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Cognitive style matching in human relations training.

Bob Mezoff
University of Massachusetts Amherst

COGNITIVE STYLE MATCHING IN HUMAN RELATIONS TRAINING

A Dissertation Presented

By

BOB MEZOFF

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Approved as to style and content by:

Douglas Forsyth, Chairperson

Sheryl Riechmann, Member

D. Anthony Butterfield, Member

Mario Fantini, Dean
School of Education

TO JAHMAL BREEN

Much of the pain I felt over our separation was transformed into energy that made this dissertation possible. My doctorate, however, is a shoddy substitute for missing the chance to love you.

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ABSTRACT

Cognitive Style Matching in Human Relations Training

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Bob Mezoff,B.S., Northeastern University

M.S.B.A., University of Massachusetts

M.Ed., University of Massachusetts

Ed.D., University of Massachusetts

Directed by: Professor Douglas Forsyth

Is it possible to match human relations training (HRT) participants and various approaches to training so as to maximize the participant's learning? Are certain types of training programs (e.g., a very structured treatment or a very unstructured approach) better suited to certain types of participants? This dissertation explored treatment-person interactions in HRT based on the construct of cognitive styles.

The literature reviewed in this dissertation spans three major areas: (1) outcomes from HRT and problems of measuring outcomes, (2) types of matching strategies for matching participants to training treatments, and (3) cognitive style and interpersonal behavior (especially implications for HRT settings).

This dissertation involved three studies. Study 1 (n=13) was an exploratory study investigating, in general, the relationship between cognitive styles and outcomes from

training. Study 2 (n=39) was designed to build on the findings of Study 1, and Study 3 was designed to build on both earlier studies. All studies employed at least two measures of cognitive style and used both self-reports and peer-rankings of training outcomes. All studies used a similar peer-ranking instrument. The self-report instrument was similar in studies 1 & 2 and was modified to a different type of self-report instrument in Study 3. In addition to self-reports and peer-rankings, Study 3 employed a test of cognitive knowledge.

In Study 1 subjects were 13 public utility employees. Training consisted of both structured (66%) and unstructured (33%) activities. None of the self-report outcomes correlated with any of the independent variables. Field Independence was the only variable strongly correlated with participant peer-rankings of various behaviors/outcomes (all at $p < .01$).

In Study 2 subjects were 39 undergraduate students majoring in the social or behavioral sciences. The training consisted of two-thirds T-grouping, with the remainder devoted to theory sessions and structured experiential activities. In this study field-dependence-independence (FDI) was not correlated to any peer-ranked outcomes. A related cognitive style variable, Interpersonal discrimination, was significantly correlated with some

peer-ranked outcome measures but not with self-report measures. This study found evidence of a high degree of variability across T-groups in the correlations among the variables investigated. However, in all T-groups task-orientation was highly correlated with maintenance-orientation. This suggests that these two dimensions, when rated by co-participants, may not be as independent as previously believed in the Human Relations Training setting.

Study 3 involved a highly structured experiential training program. Subjects were 45 Nova Scotia public school principals. This study employed a Solomon Four-Group design for measures of self-reports. Statistically significant differences were found between experimental and control groups on self-reports and tests of cognitive knowledge, thus documenting the effectiveness of the training program. In general, cognitive style was uncorrelated to outcomes from training.

One major outcome of this project is to call for HR research that employs a design which takes into account the differential effects of training on various participant subpopulations. In particular, the findings from Studies 1 and 2 support this position.

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PART I

OVERVIEW

INTRODUCTION

Cognitive Style Matching in Human Relations Training

Is it possible to match human relations training (HRT) participants and various approaches to training so as to maximize the participant's learning? Are certain types of training programs (e.g., a very structured treatment or a very unstructured approach) better suited to certain types of participants? This dissertation begins the search for treatment-person interactions in HRT based on the construct of cognitive styles.

The goal of this dissertation is to present preliminary findings regarding the influence of cognitive style in training and to generate research interest in the relationship between participant cognitive style and various outcomes from training in different types of training treatments. The purpose of this line of inquiry is to develop a body of knowledge that will facilitate the appropriate matching of persons to different training treatments.

This research approach and the topic of this dissertation are based on certain value premises. Certain key ethical issues are addressed in Chapter I and the values underlying the methodology and content of this dissertation

are discussed. The cognitive style variable investigated in this dissertation is bi-polar: both ends of the cognitive style continuum are value-free and it is neither bad nor good to have one cognitive style or another. The effectiveness of a particular cognitive style is determined by the characteristics of the situation or context that the individual is operating within.

The value assumptions that underlie matching model approaches are also discussed in Chapter I. The potential advantages of exploring the possibility of matching participants to training treatments are discussed from a values perspective.

Chapter II presents an overview of the wide variety of outcomes possible from HRT. After surveying the different types of cognitive, affective, and mixed cognitive affective outcomes, Chapter II discusses some of the difficulties inherent in trying to ascertain outcomes from HRT.

In Chapter III the various types of matching strategies are reviewed. Out of the variety of available matching model approaches only certain ones would be applicable to the HRT setting. The "capitalization" model (one that builds on client strengths) is the approach most suited for matching participants to training treatments. The particular client strength that this study will investigate will be the cognitive style dimension of

Field-Dependence-Independence (FDI).

The literature on FDI and interpersonal behavior is reviewed in Chapter IV. Particular attention is focused on the implications of the Field Dependent (FD) and Field Independent (FI) cognitive styles for interpersonal behavior in the HRT setting.

Chapter V discusses the first attempt to collect preliminary data regarding the impact of cognitive styles on the outcomes from training. This chapter reviews the methodology of that study, the instruments employed, and discusses the findings. This investigation of a six-day training event in New Brunswick (n=13) took a broad approach to measurement in an attempt to tap as many independent and dependent variables as possible.

To further investigate the interactions revealed in the New Brunswick study a second study was undertaken in Massachusetts. The training was an undergraduate course in group dynamics that consisted of predominantly T-grouping. Chapter VI discusses the findings of the Massachusetts study (n=39). The outcome measures in this second study were limited in scope.

A final research project was undertaken in Nova Scotia. Two HRT programs were conducted for Nova Scotia school principals for thirty hours each. This research effort capitalized on the results of the two earlier studies

and extended the scope of outcome measures. The availability of two control groups further contributed to the accurate assessment of the outcomes resulting from the training. A Solomon four-group design was employed for the self-report measures so as to control for test sensitization effects, maturation effects, and test-treatment interactions. The findings from this study are discussed in Chapter VII.

Chapter VIII summarizes and integrates the findings from these studies and further interprets the results from the perspective of cognitive style theory and matching model approaches. The limitations in this sequence of research studies will be discussed and suggestions will be offered for future research exploring both cognitive styles and matching model strategies in HRT.

CHAPTER I

WHY THIS RESEARCH WAS UNDERTAKEN

A STATEMENT OF VALUES

This chapter will explore the values underlying this research in terms of the methodological approach (matching models) and in terms of the personological variables investigated (cognitive style). Research methods exploring matching models and aptitude-treatment-interactions (ATIs) correlate with certain value premises. Matching models encourage a sensitivity to, and awareness of, the interactive effects between client and treatment. Specifically, matching models interpret a failure of a therapuetic/educational/training treatment as a reflection of an inappropriate match between client and treatment (rather than the failure being the "fault" of the client). Furthermore, in this study the variable used to determine cognitive style (field-dependence-independence) has particularyly attractive features from a values perspective. Field-dependence-independence (FDI) is a bi-polar, value-free psychological construct.

Main Effects Vs. Differential Effects

Research in education and counseling has frequently explored main effects of various instructional and therapeutic treatments. Such investigations have sought to determine which of various approaches is the most effective. A search for a "best" instructional or therapeutic treatment presumes that the learners (or clients) and various situational factors are homogeneous or incidental to the success of the treatment approach.

Matching model and ATI studies take a different stance with respect to the success of selected treatment alternatives. These studies (Cronbach & Snow, 1977; Berzins, 1977) explore the differential effects of the various treatments across different student/client personality types, and across various situational and task variables as well. Different treatments have been found to be differentially effective with persons of varying personality variables (learning style; conceptual style; cognitive style; interpersonal needs in the areas of inclusion, control, and affection; etc.). Such findings not only have an intuitive and common-sense appeal, but convey certain value implications about both research and practice in education and psychotherapy.

Values Implied By The Main Effects Model.

The values implied by the main effects models were (and are) that the treatment is the all-powerful critical variable. The client may or may not benefit from the treatment. If the client benefits, then the success is due to the efficacy of the treatment. If the client does not benefit, he/she is given various labels by the various schools of treatment. In psychotherapy he/she may be called resistant. In education the learner may be said to have a learning disability. Human relations trainers frequently describe their failures and dropouts as "not ready to handle intimacy," or "unwilling to explore their interpersonal relationships."

All of the above labels serve the same purpose: they blame the victim for his/her failure under a particular instructional/therapeutic treatment. From a value perspective such labeling is not only inaccurate and misleading but is a reflection of questionable ethics. However, such societal patterns will not be easily overcome. The professional establishment has a vested interest in blaming their victims for failures that the professionals are unwilling to "own" and take responsibility for (Gans, 1976). How convenient for professionals that their successes

are due to their effective treatments, and their failures are their clients' own fault.

Values Implied By The Matching Model.

Matching model and ATI studies arise from an alternative (and to me, more ethical) set of value assumptions. These research studies are grounded in the Lewinian equation B = f(P,E) (Lewin, 1951). The behavior (B) is a function of the person (P) and the environment (E). The outcomes from HRT (behaviors) are a function of the interaction between the participants (persons) and the training treatment (environment). Behavior usually means some observable change exhibited by the person after learning. Behavior includes cognitive learning (in traditional educational settings), affective growth and change (in therapeutic settings), or some combination of the two (in human relations and other settings). The environment refers to the particular instructional or therapeutic treatment, and can also include the larger cultural context and situational variables such as goals, task structure, etc.

By acknowledgeing the importance of interactional effects, matching model researchers highlight the fact that treatment outcomes are a result of the interaction between the person and the treatment. A success of a treatment is

due to the successful interaction of the person and his/her environment. This position acknowledges the individual's contribution to the outcome of the learning/therapeutic program he/she engages in. More importantly, where there is a lack of satisfactory outcome, the individual is not automatically blamed for the failure. Rather, the failure may be a result of an inappropriate match between the person and the treatment (1). This common-sense position is more the exception than the rule in most education and counseling settings (Gans, 1976).

One of the most important outcome potentials of ATI research will be the widespread acknowledgement of treatment failures as a reflection of a "lack of a match" between client and treatment.

Limitations Of The Matching Model Approach.

Research may provide us with data and the confirmation of certain matching hypotheses. Some of these results may be practical to practitioners in the field, however most will not. Significant findings under certain highly controlled conditions have had a tendency to be overshadowed or confounded when replicated with the inclusion of other

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(1) Not every failure will be the result of a mismatch between the person and the treatment. The individual must, of course, retain some responsibility for success or failure in a given treatment.

independent variables.

For example, matching model hypotheses investigating cognitive style were explored for pairs of teachers and students. Among matched pairs of teachers and students there was greater interpersonal attraction (Distefano, 1970; James, 1973). In the James study this matching effect also extended to the teacher's evaluation of their students. However, a later study explored these effects and included other independent variables: the sex of the teacher and the sex of the students. (The James study used male teachers and female students and the Distefano study used male teachers and male students). It was found that "the sex match-mismatch effect was more potent and took precedence over the cognitive-style match-mismatch effect" (Witkin, Moore, Goodenough, & Cox, 1977, p. 34).

This example demonstrates one major limitation to the finding of cognitive style matching effects: the existance of other potent variables besides cognitive style. Cognitive style matching may not be very practical to implement if teachers and students must first be matched on sex (and, perhaps, race).

Purpose Of Studies in This Dissertation.

While this present series of studies hopes to produce findings of a practical nature, the major thrust is to

highlight the phenomenon of differential effects. A greater acknowledgement of this phenomena should yield a greater concern and respect for, and acceptance of, the individual differences among learners and helpees. Trainers may or may not find this study's findings directly applicable to their styles of leadership. However, each trainer cannot help but feel a little awed and humbled by the enormous sensitivity that will be required to make good matches with the immense diversity of their clients. These studies are devoted to the encouragement of that sense of awe and humility and to providing information for basing attempts at matching.

It is important for trainers to show greater acceptance of persons who may not be good fits for certain training programs. This sensitivity will also serve as a good role model to all clients, whether or not they are well-matched. The ethnocentrism of the encounter culture has been documented in many popular books (e.g., Back, 1973). The cultist nature of many sensitivity training programs has similarly shown a marked intolerance of individuals at variance with prevalent group norms (Lieberman, Yalom, & Miles, 1973; Yablonsky, 1965). Human relations trainers must lead the way, and share with their clients a tolerance and understanding of those people personally and culturally different from the ritualized T-group norms.

From The Client's Perspective.

Up to this point I have discussed value issues related to the trainer/teacher/therapist role. The obverse value issues can be seen from the role of the client/student/helpee. What could be more unfair than the institutionalization of a process that blames its victims for not succeeding. Yet, this is exactly what continues to occur when researchers look for the effectiveness of education/therapeutic treatments and ignore the differential effectiveness of those treatments with differing populations.

A prevalent phenomena in our culture is lower class, disenfranchized, and minority persons' internalizing their failure to make it in the predominantly white culture. Regardless of racism and economic and political oppression, the "have-nots" are conditioned to blame themselves rather than the more blatant failures of the society. ATI research acknowledges the responsibilities of the providers of "treatments," and in so doing helps to alleviate the self-blame and guilt that the have-nots impose on themselves and, at times, have imposed on them.

Therefore, ATI research is valued as a liberating force that takes the blame off the individual, and instead illuminates the mismatch between the individual and the environment. Success will still be a function of an

individual's [motivation] x [ability]. But, given the required motivation, and a minimum ability, the burden lies squarely on the shoulders of the teacher/trainer/therapist to provide a treatment that will yield successful outcomes.

A matched treatment will not guarantee a positive outcome for the individual. Certainly, individuals have some responsibility for either their success or failure in a given treatment. However, the trainer has an ethical responsibility to make the liklihood of success as great as possible. At the very least, the trainer has a responsibility to provide a treatment that is non-discriminatory; that is, a treatment that is not biased against certain groups of participants.

Trainer Responsibility To Provide Matched Training Treatments.

The responsibility to provide a suitable (or matched) treatment to a given population is not readily acknowledged by human relations trainers. The norm of "you do your thing, I'll do mine" and the hang-loose spontaneous "I've got to be myself" attitude are both impediments to increased trainer responsibility. It has been typical to use measures of dogmatism to ascertain participant readiness for training. Highly dogmatic individuals were labeled as not being ready, rather than as needing training designed to match their

particular needs and qualities. It seems valuable to be able to provide appropriate alternative treatments for people who are not suited, say, for an intensive T-group experience. There is a wide variety of techniques and training devices in use today. One would hope that trainers would be able to design treatments that can be matched to their clients, rather than requiring clients to meet the trainers expectations. It is indeed unfortunate and unneccessary to have clients rejected if they do not meet trainers' expectations (2).

One objection might be that a single treatment cannot possibly match the needs of 12 or more unique individuals to the same degree. This is true. Classroom teachers often experience this phenomena: no matter what teaching style(s) an instructor uses, there will always be some dissatisfied students. What is the trainer to do? At this point I return to my earlier hypothesis: matching models may not necessarily be 100% practical, yet if they increase trainers' sensitivities to, and acceptance of, individual differences, then that will be a beginning. Attempts to provide varied training designs carries this a step further. Hopefully, when a significant proportion of a client

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(2) Worse than being rejected from admission to training is for clients to be accepted into a training program, and then be rejected by other members because of their deviance from group norms.

population has unique characteristics and needs, the training program can be altered to match. For example, highly dogmatic clients may require greater structure, as unstructured activities can foment dissonance that reaches dysfunctional levels. The goal of acceptance of differences is a first step. A step that will, hopefully, lead to practical outcomes. This is also true in our society at large.

This chapter has discussed some of the value bases for conducting ATI research, especially in HRT settings. Next, some of the value assumptions underlying the particular variable used in these studies, field-dependence-independence (FDI), will be discussed.

Cognitive Style As A Value-Free, Bi-Polar Dimension

From a values perspective the measure of cognitive style, FDI, is one of the most appealing variables for ATI research. It has the rare quality of being a bi-polar dimension. Most psychological constructs are uni-polar. That is, the subject has either more or less of a particular trait. Subjects may be more or less intelligent, be operating at a higher or lower conceptual level, be more or less dogmatic, or display internal or external locus of control. Each variable conveys a value position because more

intelligent is usually better than less intelligent, higher conceptual levels are better than lower conceptual levels, less dogmatic is better than more dogmatic, and internal locus of control is better than external.

Some personality traits, such as learning styles, have multiple categories. Even among these we still find value distinctions being made, although they are more subtle than with uni-polar dimensions. For example, learning styles such as collaborative, independent, and participative are generally "better" than dependent and avoidant learning styles (Riechmann and Grasha, 1974).

This researcher does not wish to criticize or demean the use of uni-polar (or value-laden) variables. However, the choice is made in this exploratory study to focus on a bi-polar measure because of the fact that positive characteristics exist at both ends of the FDI continuum. From an intuitive perspective, some uni-polar variables have an equally likely prospect of being critical to HRT outcomes. This research simply prefers to explore the relationship of a powerful value-free variable first.

Both Ends Of The Cognitive Style Continuum Have Valuable Qualities.

The bi-polar dimension of FDI is unique in that persons on each end of the continuum have distinct advantages over

individuals at the opposite end. Each can outperform the other depending upon the situational context and specific task at hand. Many problems are solved by each type (either field independent or field dependent) and the overall success in performance will be quite similar. However, each type will use a different problem solving style or approach in reaching their answers. The quality of FDI refers more to the "how" of problem-solving, rather than the "how much."

So a person's FDI score is one which can be respected, appreciated, and valued no matter where an individual falls along the FDI continuum. Neither style is necessarily preferred over the other. Each is superior relative to certain unique circumstances and problem situations.

Feedback To Participants Regarding
Cognitive Style.

I know of no other variable that is so value-free. It is therefore one of the least threatening variables that can be fed-back to learners or laboratory participants about their style of being in the world. Similarly, the implications for teachers/trainers/therapists are less value laden. It's not any "better" to have one type of client over another. However, each may require special consideration in the design of the treatment procedure.

Research indicates that there is a developmental trend

from field dependence (FD) toward field independence (FI) up to early adolescence. Thereafter, the cognitive style remains remarkably stable until age fifty, after which there is some movement toward FD (3). This developmental trend (similar to intelligence and many ability measures) may suggest a bias favoring FI. Furthermore, most of the tests of FDI are constructed so that the FI individuals achieve the highest scores. As Witkin has noted, one of the most necessary tasks of the future is to remove this value bias. When tests are constructed to yield highest results for the FD persons, then a major step will be accomplished towards the elimination of the marginal FI value bias of the cognitive style variable. Until such a test is developed, the extensive research that shows the FD person's superiority in certain situations should be adequate justification for the FDI continuum being accepted as a value-free personality dimension.

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(3) The shift toward FD after age fifty may be a continued developmental change rather than a degenerative change.

Summary

This chapter has reviewed the value assumptions that contrast main effects research investigations with aptitude-treatment-interaction (ATI) methodologies. ATI and matching models are held to be superior on a value-basis, in that they encourage a sensitivity to, and awareness of, the interactive effects that teachers/helpers and students/helpees have upon each other. They also place responsibility for providing an adequately matched treatment upon the teacher/facilitator, rather than blaming the client for his/her failure to adapt to a particular treatment model. Furthermore, this chapter has presented the benefits to investigating a relatively value-free personality variable, field-dependence-independence (FDI). The use of FDI for matching treatments to subjects (especially in human relations training) is not psychologically threatening to clients, as both extreme positions on the FDI continuum have superiority in certain situations.

References - Chapter I

Back, K.W., Beyond Words. New York: Pelican Books, 1973.

Berzins, J.I. Therapist-patient matching. In A.S. Gurman & A.M. Razin (Eds.), Effective psychotherapy: A handbook of research. Oxford, England: Pergamon Press, 1977.

Cronbach, L.J., & Snow, R.E. Aptitudes and instructional methods: A handbook for research on interactions. New York: Irvington, 1977.

DiStefano, J. J. Interpersonal perceptions of field independent and field dependent teachers and students (Doctoral dissertation, Cornell University, 1969). Dissertation Abstracts International, 1970, 31, 463A-464A. (University Microfilms No. 70-11, 225).

Gans, W., Blaming the victim. New York: Vintage, 1976.

James, C. D. R. A cognitive style approach to teacher-pupil interaction and the academic performance of black children. Unpublished master's thesis, Rutgers University, 1973.

Lewin, K., Field Theory in social science. New York: Harper, 1951.

Lieberman, M. A., Yalom, I., & Miles, M. Encounter groups: First Facts. New York Basic Books, 1973.

