difference $score_{even}$ computed on the basis of combined scores from paragraphs # 2, 4, and 6.

Rater agreement or reliability was evaluated by comparing the scores generated by three raters independently scoring the same 50 protocols selected at random from the sample of 146. The rater reliability statistic was computed by averaging the three product-moment correlations of Rater 1 vs. 2, Rater 2 vs. 3, and Rater 3 vs. 1. (See Table 2 for computational formula; see Table 3 for individual correlations.)

The method of determining the validity of the Cognitive Style Instrument will be described in Phase II.

PHASE II

Subjects

A test instrument designed to validate the Cognitve Style Instrument was administered approximately one year later to 46

of the original Hunter High School students who agreed to participate in the project.

Procedure

The validating instrument consists of seven arguments adapted from Plato's Dialogues, each of which states the theme of the argument, at least three generalizations constituting the development of the argument, and illustrations (i.e., allegory, analogy, example) exemplifying the generalizations.

The validating instrument which approximates the structural design of the Cognitive Style Instrument but differs as a function of dialogue format, content, and length thereby constituting a method of validation rather than reliability, simulates the essentials of real-life argument in an attempt to measure generalized information processing activity. Administration of the Plato Instrument occurred one year after the Cognitive Style Instrument test eliminating the possibility of "carry over" effects.

The administrative procedure and instructions of the Plato Instrument paralleled those for the Cognitive Style Instrument: untimed readings of each dialogue were followed by a seven-minute maximum content reporting period. Credit and scoring were identical to the Cognitive Style Instrument. (The "illustrations" are scored in the same manner as the customs.)

The reliability of the Plato Instrument like the Cognitive Style Instrument was computed by the split-half statistic.

Rater reliability was evaluated by three raters scoring the 46 protocols. The rater reliability statistic was computed as described above.

PHASE III

The subjects and testing procedure were the same for both Phases III and IV.

Subjects

Fifty-one Ss selected from the original 146 Hunter High School students on the basis of cognitive style scores which fell at both extremes of the distribution yielded a sample of 24 high generalizers and 27 high particularizers.

Procedure

Individual WAIS and Rorschach tests were given to 51 Ss according to the standard procedures for administering these tests. The testers were four graduate students in attendance in the Masters School Psychology Program at City College each of whom has completed a year sequence in psychodiagnostic techniques and were recommended as competent in test administration and scoring. Each of the four testers administered and scored WAIS and Rorschach protocols for approximately 13 Ss.

The WAIS is an individual intelligence test consisting of a series of six verbal and five performance subtests which are intended to measure hypothesized components of general

intelligence. Statistically significant positive correlations between these subtests and the full scale IQ score have been obtained. The use of the WAIS in this study permitted the statistical comparison of cognitive style scores with full scale IQ scores as well as with subtest scores. However, the major focus in this study was on obtaining an index of the degree of relationship between general intelligence as measured by the full scale IQ score and the cognitive style score.

PHASE IV

For subjects and testing procedure description, see Phase III.

The Rorschach which is ordinarily used as a psychodiagnostic instrument was used as a ten card set of ambiguous stimuli for the purpose of eliciting perceptual responses which were not scored or interpreted according to clinical conventions. The purpose in our use of the Rorschach was to determine the presence of differential perceptual styles distinguishing particularizers from generalizers. "Differential perceptual styles" were operationalized as detailed versus generalized reports of perceptual responses and associations to the ten inkblot stimuli. The scoring criteria for the presence (or absence) of detail were adapted from Bartlett's observations and classifications of his subjects' responses to inkblot stimuli (1932).

Scoring consisted of one point for the presence of detail in the quality of the responses made to each of the ten Rorschach plates. A subject's total score could range from zero to ten.

The criteria for scoring the presence of detail from Bartlett were the following:

1. Expansion: elaboration, qualification of percept
2. Particularized or detailed associations: personal reminscence, anecodotes, affective statements elicited by the card.
3. Breaking up blot into multiple percepts (with the exception of card 10 which naturally elicits multiple percepts because of its fragmentary quality.)

"0" Score:

The absence of 1, 2, 3

4. Nonspecific intellectualized, affect-free content.

The following responses of a particularizer are fairly representative of what is meant by "detailed percepts":

> CARD 1: Two angels--one on each side holding a bomb. Now they're baby elephants. It's still a bomb in the middle. One elephant is upside down. It looks like an insignia. Two elephants with their trunks and each ear like a teddy bear. Two birds with wings stretched out with beak in bottom of a pedestal with a statue of a bust. Poodle.
>
> CARD 2: Two dogs with their noses flattened against each other with blood coming out of the head and neck. Two kidneys. Pelvis where legs should come out of skeleton. Two dogs with blood coming out of hind legs and nose.
>
> CARD 3: This is two men facing each other--bent at the waist--holding bowling balls--looks like they're arguing because of red blood around them. Bottom half of baseball player's uniform-- bent at knees--bowlegged. It looks like the behind of a cow with udders.

CARD 4: It looks like a skunk or some kind of black furry animal lying on its back with its feet spread apart and tail between the legs. The head of the black rabbit with two floppy ears one on each side with straight ear between them--whiskers, nose. American eagle--head up in the air--wings stretched out. It looks like it's falling. It can't fly.

CARD 5: This is a butterfly with wings and they're too heavy to pick up off the ground to fly. It doesn't look powerful anymore--looks naked and weak because the feet are exposed--the legs. Also it looks like two black crows--like Siamese twins. Each has its own head and legs and they're trying to separate themselves to become a whole black crow.

CARD 6: It looks like a cat skin rug. Stomach split open--laid out on the floor--head is flattened upside down. The whiskers stick out--two on each side. A dustmop facing up in the air. The sides are shredded--it's billowing out. Coat rack with two coats hanging on it. They're attached and are trying to become separate and each has its own sleeve. Fur coats with bear bodies and bear faces. An ice cream soda with all the ice cream and whipped cream coming out of it.

CARD 7: Two Indian women--hair in buns. They've got feathers coming out of the top of their hair. They look unsure of themselves, because they're attached at the bottom and the hands. Their hands are out-stretched and it looks like they're not sure where to separate--where to go. They're looking at each other very quizzically. They're also very bottom-heavy--it doesn't look like it's very easy to separate. It looks like point of fountain pen with the ink flowing around it. It looks like two elephants with head, trunks, shapeless middle and sitting against a sphinx-like statue with triangular headdress. Their bodies fit into it--fall into the gaps.

CARD 8: Inside of the body. The lightest blue is a suggestion of a skeleton. You can see the shoulder blades. It's a woman's figure. You can see the tissues, except it's kind of squashed as if it was hit by a car or something heavy and nothing has its original shape except for the skeleton, but everything is spreading out of its original boundaries and disease is taking over, because on either side there's a red weasel or rat without a tail and each animal is trying to ruin the whole system of the skeleton, consuming it, pulling it in two and taking over like a cancer because their

bodies are mingling with the blue area which is one of the organs. The feet are consuming the bottom orange part.

CARD 9: It looks like a cattle's head--skeleton. The kind you find on the desert--kind of looks like the story of how it died on the desert. The head is on fire, like th burning, the dryness of the desert and the middle is all the body fluids coming out of it--all the mucous and everything else and the bottom part is the rest of the body organs. They've still got blood on them. The story of the cattle's death is read from the bottom to the top and it turns on fire from the heat of the sun and you see it turn white to ashes and eventually it kind of merges with the sand.

CARD 10: It looks like the kind of thing a little kid would do if he was told to paint Spring with all the butterflies and caterpillars and it had to be painted by a boy, because it has all the spiders and bug guts and there's some flowers there. The bugs are in them or eating them up and there's a parachute jumper on the top of it and all these things are bursting out of a blooming red tulip.

The following responses of a generalizer are fairly representative of what is meant by the "absence of detail in percepts":

CARD 1: Could be a butterfly. Could be a dragon.

CARD 2: It looks like another butterfly.

CARD 3: It looks like two people. It looks like a frog.

CARD 4: It looks like a bull.

CARD 5: Another butterfly--could be a bat too.

CARD 6: It looks like a biology picture cross section.

CARD 7: It looks like two faces. Two more faces.

CARD 8: Some different animals--looks like a bunch of them. The whole shape looks like a teapot.

CARD 9: It looks like rocks--like the side of a mountain.

CARD 10: This looks like bugs--spiders and worms and bees--just a bunch of them.

Rater reliability in terms of agreement in applying the scoring scheme was measured by comparing the scores generated by three raters independently scoring the 51 protocols. The statistical method was the same used in the other phases. (See Phase I for description)

PHASE V

Subjects

The sample consisted of 62 students from general psychology classes at Wagner College who volunteered to participate in the study. It was considered desirable to use at least one other sample drawn from a second population whose intellectual levels were not necessarily above those of typical college students (the Hunter High School students surpassed the general high school age population in intellectual potential) in order to avoid basing all conclusions on an atypical sample which would restrict the generalizability of experimental results.

Procedure

Two testing sessions separated by a one-day interval were held at Wagner College. The first session consisted of the administration of the Cognitive Style Instrument with instructions and procedure identical to those for the Hunter High School sample. The second session consisted of presenting typed copies of two passages of connected and extended meaningful verbal material to the 62 Wagner College students. These

passages were taken from Bartlett's book, Thinking (1958, pp. 168-173).

One half of the group was given the passages in an a-b order while the other half received them in a b-a order. Passage A consisted of a 2-page presentation of the factors surrounding an agreement reached between agricultural laborers and engineers whose different interests and backgrounds had caused a sharp division. Passage B consisted of a 4-page presentation of an account of a community crisis which served to bring two dissident religious factions to a state of communal cooperation. Ss were asked at the conclusion of single readings of each passage to decide whether the cooperation between the two groups will be maintained successfully or must inevitably break down; they were asked to state the steps and main considerations by means of which their decision was arrived at.

The instructions which appeared after the last page of each passage read as follows:

> Based on the presented information, decide whether the cooperation between the two groups will be maintained successfully or must inevitably break down. State the steps and main considerations by means of which you have arrived at your decision.