Riechmann, S. W. and Grasha, A. F. A rational approach to developing and assessing the construct validity of a student learning styles instrument. The Journal of Psychology. 1974, 87, 213-223.

Witkin, H. A., Moore, C. A., Goodenough, D. R., and Cox, P. W. Field dependent and field independent styles and their educational implications. Review of Educational Research. 1977, 47, 1-64.

Yablonsky, L., Synanon, the Tunnel Back. New York: Macmillan, 1965.

PART II

EMPIRICAL FOUNDATIONS

PREFACE TO CHAPTERS II, III, AND IV

The next three chapters will review the literature in three areas that bear directly on this series of research studies. Chapter II provides an exhaustive and detailed review of both the types of outcomes from HRT and the types of problems encountered in trying to measure HRT outcomes. A number of the limitations to measuring HRT outcomes cited in Chapter II are also present in the current series of research studies found in Chapters V, VI, and VII. Chapter II is included so the reader can get a grasp of how difficult accurate measurement of outcomes can be in HRT.

Chapter III provides a macro-view of the concept of matching models. Five types of matching strategies are reviewed, and each is evaluated with respect to its applicability to HRT settings. This dissertation is entitled "Cognitive Style Matching in Human Relations Training." At the current stage of research of this particular field explicit matching strategies cannot yet be precisely formulated. However, given the data from the current three studies (Chapters V, VI, and VII), some tentative matching strategies will be suggested in Chapter VIII.

Chapter IV represents the conceptual/theoretical heart of this dissertation. This chapter reviews the literature on cognitive styles and reports findings that are drawn from,

or are applicable to, HRT settings. Since cognitive style research in HRT was extremely limited, this chapter was written after the author's first exploratory study was undertaken (see Chapter V). Chapter IV includes the findings of this first exploratory study. While Chapter IV hypothesizes some interactions between cognitive style and outcomes from training, these formulations must be considered speculative in nature. The further research conducted by the author (and reported in Chapters VI and VII) helps to "flesh out" a still tentative theory of the interaction of cognitive style and training outcomes. The summary chapter (VIII) of this dissertation hypothesizes the contingency formulations of how cognitive style interacts with outcomes in certain types of training, but not in other types.

CHAPTER II

EMPIRICAL FOUNDATIONS; THE MEASUREMENT OF TRAINING OUTCOMES

This chapter will survey the various outcomes that result from human relations training. In this dissertation outcomes are considered only for individuals: outcomes related to team building, organizational effectiveness, community cohesiveness, etc. will not be considered. This is one of the many limitations that have been necessary to make this project manageable. A further rationale for the exclusive focus on individuals is provided by Campbell and Dunnette (1968). They concluded that "while T-group training seems to produce observable changes in behavior, the utility of these changes for the performance of individuals in their organizational roles remain[s] to be demonstrated" (p. 73). Weisbord (1973), a well-known organizational development consultant, summarizes the efficacy of HRT (especially T-groups) in the organiational context. His more recent experiences fully support the earlier conclusion of Campbell and Dunette.

A brief discussion of individual outcomes that laboratory educators typically cite as goals will be presented first. The most widely used cognitive and affective taxonomies of learning objectives (Bloom/

Krathwohl) will then be discussed and related to the training setting. Next, we will look at some supplementary taxonomies that will further map out the wide range of possible training outcomes. These supplementary taxonomies provide an alternative (and expanded) reference frame for the Bloom/Krathwohl model, and are especially helpful in catagorizing outcomes in non-school settings such as counseling, personal growth groups, and psychotherapy. (This is a necessary addition because many human relations outcomes cannot be classified by the educational objectives of Bloom/Krathwohl.) The taxonomies presented here allow us to consider training outcomes in a context that goes beyond the Bloom/Krathwohl taxonomies. This approach will facilitate the comparison and contrasting of findings among education, psychotherapy, and human relations training.

The difficulties of optimizing one objective or goal at the expense of reducing the attainment of others will be discussed at length. Problems related to the measurement of outcomes will be identified. The frustrating lack of intersource consensus among raters of training outcomes (participant, trainer, and friend or colleague) will be compared to the similar difficulty found in psychotherapy research.

The discussion up to this point will have focused primarily on tangible and observable measures of outcomes

or, in the case of participant ratings, self-reports of learning. The relationship between outcome measures and participant satisfaction will be introduced at the end of this chapter. This also will lead to chapter three, which discusses matching models. Before discussing matching models we will look at the relationship between client satisfaction and client performance, and decide for which of the two we should match.

Typical Human Relations Training Outcomes

Gibb (1971) identifies the six most common objectives of human relations training cited in the literature:

> 1. Sensitivity. Training is aimed at inducing greater sensitivity to self, to the feelings and perceptions of other people, and to the general interpersonal environment. Sensitivity is seen as an input process involving greater awareness of the feelings and perceptions of others. It also has an output component, aspects of which are described variously as availability of self, transparency, openness, authenticity, or spontaneity.
>
> 2. Managing feelings. Trainers speak of such outcomes as awareness of one's own feelings, acceptance by oneself of the feeling component in one's own actions and speech ("owning" one's feelings), consonance between feelings and behavior, clarity of expression of feelings, and integration of emotionality into various life processes.
>
> 3. Managing motivations. The training literature refers to such hoped-for motivational outcomes as self-actualization, awareness of one's own motives, clear communication of one's own motives to others, self-determination, commitment, greater energy level, inner-directedness, and becoming.
>
> 4. Functional attitudes toward self. Practitioners mention acceptance of self, self-esteem, congruity of

> actual self and ideal self, and feelings of confidence as potential positive outcomes of training.
>
> 5. Functional attitudes toward others. Training is thought to produce such changes in attitudes as decreased authoritarianism, greater acceptance of others, reduced prejudice, reduced regard for structure and control, and attitudes commensurate with interdependence theories of management, such as "Theory Y" (McGregor, 1960) and "participative management" (Likert, 1967).
>
> 6. Interdependent behavior. Effective behavior is described variously as interpersonal competence, task effectiveness, teamwork, being a "good group member," democratic leadership, problem-solving effectiveness, or interdependence. (pp. 841-842).

Miles (1960) discusses two other training outcomes, diagnostic ability and action skills.

> Diagnositc Ability: The skill of assessing ongoing situations in a way that enables effective action; the employment of appropriate explanatory categories to understand reasons for presented interaction.
> Action Skill: The ability to intervene effectively in ongoing situations in such a way as to maximize personal and group effectiveness and satisfaction. This was [further] differentiated for our purposes into task-relevant behaviors and group maintenance-relevant behaviors, following the original distinction by Benne and Sheats (1948). (p.303)

Hipple (1973) identifies two additional goals: (1) to provide participants "with theoretical and research knowledge for sensitivity and action skills, and [2] to assist [the participant] in relating his learning to his back-home situation" (Hipple, 1973, p. 156).

Ten very comprehensive goals of laboratory training have been reviewed here. "A final objective underlying most laboratory education is 'learning how to learn.' Each learner is asked to become an analyst of his[her] own

processes of learning. This involves abilities to take initiative in seeking and using the resources of others to enhance his[/her] own learning" (Benne, Bradford & Lippett, 1964, p.18). Determining the appropriateness of risk taking might also be included in this last catagory (Bunker, 1965).

The goals cited above are a thorough, yet hardly exhaustive, list of possible training outcomes. These goals reflect the objectives of the trainers and/or sponsors of HR laboratories. For research purposes, however, these objectives are too broad. In order to determine specific training outcomes more concrete and objective goals will need to be specified. The next portion of this chapter will discuss alternative ways of conceptualizing and organizing the general objectives cited above into a more specific coherent framework.

Taxonomies of Objectives - An Overview

It is important to recognize that there are no clear boundaries or distinctions governing the process or content of what a student learns. "The fact that we attempt to analyze the affective area separately from the cognitive is not intended to suggest that there is a fundamental separation. There is none" (Krathwohl et al., 1964, p.45). Sheerer (1954) suggests that it is not possible to separate

learning into cognitive,emotional, and motivational components (p.123).

The standard catagories of learning objectives are the cognitive, affective, and psychomotor domains (Bloom, 1956). The most common and widely used taxonomies of goals in educational systems are Bloom's (1956) cognitive taxonomy and the affective taxonomy of Krathwohl, Bloom, and Masia (1964). The psychomotor domain will not be considered here.

Recent trends in humanistic education theory have emphasized the interdependence of cognitive and affective learning (1). Charles Hampden-Turner has developed an existential theory of T-group learning. His theory explicitly identifies the cyclical and interdependent nature of the various components of laboratory learning (Hampden-Turner, 1966). This provides further support for the interdependence and interrelationship among the various domains of learning.

Despite the somewhat arbitrary distinctions between the cognitive and affective domains, these catagories will be used in this chapter. This is done to provide a useful conceptual framework within which to organize different kinds of learning. A detailed discussion of the cognitive and affective domains follows, along with other taxonomies

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(1) The reader is referred to Krathwohl et al. (1964, pp. 48-60) for a more thorough discussion of the interrelationship between these domains.

of learning that seem to shed light on the types of outcomes that human relations training tries to achieve.

The Cognitive Domain - Bloom

Many HR trainers feel that cognitive outcomes are secondary or peripheral in importance to affective goals. Human relations training (HRT) as a field has attempted to correct the major imbalance of our western cognitive approach to schooling. In attempting to redress this inequity HRT has occasionally taken on an anti-cognitive stance. At other times, cognitive goals have been specified but they have been ranked as a low priority. Observing the list of goals that trainers frequently cite, only one purely cognitive goal is identified (knowledge of theory and research). Some of the other goals include a mix of cognitive and affective components (diagnostic ability, action skills, learning to learn).

Participants in HRT tend to experience a greater range of emotional responses in the laboratory training setting than is typical in their day-to-day lives. This encourages some participants to focus on the affective impact of the training. The study of Lieberman et al. (1973) indicates

that individuals who learn the most from encounter-type groups do not concentrate exclusively on their affective state. "High Learners reported more critical incidents which involved the presence of insight and the reception of cognitive information, and they also rated understanding and insight as important factors in their learning" (p. 422). The ability to think, reflect, and conceptually organize one's HRT experience seems to be an important factor in a participant's growth, both during and after the group experience.

Bloom's taxonomy (1956) of the cognitive domain can provide a framework to understand the levels of cognitive learning that occur in HRT settings. Bloom's hierarchy of cognitive objectives has high currency among educators, and is the taxonomy most frequently used to specify objectives in school settings. The taxonomy consists of five levels of learning. The levels of learning increase in complexity as one moves up the hierarchy. From the bottom of the hierarchy to the top, the levels are: Knowledge (or recall), comprehension, application, analysis, synthesis, and evaluation. Figure 1 provides a concrete example of how one could learn about group process, ascending through the various levels of the hierarchy.

Cognitive objectives are not frequently mentioned when specifying the goals of HRT. This author considers the lack

1.0 Knowledge - Hear a lecture about group process and be able to recall at least three characteristics or roles associated with task-oriented behavior and maintenance-oriented behavior.

2.0 Comprehension - Demonstrate an understanding of the above characteristics or roles by describing them in your own words.

3.0 Application - Identify when these characteristics or roles have occured in your T-group or task group.

4.0 Analysis - Discuss the relationships between and among the various occurences described above.

5.0 Synthesis - Relate the analysis above to the group dynamic that occured in your group. Discuss how the individual components were related to the total phenomenon taken as a whole.

6.0 Evaluation - Appraise your experience in the lab using the criterion of the group's importance in helping you to understand the process of group functioning.

Figure 1. Taxonomy of Cognitive Objectives.

(An example related to the cognition of group process is provided for each level.)

of cognitive goals to be unfortunate, particularly in light of the fact that certain personality types benefit from such structure. Conceptually concrete (Hunt, 1971) and field-dependent (Witkin, Moore, Goodenough, & Cox, 1977) learners seem to profit the most from a highly structured learning environment. One manner of providing a higher degree of structure for HRT is the specification of learning objectives. The learning objectives specify the explicit outcomes (cognitive, affective, and mixed) that are expected to result from training. Although behavioral objectives are common to many formal school settings they are rarely found in HRT. Two exceptions are Ivey (1968) and Mezoff (1979).

Ivey developed an objectives-based HR curriculum. Unfortunately, that training program has not been widely implemented. The present author has developed a behavioral objectives-based training program that he uses in training Canadian public school administrators. Mezoff's experience indicates that the specification of explicit objectives in both the cognitive and affective domains facilitates student motivation and learning.

It is not expected that primarily affective-oriented trainers will respond favorably to the specification of precise cognitive training outcomes. The primary purposes of the training will determine whether precisely specified cognitive goals are, in fact, desirable. However, there is

evidence to support the view that a cognitive map of the laboratory experience is of significant importance in helping participants extend and apply their learnings beyond the laboratory setting (Lieberman et. al., pp. 365-367). Affective experiences for their own sake, and in isolation from cognitive understanding, are likely to yield minimal gains for the laboratory participant.

The Affective Domain - Krathwohl

Affective objectives are the primary focus of laboratory training. The majority of the goals cited at the beginning of this chapter fall into this catagory. This domain involves attitudes, feelings, and values. Personality traits, which are implied by the highest level of the Krathwohl taxonomy will also be included in our discussion. Krathwohl organizes the affective domain along a continuum of internalization. The hierarchy is organized from bottom to top by five major levels: receiving, responding, valuing, organization, and characterization by a value complex. The major levels and their subcategories are outlined in Figure 2 (2).

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(2) The reader is referred to Krathwohl et al. (1964) for a discussion of these categories. The lowest level of the hierarchy (1.0 Receiving) represents the least internalized state of affective learning and the highest level (5.0 Characterization by a value complex) represents the most

1.0 Receiving

- 1.1 Awareness
- 1.2 Willingness to receive
- 1.3 Controlled or selected attention

2.0 Responding

- 2.1 Acquiescence in responding
- 2.2 Willingness to respond
- 2.3 Satisfaction in response

3.0 Valuing

- 3.1 Acceptance of a value
- 3.2 Preference for a value
- 3.3 Commitment

4.0 Organization

- 4.1 Conceptualization of a value
- 4.2 Organization of a value system

5.0 Characterization by a value or a value complex

- 5.1 Generalized set
- 5.2 Characterization

Figure 2. Taxonomy of affective objectives (from Krathwohl et.al

Figure 3 shows a concrete example of the stages of internalization. The example illustrates one particular affective goal of the T-group: the process of receiving interpersonal feedback regarding the impact of one's self on others. Each of the subcategories of Figure 3 correspond to those of Figure 2. Provided in Figure 3 is a description of the behavior and/or affective state and a short quotation exemplifying how a person might verbally express that state.

In a laboratory training event a certain level of personal involvement must be reached in order for a participant to progress up through the affective domain hierarchy. The more involved the participant, the greater the possibility of internalization of the learning. Conversely, when personal involvement is minimal, an individual will be precluded from achieving higher-order affective outcomes. Figure 4 has been constructed to illustrate a continuum of involvement for laboratory participants.

Figure 5 is the author's superimposition of Figure 4 onto Figure 2. Figure 5 illustrates the interrelationship between laboratory involvement and the process of internalization that characterizes the affective taxonomy hierarchy. As indicated above, a highly involved participant has the possibility of greater internalization of affective

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internalized state of affective learning.

1.0 Receiving

1.1 Conscious of the opportunity to receive interpersonal feedback (ifb). This is almost a cognitive behavior.

"I understand that people sometimes get feedback about their behavior in these T-groups."

1.2 Willingness to tolerate ifb, and not avoid it. This willingness to take notice of ifb in a neutral manner is also partially cognitive.

"I guess I'm willing to hear your perceptions of me."

1.3 Attention is paid to ifb. Other distracting stimuli are avoided.

"I wish you two would stop joking around while Bill is giving me his feedback. It's hard for me to hear him with your noisy distractions."

2.0 Responding

2.1 Allows him/herself an emotional reaction in response to ifb, but doesn't fully accept the necessity for doing so.

"If I hear feedback that's not flattering, I think I'll feel hurt. I'm not sure I want that to happen."

2.2 Voluntarily chooses to receive ifb and is involved and commited to hearing it and reacting to it.

"I'd like to have your feedback on how I'm coming across. It's really important to me to get your honest perceptions and reactions."

2.3 Receives ifb voluntarily and enjoys a feeling of satisfaction and zest from the experience.

"It sure was scary and exhilarating to hear feedback from the other group members. It was quite an experience."

3.0 Valuing

3.1 Tentative belief that ifb is implicitly good.

"Feedback was sure a good experience for me here, in this lab. Maybe it would be good in other situations as well. I wonder."

3.2 Commited to seeking out and pursuing ifb.

"I've been asking for feedback from some of my superiors and subordinates at work. I've even asked my husband."

3.3 A high degree of certainty and conviction about the value of ifb.

"Hearing feedback from others has really helped me understand how others see me, and why they react the way they do. It's been one of the most important things thats happened to me!"

4.0 Organization

4.1 Relates the value of ifb to other values that he/she holds.

"I guess I could be more honest with others than I usually am. I know how important feedback has been for me. Perhaps I owe it to others to be more open about my reactions to them."

4.2 Organizes the value of ifb into a complex of values, and brings order to the relationships among the values.

"I can see that giving and receiving feedback is just one step toward having more honest and richer interpersonal relationships."

5.0 Characterization by a value or a value complex

5.1 Predisposition to act (without conscious forethought) in a way consistent with a value complex of which ifb is a component.

"My husband and I share how we're feeling much more often. We even talk about how we're feeling towards each other."

5.2 An integrated view of the universe or philosophy of life (and consistent interpersonal behavior) that includes the value of ifb.

"I feel like a much more open person. My life feels much richer and fuller. The risks I've taken to get closer to other people have been worth it, despite the pain that comes from unmet expectations."

Figure 3. Taxonomy of affective objectives. In each subcategory a general and a specific example are provided. Examples are related to the process of receiving interpersonal feedback (ifb).

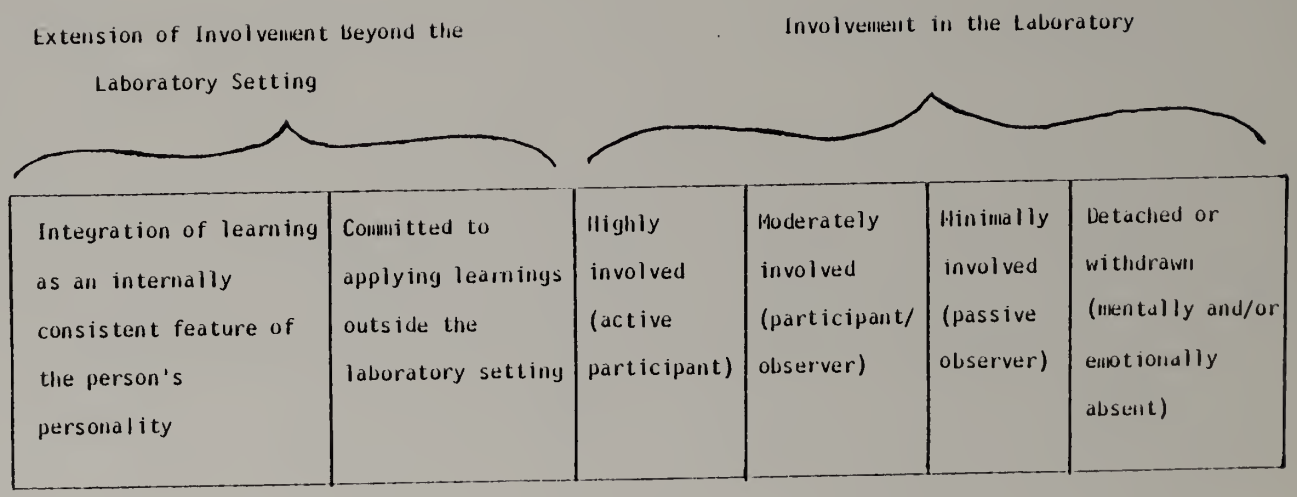

Figure 4. A continuum of involvement in the laboratory learning process.