The scoring categories were Transformation and Selection. Credit was given for Transformation if the presented information were in some way idiosyncratically reorganized or translated to serve as a basis for predictive, inferential, or interpretive propositions or arguments which had to indicate a clear "going beyond" of the verbatim content of the given information. Credit was given for Selection if details or propositions were taken

from the given passages without any cognitive modification and thus used to support decisions. Credit consisted of one point for each transformation and one point for each selection that referred to different idea units proposed by the subject and the mention of different informational elements presented in the passage respectively. The scores on the two passages were combined, yielding a Transformation and Selection score for each subject.

The following response of a generalizer is fairly representative of what is meant by the "transformation" of presented information:

> PASSAGE B: In times of crisis, people are forced to reach out to those they have always rejected. If the initiative for a cooperation exists in both sides at the initial point of crisis, it is logical to suggest that cooperation conceivably exists beyond the limits of the physical crisis.
>
> First of all, the antagonism evidenced in the story was a historical antagonism, fed by the ignorance and lack of understanding often characteristic of narrow-minded, doctrine-oriented sects. Once a common crisis forced them to act as a unit, they were for the first time brought into intimate contact with the people they had been trained or conditioned to distrust. Thrown into this cooperative situation, they realized their antagonism for what it was--a learned reaction not formulated by individual experience but by authoritive manipulation.
>
> Once the two factions could become involved with each other without the fear of social ostracism by their neighbors, it was only natural they could tear down prejudices and begin to really understand what differences, if any, existed between them.
>
> Thus it is my opinion that the cooperation would continue, for the people were now acting upon considered, individual experience, rather than prejudices assimilated through ignorance and inexperience.
>
> PASSAGE A: In this situation, conflict would be inevitable; the article itself states the reason why. The differences in intelligence (as indicated by average

> IQ of each group) would almost certainly cause resentment in both groups, the workers representing the intellectual snobbery of the engineers and their obvious superiority, and the engineers who naturally look upon the workers with disdain, especially those workers of high position. The engineer would hardly be motivated to accept any kind of advice from those he consideres his intellectual inferior. Also it is hard to believe that one could convince either group that increased benefits for the other group would increase their personal well-being. Human motivation is hardly that noble or unselfish.
>
> Factors of sectional jealousy due to specialization would also contribute to a lack of contribution, each section convinced of its own superiority and the ultimate stress upon the satisfaction of its needs as primary.
>
> Thus many factors would conceivably work hand in hand to destroy initial unity. These factors would include intellectual resentments, sectional rivalries, and ultimately basic human self-centeredness--the tendency to look out for "number one."

The following response of a particularizer is fairly representative of what is meant by the "selection" of presented information:

> PASSAGE B: I think the cooperation between the two groups will be maintained successfully. The feud between the two groups broke down in the crisis of a drought. They started then to merge together. By the time the flower show was held the hatred between the groups lifted. They transformed the festival into a happy one instead of a bitter competition. The marriage of the two heads of the different schools further cements the cooperation between the two groups. This is shown in the building of a new school for all. The children will now be taught the same and will not be made aware of the differences in the two groups. The hatred that existed formerly will have no chance of being passed on to future generations.
>
> PASSAGE A: I think that the cooperation between the groups will eventually break down. The laborers seem to be mistrustful of the engineers. They signed the new agreement after much persuasion. They didn't seem too happy with trying to join with the engineers. They don't seem to realize that they require the engineers in order to get anywhere. The lower IQ of the laborers indicates much resentment to the engineers. The laborers do not seem to want to collaborate with the engineers because they are intellectually above them. The laborers will tend to listen to a spokesman of their group. He will command

> much respect from them and his work will be law. If one of these spokesman makes the group hostile to the engineers all communication between the group will break down.

Rater reliability in terms of agreement in applying the scoring criteria was evaluated by comparing the scores generated by three raters independently scoring the 62 protocols.

Results

Phase I

The hypothesis that the cognitive style scores will be described as a generalizing-particularizing continuum exhibiting a wide range of variability with individual consistency over items was confirmed. The scores ranged from +73 to -54 with the median at +1 to +3 score interval as shown in Table 1. Individual consistency over items was established by a split-half reliability coefficient of .81 ($p < .001$).

The mean score for generalizers was +16.60 with a standard deviation of 13.65; the mean score for particularizers was -14.48 with a standard deviation of 11.18 as reported in Table 1.

An average interrater reliability coefficient of .76 ($p < .001$) demonstrated that a high level of agreement between raters independently scoring the Cognitive Style protocols could be obtained. This result tended to rule out the possibility that the scoring criteria were not objective or communicable. (Table 2 presents the computational formula. Table 3 presents the individual correlations of Raters 1 vs. 2, 2 vs. 3, 3 vs. 1, all of which attain at least a $p < .001$).

Phase II

The correlation of the Plato Instrument scores with the cognitive style scores was .80 ($p < .001$), supporting the hypothesis that the identification of generalizers and particu-

larizers by the Cognitive Style Instrument will be generalizable to situations which approximate "real life" activity.

The corrected split-half reliability coefficient of the Plato Instrument scores was .71 ($p < .001$) which confirmed the existence of individual consistency over items. The scores ranged from +50 to -45 with the median at the 0 score.

The mean score for generalizers was +18.13 with a standard deviation of 12.37; the mean score for particularizers was -18.78 with a standard deviation of 13.18 as reported in Table 4.

The average interrater reliability coefficient was .64 ($p < .001$). This result established that the scoring criteria for the Plato Instrument were substantially objective and communicable.

Phase III

The hypothesis that the generalizing-particularizing cognitive style dimension is not related to general intelligence was confirmed. The correlation between the WAIS full scale IQ scores and the cognitive style scores was nonsignificant (.00 for the generalizers and -.06 for the particularizers). The correlations between the individual subtest scores and the cognitive style scores were all nonsignificant as reported in Table 5.

Phase IV

Analysis of the Rorschach results indicated that particularizers gave significantly more detail responses than

generalizers (t = 3.92, df = 49, p < .001) confirming the hypothesis that differential styles of perceptual functioning would distinguish generalizers from particularizers. The mean number of detail responses reported by particularizers was 5.11 as compared to 2.21 reported by generalizers as shown in Table 6.

Ss whose scores fell above the median on the cognitive style distribution were considered the generalizers while those Ss whose scores fell below the median were considered the particularizers.

The average interrater reliability coefficient was .81 (p < .001) indicating a substantial level of agreement between raters independently scoring the Rorschach protocols.

Phase V

The hypothesis that generalizers will transform presented information while particularizers will select informational elements verbatim in substantiating their conclusions in a decision-making task was confirmed. Generalizers gave significantly more Transformation responses than particularizers (t = 5.76, df = 61, p < .0001). The mean number of Transformation responses was 3.94 for generalizers as compared to 1.00 for particularizers as shown in Table 7.

Particularizers gave significantly more Selection responses than generalizers (t = 4.72, df = 61, p < .0001). The mean number of Selection responses was 3.13 for particularizers as compared to 1.29 for generalizers.

The average interrater reliability coefficients were .67 for Transformation and .61 for Selection ($p < .001$).

Discussion and Conclusions

Phase I

The generalizing-particularizing dimension of cognitive style was established as a descriptive parameter of information-storing and processing activity. Operationalization of the generalizing-particularizing dimension of cognitive style consisted of scoring the responses of Ss which were intended to summarize the content of 7 page-long paragraphs dealing with anthropological material for the presence of generalizations and details. The distribution of scores expressed in terms of a ratio difference between the number of generalizations and the number of details reported exhibited a wide range of variability (from +73 to -54). The consistency of an individual's style of responding over items was established by means of a split-half reliability coefficient (.81; $p < .001$). On the basis of these results the hypothesis that the cognitive style scores would be described as a generalizing-particularizing continuum exhibiting a wide range of variability with individual consistency over items was confirmed.

Phase II

The generalizing-particularizing dimension of cognitive style was established as a relatively stable and general individual difference parameter. The identification of subjects as generalizers and particularizers by the Cognitive Style Instrument tended to be corroborated by the results of the

validating instrument administered one year later. The correlation between the two sets of scores was .80 ($p < .001$). The validating instrument which consisted of seven arguments adapted from Plato's Dialogues was designed to simulate the essentials of real-life argument in an attempt to measure generalized information-processing activity as it occurs in "real life" situations.

Phase III

The generalizing-particularizing cognitive style dimension was found not to be equivalent or relatable to general intelligence as measured by a standardized intelligence test. The relation of cognitive style scores to Wechsler Adult Intelligence Scale scores was found to be statistically non-significant. On the basis of these results it was possible to discount the possibility that the tendency to report generalizations as compared to details was an expression of quantitative differences in intellectual level rather than a manifestation of individual differences in patterns of cognitive organization and functioning.

Phase IV

The generalizing-particularizing cognitive style dimension was found to be generalizable to a perceptual style. Particularizers were observed to report significantly more details than generalizers on a perceptual task ($t = 3.92$, $df = 49$, $p < .001$).

The expectation that a style of information-processing descriptive of a pattern of cognitive functioning would be correlated with a clearly identifiable pattern of perceptual functioning distinguishing generalizers from particularizers was confirmed.

Phase V

Some implications of the generalizing-particularizing dimension of cognitive style for meaningful learning were established. Two encoding strategies differentiating generalizers from particularizers were observed in analyzing Ss' responses on a task which required using presented information to support decisions: Transformation and Selection. Transformation refers to an idiosyncratic organization or translation of the presented information which functions as a basis for predictive, inferential, or interpretive propositions or arguments. Selection refers to the use of details or propositions without any cognitive modification to support decisions; there is no "going beyond" of the verbatim content of the given information.

Generalizers gave significantly more Transformation responses ($t = 5.76$, $df = 61$, $p < .0001$) while particularizers gave significantly more Selection responses ($t = 4.72$, $df = 61$, $p < .0001$).

It was concluded on the basis of these results that generalizers tended to approach potentially meaningful information with a meaningful learning set while particularizers tended to approach potentially meaningful information with a rote learning set in utilizing information to support a decision.

The validity and reliability of the generalizing-particularizing cognitive style dimension was confirmed by means of establishing the validity and reliability of the Cognitive Style Instrument. The Cognitive Style Instrument differs from the measures other investigators have used for hypothesized cognitive styles because it consists of connected and extended meaningful impersonal subject-matter content in a format and presentation style which are analogous to standard expository texts or didactic material. Given the definition of cognitive style as reflective of "self-consistent individual differences with respect to certain general properties or attributes of cognitive organization and functioning that characterize human beings as information-storing and -processing mechanisms", it may be concluded that the construct validity of a cognitive style measuring instrument depends on the degree to which it constitutes or directly represents standard or typical information-processing situations. And to the extent that the construct validity of the measuring instrument may be theoretically justified, a logical basis exists for considering that the cognitive style under study is reasonably proposed as a general parameter descriptive of patterns of cognitive functioning which become manifest in information-processing situations.

In short, the legitimacy of regarding the generalizing-particularizing cognitive style dimension as a pattern of cognitive functioning which will be manifested in standard information-processing situations rests on the fact that the

Cognitive Style Instrument constitutes a direct measure of information-processing activity insofar as it consists of extended and connected meaningful impersonal subject-matter content which must be processed in order to be reported.

The generalizability of the cognitive style dimension to information-processing activities which approximate "real life" situations was confirmed by means of validating the Cognitive Style Instrument with a criterion (i.e., the Plato Instrument) which consisted essentially of arguments presented in dialogue form. The idea of a generalizing-particularizing cognitive style grew out of the observation that in summarizing or reporting actual arguments some individuals "characteristically give a circumstantial work-for-word, blow-by-blow sequential account, (while) other individuals characteristically give a highly succinct and telescoped synopsis of the main points at issue" (Ausubel and Schwartz, in press).

The generalizing-particularizing cognitive style dimension was shown not to be related to general intelligence by means of obtaining nonsignificant correlations between WAIS (Wechsler Adult Intelligence Scale) IQ's and cognitive style scores. If a significant relationship had been observed, it could be reasonably concluded that all results were attributable to differences in intellectual levels rather than differences in patterns of cognitive organization and functioning. Any differential patterns of approaching meaningful learning tasks would be an expression of differences in intelligence; the functional consequences of the generalizing-particularizing

cognitive style dimension for meaningful learning could not be established. Thus, both the theoretical and practical significance of the present research objectives would be seriously undermined. On the other hand, given the lack of a statistically significant relationship, the grounds for assuming that the generalizing-particularizing cognitive style dimension is a relatively unique and self-substantial variable which cannot be subsumed by a broader cognitive factor (i.e., intelligence) are thereby strengthened. It was therefore reasonable to attempt to establish its functional consequences for meaningful learning.

The generalizing-particularizing cognitive style dimension was shown to be relatable to a perceptual style. Differential perceptual style distinguished particularizers from generalizers: particularizers reported more details on a perceptual task than generalizers. This finding tends to support the conclusion that in general particularizers are more inclined to attend to the specific and detailed elements of informational situations while generalizers are more inclined to attend to the broader informational categories both within cognitive and perceptual modes of functioning.

The results of the Bartlett Passage Test indicate that the generalizer tends to process or transform conceptual information rather than encode verbatim propositions while the particularizer tends to select either factual and/or propositional elements verbatim in substantiating decisions. The possibility that these results could be a function of differences in

intellectual level between generalizers and particularizers was discounted by the fact that nonsignificant correlations were obtained between WAIS IQ's and cognitive style scores. Thus, the differential encoding strategies which the Bartlett Passage Test was intended to reveal in order to establish the connection of the generalizing-particularizing dimension of cognitive style with meaningful learning may be described as the generalizer's idiosyncratic assimilation or transformation as compared to the particularizer's verbatim selection of meaningful information in order to support decisions. The implications of the cognitive style dimension for meaningful learning deal with (1) the tendency of generalizers to approach potentially meaningful material with a meaningful learning set to utilize information in supporting a decision and (2) the tendency of particularizers to approach potentially meaningful material with a rote learning set to utilize information in supporting a decision.

Additional evidence tending to corroborate the evaluated results of the Bartlett Passage Test comes from a separate study, The effects of a generalizing-particularizing dimension of cognitive style on the retention of prose material by Ausubel and Schwartz (in press) in which the senior author "attributed the superiority of generalizers on representational and explicitly-stated items to meaningful versus rote learning of such material."

A meaningful learning set may be defined as the learner's "disposition to relate new material nonarbitrarily

and substantively to his cognitive structure;" a rote learning set may be defined as the "learner's intention to memorize (new material) arbitrarily and verbatim (as a series of arbitrarily related words)" (Ausubel 1968). The following discussion suggests hypothetical applications in terms of raising possible learning problems and remediation directions based on the conclusion that generalizers tend to approach new material with a meaningful learning set while particularizers are more disposed to a rote learning set in substantiating their decisions.

Generalizers and particularizers may both experience difficulty in learning material which may be classified as either abstract-propositional or empirical-factual. Although this dichotomy suggests an absolute distinction and most didactic material represents a combination of both conceptual arguments and factual exemplifications, it is true that subjects such as history, geography, and certain sciences as traditionally presented would appear to be more weighted toward factual presentations while subjects such as geometry and philosophy appear to lend themselves more to forms of exposition which consist of logically-related propositions. It is possible that a generalizer who exhibits difficulty in learning abstract material may lack the relevant "anchoring" ideas which would enable him to assimilate new concepts through a process of integration with already established cognitive structures. Attempts at remediation might consist of presenting introductory concepts stated in familiar terms which are sufficiently broad in scope to function as a basis in terms of which the assimilation

of more technical, differentiated, and novel concepts may occur through the processes of cognitive subsumption, expansion, or derivation. A generalizer who manifests learning difficulty with predominantly factual presentations may be having problems because he both lacks relevant anchoring ideas and the material itself offers no assistance in the construction of these concepts. It might prove beneficial to provide a conceptual framework or "scaffolding" which consists of logically-related propositions graduated in terms of levels of specificity and differentiation within which the "facts" may be organically related and presented. Thus the generalizer is not called upon to memorize a series of discrete bits of information but rather to understand their meaning in terms of their position within this framework which both elucidates and is in turn elucidated by their meaning.

A differential learning facility with factual as opposed to propositional material would not necessarily be predicted for the particularizer since both classes of material can just as easily be rotely memorized. A particularizer might have difficulty with the long-term recall of either factual or abstract material while demonstrating facility in tests tapping short-term retention. He may also show marked superiority on tests which implicitly require that the learned material be identified or represented in an approximate verbatim facsimile of the original presentation while falling down on tasks or tests which require the application, transfer, or reformulation of learned material. Remediation approaches would in general deemphasize the value of

verbatim reproduction (which is no mean task in light of the fact that this technique has in all probability been implicitly reinforced by frequently earning the particularizer high grades) and stress the potential or logical meaningfulness of new material (i.e., "the relatability on a nonarbitrary and substantive basis to correspondingly relevant ideas that lie within the realm of human learning and capability"). The latter task may be accomplished by calling attention to the intrinsic connectedness of concepts and facts both within the presented information and in terms of their relatedness to other areas of knowledge as well (especially areas with which it may be reasonably assumed that the student has prior familiarity). Tasks could be designed that implicitly depend on the idiosyncratic assimilation and reformulation of presented material and culminate in tests of transfer or essays which require comparisons, evaluations, or applications of concepts rather than verbatim reproduction.

This discussion is at best hypothetical and corroboration of some of the suggestions depends on future research. However, it would appear that the sources of learning difficulty as well as success would in all probability differ for the generalizer and the particularizer and that therefore attempts at academic remediation might profitably be directed toward and structured in accordance with these differences.

Paul conceives of cognitive style "as mediating between motivation and emotion, on the one hand, and cognition, on the other". The implications of this position for future research

would be to explore the possibility of the existence of motivational and emotional correlates of the generalizing-particularizing cognitive style dimension.

Table 1

Frequency Distribution, Means, and Standard Deviations of the Cognitive Style Instrument Scores

Score Interval	Frequency	Score Interval	Frequency	Generalizers
	N = 146			
+73	1	- 1-3	6	Mean +16.60
+55-57	1	- 4-6	5	S.D. 13.65
+52-54	-	- 7-9	13	
+49-51	1	-10-12	5	
+46-48	-	-13-15	5	
+43-45	1	-16-18	6	
+40-42	1	-19-21	6	
+37-39	1	-22-24	4	
+34-36	2	-25-27	3	
+31-33	2	-28-30	4	
+28-30	3	-31-33	1	
+25-27	6	-34-36	-	
+22-24	6	-37-39	-	Particularizers
+19-21	5	-40-42	1	
+16-18	5	-43-45	1	Mean -14.48
+13-15	8			S.D. 11.18
+10-12	11	-54	1	
+ 7-9	8			
+ 4-6	9			
+ 1-3-median	6			
0	8			

Table 2

Average Interrater Reliability of Three Raters on the Cognitive Style Instrument, Plato Instrument, Rorschach Variation, and Bartlett Passage Tests

Test	Average Interrater Reliability*	Number of Protocols Rated	Sample Size N
Cognitive Style Instrument	.76	50	146
Plato Instrument	.64	46	46
Rorschach Variation	.81	51	51
Bartlett Passage:			
Transformation	.67	62	62
Selection	.61	62	62

*Formula: $$z_{average} = \frac{(N_1-3)z_1 + (N_2-3)z_2 + (N_3-3)z_3}{(N_1-3) + (N_2-3) + (N_3-3)}$$

Table 3

Reliability Coefficients for Pairs of Raters on the Cognitive Style Instrument, Plato Instrument, Rorschach Variation, and Bartlett Passage Tests

Test	Raters		
	1 x 2	2 x 3	1 x 3
Cognitive Style Instrument	.80	.78	.68
Plato Instrument	.83	.50	.48
Rorschach Variation	.90	.74	.83
Bartlett Passage:			
Transformation	.54	.69	.74
Selection	.42	.65	.71