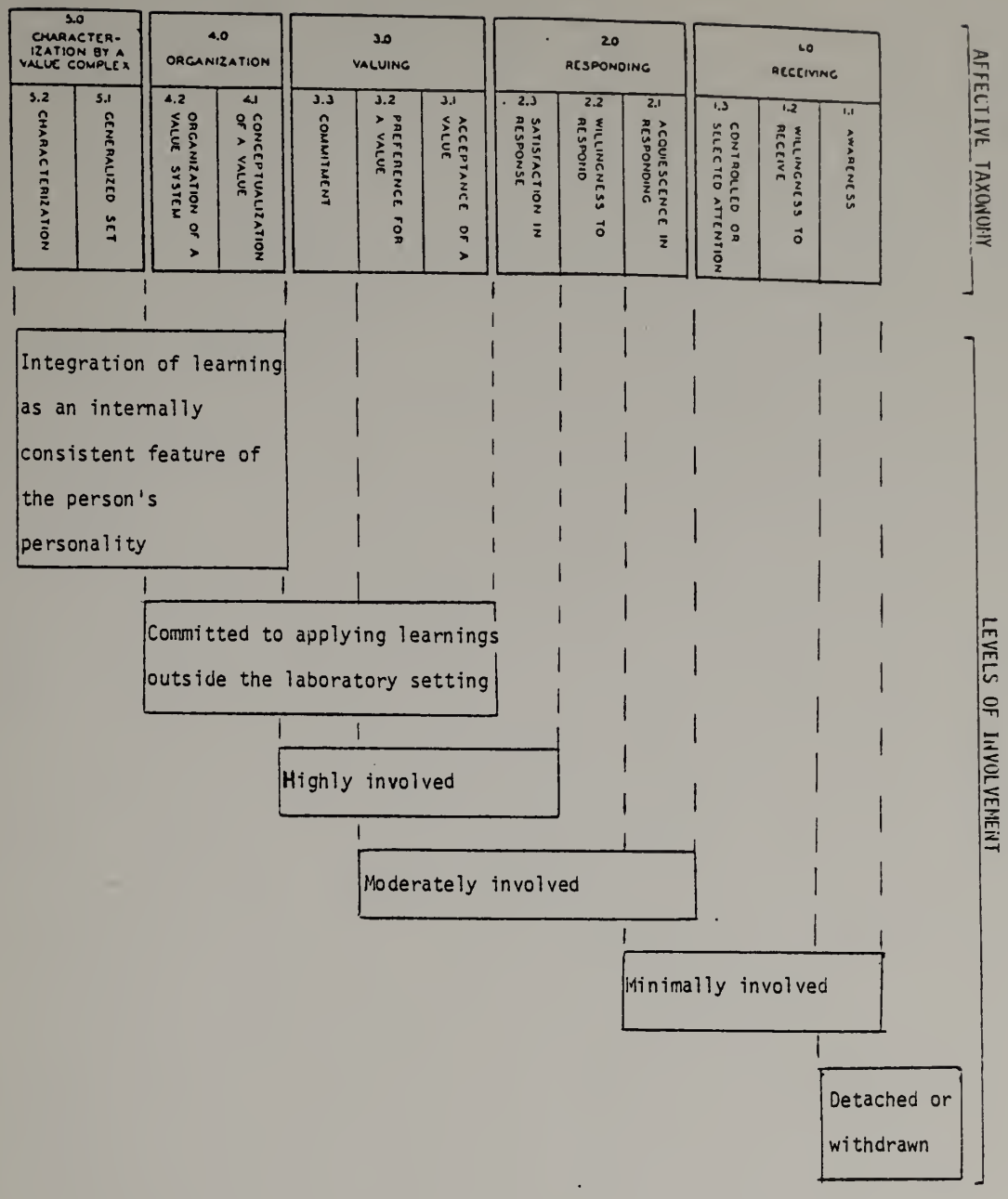

Figure 5. Taxonomy of affective objectives and the corresponding levels of individual involvement in the laboratory process required to attain them.

learning, whereas a detached or withdrawn participant is precluded from all but a minimum of internalization of affective learning (There are, however, "active" observers in HRT who may learn as much as active participants). It is important to note that the level of involvement is a necessary, but not sufficient, prerequisite to the attainment of the corresponding objective in the affective taxonomy.There may be some exceptions to the relationship between involvement and internalization of affective learning. Psychotherapy research has demonstrated the efficacy of learning via methods other than direct involvement. Bandura (1969) claims that "virtually all learning phenomena resulting from direct experience can occur on a vicarious basis through the observation of other persons' behavior and its consequences for them" (p. 118). There is some support for Bandura's claim in the training group literature: for example, McLeish and Park (1973) successfully taught empathy vicariously.

Are trainers justified in insisting upon client participation and involvement? Research by Babad and Melnick (1976) sought to answer this question. They found that active participation and emotional involvement correlated with both in-group measures and post-group evaluations of success. In an earlier study Miles (1965) concluded that "gains by participants were primarily predicted by variables

connected with actual participation ..." (p.241). The findings of Liberman et al. support the contention that involvement is a key variable in determining outcomes from the group experience (p.371).

Apparently there is good reason for trainers to emphasize and encourage active participation. However, whether this implicit (and sometimes explicit) demand (3) impinges upon the client's freedom of choice remains a serious ethical consideration for trainers. Finally, it should be emphasized that involvement seems to be a necessary but not sufficient factor to ensure learning (Lieberman et al., p. 452).

Participants seem to gain benefits in proportion to the degree to which they invest themselves in the process. Figure 5 demonstrates the rationale behind the adage told to many participants that "what you get out of the T-group depends on what you're willing to put into it."

It is also apparent, from viewing Figure 5, that high involvement in a human relations laboratory does not ensure the transfer of learning to the back-home environment. A participant can value a behavior (level 3.0) through any of

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(3) While not all trainers demand participation, many trainers establish and encourage norms that put pressure on group members to participate. Even when trainer or group pressure to participate is absent, the social expectations related to the role of trainee are often felt as a demand by participants.

the subcategories: acceptance (level 3.1), preference (level 3.2), or commitment (level 3.2). Still, the person has yet to reach organization (level 4.0), or characterization by a value complex (level 5.0). This may explain why many researchers have noted fade-out effects in post-laboratory changes (Back, 1972). Personal growth made during the lab can frequently be extinguished by a hostile and/or unsupportive organizational climate (Smith, 1975).

Self report instruments are the most frequent source of data on training outcomes. Yet, self reports tend to be biased towards favorable ratings of the experience (even when lasting personality changes may not be achieved). This can be seen by observing that the "valuing level" of the Krathwohl taxonomy is only an intermediary stage on the way to "Characterization by a values complex."

Proponents of sensitivity training tend to favor measurement of outcomes via ratings, while the skeptics tend to prefer psychometric tests (Smith, 1975). There are problems associated with both these approaches (see section entitled "Problems of Measurement of Outcomes"). Self-reports may only tap the "value" level changes, whereas the psychometric tests are clearly tapping a level of greater internalization of the lab learning.

So far we have exclusively used the Krathwohl taxonomy for specifying affective outcomes. In spite of the fact that

the Krathwohl affective taxonomy was developed specifically for school settings, educators have not adopted the taxonomy as extensively as the Bloom cognitive taxonomy. One reason for this seems to be that affective education is a relatively new field of teaching - a field which has not gained widespread support and acceptance among teachers.

The Krathwohl taxonomy is not particularly comprehensive for non-school settings and it fails to include many common HRT goals. It also may have an inherent cognitive bias. Some educators believe that the "implicit intent of educational evaluators is to use the [goals of the Krathwohl taxonomy] as a means to the end of cognitive objectives" (Brandhorst, 1976, p.3).

We must look to other taxonomies to explore affective goals that are an end in themselves, rather than being purposive (a means to an end, as in the Krathwohl taxonomy). Such taxonomies will be discussed in the next section.

Other Affective and Mixed Cognitive/Affective Domains

This section will review other taxonomies of affective outcomes and skills that draw from both the cognitive and affective domains. Models most appropriate for categorizing HRT outcomes will be treated in greater depth than those that are less applicable.

Brandhorst (1973) has reconceptualized the affective domain to include goals that are ends in themselves, such as effectence, efficacy, competence, and analytic coping ability. He describes three categories of objectives. The first is ego-involvement, which involves the behavioral expression of personality style. Empathy is a goal of HRT that is subsumed in this category. Another category is "motivation". This dimension assumes a basic human need for active involvement in the area of aesthetic creation and experience. Risk-taking, a common training goal, is subsumed by the motivation dimension. The last category, "moral development", includes valuing others for their own sake (certainly a meta-goal of HRT).

Weinstein (1977) offers a hierarchy of self-knowledge, along with a process for expanding knowledge of self. This process involves a model that could be used implicitly or explicitly in training to increase affective learning. Weinstein's model involves both cognitive and affective processes. The model is designed to accomplish affective goals as well as cognitive learning of a personal nature.

There are various taxonomies of skills that include a mix of both cognitive and affective components. The most common dichotomy of skills is analytical versus "clinical" (Turner & Lombard, 1969). Another scheme uses the terms conceptual skills, technical skills, and human skills (Katz,

1954). This section will only present taxonomies of "clinical" or human skills. HRT may, on occasion, involve skill building in the analytical, conceptual, or technical categories. However, these areas are much less likely to be the focus of training than interpersonal skill building. Two taxonomies will be presented here: Ivey's microskills and Brandhorst's domain of relational objectives. Both models have direct applicability to HRT settings.

Ivey's (1971) microskills training program teaches communication skills that are transferable to counseling, education, or everyday interpersonal situations. Skills are divided into attending (or listening) skills and influencing skills (see Figure 6). Ivey's microskills are non-complex, observable, and objectives-based. Microskills training is practical and powerfull. A considerable body of research evidence has documented the effectiveness of the microskills approach (Toukmanian & Rennie, 1975).

Brandhorst's (1976) taxonomy of objectives in the relational domain provides a structure for evaluating action learning. The relational taxonomy conceptualizes interpersonal skills in terms of measurable behavior. The six categories reflect aspects of leader behavior that occur in the small group setting. Catagories are cognitive (conceptualization), cognitive-affective (evaluation), or cognitive-affective-behavioral (leading, following,

Attending Skills

Attending - body posture, eye contact, etc.

Minimal Encourage - head nods, restatement, and "un-huns".

Paraphrase - feeding back verbal content of other person's message.

Reflection of Feeling - feeding back affective tone of other person's message.

Summarization - demonstrates understanding and integration of all of the above.

Influencing Skills

Self-Expression - affective verbal and non-verbal communication.

Focus - (not a true skill) a framework for analyzing conversational flow.

Directions - telling another person what to do.

Self-Disclosure - sharing of personal experience.

Interpretation - providing alternative explanations for another's experience.

Direct-Mutual Communication - here and now dyadic encounter.

Figure 6. Ivey's microskill taxonomy with explanations of each skill.

role-exchange yielding, and role-exchange asserting). Although this schema was developed for analysis of outcomes in small task-oriented groups, it is equally applicable to the HRT setting where non-task oriented groups (viz., T-groups) predominate.

This section has reviewed some specialized taxonomies of learning that complement the Bloom-cognitive and Krathwohl-affective approaches discussed earlier. It is indeed difficult to find an exhaustive and inclusive model that can adequately represent the depth and range of HRT outcomes. There does not seem to be an easy way to synthesize these various perspectives into a coherent and inclusive framework.

Faced with such complex choices among the taxonomies, the reader is likely to feel overwhelmed by the options that exist for evaluating HRT outcomes. This paper will not attempt to provide an integration among the various taxonomies. This section and the two previous ones have instead attempted to provide some different perspectives or reference frames with which to view training goals.

Some goals will be more important than others. Given the multitude of goals and a variety of ways with which to view them, how is it that we can establish a ranking, or balance among them? Importance depends upon the purpose of the training, the participant's personality, and the

organization culture (or life-setting) that the individual will return to.

The next section will discuss one of the problems that arises out of trying to set priorities among goals: Whenever certain goals are focused on, it often happens that these are pursued at the expense of others. This problem will be called suboptimization.

The Suboptimization Dilemma: A Problem in Establishing Goals

Suboptimization means that the achievement of goals is less than it could be. Suboptimization occurs when the training focuses on one particular goal at the expense of others: either over the entire course of the training or during some component of it. This can occur in two ways: teaching-suboptimization and measurement-suboptimization. Teaching-suboptimization occurs during the teaching process when the teacher focuses on a limited number of goals. Measurement-suboptimization occurs when the measurement instruments utilized only tap a limited number of the teaching goals. Both conditions can result in reduced achievement of training goals.

The teaching-suboptimization problem results in a reduced benefit from the training program than would be achieved if a more balanced emphasis were placed on each of

the diverse goals. Measurement-suboptimization occurs when there is an insufficient sampling of the total net gain from an educational/training program. The observed effects of training provide a limited and perhaps misleading picture of the actual outcomes. This bias could be detected if a more comprehensive evaluation took place.

Teaching-suboptimization and measurement-suboptimization can occur independently or simultaneously. Figure 7 illustrates the various combinations that can occur between the two dimensions. The teaching dimension, horizontal on the page, actually represents a continuum from highly optimized teaching (left end of the continuum) to highly suboptimized teaching (right end of the continuum). For illustrative purposes the continuum has been divided into only two conditions: optimized and suboptimized. Similarly, the measurement dimension (vertical on the page) represents a continuum from highly optimized (top of the page) to highly suboptimized (bottom of the page). The measurement continuum has also been represented in a simplified form showing only two conditions, optimized and suboptimized.

Figure 7 demonstrates the three possible cases of suboptimization; teaching-suboptimization (upper right quadrant), measurement-suboptimization (lower left quadrant), and the combination of both occuring simultaneously (lower right quadrant). The optimal condition

Optimized = Balanced emphasis on all goals

Suboptimized = Limited emphasis on a narrow range of goals

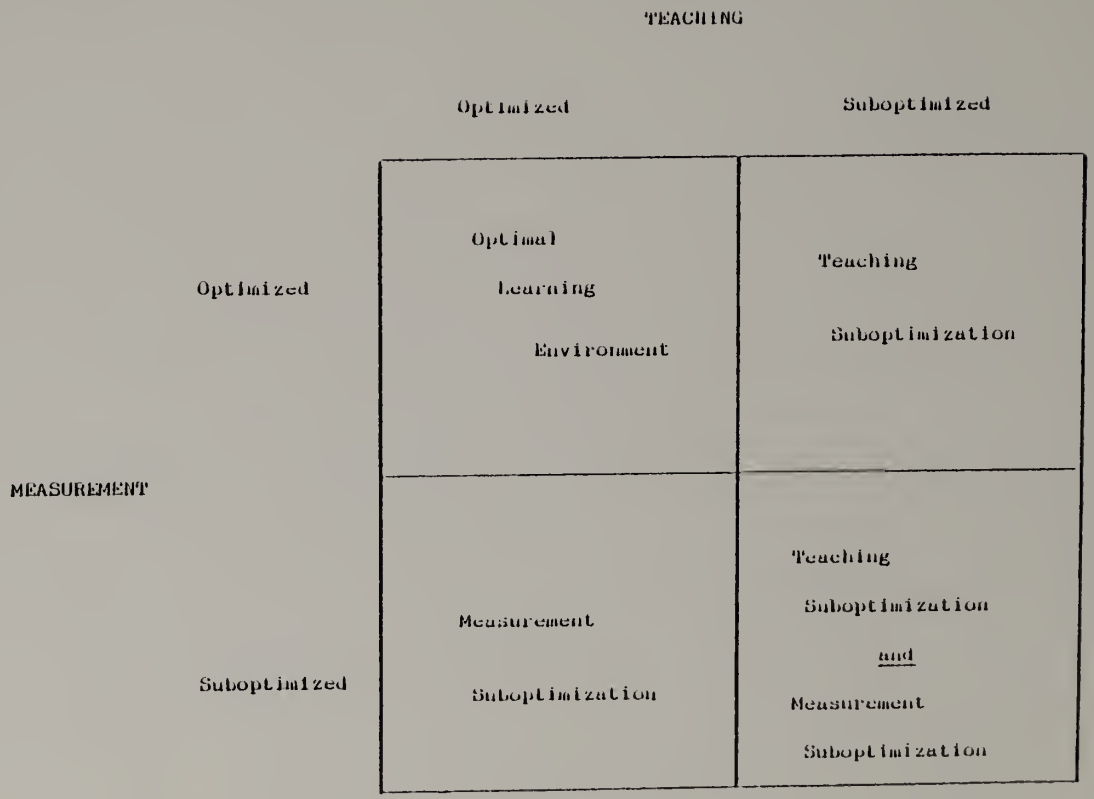

Figure 7. Suboptimization of outcomes. Combinations of teaching suboptimization and measurement suboptimization.

(upper left quadrant) is achieved when there is an appropriate emphasis (in terms of weighting and priority) among the goals during both the teaching and the measurement (evaluation) processes.

The teaching-suboptimization problem (focusing on a limited number of the curriculum goals) may occur either within and/or across the cognitive and affective domains. For example, teaching-suboptimization occurs within the cognitive domain when precedence is given to teaching certain levels of knowledge (usually the lower levels) at the expense of others. Teaching-suboptimization is further compounded when we consider the affective and mixed domains in addition to the cognitive. A focus on exclusively cognitive outcomes can essentially preclude affective learning. Teachers focusing on cognitive outcomes may be a consequence of the teachers' preference or bias (4). This situation has been characteristic of the majority of Western schooling. Students will probably remain unaffected in the ignored goal areas.

Measurement-suboptimization can result in both major and minor problems in terms of results of the training. The severity of the problem depends upon whether we are looking at short-term or long-term implications. Short term

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(4) This selective focus might be conscious on the part of the teacher, or it might be unconscious.

implications are minor, while long-term implications are considerable.

The short term implications of measurement-suboptimization are simply a neglect of measuring certain goals. Presuming that the student is taught optimally (lower left quadrant), measurement-suboptimization results in an oversight of the unevaluated goals. The student learns in many areas, but is only evaluated in one or two. This is not as serious a problem as the long term implications of teaching-suboptimization.

Measurement-suboptimization, over the long term, can drastically impede the learning process. For example, a school curriculum may include a wide and balanced set of cognitive and affective objectives. If students are only tested on the cognitive outcomes, then it may appear to students as if the affective goals are not taken seriously. Learning theory predicts the effects of reinforcement of selected educational objectives: those objectives that are most frequently tested are likely to reinforce and alter student behavior.

This process of selective testing, should it continue over time, represents a feedback loop. Students will probably be more academically successful when they ignore the affective curriculum goals. This will probably continue in an ever-increasing fashion. This neglect of the affective

curriculum can occur despite the fact that the teacher continues to emphasize affective goals in classroom teaching. The students just will no longer take the affective goals seriously.

Measurement-suboptimization can be found in HRT. If cognitive outcomes are overlooked in the assessment of HRT the we can expect a decrease in student learning in this area.

Measurement Suboptimization and Student Personality Characteristics.

Student personality traits can interact with the various types of assessment instruments employed. Some students will perform better than others simply due to their predisposition toward particular testing proceedures. These shifts in student test performance, based on a different form of evaluation, can be dramatic and startling. For example, anecdotal evidence suggests that some students who perform well on multiple choice exams perform poorly when tested via essays, while for others the reverse is true.

So apparantly selecting one evaluative instrument may obscure significant gains made in other unmeasured (yet closely related) areas. These evaluation biases (and their related measurement problems) are found at all educational levels. Certain personality types perform more or less effectively on different types of tests. Some personality

characteristics (e.g. conceptual level) have been found to interact with particular testing procedures. Conceptually abstract (Hunt, 1971) students perform better in subjects requiring critical thinking, analysis, and generation of alternatives. Conceptually concrete students achieve higher grades in subjects requiring memorization (p.40). Conceptually abstract students were matched on intelligence with a group of conceptually concrete students. "The two groups did not differ on an objective examination, but the [conceptually abstract] group performed significantly better than the [conceptually concrete] group on an essay examination" (Hunt, 1974, p.51).

Suboptimization in Human Relations Training.

Various measures of outcomes from T-group training are not strongly correlated to each other. That is, gains in one area tend to be unrelated to gains in other areas. Smith (1971) investigated the correlations among five measures of outcomes from T-group training (viz., interpersonal awareness, diagnostic ability, attitude change, trainer evaluation, and job behavior change). He found that " three of them - Job Behaviour Change, Trainer Evaluation, and Diagnostic Ability - tend to go together, but the other two are quite independent. This finding underlines the

importance of clarifying the specific goal of a particular programme" (p.509).

If teaching and/or measurement suboptimization can occur within the cognitive dimension alone (depending upon the level of hierarchy), then they become an even more acute problem when we consider the wide range of affective and mixed cognitive/affective outcomes sought in HRT. Smith's (1971) findings suggest that greater attention must be paid to specifying outcomes for HRT. This does not necessarily mean limiting the number of objectives, but rather making clear those that are already established.

Smith (1971) even found a negative correlation (-.26 at $p<.10$) between diagnostic ability and attitude change. In a recent review of controlled studies of sensitivity training, Smith (1975) notes that "numerous authors from Miles (1960) to Lieberman et al. (1973) have commented that their various indexes of change after training correlated poorly with one another" (p. 599). If goals are negatively correlated, then to achieve certain goals may inhibit the achievement of others.

Summary.

Goal achievement can be measured by objective assessments in educational settings. The earlier discussion, however, has revealed how measurement suboptimization can occur. In counseling and human relations training we rarely find objective assessment measures. Self-reports of goal attainment are most common, and are occasionally supplemented by more "objective" ratings from therapist/trainer, friends, colleagues, and/or family members.