Table 4

Frequency Distribution, Means, and Standard Deviations of the Plato Instrument Scores

Score Interval	Frequency	Score Interval	Frequency	Generalizers
	N = 46			
+50	1	- 1-3	3	Mean +18.13
+41	2	- 4-6	3	S.D. 12.37
		- 7-9	1	
+31-33	1	-10-12	-	
+28-30	-	-13-15	3	
+25-27	1	-16-18	2	
+22-24	1	-19-21	3	
+19-21	2	-22-24	1	
+16-18	3	-25-27	1	
+13-15	3	-28-30	2	Particularizers
+10-12	5	-31-33	-	
+ 7-9	1	-34-36	1	Mean -18.78
+ 4-6	2	-37-39	-	S.D. 13.18
+ 1-3	1	-40-42	1	
0	--Median	-43-45	2	

Table 5

Correlations* of WAIS Scores with Cognitive Style Scores for High Generalizers and High Particularizers

	Generalizers	Particularizers
IQ Scales	N = 24	N = 27
Verbal	.27	.16
Performance	- .15	- .03
Full Scale	.00	- .06
Verbal Subtests		
Information	.14	- .18
Comprehension	- .07	.06
Similarities	.35	.00
Digit Span	.25	.04
Vocabulary	.03	- .00
Performance Subtests		
Digit Symbol	.01	.05
Picture Completion	- .06	- .04
Block Design	- .11	.07
Picture Arrangement	.09	- .19
Object Assembly	- .33	- .17

*All of the correlations were found to be statistically nonsignificant.

Table 6

Mean Scores and Standard Deviations of Generalizers and Particularizers on Variation of Rorschach Test

Group*	Generalizers	Particularizers
M	2.21	5.11
S. D.	1.82	3.21

$t = 3.92$, $df = 49$, $p < .001$

*Generalizers were defined as Ss with scores above the median and particularizers with scores below the median on the Cognitive Style Instrument distribution.

Table 7

Mean Scores and Standard Deviations of Generalizers and Particularizers on the Bartlett Passage Test

Group	Transformation Process	Selection Process
Generalizers		
M	3.94	1.29
S.D.	2.18	1.04
Particularizers		
M	1.00	3.13
S.D.	1.83	1.88

$t_{transformation} = 5.76$, $df = 61$, $p < .0001$

$t_{selection} = 4.72$, $df = 61$, $p < .0001$

Appendix A

COGNITIVE STYLE INSTRUMENT

(Responses were written on blank sheets which were inserted between the paragraphs to prevent both advanced and multiple readings.)

DIRECTIONS

I am going to ask you to read a number of paragraphs. In each case write whatever you choose about the content of the paragraph you just read that would convey to another person what you got out of reading it.

Each paragraph is to be read only once at your normal reading rate. Please turn the page over when you have finished reading the paragraph and do not refer back to it. Do not begin to write until you receive instructions to do so.

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The intervention of gods is sought in various ways in attempts to induce desired natural events. Sometimes the deity is simply rewarded if he succeeds and is punished if he fails. When the Chinese want rain they make a huge dragon of paper or wood to represent the rain-god and carry it about in procession. If no rain follows, the mock-dragon is torn to pieces. At other times they threaten and beat the god if he does not give rain; sometimes they publicly depose him from the rank of deity. If the wished-for rain falls, the god is promoted to a higher rank by an imperial decree. In April 1888 the mandarins of Canton prayed to the god Lung-wong to stop the continuous downpour of rain; and when he turned a deaf ear to their petitions they put him in a jail for five days. This had a beneficial effect. The rain ceased and the god was restored to liberty. At other times the god is made to suffer the deprivation for which relief is sought. In 1857, a time of drought, the same deity had been chained and exposed to the sun for days in the court-yard of his temple in order that he might feel for himself the urgent need of rain. So when the Siamese need rain, they set out their idols in the blazing sun; but if they want dry weather, they unroof the temples and let the rain pour down on the idols. In other parts of the Far East propitiation of the deity (sacrifice or offering) is attempted in the effort to influence the weather: a black pig is sacrificed to the Earth-goddess for rain, a white or red one to the Sun-god for sunshine. The Garos offer a black goat on the top of a very high mountain in time of drought.

A variety of ceremonies have been used to promote fertility. The Bataks of Sumatra have a ceremony which they call "making the curse to fly away" in which barrenness is transferred to an animal. When a woman is childless, a sacrifice is offered to the gods of three grasshoppers, representing a head of cattle, a buffalo, and a horse. Then a swallow is set free, with a prayer that the curse of barrenness may fall upon the bird and fly away with it. The Huzuls of the Carpathians upon seeing the first swallow in spring wash their face in flowing water and say, "Swallow, swallow, take my curse". In some tribes barren women attempt to associate themselves with natural symbols of fertility. In the Tuhoe tribe of Maoris trees are associated with the navel-strings of mythical ancestors. A barren woman had to embrace such a tree with her arms, and she received a male or female child depending on whether she embraced the east or west side. Among the South Slavonians a barren woman, who desires to have a child, places a new slip upon a fruitful tree on the eve of St. George's Day. Among the Kara-Kirghiz barren women roll themselves on the ground under a solitary apple tree. Sometimes barren women are punished in an effort to stimulate fertility. At the Greek harvest festival barren women are beaten with fresh green plants and branches. Depending on the season, strings of black and white figs were hung around the necks of the women while they were administered heavy blows with the branches of a wild fig tree.

In many cultures images are used to practice magic by imitation. In some cases the desired effect is obtained by subjecting the image or surrogate object to the treatment intended for the real person. When an Ojibway Indian desires to work evil on anyone, he makes a little wooden image of his enemy and runs a needle into its head or heart, or he shoots an arrow into it; but if he intends to kill the person outright, he burns or buries the puppet, uttering certain magic words as he does so. The Peruvian Indians moulded images of fat mixed with grain to imitate the persons whom they disliked or feared, and then burned the effigy on the road where the intended victim was to pass. Among the Bataks of Sumatra a barren woman, who would become a mother, will make a wooden image of a child and hold it in her lap. Imitation is also practiced with surrogates to prevent an undesired event such as illness. A Dyak medicine-man, who has been fetched in the case of illness, will lie down and pretend to be dead. He is accordingly treated like a corpse, is bound up in mats, taken out of the house, and deposited on the ground. After about an hour the other medicine-men loose the pretended dead man and bring him to life; and as he recovers, the sick person is supposed to recover too. Images may also be used to increase the supply of a desired object. The Indians of British Columbia whose chief staple is fish have a Nootka wizard who makes an image of a swimming fish and puts it into the water in the direction from which the fish generally appear. The headman of the white hen among the Warramunga seeks to multiply white hens by holding an effigy of the bird and imitating its sound.

Various ways of incorporating animal virtues are practiced by different peoples. When the Kansas Indians were going to war, a feast used to be held in the chief's hut, and the principle dish was dog's flesh, because, said the Indians, the animal who is so brave that he will let himself be cut in pieces in defense of his master, must inspire valor. The Miris of Assam prize tiger's flesh as food for men. Among the Papuans in New Guinea young lads eat strong pig, wallaby, and large fish. On the other hand, the Namaquas abstain from eating the flesh of rabbits but they eat the flesh of the lion or drink the blood of the leopard. A Wagogo man of East Africa refuses to eat the heart of a hen or the flesh of old animals. Other tribes worship animal parts that are considered the seats of various virtues. Among the mountain tribes of South-Eastern Africa whenever a lion has been killed, his liver which is considered the seat of valor; his ears which are supposed to be the seat of intelligence; the skin of his forehead which is regarded as the seat of perseverance; and his testicles which are held to be the seat of strength are cut from his body and baked to cinders. The cinders are sprinkled over the bodies of the tribe's youths by the priest.

Many customs illustrate attempts to manipulate the occurrence of marriage. In some parts of the Highlands of Scotland the last handful of corn that is cut by the reapers on any particular farm is called the Maiden. If an unmarried person gets the Maiden, he believes that he will get married before another harvest. The reapers often compete to get the Maiden. For example, one reaper might leave a handful of corn uncut and cover it up with earth to hide it from the other reapers, till all the rest of the corn on the field is cut down. Several others might try to play the same trick, and the one who is coolest and holds out longest obtains the prize. The objective of other practices was to prevent the consummation of marriage. During the Middle Ages, and down to the 18th Century, anyone who bore a grudge against a wedding couple either locked a lock or tied a knot in a cord while the wedding ceremony was taking place. The lock or knotted cord was then flung into the water and had to be found, unlocked or untied, if the spell was to be broken and union possible. Still other practices attempt to bring about marriage with a particular beloved person. The ancient books of the Hindoos lay down a rule that a man in love should sit silent on a starry night under his beloved's window. When the pole-star appears, he should say, "To me Brihaspati has given thee; obtaining offspring through me, thy husband to be, live with me a hundred autumns".

Beliefs about reincarnation are widespread. They are often manifested in naming practices. Among the Lapps, when a woman was with child and near the time of her delivery, a deceased ancestor or relation used to appear to her in a dream and inform her what dead person was to be born again in her infant, and whose name the child was therefore to bear. Among the Yorubas, soon after a child has been born, a priest of Ifa, the god of divination, appears on the scene to inform the parents the name of the ancestor whose soul now animates their child. Some tribes believe that animals can be reincarnated from various of their vital parts. The Esquimaux about Bering Strait believe that the souls of dead sea-beasts, such as seals, walrus, and whales, remain attached to their bladders and that by returning the bladders to the sea they can multiply the game which the hunters pursue and kill. The Kwai Indians of British Columbia think that when a salmon is killed its soul returns to the salmon country. They take care to throw the bones back into the sea instead of burning them. Sometimes an attempt is made to promote the reincarnation of humans into worshipped animals. Among the Indians of Nootka Sound, who regard the wolf as a deity, the chief discharges a pistol close to his son's ear while members of the tribe appear in wolf-skins with masks over their faces representing the wolf. The Basque tribe which worships the bear celebrates the death of one of their hunters in a similar fashion using the skins of a bear to cover their deceased.

Many magical beliefs are based on the idea that what is done to a representation of the real thing will affect the real thing in a similar way. In this way it is believed possible, for example, to influence a man's career or abilities. Certain tribes of Western Australia believe that a man swims well or ill, depending on whether his mother at his birth threw the navel-string into water or not. In Ponape, one of the Caroline Islands, the navel-string is placed in a shell and then disposed of in such a way as shall best adapt the child for the career which the parents have chosen for him; for example, if they wish to make him a good climber, they will hang the navel-string on a tree. In other cases it is believed that how one treats the causal agent of a wound determines the outcome of the injury. In Melanesia, if a man's friends get possession of the arrow which wounded him, they keep it in a damp place or in cool leaves, for then the inflammation will be trifling and will soon subside. In the meantime the enemy who shot the arrow, and his friends, place the arrow in hot and burning juices to aggravate the wound. In still other cases, the outcome of an injury depends on the actions of a man's relatives. The aborigines of Central Australia require that the near relations of a wounded man must grease themselves, restrict their diet, and regulate their behavior in other ways to ensure his recovery. When a son has been circumcised and the wound is not yet healed, his mother may not eat opossum, or a certain kind of lizard, or carpet snake, or any kind of fat so as not to retard the healing.

Appendix B

PLATO INSTRUMENT

(Responses were written on blank sheets which were inserted between the dialogues to prevent both advanced and multiple readings.)

DIRECTIONS

I am going to ask you to read a number of dialogues. In each case write whatever you choose about the content of the dialogue you just read that would convey to another person what you got out of reading it.

Each dialogue is to be read only once at your normal reading rate. Please turn each page over when you have finished reading it and do not refer back to it. Do not begin to write until you receive instructions to do so.

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Narrator: This dialogue occurs between Socrates and Protagoras, a well-known Sophist who instructs the young. Socrates speaks first.

Socrates: Well, Protagoras, if I understood you correctly, you promise to make men good citizens by teaching them the nature of virtue.

Protagoras: That is exactly what I do.

Socrates: That's a truly splendid accomplishment that you have mastered, if indeed you have mastered it. I warn you that you will hear nothing from me but what I really think. Virtue can neither be taught nor furnished by one man to another. Any subject which requires instruction must be somewhat technical so that only those receiving this specialized instruction will be qualified to speak on the subject. Virtue, though, is not a technical subject and so it cannot be taught. Let me illustrate what I mean. Athenians, like the rest of the Hellenes, are sensible people. Now when we meet in the Assembly I observe that if the state is faced with some building project, the architects are sent for and consulted about the proposed buildings. If it is a matter of ship-building, the naval designers are consulted and so on with everything that the Assembly regards as a subject for learning and teaching. If anyone other than an expert tries to give advice, the members jeer at him contemptuously, until he voluntarily desists, or else is dragged off by the police. That is how the Assembly behaves over subjects it considers technical. On the other hand, when the debate concerns the government and the political virtue of the country, the Assembly allows any man to advise them whether he be a builder, a blacksmith, shoemaker, merchant, shipowner, rich or poor, of good family or not. Thus, political virtue must not be a

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technical subject and so cannot be taught.

Protagoras: You are right, Socrates. The Assembly does listen to every man's opinion concerning the government. The reason, though, is not because man does not require instruction, but because every man has a capacity for virtue. Allow me to recount a story to illustrate this point, Socrates. Long ago, there existed gods but no mortal creatures. When the appointed time came for these also to be born, Prometheus and Epimetheus were charged with the task of equipping each mortal creature with suitable powers. Now Epimetheus persuaded Prometheus to allow him to do the distribution. "When I have done it," he said, "you can review it." So Epimetheus set to work. In his allottment he gave some creatures strength and equipped the weaker kinds with speed. Some he armed with weapons, while to the unarmed he gave some other faculty for their preservation. Next he contrived their comfort from the seasons by clothing them with thick hair or hard skins. He also shod them, some with hoofs, others with hard and bloodless skin. Now Epimetheus was not a particularly clever person. Before he realized it, he had used up all the available powers on the brute beasts, and left the human race unprovided. When Prometheus came to inspect the work, he found all the animals well off but man was still naked, unshod, and unarmed. To provide some means of survival for him, Prometheus stole the gift of skill in the arts and the gift of fire from Hephaestus and Athena, and bestowed them on man. Thus provided for, men lived in scattered groups. However, they were devoured by wild beasts, since they were still weaker in every respect. To save themselves men united in forti-

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fied cities; but when they so gathered they injured one another for want of political skill. So again they scattered and once more were defenseless against the wild beasts. Zeus, fearing the total destruction of our race, sent Hermes to impart to men the qualities of justice and respect for others in the hope of creating order and a bond of friendship and union in our cities. Hermes asked Zeus in what manner he was to bestow these qualities on men. "Shall I distribute them as the arts were distributed -- that is, on the principle that one trained doctor suffices for many laymen or shall I distribute justice and respect for their fellow human beings to all alike?" "To all," said Zeus. "Let each have his share. There can never be cities if only a few shared in these virtues."

Socrates: Your skill as a storyteller, Protagoras, cannot be equalled. I can't hope to compete but will state my second objection directly. Good men teach their sons subjects that depend on instruction, and make them expert in these things. However, in their own brand of goodness they do not make their sons better than others. The wisest and best of our countrymen is unable to hand on to others the virtue which he possesses. Pericles, for instance, gave his two sons, the best education possible, but in his own special kind of wisdom, he neither trained them himself nor handed them over to any other instructor. They were simply allowed to explore on their own on the chance of picking up virtue automatically. To take another example, Pericles, who feared that his ward, Clinias, would be corrupted by his older brother, Alcibiades, placed him in the household of Ariphron

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in order to give him a better upbringing. Before six months were out, Ariphron returned Clinias saying that nothing could be done for him. I could mention many others who are excellent men themselves but who never made anyone else better. Thus, I do not believe that virtue can be taught or else virtuous fathers would succeed in imparting their virtue at least to their sons.

Protagoras: But, Socrates, they do. Fathers teach and admonish their sons from earliest childhood. As soon as a child can understand what is said to him, nurse, mother, tutor, and the father himself, vie with each other to make him as good as possible. They instruct him on everything he does or says, pointing out, "This is right and that is wrong, this is honorable and that disgraceful, this holy, that impious; do this, don't do that." If he is obedient, well and good. If not, they straighten him out.

Socrates: All right, Protagoras, tell me this....You have stated that all men have a capacity for virtue. A man cannot live without some share in justice, or he would not be human. I believe that was the conclusion of your story.

Protagoras: That's right, Socrates.

Socrates: Then why should anyone endeavor to learn or to be taught that which he already knows?

Protagoras: Because, Socrates, while all men have a capacity for virtue, the practice of virtue is not automatic or innate. It requires instruction and thought. No one is angered by faults due to nature or chance. People do not rebuke or punish or teach an ugly, dwarfish, or maimed person; they simply pity him. But it is otherwise with the good

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qualities which are thought to be acquired through care, practice, and instruction. The fact that the state punishes criminals to prevent either the same man or others from doing wrong again, amounts to holding the view that virtuous practice can be instilled by education. The Athenians certainly do inflict punishment on wrongdoers. This shows that they too think it possible to impart and teach virtue.

II

Narrator: This dialogue takes place between Socrates and Seto, a statesman who prides himself on his knowledge of politics. Seto opens the discussion.

Seto: As I see it, Socrates, we are arguing about the respective merits of two forms of government. You favor the form known as democracy which is the rule of the many in accordance with a body of laws. I choose the form known as monarchy. Its political ideal is not full authority for laws as in a democracy but rather full authority for a single man who understands the art of kingship and has kingly ability.

Socrates: Seto, I respect your knowledge of politics, but I'm troubled about the wisdom of ruling without laws.

Seto: Well Socrates, you will have to grant that laws are universal, uniform, and constant, but situations in life to which these laws apply are individual. Therefore, laws cannot prescribe with perfect accuracy what is right for each member of the community at any one time. The differences of human personality, the variety of men's activities, and the ambiguity attending all human experience make it impossible to issue unqualified rules on all questions for all times. Suppose, for example, a doctor plans to travel abroad and expects to be away from his patients a long time. The doctor might well think that his patients would forget any verbal instructions he left. So the doctor might want to leave written reminders, don't you think, Socrates?

Socrates: Exactly so.

Seto: Well now, suppose our doctor does not stay abroad as long as he had

expected, but comes back sooner to his patients. If his patients' conditions happen to improve or worsen, would he hesitate to substitute different prescriptions for the original ones? Would he refuse to issue new prescriptions or condemn a patient who wisely acts contrary to the original prescription? Would the doctor declare all such action must be wrong because those former prescriptions were the true edicts of medicine and therefore all disobedience must lead to disease? Surely refusing to alter prescribed treatments with a view to changes in individual conditions would only make the doctor a quack and his precious prescriptions supremely ridiculous.

Socrates: Well, Seto, your reasoning is sound. But your analogy also contains the seeds of the idea that the wise lawmaker, unlike the inflexible doctor, can change his laws when such changes are demanded by individual situations.

Seto: Yes, Socrates, it is a plausible argument which I have heard before. In a democracy any man who discovers better laws than those already existing is entitled to get them effected, but only if he first persuades his city to accept them.

Socrates: Well why not, Seto? Surely this is a sound contention.

Seto: Perhaps...but think about this, Socrates. Is it not true that a man who fails to persuade his city, but <u>forces</u> his better laws upon it, is no longer operating within the rules of a democracy. Consider once more the case of the patient under the doctor's treatment. Suppose that the doctor with his superior medical knowledge fails to <u>persuade</u> his patient to follow a better treatment and <u>forces</u> his

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patient to disregard the written prescription. Surely, although the doctor is not functioning "democratically," we cannot call him a "sinner against true medicine." Similarly, at any given time, a ship's captain fixes his attention on the real welfare of his ship and crew. He lays down no written laws nor does he seek to persuade his crew. Instead the captain supplies a law as the needs of the voyage require it. It is only in this way that he preserves the lives of all in his ship.