The lack of consensus among these raters will be discussed in a later section of this chapter. However, the fact that evaluations are generally inconsistent among raters signifies that measurement-suboptimization can occur here as well. Should we attempt to achieve high self-reports of change, even if they are not corroborated by outside judges? Or should we strive for sucessful ratings of change from significant others, even though the participant does not evaluate him/herself as positively changed? Neither extreme is desireable.

In summary, suboptimization occurs when there is an imbalance of goals. In the teaching process, suboptimization occurs when a limited number of goals are taught. Measurement-suboptimization occurs when one goal (or criterion measure) is focused on, to the neglect of other (perhaps equally) important goals. The effect of teaching

suboptimization and measurement suboptimization (over the long term) is that overall goal achievement is less than it could be if each of the various sub-goals were balanced and weighted appropriately.

Problems of Measurement of Outcomes

A problem related to measurement-suboptimization is "measurement-orientation." Measurement-orientation occurs when convenient measurement criteria are used to determine the achievement of a particular objective. The measure used may occasionally become the focus of the training, to the neglect of the original objective. In the classroom this is known as "teaching to the test". This is a process whereby teachers disregard a more abstract goal (e.g., critical thinking, good citizenship, etc.) in favor of a concrete one, in an effort to achieve high test performance.

Conversely, global measures are sometimes used as evidence of specific concrete learning. This also can lead to measurement-orientation. This problem can be seen in human relations training. An HRT program may be designed to achieve competence in certain interpersonal skills. Due to the difficulties and expense of rigorous performance testing, trainers might choose to assess goal achievement through various self-report measures. HRT professionals must

be careful that the training does not then focus only on increasing the participant's sense of worth. Increased feelings of self esteem can markedly influence self-reports of skills, regardless of the veracity of the self-report. It would be unfortunate if inaccurate "glowing" self-reports of competency led us to evaluate a HR skill competency training program as sucessful. However, this is not a rare or atypical occurence.

The variety of goals discussed earlier presents a difficulty in deciding exactly which outcomes to evaluate. "The number and kinds of degrees of freedom in our design is an implicit statement of the position we take regarding the aims and goals of training .... We may study only a narrow range of dimensions, in which case we are by implication narrowing the goals of training, or we may include any conceivable kind of change, in which case we are implying that one kind of change is as good as another" (Harrison, 1967, p.9).

In addition to the diverse goals of training, there exist many types of outcome measures for each goal. "Enthusiasts for sensitivity training tend to favor ratings ... while skeptics prefer psychometric tests, preferably generalized ones rather than those relating closely to specific training goals "(Smith, 1975, p.599).

Since it is possible to alter attitudes through

training without modifying personality variables, global measures are not as likely to reveal evidence of change. Self-ratings are subject to participants' self-deceptions, as well as to both conscious and unconscious attempts to deceive others (Wylie, 1960).

Evaluation via ratings is further complicated by the infrequent replication of instruments in different studies. The inappropriateness of some evaluation instruments has been treated in the earlier discussions of suboptimization and measurement-orientation. Research instruments "must be acutely tuned to the purposes and methods of the group" (Bennis et al., 1957, p.340).

Test-sensitization effects may also occur (Jeffers, 1972). Taking a pretest may influence post-training evaluation measures. Research studies which do not take this into account (e.g. A Solomon four-group design) run the risk of failing to discern the effects of test-sensitization. The Jeffers (1972) study employed Shostrom's Personal Orientation Inventory (POI) and discovered a significant test-sensitization effect . The POI is one of the most widely used instruments in the HR field. If the Jeffers finding is replicable, "it will severely limit the usefulness of [the] POI in assessing training effects" (Smith, 1975, p. 602).

Taylor (1955) reports a marked increase in the

similarity of self-image and ideal-self image on repeated tests administered over short time intervals. Most training measures are what Campbell (1957) calls "reactive". A test-treatment interaction is therefore quite likely (Miles, 1960, p. 302).

Determining the effects of training is sometimes dependent on the timing of data collection. Two apparently contradictory phenomena have been observed in the comparison of post-lab and and delayed measures. One effect is the "fade-out", where changes are significant immediately after the lab but disappear over time (usually 3-6 months). This deterioration effect is what one would expect. The other unexpected phenomenon is the "delayed reaction", where the training does not appear to have a significant impact immediately after the lab but an impact occurs over time.

The fade-out effect is probably related to organizational or interpersonal situations that the HRT participants return to. Where back-home values and norms are in marked contrast to HRT-type values there is likely to be an extinction of lab-induced changes. Where measured changes are reinforced by the back-home situation, these changes can be expected to persist over time.

Smith's (1975) review of controlled studies of sensitivity training indicates that two-thirds of the studies evidenced a persistence of change at follow-up. The

persistence depended upon who was doing the rating (co-participants rated changes higher than others not present during the training) and upon the type of measure employed. Smith notes that changes "in a particular area may reflect the type of measure most often used in that area rather than greater or lesser incidence of change" (p. 616).

The delayed reaction phenomena was found in Harrison's (1966) study. Changes at six weeks were positive but not significant. Changes increased to higher (and statistically significant) levels after six months. Harrison interprets this finding via Lewins' model of behavior change: the process of "unfreezing", "change", and "refreezing." Permanent change (refreezing) may not be evidenced until long after the laboratory experience. Harrison alludes to the complications (greater variability and inconsistency, etc.) that arise from attempting to measure change in the unfrozen state (1967, pp. 7-9). The timing of data collection, as discussed above, can obvously have a significant effect on whether or not evidence of training changes are found.

The measurement of outcomes is further confounded by other problems. Harrison (1967) notes "the fact that a person is in a control group biases his self-image and the perception of him by others; the fact that a person has participated in training inclines him and others to look for

changes in his behavior" (p. 3). Smith (1975) discussed the non-equivalence of so-called control groups, such as in the Schutz and Allen (1966) study. Where controls do not volunteer for training, they cannot be considered equivalent to those who do volunteer. Harrison notes that even among controls who have volunteered for training, there are those who delay their participation in training out of ambivalence or reluctance to attend (1967, p.4). Miles (1960) notes that "persons appearing for human relations training are highly self-selected, and it is excessively difficult to get comparable pools of subjects to serve as members of control groups" (p. 302). Random selection of participants for training rarely occurs.

Observer bias is another difficulty of measurement. Observers in the back-home setting usually know who has received training and who has not. If the experimenter contrives a temporary situation with an observer unknown to the subject, observer bias may be reduced. However, the cost is that the contrived situation usually has little external validity. Furthermore, many researchers have failed to disclose whether or not their judges worked blind (Smith, 1975, p. 610-611).

Substantial evidence in psychotherapy indicates that therapists may be the most biased raters of change (Gomes-Schwartz, Hadley, & Strupp, 1978, p. 437). Trainers are

probably less personally invested in their clients' growth than psychotherapists. However, a similar lack of objectivity may limit their accuracy in evaluating outcomes.

Miles (1960) reports that trainer ratings were the only lab criterion measure significantly related to change on the job. Trainers were 71 percent accurate when comparing trainer ratings to job performance ratings. However, "an accuracy figure of 73 percent could have been obtained by predicting that everyone would show change" (p. 305). The difficulties of obtaining accurate ratings are numerous. The lack of consensus among raters will be discussed next.

The following discussion on the problem of intersource consensus is drawn primarily from research findings in psychotherapy. Many phenomena are comparable across the sometimes grey line between HRT and growth-oriented psychotherapy for normals. In psychotherapy "patients, therapists, and outside judges often do not agree upon the amount of the change the patient has manifested" (Gomes-Schwartz et al., 1978, p. 437). Therapists and their patients seem to focus on different aspects of the psychotheraputic process and tend to evaluate the outcome of their relationship by markedly different criteria (Feifel & Eells, 1963). "Recent reviewers ... reluctantly conclude that it may be futile to search for consensus among diverse sources of outcome measurement" (Berzins, Bednar & Severy,

1975, p.10). "The criterion problem has been one of the perennial stumbling blocks in psychotherapy research" (Strupp, 1977, p. 7). One of the difficulties is that improvement criteria "are subject to value decisions that are difficult to agree on" (Lambert, Bergin, & Collins, 1977, p. 475). Berzins et al. (1975) suggest two remedies: the development of consensual measures of outcome and the use of multimethod factor analysis instead of ordinary factor analysis. Even if these solutions were to be implemented, they would require large samples and large-scale collaborative research. It is unlikely that these methodologies will be applied to training settings in the near future.

Raters of training include: the trainer, the participant, other participants, independent judges, and back-home observers (organizational colleagues, family members, and/or friends). The possibility of trainer bias was discussed earlier. Participant ratings on global measures of self-concept are frequently found to increase with training. Some of these changes fade out and others remain. Length of training may be a critical variable that determines whether the changes take hold (Smith, 1975, p. 601). Participant ratings on specific aspects of self-concept (e.g. openness to others or to new experiences) "are much more likely to yield significant effects than are

global measures" (Smith, 1975, p. 605). The durability of specific ratings has not often been investigated.

A few studies employed independent raters and specially contrived test situations. Most of these studies did find an effect, however only one employed an additional delayed measure. Despite the fade out on the follow-up test, Smith's (1975) review concludes that the results of these investigations are encouraging (p. 611).

Over 90% of the studies employing back-home observers found at least some of the expected effects of training. As mentioned earlier, a limitation of these ratings is the problem of the observer knowing who has been trained (Smith, 1975).

Lieberman et al. in their exhaustive study of encounter-type groups report that "[c]orrelations among leader ratings of change, participants' judgements of their own change, and coparticipants' judgements of change hovered around zero, reaching a maximum of .20" (p. 99). Despite the various positive effects reported by Smith (1975), there seems to be little agreement among raters as to exactly who changed and how much they did change.

Summary.

An earlier section discussed the measurement problems related to suboptimization. This section has treated a number of additional issues. Related to measurement suboptimization is the problem of measurement orientation. Measurement orientation occurs when inappropriate criterion measures become the focus of the training, to the neglect of the original objective. The diversity of HRT goals and outcome measures as well as the inappropriateness of some outcome measures was discussed. Test-sensitization and the timing of data collection can also effect the results that are observed. While considering timing, cases of both deterioration and delayed reaction effects were noted. Problems of inadequate control groups and observer/rater bias were also discussed. Finally, the problem of intersource consensus in psychotherapy was highlighted, and it was suggested that many of the same problems can also occur in the training setting.

Satisfaction vs. Performance

This section will discuss the relationship between outcome measures (performance tests, trainer ratings, co-participant ratings, etc.) and participant satisfaction. The perplexity of obtaining either objective performance

measures or self reports of skill-achievement was mentioned in the previous section. This section will focus specifically on the dilemma of satisfaction versus performance. It would superficially appear that satisfaction and performance should be related. However, some of the literature indicates otherwise: negative, contingency, and no relationships sometimes occur. Research findings will be drawn from the fields of education, psychotherapy, and leadership.

The field of education is an area that has objective performance measures. However, as discussed earlier, the results can be drastically altered as the mode of measurement is changed (e.g., multiple-choice to essay format test). Does the level of students' achievement correlate with students' ratings of courses?

A number of studies, reviewed by Costin, Greenough, and Menges, investigated the relation between students' ratings of instruction (an indirect measure of their satisfaction) and their expected or actual grades. Out of thirty-one studies, fifteen found no relationship. One study "found a negative correlation between course grades and students' judgements of 'instructional competence'" (1971, p. 518). The twelve studies that found significant positive relationships typically revealed relatively weak correlations (viz., R=.20 to .35). The relationship of

student satisfaction to student performance may depend on the field of study. Students' ratings of teachers have been found to correlate negatively with student achievement in very abstract courses (Rosenshine, 1975). The measures of educational achievement are primarily cognitive in nature. Where affective goals predominate, one would hypothesize a somewhat stronger positive relationship between satisfaction and learning outcomes. Presumably, satisfaction would lead to greater willingness and receptivity, both of which are likely to be important for affective learning.

Figure 3 represents a grid of learning outcomes from education, human relations training, and psychotherapy. In education predominantly cognitive outcomes are found. In psychotherapy primarily affective and/or behavioral outcomes are found. Human relations training includes outcomes of all three types. As one moves from left to right along the continuum (see Figure 3) one expects willingness and receptivity (and therefore satisfaction) to play an ever stronger role in determining outcomes.

Receptivity and willingness are crucial for effective psychotherapy. Most psychotherapeutic approaches explicitly address this issue, and recognize the need to work through the blocks to receptivity (i.e., "resistance" in the Freudian terminology). Counseling and psychotherapy are notorously ineffective with unwilling, captive clientele

Goals of Education, Psychotherapy, and Human Relations Training

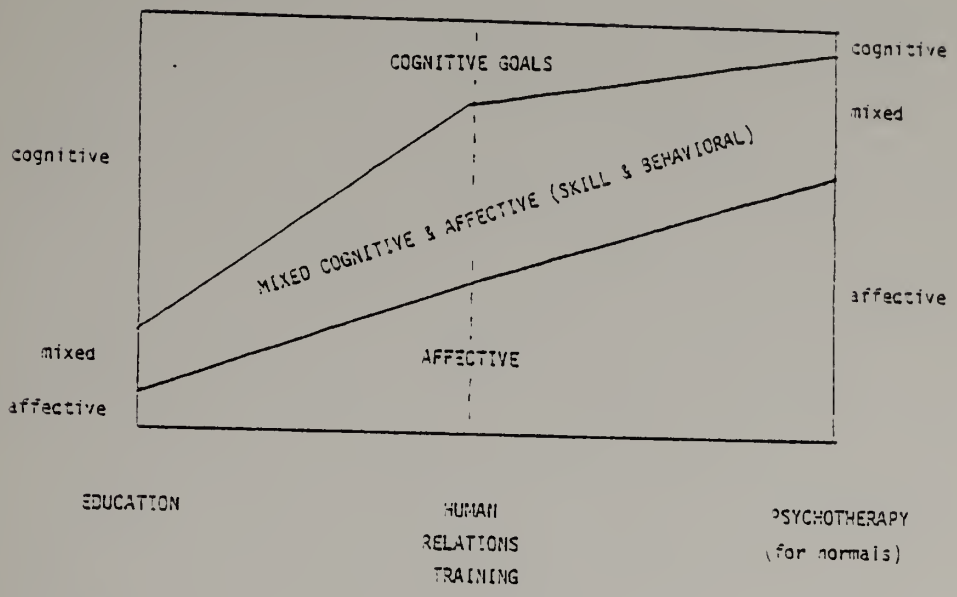

Figure 8

(e.g., prisoners, non-voluntary mental patients, etc.). Assuming there exists client willingness and receptivity, this is not enough to ensure psychotherapeutic gains. There must also be an ability to work sucessfully in a given therapeutic mode. For example, low intelligence may preclude a client from sucess in conventional Freudian analysis. Furthermore, there must be an effort on the part of the client to follow through, apply, and transfer his/her learning from the therapy session to everyday life.

Given the importance of receptivity and willingness, satisfaction in psychotherapy ought to correlate with psychotherapeutic gains. Patient-perceived therapeutic conditions have been found to correlate strongly with outcomes in individual psychotherapy and counseling. However, the data from investigations in group therapy settings fail to show any similar type of relationship (Gurman, 1977, p. 523-524). Both methodological limitations and, as discussed earlier, the lack of reliable and valid outcome measures limit the significance of the psychotherapy research reviewed by Gurman. The HRT setting is more similar to group therapy than to individual counseling. It is in the group therapy setting where outcomes have not correlated with patient-perceived therapeutic conditions. Therefore, caution must be exercised in hypothesizing any relationship between client satisfaction and HRT outcomes.

The leadership research is cited here because some of the leadership findings are drawn from investigations of behavior in small group settings. It was long presumed that satisfaction with one's organizational role correlated with high levels of job performance. Various content theories of motivation (i.e. Maslow's Hierarchy of Needs and Herzberg's Two-Factor Theory) were predicated on this assumption. In its simplest form the relationship was expressed as: "happy employees work harder." This relationship was questioned as early as 1955. In 1964 Vroom (p. 183) analyzed the results of twenty studies and found the median correlation between satisfaction and performance to be very low (.14).

There is not a one-to-one correspondence between satisfaction with work and satisfaction with training, nor between job performance and performance as a result of training. However, the fact that job satisfaction and performance are not strongly related suggests that there may be some basis for questioning the correlation between satisfaction with training and training performance.

The leadership, psychotherapy, and educational findings discussed above suggest that there may not be a strong correlation between satisfaction and performance in training. It is interesting to note that the continuum (Figure 3) from education to psychotherapy (for normals) reflects a continuum of increasing freedom for the client to

terminate the relationship.

Younger students are forced by law to attend school. Secondary school and college students are required to take many courses to meet degree and certification requirements. On the other hand, many clients of counseling and psychotherapy opt to terminate their therapy after very few sessions. Although training participants infrequently drop out of their short-term training sessions, those individuals who are turned-off to the training (especially HRT) will seldom return.

The examples cited above indicate that willingness and receptivity become more crucial (at least in terms of continued exposure) as one moves from the left to the right of Figure 8. Satisfaction and exposure do not ensure performance and/or results. However, dissatisfaction and a termination of contact with the training will certainly lead to minimal results. It may be inferred, therefore, that satisfaction is a necessary (but not sufficient) prerequisite to productivity. Satisfaction would seem to be more critical (as a prerequisite to continued exposure) as one moves from the left of Figure 8 to those processes that include a greater affective component.

The next chapter will discuss matching models, also known as aptititude-treatment-interactions (ATIs). ATIs are formulations of how to best match certain individuals (their

personality traits and aptitudes) with certain instructional processes (treatments), so as to achieve the maximum possible outcomes.

This section discussed the lack of a clear relationship between satisfaction and performance. When discussing matching models, this lack of a relationship will again pose a dilemma: do we match for satisfaction or performance? Obviously, performance represents the "bottom line" and tells us whether or not we have achieved our stated objectives. However, for long term training goals, our bottom line figures may not show up for years. In those situations we should acknowledge the importance of satisfaction as an important moderating variable, at least as a factor to ensure continued exposure to training.

Other situations, which will be discussed in chapter 3, may indicate that for client growth we should strive to achieve a certain optimal degree of tension. Moderate amounts of dissatisfaction, dissonance, or stress are important in certain developmental processes (i.e. Kohlberg's stages of moral maturity, or Hunt's conceptual level). Before attempting to increase a client's level of functioning ("unfreezing" their behavior) it is usually necessary to establish a theraputic relationship characterized by the change agent's intrinsic acceptance of the client. This bond is another way in which client

satisfaction is a prerequisite to client change. In discussing matching models it will be important to identify whether the matching objective is for satisfaction or performance. In the case of matching for performance, the most appropriate performance criteria must be wisely chosen.

Summary

This chapter on the measurement of training outcomes began with a listing of HRT goals commonly cited in the training literature. Next, various taxonomies and schemes for categorizing goals were explored. The rest of the chapter was devoted to the various problems associated with establishing goals and measuring their attainment. Finally, the lack of correlation between satisfaction and performance was discussed. Chapter three will discuss the models we might utilize to sucessfully match clients to instructional treatments. The five major approaches to matching will be reviewed. A survey and discussion of these models will enable us to evaluate which of the models are most practical and worthwhile to apply to training settings.

References - Chapter II

Babad, E.Y., & Melnick, I. Effects of a T-group as a function of trainer's liking and members' participation, involvement, quantity, and quality of received feedback. Journal of Applied Behavioral Science, 1976, 12, 543-562.

Back, K.W. Beyond words: The story of sensitivity training and the encounter movement. New York: Russell Sage Foundation, 1972.

Bandura, A. Principles of behaviour modification. New York: Holt, Rinehart & Winston, 1969.

Benne, K.D., & Sheets, P. Functional roles of group members. Journal of Social Issues, 1948, 4(2), 41-49.

Benne, K.D., Bradford, L.P., & Lippitt, R. The laboratory method. In L.P. Bradford, J.R. Gibb & K.D. Benne (Eds.), T-group theory and laboratory method. New York: John Wiley and Sons, 1964.

Bennis, W., Burke, R., Cutter, H., Harrington, H., & Hoffman, J. A note on some problems of measurement and prediction in a training group. Group Psychotherapy and Psychodrama, 1957, 10, 328-341.

Bloom, B.S. (Ed.) Taxonomy of educational objectives: Handbook one: Cognitive domain. New York: David McKay, 1956.

Brandhorst, A.R. Toward a taxonomy of educational objectives in the relational domain. Paper presented at Annual Meeting of the National Council for the Social Studies. Washington, D.C., November 4-7, 1976. (ERIC Document Reproduction Service No. ED 134 505)

Brandhorst, A.R. Reconceptualizing the affective domain. Paper presented at the Eastern Educational Research Association meeting. Williamsburg, Virginia, March 1978. (ERIC Document Reproduction Service No. ED 153 891)

Bunker, D.R. Individual applications of laboratory training. Journal of Applied Behavioral Science, 1965, 1(2), 131-148.

Campbell, D.T. Factors relevant to the validity of experiments in social settings. Psychological Bulletin, 1957, 54, 297-312.