Socrates: Seto, this brings me to my next objection. All along you have been assuming that your ruler is supreemely wise and just. But what if he turns out to be a tyrant? Let us re-examine your doctor and ship's captain from this point of view. Suppose we are the victims of the worst possible outrages at their hands. Every doctor, you see, can preserve the life of any one he chooses and by the same token he can hurt anyone by knife or by demanding impossible fees. He may even accept bribes from the patient's relatives or from his enemies and put the patient to death. Ship's captains can be guilty of a different but equally terrible set of crimes. They could enter into a conspiracy to abandon ship or throw passengers overboard, or leave someone stranded.

Seto: Continue Socrates. Even though you have had no experience being a statesman, I am impressed by your reasoning.

Socrates: Your tyrant, Seto, who acts only from motives of ambition and favoritism, is a far greater source of fear than the rigidity of the laws which you spoke about. Laws laid down within a democratic framework represent the fruit of experience. Each of them has been put forward by some advocate who has been wise enough to persuade the Assembly to

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enact it. Any man who dares to break these laws is guilty of a wrong many times greater than the wrong done by strict laws. If tolerated, the single crime would do more than a rigid code to prevent all ordered activity. Democracy is like a piece of weaving. It is fashioned by statesmen based on threads of mutual concord and ties of friendship. It is the finest and best of all fabrics. It enfolds all who dwell in the city, rich and poor, in its firm texture. It lacks nothing that makes for happiness insofar as happiness is obtainable in a human community.

III

Narrator: Socrates observes Phaedrus reading a composition and questions him about it.

Socrates: Phaedrus, what are you studying so intently?

Phaedrus: A composition about love by the scholar Lysias, Socrates. He maintains that the only worthwhile realtionships are between partners who are not in love with each other and whose sole object is the satisfaction of physical desire. He advances arguments to prove his point.

Socrates: I am anxious to hear his reasons, Phaedrus, for arguing against love and defending only physical relationships.

Phaedrus: Well first, Socrates, Lysias points out, quite rightly I believe, that love deprives one of reason and judgment. It is a form of insanity that makes madmen out of those so ensnared.

Socrates: Phaedrus, it is false to say that when a lover is at hand, favor ought to be accorded to one who does not love, on the ground that the lover is mad, and the non-lover sound of mind. That argument would stand only if it were invariably true that madness is an evil. In reality the greatest blessings come by way of madness. Only when they are mad do the prophetess at Delphi and the priestess at Dodona achieve so much for which both cities and individuals in Greece are thankful; when sane, they do little or nothing. Similarly, when the Sibyl enters a fit of divinely-inspired trembling, she is able to foretell the future of so many and guide them correctly.

Phaedrus: Well then, Socrates, Lysias also points to the possessiveness of the lover. He discourages his beloved from having any friends for fear that a wealthy rival may overreach him with money, or a cultured one outdo him in intelligence. He is perpetually on guard against the

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influence of those who possess other advantages. Thus, by persuading you to become estranged from such rivals, he leaves you without a friend in the world.

Socrates: Ah, but the true lover, Phaedrus, desires that his beloved be like the god whom he follows. Through counsel and guidance he shapes the nature of his beloved in accordance with the image of his god. There is no jealousy nor possessiveness in his dealings. His every act is aimed at bringing the beloved to be like the god of their worship. The followers of Zeus, for example, seek a beloved who is Zeuslike in soul; they look for one who is disposed to the love of wisdom and the leading of men. When they find him and come to love him, they do all in their power to foster that disposition. The followers of Hera look for a royal nature; when they have found him, they too encourage him in like fashion. And so it is with the followers of Apollo and each of the other gods.

Phaedrus: Well, Socrates, I must admit that I am beginning to be convinced about the virtues of love. But what about happiness? Is not the satisfying of physical desire, which Lysias recommends, a great source of happiness?

Socrates: I believe, unlike Lysias, that <u>lasting</u> happiness does not consist in the satisfaction of physical deisre but in transcending these impulses. In concentrating only on the physical, one remains earthbound and cannot fly to more exalted regions. Let me illustrate what I mean, Phaedrus. It is said that each soul is divided into three parts, two being like horses and the third like a charioteer. One of the horses is white with black eyes, noble and graceful, car-

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rying his arched neck high. He is a lover of glory, but with temperance and modesty; he needs no whip, being driven by word of command alone. The other horse is crooked of frame, a massive jumble of a creature, with thick short neck, snub nose, black skin, and gray eyes. He is hot-blooded, arrogant, and hard to control even with a whip. Now, before the soul descended into the body, it had wings and could fly amidst regions more beautiful than man has ever dreamt possible. The noble horse longs to return to this region of incredible beauty and so resists the earth-bound pleasures which the multitude extol. he joins the driver in leading the ordered rule of the philosophical life. Their days on earth are blessed with happiness and concord; the power of goodness liberated, they have won self-mastery and inward peace. When life is over, they will regain their wings and return to those lofty regions. The unruly horse, however, is intent only upon satisfying his immediate desires and has no thought for future and greater happiness. If he is victorious, the life led is ignoble and unphilosophical. When death comes, the soul remains unwinged and is condemned to float for nine thousand years around and beneath the earth, never able to fly to that paradise.

Narrator: This conversation occurs between Socrates who teaches by the method of dialectic or argument and Phaedrus.

Phaedrus: Well, Socrates, though you have disagreed with the points in Lysias' argument, you must admit in all fairness that his piece is an excellently-written document. I observed from my own response that learning is greatly facilitated by reading a lucidly-presented and well-organized document. I was quite efficiently instructed.

Socrates: For my part, Phaedrus, I believe that the art of dialectic in which friends debate aloud is a preferable method of instruction to reading. There is a story that in the region of Naucratis in Egypt there dwelt one of the old gods of the country called Theuth, the god to whom the bird called Ibis is sacred. Theuth invented number and calculation, geometry and astronomy, and above all, writing. Now the king at that time was Thamus, who dwelt in the great city of Egyptian Thebes. Theuth went to this king, and revealed his arts, saying that they ought to be passed on to all Egyptians. As Theuth explained the use of each, King Thamus condemned what he thought the bad points and praised what he thought the good. When it came to writing Theuth said, "Here O king, is a branch of learning that will make the people of Egypt wiser and improve their memories; my discovery provides a recipe for memory and wisdom." But the king answered and said, "O man full of arts, to one it is given the gift of creating things of art, and to another the power to judge what measure of harm and of profit they have for those that shall employ them. While you praise the art of writing which is your creation, I can see its faults. If men learn it, it will

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implant forgetfulness in their souls; they will cease to exercise memory because they rely on that which is written, calling things to remembrance no longer from within, but by means of external marks. What you have discovered is a recipe not for memory, but for reminder."

Phaedrus: It is easy for you, Socrates, to make up tales from Egypt or anywhere else you fancy. But how will you dispute the truth of this ... when I don't understand something right off, I can go back and reread the passage until its thought becomes clear to me. This by virtue of the fact that writing is permanent and reliable.

Socrates: Yes, Phaedrus, you may read and reread the same words a hundred times, but you can't question those words. It is like painting. The painter's products stand before us as though they were alive, but if you question them, they maintain a most majestic silence. Similarly with written words; they seem to talk to you as though they were intelligent, but if you ask them anything about what they say, from a desire to be instructed, they go on telling you just the same thing forever.

Phaedrus: Yes, Socrates, you have a point there. But what of the fact that written words are "democratic" in the sense that they say the same thing to whoever reads them whatever his rank or his birth?

Socrates: My dear Phaedrus, that is yet another disadvantage. Written words are <u>not</u> adaptible to the personality of the reader. To teach, one must first discern the nature of each soul, discover the type of speech appropriate to each nature, then arrange his discourse ac-

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cordingly. He should address a many-faceted soul in a many-faceted style that ranges over a whole gamut of tones, but address a simple soul in a simple style. This is why the art of dialectic is far superior. The dialectician plants in the soul appropriate words which are founded on knowledge. These words contain the seed from which new words grow up in new characters. Thus, the seed is guaranteed immortality, and its possessor the fullest measure of blessedness that man can attain.

V

Narrator: This dialogue occurs between Socrates and Callicles, a wealthy and politically prominent citizen. Callicles opens the argument.

Callicles: Socrates, I disagree with you. The happy man is he who has let his passions and desires grow to their fullest and has the power to satisfy them. However, because most people lack the power to satisfy their passions, they are led by their own weakness and envy to condemn intemperance and praise temperance and justice. For those who were born the sons of kings or whose natural gifts enable them to acquire some position of tyranny or power, what could be worse than temperance and justice! Free as they are to enjoy their blessings, do you think they would invite the laws, the talk, and the censure of the masses to be masters over them! This "noble justice and temperance" would make them miserable wretches. The truth, Socrates, is this. Luxury, intemperance, and license, when they have sufficient backing, are virtue and happiness.

Socrates: Let me attempt to persuade you, Callicles, that orderly folk are happier than the undisciplined. Virtue consists in temperance and <u>not</u> in giving free rein to our appetites. The appetites are insatiable and so catering to them is a wearying, never-ending affair. Once I heard a wise man say that our body is a tomb, and that part of the soul in which the desires dwell is easily swayed. Some clever fellow, a Sicilian I believe, named this part of the soul a jar. The foolish he called the uninitiated. He likened the uncontrolled and nonretentive part of the soul in foolish people

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where the desires reside --- a leaky jar, because it can never be filled. In opposition to you, Callicles, he shows that of all the people in Hades, the uninitiated must be the most unhappy, for they toil forever carrying water in a perforated sieve to fill a perforated jar. I want to persuade you, Callicles, if I can, to retract your view and to choose the life of order that is satisfied with what it may possess at any time, but I'm afraid that you are not likely to accept this.

Callicles: Correct, Socrates.

Socrates: Let me offer you another image from the same school as the last, Callicles. Consider whether this is a good description of each type of life ... the temperate and the undisciplined. Imagine that each of two men has a set of jars. One of the set is filled with wine, another with honey, another with milk, and many others with a variety of liquids. These liquids are scarce and procured only with much hard labor. Imagine that one of the two men has a set of jars in sound condition. After filling his sound jars full, he does not trouble himself to draw in further supplies but, as far as the jars are concerned, is free from worry. However, in the case of the other man, his jars are perforated and unsound. He is compelled to spend day and night in replenishing them. If this is the character of each of the lives, do you still insist that the life of the uncontrolled man is happier than that of the orderly? Or have I not persuaded you with this image that the disciplined life is better than the intemperate ?

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Callicles: You have not, Socrates. The man who has filled his vessels can no longer find any pleasure; he is like a stone or a corpse. Once the vessels are filled, there is neither pleasure nor pain anymore. A life of pleasure demands the largest possible influx.

Socrates: If there is a big influx, must there not also be a great outflow? So there is no end and no contentment as in the ordered life. Tell me, Callicles. whether one who suffers from an itch and longs to scratch himself can be said to live happily, if he scratches himself to his heart's content and continues scratching all his life.

Callicles: How absurd you are, Socrates!

Socrates: I shall try to be more serious, Callicles. Wise men say that the heavens and the earth, gods and men, are bound together by fellowship and friendship, by order, temperance, and justice. For this reason they call the sum of things the "ordered" universe, my friend, <u>not</u> the world of disorder or riot. Order and temperance are the rule of the universe and gods. To be intemperate then is to run counter to the governing rule of nature. One who pursues such a life stands outside nature, an outcast. Can such an unnatural style of life be considered to be a source of happiness?

Callicles: Yes, Socrates, if one is a successful outcast.

Socrates: All right my obstinate friend, then I ask you to consider the <u>base</u>ness of gluttony and physical appetites...how low on the scale of human activity they fall! There is a twofold activity related to the body. One of these is menial. It provides food, if our bodies are hungry; drink, if they are thirsty; and clothing, bedding, shoes,

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if they are cold and anything else that our bodies come to desire. It is no wonder that a vender, merchant, or manufacturer of any of them --- baker or cook or weaver or cobbler or tanner --- should appear to be a 'true'minister to the body. However, it is the second activity related to the body, the art of gymnastics and of medicine that is the master of these menial crafts. It alone knows what is good for the health of the body, but you deny this because if I asked you who were the masters controlling happiness, you would answer with the utmost seriousness. Therion the baker, Mithacus the Sicilian cook, and Sarambus the tavern keeper --- because they have been of wonderful service to the body. One provides bread, the second dainties, the third wine of marvelous quality. And I reply, fellow, you know nothing of the true masters of our bodily happiness. You talk to me of servants who cater to our desires but have no sound view of them. They will gorge and fatten men's bodies and cause disease --- because they have no knowledge of what is truly good for the body's health.

Narrator: Socrates meets Euthyphro at the entrance to the law courts and asks him about his case.

Socrates: Your case, Euthyphro? What is it? Are you prosecuting or defending?

Euthyphro: Prosecuting.

Socrates: Whom are you prosecuting?

Euthyphro: My father.

Socrates: Your father?

Euthyphro: Just so.

Socrates: What is the complaint? Of what do you accuse him?

Euthyphro: Of murder, Socrates.

Socrates: Good Heavens, Euthyphro! I don't believe that it's right for any person to prosecute his father on a charge of murder. Was the man your father killed a relative of yours? Of course he was! You would never prosecute your father for the death of anybody who was not related to you!

Euthyphro: You amuse me, Socrates. You think it makes a difference whether the victim was a memeber of the family or not. The only thing to consider is whether it was right or not for the man to kill him. If the murderer was justified, then let him go; if not, you have to prosecute him, even if he shares your home and eats with you. It would be a serious act of impiety <u>not</u> to prosecute my father. The victim was my laborer. When we were cultivating land in Naxos, we employed him on our farm. One day he had been drinking, became enraged at one of our domestics, and cut his throat; where-

upon my father bound him hand and foot, and threw him into a ditch. Then my father sent a man to Athens to find out from the prophet what ought to be done --- meanwhile my father neglected the man who had been bound, because he was a murderer and it would be no great matter even if he died. And that was just what happened. Hunger, cold, and the shackles finished him before the messenger got back from visiting the seer. That is why my father and other relatives are bitter at me when I prosecute my father as a murderer. They say he did not kill the man. They say that for a son to prosecute his father as a murderer is impious. They don't have any idea of what is pious or impious!

Socrates: Euthyphro, you are not afraid that you yourself are doing an unholy deed? Are you sure that you have an accurate knowledge of what is pious and impious and that in the circumstances which you describe you can accuse your father?

Euthyphro: Why, Socrates, of course I have an accurate knowledge of what piety is. Piety is doing what I'm doing --- prosecuting the wrongdoer who commits a murder or robbery or any sin whether it be your father, or your mother, or whoever it may be. And not to prosecute would be impious. Does not mankind believe that Zeus is the most excellent and just among the gods? And these same men admit that Zeus shackled his own father, Cronus, for swallowing his other sons unjustly, and that Cronus in turn castrated his father, Uranus, for similar reasons.

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Socrates: But Euthyphro, you have not told me what piety is. You merely said that what you are now doing is a holy deed -- namely, prosecuting your father on a charge of murder.

Euthyphro: Well then ... what is pleasing to the gods is pious and what is not pleasing to them is impious.

Socrates: However, Euthyphro, the gods disagree on what is pleasing to them. Some gods take one thing to be right, and others take another. They disagree about what is honorable or base, and good or bad. Thus, Euthyphro, it would not be strange at all if what you are now doing in punishing your father was pleasing to Zeus, but hateful to Cronus and Uranus; welcome to Hephaestus, but hateful to Hera, and if any other of the gods disagree about the matter, satisfactory to some of them, but odious to others. Now come, Euthyphro, what proof have you that <u>all</u> the gods think that it is right for a son to prosecute his father, and indict him on a charge of murder?

Euthyphro: I shall prove it absolutely, Socrates, but first let me think a while.

Socrates: While you are thinking, Euthyphro, tell me what you think of this notion that just popped into my head. The good is not good because the gods approve it. But the gods approve it <u>because</u> it is good. The pious is that which the gods love and they love it because it is pious. Thus, the poets cannot be telling us the truth when they tell us how Uranus did what Hesiod says he did to Cronus, and how Cronus in turn took his revenge. Nor can I believe the doings and sufferings at the hands of <u>his</u> sons.

The gods would not approve nor commit such acts of impiety. Who can believe that Hera was shackled by her son and that Hepaestus was hurled out of Heaven by his father when he was trying to save his mother from a beating.

Narrator: The scene is the courtroom of Scorates' trial. The prosecutor first states the charges and Socrates speaks in his own defense.

Prosecutor: We contend that Socrates is a heretic who corrupts the youth of Athens. We advise that he be sentenced to death.

Socrates: May I ask the prosecutor to be more specific in his accusations, so that I may defend myself reasonably.

Prosecutor: We intend to be specific, Socrates. Part of the charge is based on the observation that you educate Athenian youths and receive payment for the instruction.

Socrates: There is no truth in that accusation. I wish there were, because I think that it is a fine thing if a man is qualified to teach, as in the case of Gorgias, Prodicus, and Hippias of Elis. Each one of these is perfectly capable of persuading the young men of any city not only to leave the company of their fellow citizens, from whom they can learn for free, attach themselves to him, but also to pay money for the privilege, and be grateful into the bargain.

Prosecutor: Well what do you do, Socrates? Surely, this charge did not arise from thin air.

Socrates: I will try to explain its basis. I have gained the <u>reputation</u> of being a teacher from having a certain kind of wisdom. But my wisdom, like all <u>true</u> human wisdom, consists in this: I do not think I know what I do not know. My speaking with Athenians in small groups is motivated not by a desire to teach, but from a desire to learn. This is how it came about. You all know Chaerophon.

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He was a friend of mine from boyhood. You know what he was like, how enthusiastic he was over anything once he had undertaken it. Well, one day he went to Delphi and asked the god at Delphi whether there was anyone wiser than myself. The priestess at Delphi replied that there was no one. When I heard the oracle's answer, I said to myself, "What does the god mean? I am only too conscious that I have no claim to wisdom, great or small. So what can he mean by asserting that I am the wisest man in the world? As a god, he cannot be telling a lie." After puzzling about for some time, I tried to check the truth of it in the following way. I went to interview a man with a reputation for wisdom, because I felt that here if anywhere I would succeed in disproving the oracle by pointing out to my divine authority someone who is wiser than I am. Well, I thoroughly examined this person ... I need not mention his name, but it was one of our politicians ... From our conversations I discovered that although in many people's opinion, and especially in his own, he appeared to be wise, in fact he really was not. Then when I tried to show him that he only thought he was wise and was not really so, my efforts were resented both by him and by many other people present. However, I reflected, as I walked away, "Well, I am certainly wiser than this man. It is only too likely that neither of us has any knowledge to boast of, but he thinks that he knows something which he does not know, whereas I am quite conscious of my ignorance." After this I went on to interview a man with an even greater re-

putation for wisdom. I formed the same impression again. Here too I incurred the resentment of the man himself and a number of others. From that time on I interviewed one person after another with a reputation for wisdom in order to verify the oracle. I realized with distress that I was making myself unpopular, but I felt compelled to put my religious duty first. Thus, my association with the youth of Athens is far from being a gathering of students around a teacher ... for how can a man teach whose only wisdom resides in knowing what he does not know. My association was undertaken to establish the truth of the oracle.

Prosecutor: Socrates, there is also the charge that you are an atheist who relentlessly pursues scientific inquiry without any thought or acknowledgment of the gods.