Campbell, J.P., & Dunnette, M.D. Effectiveness of T-group experiences in managerial training and development. Psychological Bulletin, 1968, 70, 73-104.

Feifel, H., & Eells, J. Patients and therapists assess the same psychotherapy. Journal of Consulting Psychology, 1963, 27 (4), 310-318.

Gibb, J.R. The effects of human relations training. In A.E. Bergin & S.R. Garfield (Eds.), Handbook of psychotherapy and behavior change. New York: John Wiley and Sons, 1971.

Gomes-Schwatz, B., Hadley, S.W., & Strupp, H.H. Individual psychotherapy and behavior therapy. Annual Review of Psychology, 1978, 29, 435-471.

Gurman, A.S. The patient's perception of the theraputic relationship. In A.S. Gurman and A.M. Razin (Eds.), Effective Psychotherapy. Elmsford, N.Y.: Pergamon Press, 1977.

Hampden-Turner, C.M. An existential "learning theory" and the integration of T-group research. Journal of Applied Behavioral Science, 1966, 2(4), 367-386.

Harrison, R. Cognitive change and participation in a sensitivity training laboratory. Journal of Consulting Psychology, 1966, 30(6), 517-520.

Harrison, R. Problems in the design and interpretation of research on human relations training. Veteran's Administration Hospital Research Seminar. West Haven, Connecticut, 1967 (ERIC Document Reproduction Service No ED 011 369)

Hipple, J.L. Personal growth outcomes due to human relations training experiences. Journal of College Student Personnel, March 1973, 14(2), 156-164.

Ivey, A.E. A Performance Curriculum in Human Relations. Paper prepared for the Univeristy of Massachusetts Model Elementary Teacher Education Project. Amherst, Massachusetts, 1968 (ERIC Document Reproduction Service No. ED 051 113)

Ivey, A.E. Microcounseling: Innovations in interviewing training. Springfield, Ill.: Charles C. Thomas, 1971.

Jeffers, J.J.L. Effects of marathon encounter groups on personality characteristics of group members and group facilitators. Dissertations Abstracts International, 1972, 32A, 4153.

Katz, R. Executive skills: what makes a good administrator. The Amos Tuck School of Business Administration, 1954.

Krathwohl, D.R., Bloom, B.S., & Masia, B.B. Taxonomy of educational objectives: Handbook II: Affective domain. New York: Longman, 1964.

Lambert, M.J., Bergin, A.E., & Collins, J.L. Therapist-induced deterioration in psychotherapy. In A.S. Gurman & A.M. Razin (Eds.), Effective Psychotherapy. Elmsford, N.Y.: Pergamon Press, 1977.

Lieberman, M.A., Yalom, I.D., & Miles, M.B. Encounter groups: First facts. New York: Basic Books, 1973.

Likert, R. The human organization. New York: McGraw-Hill, 1967.

McGregor, D. The human side of enterprise. New York: McGraw-Hill, 1960.

McLeish, J., & Park, J. Outcomes associated with direct and vicarious experience in training groups. British Journal of Social and Clinical Psychology, 1973, 12, 359-373.

Mezoff, B. A Behavioral Objective-Based Human Relations Curriculum . Amherst, MA.: ODT Associates (ERIC Document Reproduction Service No. ED not yet assigned), 1980h.

Miles, M.B. Human relations training: Processes and outcomes. Journal of Counseling Psychology, 1960, 7(4), 301-306.

Rosenshine, B. Identifying important teaching skills. In Improving Univeristy Teaching. Amherst, Mass.: Clinic to Improve University Teaching, 1975.

Scheerer, M. Cognitive theory. Chapter 3 in G. Lindzey (Ed.), Handbook of social psychology: Volume 1. Cambridge, MA.: Addison-Wesley, 1954.

Schutz, W.C., & Allen, V.L. The effects of a T-group laboratory on interpersonal behavior. Journal of Applied Behavioral Science, 1966, 2, 265-286.

Smith, P.B. Correlations among some tests of T-group learning. Journal of Applied Behavioral Science, 1971, 7(4), 508-511.

Smith, P.B. Controlled studies of the outcome of sensitivity training. Psychological Bulletin, 1975, 82(4), 597-622.

Strupp, H.H. A reformulaton of the dynamics of the therapist's contribution. In A.S. Gurman & A.M. Razin (Eds.), Effective Psychotherapy. Elmsford, N.Y.: Pergamon Press, 1977.

Taylor, D.M. Changes in the self-concept without psychotherapy. Journal of Consulting Psychology, 1955, 19, 205-209.

Toukmanian, S.G. & Rennie, D.L. Microcounseling versus human relations training: Relative effectiveness with undergraduate trainees. Journal of Counseling Psychology, 1975, 22(4), 345-352.

Turner, A.N., & Lombard, G.F. Interpersonel behavior and administration. New York: The Free Press, 1969.

Vroom, V.H. Work and motivation. New York: John Wiley & Sons, 1964.

Weisbord, M.R. The Wizard of OD. OD Practitioner, 1978, 10(2), 1-7.

Weinstein, G. Education of the self. Amherst, Mass: Mandala Press, 1977.

Witkin, H. A., Moore, C. A., Goodenough, D. R. & Cox, P. W., Field-dependent and field-independent cognitive styles and their educational implications. Review of Educaitonal Research, 1977, 47 (1), 1-64.

Wylie, R.C. The self-concept: Critical survey of pertinent research literature. Lincoln, Nebraska: University of Nebraska Press, 1960.

C H A P T E R III

EMPIRICAL FOUNDATIONS; TYPES OF MATCHING MODELS IN HUMAN RELATIONS TRAINING

Synopsis

This chapter reviews the various matching model (aptitude-treatment-interaction) strategies that might be used in human relations training (HRT) settings. The introduction provides a definition of matching models, discusses the need for a matching model approach in HRT, identifies certain assumptions about HRT, and provides an overview of the rest of the chapter. Next, each of the five types of matching models are reviewed. The utility of each model in the HRT setting is discussed, and specific examples of HRT applications of the models are provided. This chapter then briefly reviews the history of matching model research. Of all the matching model strategies reviewed, the best approach for HRT seems to be the capitalization model. This model calls for a training design that capitalizes on the participants' strong points.

Introduction

What Is A Matching Model?

People differ in an infinite number of ways. People also differ in their responses to certain kinds of environments (e.g., therapeutic, educational, or HRT treatments). For example, a particular HRT treatment may be very effective for some persons and ineffectual (or even counterproductive) for others. A matching model approach involves systematically matching different types of persons to different types of environments. The goal of this process is to facilitate the greatest possible achievement of outcomes for each group of persons.

A matching model is also known as an aptitude-treatment-interaction (ATI) model. An ATI (or matching model) approach to research investigates the interactions that occur between persons' aptitudes and various instructional treatments. An ATI is said to exist when there is evidence of differential effects.

Lewin (1935) expressed the matching model notion with his formula, B=f(P,E). The behavior (B) is a function of the person (P) and the environment (E). The outcomes from HRT (behaviors) are a function of the interaction between the participants (persons) and the training treatment (environment). The greatest gains from training, according

to Lewin, would result from treatments that are well-matched to participants. Conversely, when participants are mis-matched to the training treatment we would expect minimal (or possibly negative) outcomes.

The Need For A Matching Model Approach in Human Relations Training.

One of the problems with human relations training (HRT) is that goals, processes, and participants are typically identified in aggregated, global terms. Figure 9 illustrates this characterization of the training process. The designers of training programs aggregate clients (a) without paying attention to whether they are likely to profit from the training (1). The training process (b) is considered to be a "black box", as training activities, at least in terms of their relationship to the effects produced, are often grouped together. Outcomes (c) are listed as a conglomeration of goals without regard to priority, and they typically have no direct causal links to the training process (b).

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(1) This is not to preclude intuitive or implicit matching or screening. Both can, and probably do, occur. The author's point here is that the training is not usually designed to take differential effects into account. Trainers are not to be blamed for this oversight: Most trainers don't have the research skills, financial resources, client populations, or organizational support to undertake matching model research projects or service delivery.

Typical Characterization of the Training Process

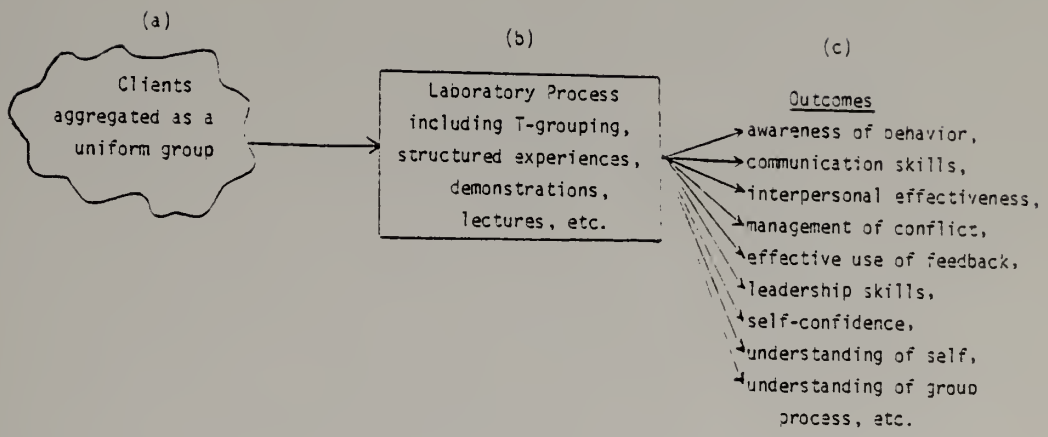

Figure 9

An application of matching models to the HRT setting would help discover which persons are most sucessful at achieving what goals via which processes. The linking of specific outcomes to specific characteristics of persons through certain training procedures seems to be a useful path to improving the efficacy of training treatments. Furthermore, the prioritizing of outcomes may suggest one treatment procedure over another for a given group of persons.

It has been apparent from the early developmental stages of HRT that "a good deal of overlap exists between education, human relations training, counseling, psychotherapy, and social work..."(Miles, 1960,p.301). There is a wide variety of possible outcomes from training (Smith, 1975; see Chapter 2) and many training goals are also sought in educational and therapeutic settings.

Relatively little HRT research has been based on a matching model approach: that is, very few HRT studies (Heck, 1971) have included in the research design the possibility of the differential effects of training treatments on various subpopulations. This chapter surveys the matching model literature from the fields of education and psychotherapy and attempts to extrapolate from those findings to HRT applications.

Assumptions About Human Relations Training.

Certain assumptions should be made explicit before the various types of matching models are reviewed. Human relations training is considered to be a field that draws from both education and psychotherapy. As such, it may be possible to make some inferences about outcomes from training based on studies of adult learning and based on psychotherapeutic research. Education has typically emphasized cognitive goals, whereas psychotherapy (for normals) has emphasized primarily affective outcomes (see Figure 8). Human relations training (depending on the orientation of the particular program) has stressed each of the various types of outcomes (cognitive, affective, & mixed) at various times. A cognitive approach is included in Mezoff's (1979b) training program, a mixed approach (skill training & self-behavior-modification) is taken by Ivey (1968,1971), whereas an affective focus is common to many personal-growth-oriented workshops (Lieberman, Yalom, & Miles, 1973).

Figure 3 illustrates the three assumptions made in this chapter: 1) HRT bridges the fields of education and psychotherapy, 2) all three fields involve cognitive, affective , and mixed cognitive-affective components, and 3) the relative emphasis of each of these components varies across each of the three fields. However, Figure 8 does not

illustrate the wide variety of approaches and varying emphases among different HRT programs (or among different educational and therapeutic treatments) (2).

Definition of Terms.

In the studies cited here, the appropriate subject groups are identified as either students, HRT participants, or psychotherapy clients. However, in the general discussion of matching models that follows (where there is not a specific study referred to) this chapter treats the terms: "student","participant", and "client" as interchangeable. In the general discussion the reader may also interchange the terms: "teacher", "facilitator", and "therapist". There are real differences among these terms, yet we shall use them interchangeably because for the purposes of our general review we are mainly concerned with the similarities among the fields of education, psychotherapy, and human relations training.

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(2) The continuum of Figure 3 suggests a further advantage to the approach taken here. We are not just extrapolating from one field to a neighboring one. We are interpolating from the two fields at the ends of the continuum to the HRT settings that bridge them. Given that the assumptions about Figure 3 are correct, one would predict greater power and accuracy from the interpolation process than from mere extrapolation.

Overview.

This chapter will survey the five types of matching models that exist: (1)the instruction can be designed to fill specific gaps in the student's knowledge (remediation model), (2) the instruction can compensate for something that the student has difficulty doing for himself-herself, such as organize the material (compensation model), (3) the instruction can be tailored so that it builds on the strengths of the learner (capitalization model), (4) the instruction can be designed to meet the student's expressed preferences and interests (preferential model), or (5) the teacher and student can be matched for compatibility on certain personality, demographic, or values traits (compatible trait model).

These models are not necessarily mutually exclusive, and they can occasionally be complementary. Furthermore, the compatible trait model is not an ATI (aptitude-treatment-interaction) model in the strictest sense. Rather, it is a trait-trait-interaction (TTI) model. The TTI model involves, for instance, matching between a therapist's personality traits and the client's personality traits, whereas the ATI model considers the therapist's treatment and the client's personality traits (or aptitudes). It may be difficult, however, to distinguish between a therapist's traits and the treatment that the

therapist provides. For the purposes of our discussion the TTI model will be subsumed by the ATI heading (DiVesta, 1973).

The remediation and compensatory models usually are designed to achieve short term objectives. The goals of the capitalization, preferential, and compatible trait models could be both long and/or short term. This chapter discusses the various types of models and comments on their probable utility to the designer of training treatments.

Remediation Model

The remediation model is designed to overcome learning deficiencies of slow or disadvantaged learners. The assumption made is "...[that] some critical ingredient of knowledge is deficient or missing, and no progress in learning can be expected unless the deficiency is overcome"(Salomon,1972, p.329). Therefore, remedial instruction is required. This model is the basis for many mastery learning approaches (Block, 1971). Salomon identifies five characteristics that are necessary for the application of a remediation model:

1.Highly task-specific measures of achievement are used.

2. Task-specific abilities account for a large portion of the variance in the learning outcome.

3. The learning is hierarchical and sequential in nature.

4. All subordinate objectives are teachable, and can be learned thru specific aptitudes (rather than general aptitudes).

5. General psychological states (e.g., anxiety) play a minor role in differentiating the high and low learners (1972, p. 330-332).

In most training situations the above requirements are usually not met. In human relations training they are hardly ever met. Therefore, it seems that the remediation model, if strictly applied, would not be a likely candidate to explore the interactions between client characteristics and HRT treatments.

If we accept a more general (less stringent) interpretation of the remediation model, then we could find HRT applications for such a strategy. For example, it is necessary to teach participants basic skills (such as listening) before they can become proficient in more complex ones (such as counseling or mediation between disputing parties).

In Chapter II we discusssed the Krathwohl affective domain. This domain is characterized by a continuum of internalization. To progress through the continuum one must move through each level in sequence. The remediation

strategy might be applicable to facilitating a participant's learning up through the hierarchy (for an example, see Figure 3).

Compensation Model

The compensation model does not attempt to provide the student with remedial instruction. Instead, the student's deficiencies are side-stepped. The treatments "compensate for each learner's deficiency by providing the mode of presentation that the learner cannot provide for himself" (Snow, 1970, p. 76). For example, giving students an outline of a lecturer's notes can compensate for students' inability to take notes in an orderly fashion.

A treatment under a compensation model functions like a prosthetic device (Hunt, 1974) or an artificial aptitude. This model makes the following assumptions:

1. The student need not master all relevant capabilities.

2. Some abilities are not easy modified.

3. One can neutralize and circumvent a particular deficiency of a specific aptitude and still achieve the curriculum objectives.

4. The objectives can be achieved by reliance on more general aptitudes rather than on task-specific aptitudes.

Certain HRT goals are amenable to treatment via the

compensation model. In general, cognitive goals (especially lower order ones) can be facilitated for certain personality types (e.g., field-dependent or low conceptual level) by providing a highly structured instructional treatment. The structured treatment does for the low Conceptual Level (CL) learners what they are least able to do for themselves. Hunt (1974) has observed that the compensation model "is especially appropriate when the behavior sought is information processing" (p. 125). When we strive for affective goals or higher order cognitive goals it is more difficult to implement a compensation model. For example, there are limitations as to how far you can structure a lesson to achieve the goal of "learning how to learn" or enhanced self-esteem. The more complex, abstract, and intangible the goal, the less useful the compensation model will be.

Consider the following hypothetical example of the compensation model applied to HR training settings: Suppose we found (through our search for aptitude-treatment-interactions) that low CL participants were gaining the least from an unstructured HRT program. The conceptual systems matching model (Hunt, 1971) predicts that low CL subjects will profit more from a structured approach, and will profit the least from the unstructured flexible approach. Based on the findings from education,

psychotherapy, and social work (Hunt, 1971), the compensation model would suggest that we attempt to sidestep the low CL participant's inability to operate in a low structured HRT program (e.g., a program with a large T-group component). For low CLs there could be a specially designed structured approach using exclusively experiential exercises (Mezoff, 1979b) or interpersonal skill training (Ivey, 1968). By providing low CL participants with a high degree of structure we would circumvent their difficulty in learning effectively from the T-group experience.

Capitalization Model

The capitalization model "exploits available strong points in the student's characteristics "(Solomon, 1972, p. 334). One can attempt to achieve goals by capitalizing on the student's existing strengths. This is in marked contrast to the remediation and compensation models, both of which deal primarily with deficiencies. This approach is based on the following premises:

1. The requirements of the treatments are matched to one of the learner's higher aptitudes (Snow, 1979).

2. The learners use the information processing strategies with which they perform best.

3. The strategies or "mediating processes" are consistent over a variety of tasks.

Capitalization and compensation are complementary processes. It is a matter of strategic choice whether we build on strengths or compensate for weaknesses. The two models could even be used in conjunction with each other. They influence learning outcomes in different fashions. If compensation were strong enough we might find an ATI that would be the opposite to the one generated by a capitalization model.

HRT can be designed to build on client strengths. Even Hunt's ATI investigations of conceptual level (CL), which at first appear to be compensatory in nature, can be understood as an application of the capitalization strategy. CL can be considered an accessibility channel (Hunt, 1971, p. 42) which provides an entry point for the change agent to attempt to "unfreeze" and change the client's behavior.

Matching for CL or cognitive style (e.g., field-dependence-independence) can be considered a form of both the compensatory and the capitalization models. Matching could be compensatory in that it makes up for the person's weakness (not being able to function effectively in ambiguous circumstances), while matching could also be capitalizing on the accessibility channel that the individual has (in responding favorably to highly structured learning situations in the case of field-dependent persons). These models are obviously not mutually exclusive. Where

there are strengths (or accessibility channels) to draw on, it would seem profitable to take advantage of them to maximize HRT outcomes.

Consider the following hypothetical example of the capitalization model: Educational research on Field-Dependence-Independence suggests that the Field-Dependent person prefers a spectator approach, whereas the Field-Independent person prefers an active participant approach and exhibits hypothesis testing behavior (Witkin, Moore, Goodenough, & Cox, 1977). Suppose these findings were supported by HRT research. The fishbowl type of HRT activity (where one group sits outside another group and observes its process) might be well suited to allowing both Field-Dependent (FD) persons and Field-Independent (FI) persons the role that capitalized on their cognitive style. FD participants could be observers and FIs could be active participants. There are drawbacks, of course, to limiting the range of roles and experiences that people accrue through their training. However, the work of Bandura (1969) supports the principle of vicarious learning (learning through observation) and a study by Farson (1972) found that "purely vicarious exposure to videotapings of actual encounter groups was itself capable of inducing significant behavior change" (Silver & Coyne, 1977, p. 84). In the hypothetical example provided above it might be highly

effective to prescribe for participants those roles that capitalize on their natural strengths.

Preferential Model

Preferences are student's explicitly expressed choices for instructional treatments. The preferential model also includes student's expressed interests (as interests often have implications for instructional treatment). In educational research, matching for student's preferences has been tested in a few studies. Cronbach and Snow summarize these findings and have found that matching for preferences does not increase student learning. In fact, such matching may be detrimental. "The evidence discourages the romantic view that self-selection of the instructional diet pays off" (1977, p. 473).

This author has made an extensive review of the literature dealing with psychotherapy outcomes. There were virtually no studies of psychotherapy outcomes where clients were given a choice among various treatments and/or counselors. The relationship of client preference to theraputic outcome remains to be explored. For this reason and due to the difficulty of obtaining reliable and valid outcome measures in psychotherapy, preferences in psychotherapy will not be discussed here.

Human relations training (especially the T-group) often

represents a novel surrounding for the neophyte HRT participant. This unfamiliar cultural milieu frequently generates at least a moderate amount of dissonance for many persons. It would be unusual, indeed, for such uncomfortable circumstances to elicit strong preferences for more of the same. It is not likely that preferential models will facilitate optimal outcomes for the tenderfoot trainee. A more sophisticated and experienced participant may be able to select preferred training options that best serve his/her needs. However, this hypothesis remains to be demonstrated.