Socrates: Science and theism are not necessarily enemies. And certainly in my case they are not. Have I not spent my life uncovering the meaning of the Delphic oracle's message. And what of Anaximander, the scientist who discovered that the sun imparts its light to the moon. It is said that he never misses an occasion to pay homage to the gods who have so inspired him. The sincerity of the religious beliefs of Heraclitus who explained the origin of the universe in terms of his theory of Flux, were never doubted. Then there was Thales, the father of science, who contended that all living things emanate from water, also a theist.

V11

Prosecutor: Socrates, whether you teach or not, whether you believe in the gods or don't, the charge still remains that you corrupt the youth of Athens.

Socrates: If I were in the process of corrupting some of the young, and have already succeeded in corrupting others, then where are these accusers who have so suffered? They have not come forward to denounce and punish me; instead, they are here offering their assistance in every humanly possible way. Over there is Critobulus with his father, Crito, my contemporary and near neighbor. Next to them are Aeschines and his father, Lysanias of Sphettus, and Antiphon of Cephisus with his son Epigenes. Then besides there are all those whose brothers have been members of our circle Nicostratus, Paralus, Adimantus with his brother, Plato, and Aeantodorus, with his brother Apollodorus.

Appendix C

BARTLETT PASSAGE TEST

A

Yesterday the culminating step was taken in a series of negotiations which have been steadily progressing for several months. Mr.Ardern, representing the Union of Agricultural Engineers and Mr.T.Smith, of the Amalgamated Association of Agricultural Laborers, set their signatures to Articles of Agreement which, it is hoped, will bring these powerful but widely different groups into close and fruitful cooperation. In many quarters it has for long been maintained that the different organized sections of any complicated industry must be brought to unite if the best interests of each section are to be secured. It is undeniable that in the past the increasing invasion of agriculture by the skilled technical worker has produced a great amount of irritating friction. In the mass, the agricultural laborers of this country represent a solid but excessively conservative element of the community. The alert engineer, on the other hand, marches in the van of an incalculably rapid and bewilderingly varied progress, and is perhaps apt, on that account, to be of a radical frame of mind which welcomes change, and tends to regard attachment to ancient methods and practices as timid and bovine.

A survey of the Articles of Agreement makes it clear that one of the outstanding hopes of those who have worked for this union of groups is that thereby the bargaining powers of the laboring class in agriculture, towards securing for themselves better economic conditions, will be enormously increased. Indeed, a superficial study of the Articles leaves one with the impression that the Association of Agricultural Laborers have far more to gain from the proposed cooperation than have the Union of Agricultural Engineers. But deeper considerations make it obvious that no such impressions can be long maintained. Ultimately, the interests of all sections of any organized industry must be congruent, and any amelioration of the conditions of any one section must work for the betterment of all. This fact, however, is frequently obscured, and the achievement of this

desirable end is hindered by sectional jealousy and the biased demands of short-sighted agitators. It is a welcome sign of the times that the Agricultural Engineers clearly recognize that their own good fortune must be founded upon the bedrock principles of justice and cannot be finally and firmly secured save by active concern for the lot of their less fortunate brothers in industry.

Already critics are not lacking who endeavor to point out that these Articles contain the seeds of division. They say, with undoubted truth, that the mode of organization of the Engineers differs greatly from that of the Laborers. The former, with their vastly greater internal differentiation, have developed along lines which allow far greater scope and power to the expression of local opinion. Their leaders are democratically elected and are, in a true sense as regards their policy, the servants of those whom they lead. The latter, varying far less among themselves, and from district to district, have never developed local organization to a high degree. The Laborer leaders have come to the front mainly on a basis of their particular personal qualities, have framed their own policy and maintained it, when they have been successful, primarily because they possess the power to presuade or to command. It is maintained--perhaps we should say rather it is hoped--that cooperation between groups whose organization is on the one hand democratic and on the other despotic can never succeed.

Opponents of the Agreement have even sought the aid of "science". They have called in the ubiquitous psychologist. Apparently some eminent and ingenious person, armed with methods which are not easy to understand, has "demonstrated" that the "average I.Q." level in the Union of Agricultural Engineers is 160, whereas the corresponding measure in the case of the Amalgamated Association of Agricultural Laborers is 90. From these mystic figures dire results are prophesied.

The essential rightness of the Agreement remains. We are convinced that we speak for the solid mass of public opinion in this country when we assert that its principles will stand firm against all selfish and narrow-minded attack, an object-lesson of the way in which industrial organization should and must move, not only in this country but throughout the world.

Instructions:

Based on the presented information, decide whether the cooperation between the two groups will be maintained successfully or must inevitably break down. State the steps and main considerations by means of which you have arrived at your decision.

B

A most peculiar consequence of the prolonged drought of a recent spring and summer has been observed in a village of North Western England. This village, which is somewhat widely scattered over a large parish, and consists in all of some 1,500 inhabitants, has been disturbed by religious differences for many years past. From time to time the strife between the factions represented has been extremely acute. What may, for the purposes of this description, be called the indigenous element of the population of this district contained a strong mixture of Roman Catholics. Although the partisans of this group long ago moved away from their professed adherence to the Pope, they have always retained, to a large extent, the ritualistic outlook and beliefs, and the Established Church in this village has, for hundreds of years, so ordered its practices as to bring them as nearly into line with Roman Catholicism as the general religious trend of the Church of England would allow.

About the time of the Industrial Revolution an attempt was made to establish an industry in this area. Although the attempt proved abortive, it brought into the district a number of immigrants from villages and towns in Wales and the midlands of England, and a certain number of these stayed on after the failure of the industry and occupied themselves in the regular agricultural pursuits of the community and in petty shopkeeping. A few even succeeded in acquiring a little land and became small-holders or farmers. These, however, in the main, had a strong Nonconformist outlook, which tended to become accentuated by contrast with the High Church practices of their new neighborhood. Thus there grew up a feud, which each side passed on to the children. Not only in their religion, but in the practices of their daily life, these two groups lived side by side, but remained separate. They bought and sold in different quarters; their social amenities, their

athletic clubs were separately organized; and if ever they met in contest the battles were bitter to a high degree. Vare rarely indeed was there any intermarriage from group to group, and whenever there was, the contracting parties were invariably driven to seek a new neighborhood. Each side was a fertile source of discreditable story and rumor about the other. On special occasions, as during a fairly recent proposal for the revision of the Prayer Book, antagonism flared up into actual fighting. In spite of the smallness of the population, this was one of the villages where a church school was still maintained for the children of the one party, while a public elementary school was provided for the children of the other.

Upon this divided community fell a tremendous and lasting drought. The water supply, as in many other places, was totally inadequate for the emergency. The condition of the village threatened to become deplorable. There was indeed one inexhaustible and bountiful well. But it was in private ownership. The local landowner, upon whose estate the well was to be found, had but recently acquired his possessions in this neighborhood. He had bought them from the ancient but decayed family which had held them for generations, and had been one of the main pillars of the Church party in the village. He had, in fact, practically no local interests, and was an absentee owner, except during the grouse-shooting season in the autumn.

Both parties approached him with a request that they might, in their distress, use his well. Whether as a result of a peculiar sense of humor, or of a desire for social experimentation, or, as is perhaps most likely, out of mere ignorance, he acceded to both requests, but insisted that water must be drawn only during certain limited hours of the day. Consequently members of the two parties began regularly to be thrown into unusually close conjunction as they hurried to secure

their daily supplies of water. While one person was getting his share, others had to wait. It might have been expected that party rivalry would have become acute under these circumstances and strife intensified. But even from the beginning, and less and less as time went on, this effect was not to be discovered. Since the hours of the drawing of water were limited, but all the ordinary processes of labor must continue as usual, it soon became the custom for one family to draw for another. Also, since the distance was considerable, and the weak and ailing could hardly draw water for themselves, others willingly stepped in and helped them out of their difficulty. The common need seemed to override traditional hostilities. People were thrown together in ways new to them, and as long as the drought continued, a novel spirit of friendliness seemed to spread throughout the village.

The rainless summer wore slowly on and the day of the annual village flower show approached. From time immemorial this show had been held, and the village was determined that it should continue. As long as ever anybody could remember, this occasion had been one on which jealousy, hatred, and hostility had threatened to pass all bounds. But now the show had become more a matter of maintaining the honor of the village than of enhancing the prestige of any particular group of cultivators. And so the water which had kept flowers and vegetables alive had been contributed by all from their scanty supplies to a common stock, and from that stock drawn with scrupulous care and respect for the needs of others. In the luncheon tent, on the day of the show, the Rector sat next to the Baptist minister, and Sadd, the churchwarden, was side by side with Poer, the local preacher. In his speech the Rector remarked that recent events had taught them all that differences of religious practice were but the varied expression of a fundamental identity of need, and though hardly any of his audience could understand his words, everybody vigorously applauded his sentiments. He thereupon publicly shook hands with the

Baptist minister, a thing unprecedented in the annals of the village. Mr.Poper proposed, and Mr.Sadd seconded, that bygones should be bygones and that henceforth and for ever the village, of which all of them were proud, should live as one friendly group. This was carried with enormous enthusiasm.

A cynical and observant onlooker might have shrugged his shoulders, but had he been less cynical and more observant he would, perhaps, have noted that, as the acclamations rent the air, the glances of Miss Salversol, the headmistress of the Church school, and of Mr. Slize, the headmaster of the public elementary school, met and that each smiled to each. During the summer Miss Salversol and Mr.Slize had met, first by the well, but later in many other places. Inspired by a common professional interest each had confessed to the other that neither school could be regarded as ideal. After the flower show they went away for their holidays. They returned as Mr. and Mrs. Slize, and though a few scattered rains had already begun to appear, they were by no means treated as they would have been less than a year before, but settled happily to their former tasks. The latest information shows that a new and more commodious school building is to be erected in the village. It is anticipated that Mrs.Slize will continue to give religious instruction to certain children and Mr.Slize to others. But for all secular purposes the school will be treated as a single unit, and the peculiar excellences of Mr. and Mrs. Slize will combine to impart an education at once modern and, it is thought, complete.

Instructions:

Based on the presented information, decide whether the cooperation between the two groups will be maintained successfully or must inevitably break down. State the steps and main considerations by means of which you have arrived at your decision.

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