An example of the preferential model applied to HRT would simply be giving clients a choice of a range of HRT training programs. The programs might vary in their degree of structure (high vs. low) or in their theme or focus (e.g., communication skills training, assertiveness training, transactional analysis, stages of group growth, etc.). Hopefully client preference would contribute to greater client satisfaction and learning. However, the findings from educational settings (Cronbach & Snow, 1977) are not encouraging in this regard.

Compatible Trait Model

Three Types of Compatible Trait Models.

Matching for compatiblity between teacher and student to achieve satisfaction and/or performance has had some support in the literature (Berzins, 1977; Hunt,1971). Three major types of compatibility matches exist. The first type of match, called the similarity match, achieves optimal results by having the interacting participants (e.g., teacher and student or therapist and client) share a common trait or characteristic (Berzins,1977; Dougherty, 1976; Keith-Spiegal & Spiegal, 1967; Levinson & Kitchener, 1966; Palmer, 1973) .

Another match achieves the most positive results when the teacher is similar, but not too similar, to the student. In other words, there exists a similarity, but some tension or dissonance is also present. It has been hypothesized (Cronbach & Snow, 1977) that moderate tension is productive and facilitative for the student. Presumably the similarity is helpful in having the student identify with the teacher. The similarity probably contributes to more effective interpersonal communication due to the shared trait (be it cultural background, construct dimensions, values, etc.). The dissimilarity may be necessary to provide the confrontation or dis-confirmation useful in facilitating

client change.

The third type of personality matching entails a compatiblity due to the fulfillment of reciprocal needs (e.g., dominance and submission). Some theories of reciprocal needs (Carson, 1969) indicate that a prolonged complementary reciprocation should be avoided. Carson's rationale was that such a match would "confirm the patient's rigid or constricted self-concept and little therapeutic change [would occur]" (Berzins, 1977, p. 225).

The Similarity Match.

The similarity match seems to achieve optimal results with background variables such as age, sex, race or ethnicity, maritial status, socioeconomic status, or social class (Fuller, 1963; Howard, Orlinsky, & Hill, 1970). Similarity of cognitive styles and construct dimensions also has been found to enhance learning and therapeutic outcomes (Carr, 1970; Edwards & Edgerly, 1970; Mendelsohn & Geller, 1963; McLachlan, 1972; Postuma & Carr, 1975). Shared expectancy of outcomes is still another factor that facilitates student growth (Borghi, 1963; Boulware & Holmes, 1970; Goldstein, 1960; Heine & Trosman, 1960; Hoehn-Saric, Frank, Imber Nash, Stone, & Battle, 1964).

The Optimal Tension Match.

The second type of compatibility, the optimal tension match, is found to be effective with variables such as values, beliefs, and certain personality measures (e.g., Minnesota Multiphaasic Personality Inventory, Myers-Briggs Type Indicator, and possibly the Gordon Personal Profile). Moderately dissimilar matches appear to achieve the best results in some cases (Bare, 1967; Berzins, 1977; Carson & Heine, 1962; Mendelsohn, 1956; Mendelsohn & Geller, 1967; Wogan, 1970) . The similarity aspect may be important in establishing the teacher-student rapport or therapeutic alliance. On the basis of the above studies, it seems that the dissimilarity may be important in eventually facilitating movement or change in the student's/client's belief system, values, attitudes, or knowledge.

A similarity of values between teachers and students appears to facilitate student learning (Bills, 1952). A study by Welkowitz, Cohen, and Ortmeyer indicated that there exists value similarity between counselors and clients and that a process of value convergence occurs over the course of successful psychotherapy. Cook (1966) found that a curvilinear relationship existed between counselor-client value similarity and positive outcomes from brief counseling. That is, the moderately similar pairings resulted in more favorable outcomes than either the highly

similar pairings or the highly dissimilar pairings.

Given the student's developmental readyness, Hunt's (1971) conception of an ideal match (on Conceptual Level or Moral Maturity) is a situation where the teacher is one stage above the student. If the teacher and student are on the same level he refers to this match as "super-optimal": a situation that prevents the student from progressing to the next higher level.

The Reciprocal Needs Match.

Reciprocal needs are the basis for the third variety of compatible trait matching. Foremost among these are: Schutz's (1958) FIRO theory of interpersonal compatibility, Leary's (1957) interpersonal circle, and Carson's (1969) extensions of Leary and of early Sullivanian theory.

Theories of reciprocal needs posit that needs of one member of a dyad are met (complemented) by the needs of the other member. Reciprocal needs are helpful for continued interaction. However, meeting each others needs to an extreme degree may result in inhibiting personal growth (Carson, 1969).

Schutz's need theory focuses on inclusion, control, and affection. What one individual desires, the compatible partner must supply, and vice versa. Research in psychotherapy supports reciprocal need matching for Schutz's "control need" area (Mendelsohn & Rankin, 1969; Sapolsky,

1965). Leary's primary dimensions are dominance- submission and love-hate, and there exist eight major subcategories and sixteen minor subcategories. Each minor subcategory of behaviors was presumed to evoke it's complement from the other person. Carson built on Leary's theory and discussed in further detail the various types of complementary and anticomplementary combinations.

Compatible trait models appear to have a high utility for training programs that are large enough to enable the matching of facilitators and participants on a systematic basis. Compatible trait models can be especially usefull to avoid psychonoxious (Berzins, 1977) or mathemathanic matches, or pairings that are ineffectual. (Mathemathanic means to impede learning; literally, to give death to learning; Snow, 1976). Attention to the dynamics and mutual influence between the trainer and participant with regard to their compatibility can only serve to heighten the awareness of both. They will probably become more cognizant of the impact that each has upon the other. They might better understand some of the reasons for the presence or absence of interpersonal attraction between them.

Applications of the Three Types of Compatible Trait Models.

In human relations training we might be concerned with providing a similarity match between facilitators and participants. Especially in the case of female, minority, and third-world clients it is becoming increasingly clear from psychotherapy research (Ivey & Simek, 1980) that similarity of cultural experience is an important variable in an effective helping relationship.

The optimal tension match might also be considered by the providers of training treatments. If no tension exists and the clients are confirmed and reinforced in their belief systems, then the catalytic environment for facilitating change is lacking. The other consideration in attempting to provide an optimal tension match is to avoid providing the client with too much confrontation. If the level of dis-confirmation reaches dysfunctional levels, then the client is no longer "accessible" or open to change.

Attempts to apply reciprocal needs matching in various settings are reviewed by Schutz (1958). He concludes that this type of match "show[s] the technique to have a certain degree of validity for composing productive, cohesive groups desirous of further mutual interaction... (Schutz, 1961, p. 275).

History of Matching Model Research

The reader may wish to pursue the research on matching models and ATIs in greater depth. Much of the matching literature (especially Hunt's work) draws from the original theories of Kurt Lewin (1935, 1936). Cronbach's (1957) article is the seminal work in the area of Aptitude-Treatment-Interactions. Pervin (1968) reviews studies treating performance and satisfaction as a function of the interaction between personological characteristics and the characteristics of the interpersonal and noninterpersonal environment. Following that, the work of Vale and Vale (1969) discusses the study of organism-environment interactions. Mitchell (1969) addresses some of the methodological difficulties inherent in ATI research. Bracht (1970) further discusses experimental factors related to ATIs. The work of Salomon (1972) expands upon some of the models we have discussed in this chapter. Glaser (1972) explains that we need new aptitude constructs (e.g., cognitive styles) to explore the effects of ATIs.

Perhaps the best known advocate of matching learners to instructional treatments is David Hunt. In 1971 he wrote Matching Models in Education. Hunt and Sullivan (1974) elaborated on Hunt's earlier work. In a later paper, Hunt (1975) explains some of the reasons for resistance to the

matching model paradigm. Berliner and Cahen (1973) review ATI findings in educational settings and discuss a variety of methodological and conceptual problems. DiVesta (1973) points out that most ATI research neglects to consider the intervening process, and instead focuses on input-output relationships.

The most recent comprehensive review of ATI research in educational settings can be found in Cronbach and Snow (1977). Berzin's (1977) article is a recent and exhaustive review of matching in psychotherapeutic settings.

Summary

One of the most promising methods of increasing participant outcomes from HRT is to employ a matching model approach. We can match participants to existing HRT programs or we can design training programs to match participants' characteristics/abilities. Attention to the interactional effects between the person and the training enables both the selection process (who gets the training) and the training design (what happens in the training) to be maximally effective.

This chapter has discussed five major forms of matching. The capitalization, compatible trait, and compensation models seem to have the highest utility for the achievement of training objectives. The capitalization

model, building on participant strengths, is the most suitable model for achieving HRT goals. HRT is often designed to encourage people to capitalize on their strong points. The compatible trait model would be particularly advantageous in avoiding bad matches between certain trainers and certain participants.

Where training programs are large and diverse enough to enable large scale matching, the compatible trait models could be utilized to maximize outcomes by grouping certain types of participants and matching them with a trainer of similar or complementary traits. The compensation model would seem especially appropriate for lower order cognitive objectives, and some affective goals may be achieved through compensatory instructional treatments. The remediation model is not usually applicable to human relations training settings. A preferential model is unlikely to be successful for individuals in the early phases of HRT.

References - Chapter III

Bandura, A., The Principles of Behavior Modification. New York: Holt, Rinehart, & Winston, 1969.

Bare, C.E., Relationship of counselor personality and counselor-client personality similarity to selected counseling success criteria. Journal of Counseling Psychology, 1967, 14(5), 419-425.

Berliner, D.C., & Cahen, L.S. Trait-treatment interaction and learning. In F.N. Kerlinger (Ed.), Review of research in education: Volume 1. Itasca, Illinois: F.E. Peacock, 1973.

Berzins, J.I. Therapist-patient matching. In A.S. Gurman & A.M. Razin (Eds.), Effective psychotherapy: A handbook of research. Oxford, England: Pergamon Press, 1977.

Bills, R.E., The effect of value on learning. Journal of Personality, 1952, 21, 217-222.

Block, J.H. Mastery learning. New York: Holt, Rinehard, & Winston, 1971.

Borghi, J.H., Premature termination of psychotherapy and patient-therapist expectations. American Journal of Psychotherapy, 1968, 22(3), 460-473.

Bracht, G.H. Experimental factors related to aptitude-treatment interactions. Review of Educational Research, 1970, 40, 627-645.

Boulware, D.W., & Holmes, D.S., Preferences for therapists and related expectancies. Journal of Counseling and Clinical Psychology, 1970, 35(2), 269-277.

Carr, J.E., Differentiation similarity of patient and therapist and the outcome of psychotherapy. Journal of Abnormal Psychology, 1970, 76(3), 361-369.

Carson, R.C. Interaction concepts of personality. Chicago: Aldine, 1969.

Carson, R.C. & Heine, R.W., Similarity and sucess in therapeutic dyads. Journal of Consulting Psychology, 1962, 26(1), 38-43.

Cook, T.E., The influence of client-counselor value similarity on change in meaning during brief counseling. Journal of Counseling Psychology, 1966, 13(1), 77-81

Cronbach, L.J. The two disciplines of scientific psychology. American Psychologist, 1957, 12, 671-684.

Cronbach, L.J., & Snow, R.E. Aptitudes and instructional methods: A handbook for research on interactions. New York: Irvington, 1977.

DiVesta, F.J. Theory and measures of individual differences in studies of trait by treatment interaction Educational Psychologist, 1973, 10(2), 67-75.

Dougherty, F.E., Patient-therapist matching for prediction of optimal and minimal therapeutic outcome. Journal of Consulting and Clinical Psychology, 44(6), 889-897.

Edwards, B.C.,& Edgerly, J.W., Effects of counselor-client cognitive congruence on counseling outcome in brief counseling. Journal of Counseling Psychology, 1970, 17(4), 313-318.

Farson, R.E., Self-directed groups and community mental health. In L.N. Solomon and B. Berzon (eds.) New Perspectives on Encounter Groups, San Francisco, CA: Jossey-Bass, 1972.

Fuller, F.F., Influence of sex of counselor and of client on client expressions of feeling. Journal of Counseling Psychology, 1963, 10(1), 34-40.

Glaser, R. Individuals and learning: The new aptitudes. Educational Researcher, 1972, 1(6), 5-12.

Goldstein, A.P., Therapist and client expectation of personality change in psychotherapy. Journal of Counseling Psychology, 1960, 7(3), 180-184.

Heck, E. J., A training and research model for investigating the effects of sensitivity training for teachers. The Journal of Teacher Education, 1971, 22(4), 501-507.

Heine, R.W., & Trosman, H., Initial expectations of the doctor-patient interaction as a factor in continuance in psychotherapy. Psychiatry, 1960, 23(3), 275-278.

Hoehn-Saric, R., Frank, J.D., Imber, S.D., Nash, E.H., Stone, A.R., & Battle, C.C., Systematic preparation of patients for psychotherapy - I. Effects on therapy behavior and outcome. Journal of Psychiatric Research, 1964, 2(4), 267-281.

Howard, K.I., Orlinsky, D.E., & Hill, J.A., Patients' satisfactions in psychotherapy as a function of patient-therapist pairing. Psychotherapy: Theory, Research, and Practice, 1970, 7(3), 130-134.

Hunt, D.E. Matching models in education. Toronto, Canada: Ontario Institute for Studies in Educaiton, 1971.

Hunt, D.E. Person-environment interaction: A challange found wanting before it was tried. Review of Educational Research, 1975, 45(2), 209-230.

Hunt, D.E., & Sullivan, E.V. Between psychology and education. Hinsdale, Illinois: The Dryden Press, 1974.

Ivey, A.E. A Performance Curriculum in Human Relations. Paper prepared for the Univeristy of Massachusetts Model Elementary Teacher Education Project. Amherst, Massachusetts, 1968 (ERIC Document Reproduction Service No. ED 051 113)

Ivey, A.E. Microcounseling: Innovations in interviewing training. Springfield, Ill.: Charles C. Thomas, 1971.

Ivey, A.E., & Simek, L. Counseling and Psychotherapy: A Metatheoretical Approach. New Jersey: Prentice Hall, 1980.

Keith-Spiegal, P., & Spiegal, D.E., Perceived helpfulness of others as a function of compatible intelligence levels. Journal of Counseling Psychology, 14(1), 61-61.

Leary, T. Interpersonal diagnosis of personality. New York: Ronald Press, 1957.

Levinson, R.B., Treatment of delinquents: comparison of four methods for assigning inmates to counselors. Journal of Consulting Psychology, 30(4), 364.

Lewin, K. A dynamic theory of personality. New York: McGraw Hill, 1935.

Lewin, K. Principles of topological psychology. New York: McGraw Hill, 1936.

Lieberman, M.A., Yalom, I.D., & Miles, M.B. Encounter groups: First facts. New York: Basic Books, 1973.

McLachlan, J.F.C., Benefit from group therapy as a function of patient-therapist match on conceptual level. Psychotherapy: Theory, Research, and Practice, 1972,9(4), 317-323.

Mendelsohn, G.A., Effects of client personality and client-counselor similarity on the duration of counseling: a replication and extension. Journal of Counseling Psychology, 1966, 13(2), 228-234.

Mendelsohn, G.A., & Geller, M.H., Effects of counselor-client similarity on the outcome of counseling. Journal of Counseling Psychology, 1963, 10(1), 71-77.

Mendelsohn, G.A., & Geller, M.H., Similarity, missed sessions, and early termination. Journal of Counseling Psychology, 1967, 14(3), 210-215.

Mendelsohn, G.A., & Rankin, N.O., Client-counselor compatibility and the outcome of counseling. Journal of Abnormal Psychology, 1969, 74(2), 157-163.

Mezoff, B., A behavioral objectives curriculum for human relations training. Amherst, Mass.: ODT Associates, 1979b. (ERIC Document Reproduction Service No. ED not yet assigned)

Miles, M.B., Human relations training: processes and outcomes. Journal of Counseling Psychology, 1960, 7(4), 301-306.

Mitchell, J.V. Education's challange to psychology: The prediction of behavior from person-environment interactions. Review of Educational Research, 1969, 39(5), 695-721.

Palmer, T.B., Matching worker and client in corrections. Social Work, 1973, 18(2), 95-103.

Pervin, L.A. Performance and satisfaciton as a function of individual environment fit. Psychological Bulletin, 1968, 69(1), 56-68.

Postuma, A.B., & Carr, J.E., Differentiation matching in psychotherapy, Canadian Psychological Review, 1975, 16 (1), 35-43.

Salomon, G. Heuristic models for the generation of aptitude-treatment interaction hypotheses. Review of Educational Research, 1972, 42(3), 327-343.

Sapolsky, A., Relationship between patient-doctor compatibility, mutual perception, and outcome of treatment. Journal of Abnormal Psychology, 1965, 70(1), 70-76.

Schutz, W.C. FIRO: A three-dimensional theory of interpersonal behavior. New York: Holt, Rinehart & Winston, 1958.

Schutz, W.C., On group composition. Journal of Abnormal and Social Psychology, 1961, 62(2), 275-281.

Silver, R.J., & Coyne, R.K., Effects of direct experience and vicarious experience. Small Group Behavior, 1977, 8(1), 83-92.

Smith, P.B. Controlled studies of the outcome of sensitivity training. Psychological Bulletin, 1975, 82(4), 597-622.

Snow, R.E. Research on media and aptitudes. In G. Solomon & R.E. Snow (Eds.), Commentaries on research in instructional media. Viewpoints. Bulletin of the Indiana University School of Education, 1970, 46(5), 63-91.

Snow, R.E., Aptitude-treatment-interactions and individualized alternatives in higher education. In S. Messick & Associates, Individuality In Learning. San Francisco: Jossey Bass, 1976.

Vale, J.R., & Vale, C.A. Individual differences and general laws in psychology: A reconciliation. American Psychologist, 1969, 24, 1093-1108.

Welkowitz, J., Cohen, J., & Ortmeyer, D., Value system similarity: investigation of patient-therapist dyads. Journal of Consulting Psychology, 1967, 31(1), 48-55.

Wogan, M., Effect of therapist-patient personality variables on therapeutic outcome. Journal of Counseling and Clinical Psychology, 1970, 35(3), 356-361.

Witkin, H.A., Moore, C.A.,Goodenough, D.R., & Cox, P.W., Field-dependent and field-independent cognitive styles and their educational implications. Review of Educational Research, 1977, 47(1), 1-64.

C H A P T E R IV

EMPIRICAL FOUNDATIONS; COGNITIVE STYLE AND INTERPERSONAL BEHAVIOR--IMPLICATIONS FOR HUMAN RELATIONS TRAINING SETTINGS

Synopsis

This chapter focuses on the cognitive style known as Field-Dependence-Independence (FDI). The literature on FDI is reviewed: 1) to better understand interpersonal behavior in the human relations training setting, and 2) to hypothesize the relationships that might make for successful or unsuccessful matches between participants of varying cognitive styles and human relations training (HRT) programs of varying degrees of structure. FDI has been found to be a crucial differentiating variable in determining the effectiveness of matching strategies in the fields of education and psychotherapy (Witkin, Moore, Goodenough, & Cox, 1977; Witkin, Lewis, & Weil, 1968; Messick & Associates, 1976). Two major questions addressed by this review are: (1) Are participant satisfaction and learning (under particular training conditions) influenced by cognitive style?, and (2) What behaviors or interpersonal styles (e.g., task vs. maintenance orientation) might we expect from persons of varying cognitive styles?

Introduction

The purposes of this chapter are: 1) to call attention to the need for a matching model approach to human relations training (HRT) research, and 2) to review the literature on cognitive styles (especially field-dependence-independence) in an attempt to find out if persons of different cognitive styles are differentially responsive to human relations training. Differential responsiveness encompasses two types of situations: Individuals of different styles can respond in characteristically dissimilar ways to the same training, and individuals of the same style can respond to different types of training in different (yet consistent) ways.

To answer the above purposes this chapter discusses: 1) the differential effectiveness of HRT, 2) the background to the construct of cognitive styles, and 3) a review of cognitive style research that is germane to HRT. The discussion here begins with an introduction to the problem of the differential effectiveness of different treatment programs in HRT. Next, a general background is provided for the construct of cognitive styles and the variable field-dependence-independence is introduced. The specific review of the cognitive style research in relation to HRT is organized into six theme areas: social orientation; participant style & member roles; satisfaction, learning &

impact of the training experience; cognitive mobility; matching effects and mismatching effects; and the influence of HRT upon cognitive style.

Difficulty in Ascertaining HRT Outcomes.

To know exactly the impact of HRT on laboratory participants is often difficult. These difficulties stem from two causes: 1) it may be hard to discern when the changes and outcomes from training occur and how long they persist, and 2) there are measurement problems and conceptual complexities inherent in trying to find out exactly what are the outcomes from HRT. Effects have been noted immediately after a training experience, and yet these sometimes fade out or become extinguished over time (Smith, 1975). Other effects may not be immediately apparent, yet can reach statistically significant levels after a period of weeks or months (Harrison, 1966). For a detailed treatment of the broad variety of possible outcomes from training see Smith (1975) or Chapter II. Chapter II also discusses many of the problems inherent in measuring training effects.

Differential Effectiveness of HRT.

In addition to the methodological difficulties inherent in measuring outcomes from training, the evaluation problem is compounded by the tendency for most HRT research to

employ a "main effects" model. A main effects model compares the average outcomes (or gains) from a treatment group to the average outcomes from a control group. There may be large differences among participants in their reactions to, and learning from, the HR laboratory experience. However, the main effects model may fail to discern these differential effects because the model considers only the average gain across all the participants.

A matching model (or aptitude-treatment-interaction) approach (see Chapter III) appears to provide some insight into the phenomenon of the differential effects of training. By investigating the effects of training across various sub-populations of HRT participants, one may be able to discern significant interactions between certain types of participants and certain training outcomes. These interactions found by the matching model approach suggest a differential responsiveness to training. They might go undetected if only the average outcomes tapped by the main effects model were studied.

Research shows that certain people are more amenable to HRT than others. "Typically, wide differences are seen in the extent to which individual members 'take to' the sensitivity-training experience" (Harrison, 1966, p.518). Perhaps participants' personality traits account for the differences in how people respond to human relations

training. Thus, a matching model approach to HRT seems more appropriate than simply averaging the gains made by the aggregated participants.

Consider, for example, the relationship between participant personality and rate of learning. A number of studies have attempted to identify those personality variables that differentiate between high and low learners in laboratory training settings (Harrison & Lubin, 1965; Joure et al., 1971; Anderson & Slocum, Jr., 1973; Poland & Jones, 1973; Mitchell, 1975). In attempting to discern those factors that facilitate laboratory learning, all of the previous studies address the element of personality style or personal orientation. Three of the above studies (Harrison & Lubin, 1965; Joure et al.,1971; Anderson & Slocum, 1973) explicitly address the variable of participant cognitive style(1).

Research in education and psychotherapy suggests that cognitive style variables can account, in part, for the differential effectiveness of various educational and therapeutic programs (Witkin, Moore, Goodenough, & Cox, 1977; Witkin, Lewis, & Weil, 1968; Messick & Associates, 1976). There is, however, little research on cognitive

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(1) Only Harrison & Lubin (1965) cite the underlying cognitive models of personality upon which the cognitive style literature is built (Kelly, 1955; Harvey, Hunt, & Schroeder, 1961; Witkin, Dyk, Paterson, Goodenough, & Karp, 1962).

styles in human relations training settings. In part, this is due to the fact that research on congitive styles and interpersonal behavior is in its infancy (Witkin & Goodenough, 1977a). Further, most of the cognitive style research in education and psychotherapy has taken place in experimental settings.

If cognitive style were found to be correlated with training outcomes, there would be several important implications for HR trainers. The first and most useful result is that trainers could use knowledge about participant cognitive style to modify the design or focus of the training. It might be found that persons with a particular cognitive style function best in, or have an aversion to, a certain type of training format. If that were so, the training format (e.g., high or low structure; group or individual focus, etc.) could be altered in response to the cognitive style needs of participants.

Second, with a large scale training program it would be possible to group participants by cognitive style and provide each group with a more individualized training treatment. Chapter III has reviewed a number of matching model strategies that could be applied to HRT. Chapter III concludes that strategies which capitalize on client strengths are most suited to maximizing participant outcomes. Cognitive style is probably the most pervasive

example of a client strength. If persons of different cognitive styles were differentially responsive to a training treatment, then strategies could be developed to modify the training treatments so as to accomodate (or match) the various cognitive style requirements of the HRT participants.

The third implication is the least useful: cognitive style could be used as one factor in the process of screening potential laboratory attendees. But, to reject candidates for training only on the basis of having an inappropriate cognitive style would be a rather crude application of findings. Since psychometric screening is virtually unknown in HRT, this approach would not be practical and is not advocated.

Cognitive Style

A cognitive style is a characteristic mode of mental functioning; that is, a typical pattern of organizing information.

> Each individual has preferred ways of organizing all that he[/she] sees and remembers and thinks about. Consistent individual differences in these ways of organizing and processing information and experience have come to be called cognitive styles....They are conceptualized as stable attitudes, preferences, or habitual strategies determining a person's typical modes of perceiving, remembering, thinking, and problem solving.
>
> Messick & Associates, 1976, pp. 4-5.

The Field-Dependence-Independence Continuum.

There are many different dimensions of cognitive styles (Messick, 1970, pp. 188-189), the most extensively researched of which is the Field-Dependence-Independence (FDI) continuum. The FDI continuum is emphasized in this review for two reasons: "1) It holds a substantial lead over any other dimension in the extent and quality of research; ...[and] 2) It is significantly related to interpersonal competencies..."(Cross, 1976, p. 116). Many names have been used to represent this continuum. Field-Dependence (FD) has been called a "global" perceptual style and Field-Independence (FI) has been called both "analytic" and

"articulated".

Individuals who perceive in an Field-Independent (FI) manner have three characteristics; (1) they are able to dis-embed hidden figures from a complex surrounding field, (2) they see items as discrete from their background, and (3) they are able to impose their own sense of structure on an unstructured perceptual field.

On the other hand, the three characteristics of Field-Dependent (FD) individuals are: (1) they tend to see a visual field as a whole, (2) they have difficulty in identifying the subcomponents of a visual field, and (3) they have difficulty imposing their own structure on an unstructured field.

A large body of literature from a variety of settings (Witkin, Moore, Goodenough, & Cox, 1977; Witkin & Goodenough, 1977a) has found overwhelmingly that FI persons tend to be analytic and task-oriented, whereas FD persons tend to have greater social skills and are oriented toward interpersonal relationships. These differences suggest that the more FI individuals would be likely to be more task-oriented in a group situation while the more FD individuals would be more likely to focus on group maintenance activities.

The tendencies to perceive either in an FI or FD fashion extend across both perceptual and intellectual

functioning. FD and FI styles have been found to extend to auditory and tactile modalities as well as visual perception. They are called cognitive styles because they are generally consistent and they cut across a wide variety of tasks and situations (Witkin, Goodenough, & Oltman, 1977)(2).

> People see and make sense of the world in different ways. They give their attention to different aspects of the environment; they approach problems with different methods for solution; they construct relationships in distinctive patterns; they process information in different but personally consistent ways . . . . Cognitive style . . . has a broad influence on many aspects of personality and behavior . . .
>
> Cross, 1976, p. 115-116

Original Research on FD and FI Cognitive Styles.

The names FieID-dependent (FD) and Field-Independent (FI) arose from the original experiments on perception that investigated how persons located an upright in space. Subjects had to locate a true vertical and ignore misleading visual or bodily cues in the experimental setting. If a subject could ascertain the true vertical despite the misleading visual cues, they were called "field-independent". The FI person based the position of the

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(2) Research in cognitive styles "developed in part because traditional research on ability failed to expose the processes generating individual differences" (Cronbach & Snow, 1977, p. 375).

upright on their bodily cues, using internal physical sensation referents as opposed to external visual referents. The "field-dependent" person tended to be influenced by the prevailing visual field and aligned the upright according to the tilted visual stimuli.

Other experiments were conducted with rotating rooms, where centrifugal force caused the bodily cues to distract the FI subjects from what was actually a true vertical visual field. The FD subjects were not misled by the centrifugal force and only used the visual field.

Most recently the tests of embedded figures (EFTs) were developed to measure the FI and FD cognitive styles. FI subjects are able to break down a complex stimuli and impose their own structure or organization upon it. FIs use internal referents and FDs tend to use external ones.

The terms FI and FD are now in greater current usage than other terms for these styles (articulated/analytic and global). During the remainder of this chapter the terms FI and FD will be used for referring to these perceptual styles. However, in this chapter, when referring to studies that measure an analytic quality or trait that is not exactly the same as FI, the term "analytic" shall be used.

The Field-Dependence-Independence Continuum and Academic & Vocational Choice.

Field-dependence-independence (FDI) is distributed continuously in the general population (Witkin, Oltman, Raskin, & Karp, 1971). Most persons are of average FDI. However, students in certain academic disciplines do have strong tendencies toward either the FD or FI style. These tendencies indicate that FDs are attracted to, and perform better in, those academic disciplines that emphasize interpersonal relations. FIs are attracted to, and perform better in, those disciplines that require cognitive restructuring skills. This is predictable: One would expect that persons with a particular cognitive style would gravitate towards those disciplines that are matched to, or are compatible with, their cognitive style. For example, FDs are more likely to major in elementary education, whereas FI students prefer the sciences (Witkin, Moore, Oltman, Goodenough, Friedman, Owen, & Raskin, 1977).

In addition to these differences in preferences for academic majors, significant cognitive style differences are found across (and within) different vocational areas. FDs favor occupations with a "people" emphasis. FIs favor occupations which require cognitive restructuring skills and which are relatively impersonal. Studies have shown that social workers and social studies teachers are likely to be

FD; whereas engineers, architects, airplaine pilots,and math & science teachers are likely to be FI. Even within particular occupations the FD and FI orientations hold for individual specializations. For example, in the nursing field FD nurses tend to choose psychiatric nursing whereas FI nurses tend to choose surgical nursing (Witkin, Moore, Goodenough & Cox, 1977). This large body of research provides evidence that the cognitive style of an individual is a strong corrolary to that person's academic and career choices.

Strengths & Limitations of The Embedded Figures Tests (EFTs).

The EFT and the Group Embedded Figures Test (GEFT) are the most commonly used research measures to ascertain FDI. While there are many noteworthy strengths to these instruments, there are also some limitations. The major strengths of these instruments are that they are well-conceptualized, well-researched, and firmly grounded in well-established theories of psychological differentiation.

The EFT has a moderately high degree of reliability. A number of studies reveal Spearman-Brown reliabilities of .60 to .90. Test-retest reliability of .89 was found for young men and women after a three year interval (Witkin, Oltman, Raskin, & Karp, 1971). The validity of the EFT is

demonstrated by numerous studies which reveal that "the EFT, taken as an indicator of relatively differentiated functioning in perception, is associated with more differentiated functioning in a variety of other psychological areas" (Witkin, Oltman, Raskin, & Karp, 1971, p. 19).

The GEFT has a Spearman-Brown reliability coefficient of .82. The most appropriate measure of the validity of the GEFT is its correlation with the original EFT. The Pearson correlation between the GEFT and its "parent" test (the EFT) has been found tobe stronger for men (.82) than for women (.63) (Witkin, Oltman, Raskin, & Karp, 1971). These sex differences indicate that the GEFT may be a less valid measure of field-independence for women than for men.

One major limitation of these tests (EFT & GEFT) is that they are biased in favor of FI persons. That is, a high score represents high FI and a low score represents high FD. A subject would score as FD by doing poorly at a task that FIs do well at. FD persons are labeled against a FI "yardstick", rather, than being evaluated on a measure that they do well at.

There are few measurement techniques that adequately tap those abilities at which FDs outperform FIs. This is probably due to the fact that it was easier to develop a test to ascertain analytic ability than to develop a test to

measure interpersonal skill. (Parenthetically, since most cognitive style researchers would tend to have an analytic, field-independent cognitive style their bias may have extended to the measures that they developed). Of those techniques that do measure FD, none are as conveniently administered as the EFTs.

Furthermore, the ability to shift from one cognitive style to another is a factor which is rarely measured. This limitation is due to the lack of adequate criterion measures for cognitive mobility (discussed in a later section). Mobility is a factor that remains undetected when only the EFTs are employed. Mobile FDs that could shift from their preferred style to function in an FI-manner on an FI-type of test (i.e., the EFTs), would score as FIs.

Psychological Differentiation and Field-Independence.

FI (based on the EFTs) is a measure of articulated perceptual functioning, or simply, perceptual differentiation. Psychological differentiation is a broad construct that encompasses at least four major areas: (1) articulated perceptual and intellectual functioning, (2) articulated body concept, (3) sense of separate identity, and (4) structured specialized defenses. Another component of psychological differentiation is interpersonal

discrimination, the ability and willingness to make distinctions among a group of people (i.e., to catagorize and label persons into different subgroups). The relationship of perceptual differentiation (FI) and interpersonal discrimination to psychological differentiation is shown in Figure 10.

Research has shown that FD is "related to both a lack of discrimination across people in evaluating others and a halo effect in evaluating others' attributes" (Gruenfeld and Arbuthnot, 1968, p.993). Perceptual differentiation (FI) and interpersonal discrimination are moderately correlated (r = .36; Rhodes, Carr, and Jurji, 1968).

Research on FDI is extensive. For greater detail about the historical development of Field-dependence-independence (FDI) research see Witkin, Moore, Goodenough and Cox (1977). There exists an indexed four volume bibliography of over 3,000 studies dealing with FDI cognitive styles. No attempt is made here to recount those exhaustive findings. The section of this chapter reviewing relevant research findings will treat only those studies germane to human relations training settings.

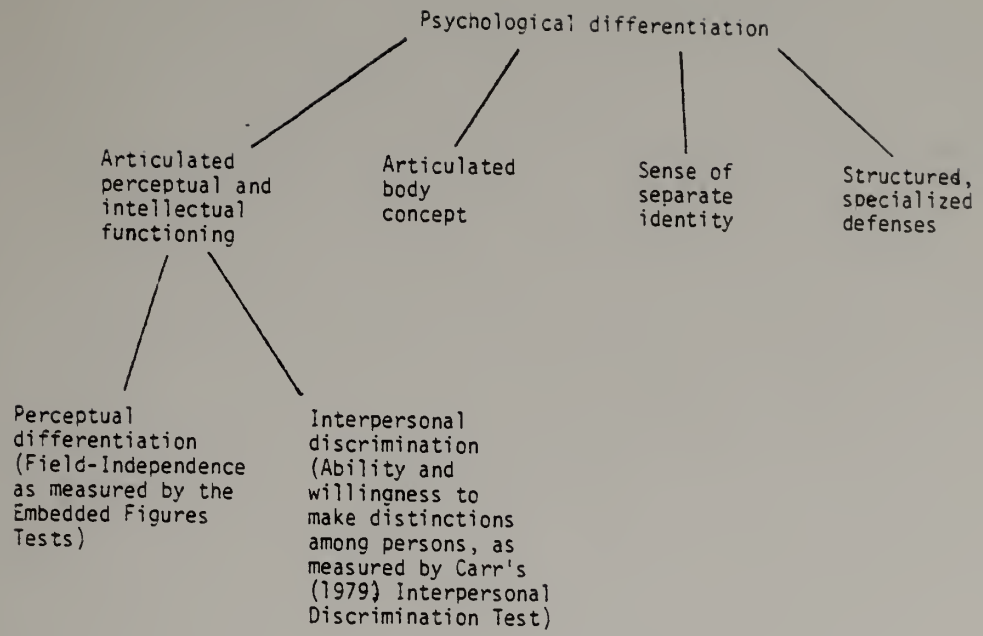

Figure 10. Relationship of perceptual differentiation & interpersonal discrimination to psycnological differentiation.

Review of Research on Cognitive Styles

In reviewing the literature on cognitive styles, and their implications in human relations training (HRT) settings, one is faced with an interesting paradox. Considerable research has demonstrated that Field-Dependent (FD) persons "are particularly interested in and selectively attend to social aspects of the surround. It need not be surprising to find that, because of this orientation, such persons are better at learning materials with social content" (Witkin, Moore, Goodenough, & Cox, 1977, pp. 17-18). This might suggest that they would be likely to be high learners in a laboratory setting, especially in a T-group.

The T-group, a particular aspect of HRT, is discussed here because of its unique qualities. Given that FDs tend to learn more social material,and are more attuned to interpersonal relations, it would be expected that FDs would be "cognitively matched" to the T-group process. However, a paradox arises when one discovers that the FD person has a much greater need for structure in the learning situation (Witkin, Moore, Goodenough, & Cox, 1977). The T-group represents extreme examples of both lack of structure (3)

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(3) The author has made the choice here to refer to learning climates that are intentionally designed to be ambiguous, such as a T-group, as being "unstructured." However, there

and an emphasis on social learning. It is not immediately apparent which of these effects might play the stronger role. The T-group is cited here because it best represents this paradox.

This paradox is answered in part by the present review of literature. Although the findings are not totally consistent, there is stronger evidence supporting the position that FI persons gain more from human relations training. This suggests that the structure variable is more important than the social-content variable of the paradox.

Although there has been considerable research on the FD-FI cognitive styles, rather little of this research has taken place in social settings. As Witkin and Goodenough have noted, "Further delineation of the interpersonal competencies particular to people with a more field-dependent cognitive style, and identificaiton of the social skills to be found among people with a more field-independent cognitive style, are important research tasks for the future" (1977b, p. 23).

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is a structure to a T-group, despite the fact that participants may not perceive any such structure. A T-group might alternatively be called "complexly structured," whereas structured exercises (role plays, simulation games, etc.) might be called "simply structured."

Overview. The first part of this review is organized into three major theme areas: (1) social orientation, (2) participant style and member roles, and (3) satisfaction/learning/impact of experience. In addition, three other topics are treated. The possibility of persons shifting or altering their perceptual mode (or cognitive style) is discussed under (4) Cognitive Mobility/Rigidity. The next section, (5), briefly covers those studies indicating evidence of matching effects (or mismatch effects) in various settings. Last, (6) we discuss some contradictory studies that indicate that training itself may influence a person's cognitive style.

(1) Social Orientation.

In general the FD person favors interpersonal settings, whereas the FI individual favors impersonal settings requiring cognitive restructuring skills (Witkin, Moore, Goodenough & Cox, 1977). Witkin and Goodenough (1977a) hypothesize that interpersonal competencies are the result of reliance on external referents. The FI individual is more differentiated and has a stronger sense of self-nonself segregation. The FI person is more likely "to rely on the self as the primary referent in psychological functioning" (p. 25). Also, FI individuals are more concerned with tasks than with interpersonal relationships.

FD persons are interpersonally oriented, which is a reflection of their reliance on external referents (Witkin, 1978). Both the FD and FI cognitive styles can be seen as adaptations to the tendency to function on the basis of either external or internal referents. FD persons typically have a repertoire of interpersonal behaviors that gives them access to the social cues they need for effective functioning. These same behaviors are not as necessary for FI persons (who rely primarily on the self) and therefore these behaviors are not as well-developed.

These differences in the use of internal and external referents are only found when subjects are in ambiguous situations (i.e., situations where the subject is not sure about how he/she is to behave). In unambiguous situations differences are not found between FD and FI persons. The T-group can frequently be quite ambiguous (4). In fact, it is designed to be that way so as to elicit interpersonal interactions that might not arise in a structured situation. Therefore, it was expected that differences in social behavior might be found in investigations of Field-Dependence-Independence in HRT settings.

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(4) Ambiguity, or lack of perceived structure, in the T-group can be seen by: (1) no superimposed agenda, (2) no clear expectations for participant behavior, (3) participant responsibility for setting and achieving goals, and (4) the leader not providing the typical directive leadership found in most traditional learning climates.

FD persons "show an interest in others, perfer to be physically close to people, and are emotionally open" (Witkin & Goodenough, 1977a, p. 661). They look to others for information to help them function in ambiguous situations. They are more responsive and accomodating in dyads and in group situations. They "like being with others, are sociable, and gregarious, are affiliation oriented, and socially outgoing, . . . show participativeness, show need for friendship, . . . want to help others, have a concern for people, have wide acquaintanceship, know many people and are known to many people. (Witkin & Goodenough, 1977a, p. 672). FIs, in contrast, tend to have an impersonal orientation.

FD and FI persons handle the expression of anger in different ways. Although both groups appear similar in their ability to recognize their own feelings of anger, FD persons are much less likely to express their anger directly towards others (Witkin & Goodenough, 1977). The tendency of FDs to accomodate others and to avoid confrontation probably contributes to their superior interpersonal skill. FIs in homogeneous FI groups tend to initiate more negative acts towards others (Goldstone, 1974), and FI dyads are less able to reconcile conflict (Oltman, Goodenough, Witkin, Freeman, & Friedman, 1975).

FD persons display more "looking behavior" in their

attempt to seek information from others. By looking at others more often, they are more sensitive to others' feelings and views, and they take the views of others into account when forming their own opinions. FDs describe themselves as: sensitive, polite, tactful, accepting, considerate, warm and friendly. They tend to rate others significantly higher on a "liking" scale, and they tend to be liked by others more than do FI persons (Witkin & Goodenough, 1977). Figure 11 summarizes the personal qualities of persons with FD and FI styles.

(2) Participant Style and Member Roles.

The literature on cognitive processes has identified two strategies for concept learning (i.e., information acquisition). Learners with greater structuring ability tend to adopt a participant role in the learning process. This style is characterized by active involvement and hypothesis testing behavior. The other style is one of a passive learner or spectator. FIs tend to operate in the participant mode, whereas FDs tend to be spectator-type learners (Goodenough, 1976; Cross, 1976; Witkin, 1978).

If these patterns extend from the area of concept learning in experimental settings to T-group learning, then we would expect that FI participants would assume roles as

Qualities of Persons With Field-Dependent and Field-Independent Cognitive Styles

Field-Dependent Style	Field-Independent Style
Prefers social interaction	Task & achievement oriented
Greater consideration & empathy for others	Concerned with mastery of his/her environment
More sensitive to others values & attitudes	Analytical mode of perception
More effective at resolving conflict	Individualistic, self-reliant
More compliant and accomodating in social situations	Concerned with ideas & principles rather than with people
Warm, tactful, helpful, concerned, sociable	Able to impose their own structure in unstructured situations
Describes self in socially desireable terms	Less likely to request others' help

Figure 11. Qualities of persons with field-dependent and field-independent cognitive styles.

active and involved (hypothesis-testing) group members. Conversely, FDs might be expected to assume passive spectator roles in the group. Many trainers have noted that active involvement appears to correlate with greater participant learning. Based on this, one can predict higher learning from FI participants.

The FD cognitive style has been found to correlate with group maintenance related functions in a structured graduate education course (Bodine, 1976). Group maintenance functions are those behaviors that encourage cooperation, collaboration, and participation in the group. Bodine's (1976) finding is predictable based on the characteristic social orientation of FD persons. Another study (Safer,1975) confirmed this relationship and extended it. That study found that FD participants in a Tavistock workshop assumed socio-emotional roles and FI participants assumed task-oriented roles. There is considerable literature linking the FI style with a task and achievement orientation (Witkin & Goodenough, 1977a; Gruenfeld & Arbuthnot, 1968; Simon, Langmeyer & Boyer, 1974; Templer, 1973).

It seems reasonable to hypothesize that these orientations will also manifest themselves in a small group setting such as a workshop or a T-group. One might predict that FI participants would exhibit a concern for task accomplishment. FIs might become particularly frustrated

with the lack of directive leadership characteristic of a T-group. They would probably tend to assume leadership roles in organizing goal directed activities.

On the other hand, FD participants would be expected to be especially attuned to, and concerned about, other members feelings. FDs would probably provide emotional support to other group members. They would be expected to encourage collaboration and cooperation while striving to reduce intragroup conflicts.

The task orientation of FIs has other implications for HRT settings. When social information is provided incidentally or peripherally FI individuals will often neglect or overlook it. However, when they are attuned to the possibility of social data they perceive it as accurately as FD subjects (Goodenough, 1976). In fact, a doctoral dissertation by Colker (1973) revealed that FI subjects were better than FDs at differentiated social perception when they were focused on the social interaction.

A pilot study (n=13) by the present author (see chapter 5) found that FI participants were ranked by their co-participants as being: 1) more task-oriented ($p<.01$), 2) more maintenance-oriented ($p<.01$), and 3) more emotionally open ($p<.05$) than FD participants. Further support for FI superiority in providing group maintenance-type behaviors is found in still another T-group study. In that study,

differentiation of person-space was also found to be significantly related to socioemotional skill (Stevenson, 1974).

The extensive literature on FDI predicts the finding of FIs being task-oriented. It is an unexpected, however, that FIs would also be rated as maintenance-oriented (see Chapter 5; Stevenson, 1974) and emotionally open (see Chapter 5). Mezoff's explanation for these findings follows: FIs were task and achievement oriented even when the task at hand was interpersonal relations. When their attention was focused on social learning in the group setting, FIs apparantly "outperformed" FDs in the area of emotional openness and in providing group maintenance behaviors. This fits with the findings of Colker (1973).

Summary. There seems to be support for FIs being task-oriented in group settings (Safer, 1975; see Chapter 5). Findings are contradictory, however, with respect to whether FD or FI persons perform more of the group maintenance functions. FDs were found to be more maintenance-oriented by Bodine (1976) and Safer (1975), whereas FIs were more maintenance-oriented in the studies by Stevenson (1974) and Chapter 5.

The Bodine (1976) study involved a structured classroom exercise requiring the viewing of a film. This study is

somewhat unrelated to human relations training. The Safer (1975) study employed an analysis of participants verbal responses during one session of a Tavistock workshop. The Stevenson (1974) and Mezoff (1980b) studies both employed a peer ranking proceedure in the context of a T-group setting.

Perhaps the differences in findings between the Safer study (1975) and the two studies by Stevenson (1974) and Mezoff (1980b) can be attributed to the different forms of evaluation (analysis of verbal responses vs. peer ranking), or to the different format in the conduct of the laboratories (Tavistock vs. T-group).

The Bodine study (1976) is limited in its generalizability to a HRT setting. Chapter 5 is limited by a small sample size. The differences between the findings of Safer (1975) and Stevenson (1974) with regard to who performs the group maintenance functions remains to be explained. Further research is required to determine whether some effects are evident only in certain types of groups, and whether the assessment instruments influence the findings.

(3) Satisfaction/Learning/Emotional Impact.

(3-A) Satisfaction With Training. It is difficult to predict whether participant cognitive style would bear any relationship to satisfaction with HRT. On one hand, FDs prefer social interaction, they seek it out, and they appear to be more skilled and more successful at it. On the other hand, some educational studies report that FD students profit more from a structured instructional approach, due to the fact that FD persons have difficulty imposing their own structure on ambiguous classroom situations (Cronbach & Snow, 1977; Witkin, Moore, Goodenough & Cox, 1977). There is evidence to suggest that FD students prefer an informal, interpersonally oriented, unstructured approach. However, they are the least likely to benefit from it (Cronbach & Snow, 1977).

(3-B) Task-Orientation Of High Learners In HRT. Earlier research in HRT has revealed that task and achievement-oriented participants tended to be the high learners in a laboratory (Harrison & Lubin, 1965; Mitchell, 1975). Possible explanations for this finding have included the following: (1) task oriented group members experienced "culture shock" and this facilitated their personal growth and learning; (2) interpersonally oriented participants were already socially skilled and therefore had less room to improve their skills than task oriented persons; and (3)

task oriented individuals were so inept interpersonally that they would necessarily display large gains in interpersonal learning.

The pilot study on cognitive styles in human relations training by Mezoff (Chapter V) found that FI individuals were rated by their co-participants as being more satisfied with the training and as having learned the most when compared to FD persons (both at $p<.01$).

The finding of FIs being rated as the most satisfied and as having learned the most supports some of the earlier HRT research (Harrison & Lubin; Mitchell) which showed task and achievement oriented persons as being high learners in lab settings. Support for the finding of FI superiority in HRT can also be found in Steele's (1968) study where analytic/problem-solving oriented persons profited most from training.

It should be noted that the results of Poland and Jones (1973) contradict the findings that task-oriented participants gain the most from HR training. However, Poland and Jones used a task-oriented dimension that reflected an orientation toward the achievement of group goals. Poland and Jones themselves state that it is not clear whether their task-oriented catagory is comparable to the work-oriented catagory of Harrison and Lubin (Poland & Jones, 1973, p.501).

The FI style may provide HRT participants with superior analytic and cognitive structuring skills with which to interpret, analyze, and internalize their HRT experience. From this finding it is possible that FI persons might be more likely to be satisfied, as well. This explanation is well founded in cognitive style theory. It seems to be a viable alternative to the explanations offered by Harrison & Lubin and others, namely: (1) that the task oriented members experienced "culture shock" and were, therefore, pushed toward change, and (2) that the interpersonally oriented members were already socially skilled and had less room to improve.

Prior to the study reported in Chapter V, the only available evidence regarding cognitive style preference or satisfaction in a HRT setting was anecdotal in nature. This evidence suggested that FDs resented high structure and performed more genuinely in a low structure treatment (5). Conversely, FIs "struggled when no structure was available, but seemed more relaxed when the [high structure] condition provided them with a goal and a task" (Rappoport, 1975). This anecdotal evidence contradicts the findings of Mezoff's pilot study and other research. The Rappoport study was different from the other studies cited here in that both of

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(5) It is not clear, however, whether FDs in the low structure treatment performed better in terms of interpersonal skills or higher levels of affective learning

the treatment groups were relatively highly structured.

In summary, despite a lack of consistency between the studies, the preceeding evidence points towards the position that FI/analytic/task-oriented persons tend to gain the most from human relations training.

(3-C) Learning And Motivation. FI or FD persons may learn more than the other depending upon the type of situation they are in. Motivation is a key ingredient in determining whether FDs learn more than FIs, or vice-versa (or, whether their learning is equal). FIs learn and remember significantly more than FDs under conditions of intrinsic motivation, but FDs are superior under conditions of negative response-contingent reinforcement. When rewards for learning are extrinsic and positive no differences are found between FD and FI persons (Goodenough, 1976).

In HRT these differences may account for how and why people are differentially responsive to various group dynamics. FI persons are likely to respond to conditions that supply intrinsic rewards, whereas FD persons are more externally oriented towards relationships with others and they tend to value the approval of others. Group pressure towards conformity is, therefore, more likely to affect FDs than FIs.

Rewards in HRT are found both internally and externally. Social approval, warmth expressed by others, and

acceptance by the group are likely to be important motivators to FD persons. FIs are more likely to be motivated by meeting challenges and accomplishing tasks that they set out for themselves. Considering the focus of HRT, it is probable that many of these challenges and tasks would be in the area of interpersonal relations. Behaviors, such as expressing one's self effectively and congruently, may be equally evident among both FD and FI participants. However, their motivations for their behaviors may differ considerably.

(3-D) Learning From Feedback. Learning in HRT is partly a result of the unique opportunity to receive feedback on one's own interpersonal behavior. FDs look for feedback (both non-verbal and verbal) from others and tend to use the feedback to modify their actions and/or beliefs (Witkin, 1973). In educational settings FI persons are less influenced by the course feedback (grades or evaluations) they receive (Witkin, Moore, Goodenough, & Cox, 1977). If laboratory learning results in part from feedback from others, then the FD person may learn more as a result of being more influenced by the feedback they receive.

(3-E) Emotional Impact. FD persons, despite the fact that they are more influenced by feedback, may not be able to profit as much from such feedback when it occurs. This is because they tend to have typical psychological defense

mechanisms (Witkin, Lewis, & Weil, 1968; Safer, 1975; Goodenough, 1976) that prevent them from ackowledging the impact of the feedback, especially if it is negative. Lecomte (1976) found that "[FDs] discredited ($p < .05$) and dissociated ($p < .05$) the source of feedback significantly more than [FIs]" (p. 5949).

This limited evidence suggests that: 1) feedback, in general, has a greater impact on FD persons, and 2) negative or critical feedback is more likely to be blocked out (denied, repressed, discredited) by FD persons. These mixed findings regarding the value of feedback-related learning suggest that this is an area worthy of continued investigation.

(3-F) Transfer Of Learning. Consistent with the participant/spectator approaches discussed earlier, FI individuals (using their preferred "participant" strategy) appear to demonstrate greater positive transfer of training (Goodenough, 1976). It would appear that such a trait would be very helpful in taking the learning from an HRT program (usually in the context of a "cultural island"), expanding it, and applying it to a back-home situation. Extending the findings of Goodenough (1976) it would appear that FIs would be more sucessful than FD persons at transferring their learning from the lab setting to the real (non-lab) world.

(3-G) Differences In Stress Reactions And Defense Mechanisms. It appears that FD persons are more affected by stressful material than FIs (Goodenough, 1976). There seem to be characteristic reactions to stress that differ between FD and FI persons. FD persons typically use repression, denial of unpleasant events, and denial of affect (Goodenough, 1976; Safer, 1975). FIs tend to use hostility directed outward and "distancing" mechanisms as typical defense mechanisms (Witkin, 1965; Witkin et al., 1968). These differences in defensive reactions should be evident in the interpersonal relations among participants in the laboratory. The differences should also be evident intrapersonally, in terms of how each group member deals with the stress and dissonance he/she experiences in the training.

Although FDs are more likely to experience a greater impact, their typical defense reactions may prevent them from accurately reporting the impact of the group upon them (especially if their group experience was negative). Therefore, if one were to ask HRT participants to report the impact of their laboratory experience, one might have difficulty obtaining reliable reports, especially from FDs.

FD persons are more likely to experience shame and anxiety as opposed to anger. Shame reactions and the threat

of revealing one's true self probably account for the fact that FD participants are more likely to drop out of HRT programs than FI participants (Robinson, 1974).

In two different studies of college students, those persons who selected sensitivity training were characterized by qualities associated with the FI style (Gilligan, 1973; Kennedy, 1972). The same defensive reactions that make it likely for FDs to drop out of training probably make them less likely to volunteer for it.

(3-H) Summary. There is not yet conclusive evidence, but the studies reviewed here suggest that FI persons tend to be the high learners in HRT. FIs are more likely to select training, whereas FDs are more likely to drop out of HRT programs. FIs are also more likely to demonstrate greater positive transfer of training to the back-home environment.

(4) Cognitive Mobility/Rigidity.

Recent research had led Goodenough & Witkin (1977) to hypothesize a mobility dimension orthogonal to FDI (i.e., at right angles to FDI and therefore uncorrelated with it). This mobility dimension represents a capacity to shift one's preferred perceptual mode. A mobile individual will have access to styles other than his/her preferred one (Witkin, 1978). Different situations require different cognitive

styles for successful outcomes (6). Some situations require cognitive restructuring ability, while others require skill at interpersonal relations. Persons versed in both skill areas will presumably be more sucessful overall than individuals who are rigid in their cognitive style. Hopefully, individuals can be trained to become versed in a variety of perceptual styles so that they may alter their own style in response to the demands of the task or the characteristics of the situation at hand.

Appropriate responding requires diagnostic skill and behavioral flexibility. The superior discriminitive ability of FIs suggests that they would have an advantage over FDs in diagnosis of situations with a task focus requiring cognitive restructuring skills. In those situations requiring diagnostic skill in interpersonal relations FDs may be more perceptive. FDs are more attuned to incidental social information. However, when subjects are specifically told to attend to social material, no differences in learning are found between FD and FI persons (Goodenough, 1976). It is unclear whether either FD or FI persons would have an advantage over the other in being able to alter their behaviors.

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(6) See the original research experiments requiring the location of an upright in space. In stable rooms FIs were more accurate than FDs. FDs, however, were more accurate than FIs in the rotating rooms.

We might hope to facilitate greater cognitive style flexibility among both FD and FI persons. Different situations may require one perceptual mode or the other for sucessful interaction or task accomplishment. Therefore, it would be most useful to encourage persons to be mobile and be able to alter their style to meet the demands of the situation.

Training to develop analytical abilities (high FI) can be fostered by appropriate educational efforts (Goodenough & Witkin, 1977). Whether these training effects are generalizable to a wide range of restructuring behaviors remains to be demonstrated. Human relations training is a process that attempts to foster greater competencies in interpersonal relations. There are few, if any, adequate criterion measures to determine the achievement of such a goal.

Research on the mobility-rigidity dimension has not progressed rapidly (Witkin & Goodenough, 1977b). A doctoral dissertation by Botkin (1974) investigated four different measures of mobility-rigidity. She found that the indices of perceptual mobility were not correlated with the indices of cognitive mobility. This result has implications for the researcher wishing to investigate mobility-rigidity in relation to cognitive style. An appropriate measure of mobility must be used, and the limitations of particular

measures should be carefully investigated (7). At present there appears to be little relationship between FDI and mobility (Del Gaudio, 1976). That is, neither FD or FI persons have been found to be more mobile than the other.

(5) Cognitive Style Match/Mismatch Effects.

(5-A) Treatment-Person Matching. A considerable body of literature exists documenting treatment-person matching effects with cognitive style. For matching investigations in educational settings see Cronbach and Snow (1977), Cross (1976), Hunt (1971), Hunt & Sullivan (1974), and Witkin, Moore, Goodenough, & Cox (1977).

Cross (1976), Hunt (1971), Hunt & Sullivan (1974), and Witkin, Moore, Goodenough, & Cox (1977) suggest that matching the educational treatment to students' cognitive style is a powerful and viable process for maximizing students' learning outcomes. The position taken by Cronbach & Snow (1977) however, is considerably less optimistic. Cronbach & Snow (1977) state that "the studies on FI ... are a rather motley collection at this stage of the work" (p. 385). In their review of treatment-person matching studies

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(7) A review of literature revealed the following measures in research attempting to ascertain cognitive mobility: 1) Rorschach-type tests (Bieri & Blacker, 1956; Hemmendinger, 1953), 2) Necker cubes and other optical illusions (Haronian & Sugarman, 1966; Bloomberg, 1971), 3) the Stroop Word-Color Test (Eisner, 1972), and 4) Word Association and Object Sorting tasks (Del Gaudio, 1976).

Cronbach & Snow (1977) identify "enough inconsistencies to make generalization impossible for the present" (p. 385).

A recent and exhaustive review of treatment-person matching in psychotherapy settings is found in Berzins (1977). He concludes that matching research in psychotherapy has not revealed powerful interacting variables. Even if future research on promising areas of individual differences proves useful, Berzins (1977) states that the critical issue in matching "is the pragmatic matter of incremental validity. To what extent will the matching algorithm improve upon the usual outcomes yielded by a clinical system...?"(p. 247).

(5-B) Person-Person Matching. In addition to treatment-person matching there can exist person-person matching. Interpersonal attraction is facilitated by similarity of cognitive styles. Matched persons seem to be better able to communicate with each other, probably because they sense that they are on the same cognitive "wavelength" and are better attuned to each other (Witkin & Goodenough, 1977a). People also have a tendency to disclose important life situations and personal information to others of a similar cognitive style (Witkin, 1978).

In a study of high school teachers and students, "[cognitively] matched students perceived their teachers [as] significantly more aware, warmer, and more accepting,

more positive, more open, more innovative, and more responsive compared with the perceptions of mismatched students ($p < .01$)" (Gaeta, 1977, p.7506-A). Matched students also perceived their teachers' behavior as closer to an ideal than did students who were mismatched ($p < .01$).

Cognitive style similarity has also been found to relate to friendship choice. Individuals were more likely to choose as friends those persons of a similar cognitive style. Similarity of age or religion, however, was found to be a more powerful determiner of friendship choice than FDI. As predicted by their superiority in interpersonal skills, the FD subjects were more often chosen as close friends (Wong, 1977).

FD and FI styles are highly salient in every day life. Research has revealed that some people tend to adapt their behaviors to the cognitive style requirements of others with whom they interact. This adaptation can occur very rapidly, even among people meeting for the first time (Witkin, 1978; Cross, 1976). Obviously, mobility (discussed earlier) contributes to the individual's ability to alter his/her behavior in accomodating another person. As there are not yet any adequate criterion measures for mobility, it is not possible to state whether FD or FI persons are more mobile. As stated earlier, there is no apparant relationship between FDI and mobility.

Person-person matching between therapist and patient on conceptual level (a construct representing a somewhat different aspect of psychological differentiation than FDI) has revealed significant results. "Matching of conceptual level of the patient and the therapist significantly improves the probability of successful therapeutic process and outcome" (Postuma & Carr, 1975, p. 35).

Therapist -patient pairs matched on FDI demonstrated greater mutual attraction and were less likely to result in premature termination of the therapy (Folman, 1973).

(5-C) Mismatching Of Participants And HRT Treatments. A study by Joure, Frye, Green, and Cassens (1971) cited examples of the over-use of sensitivity training. They suggested that many HRT programs have failed (or been of questionable benefit) due to an inappropriate match between the training and the cognitive styles of participants.

(5-D) Matching Models Applied to Training. Exploring matching effects in HRT settings is a fertile area for research. Before matching model (or aptitude-treatment-interaction) research can be done, preliminary groundwork must be laid. This chapter is intended as a step in that direction.

(6) The Influence of Training on Participant Cognitive Style.

The studies reviewed in this section all employed measures of cognitive complexity. This construct dimension is different from, yet related to, field-independence. Cognitive complexity and FDI both represent aspects of psychological differentiation. Most studies investigating the relationship between these constructs have not revealed significant correlations (Elliot, 1961; Hickman, 1975; Langley, 1971). However, variations in the instrument (Kelly's "Role Construct Repertory Test", Bieri's "Cognitive Complexity/Simplicity Scale", and Carr's "Interpersonal Discrimination Test"), as well as variations in scoring schema, preclude comparisons across studies. Carr's "Interpersonal Discrimination Test" consistently reveals low but significant correlations with FDI (Carr, 1977; Mezoff, 1980b).

T-group participation has been found to result in increased cognitive complexity (Harrison, 1966; McCrimmon 1975). Other T-group research (Baldwin, 1972) has revealed significant changes in participants in the direction of greater cognitive simplicity (i.e., less interpersonal discrimination). Although such discordant findings are distressing for the theoretician, two possible explanations can be offered for these contradictory findings.

First, the nature and emphasis of these training programs was different. The Baldwin training involved only structured exercises and emphasized positive aspects of self and others and strove to achieve higher acceptance of self and others. Perhaps this accounted for the change toward less discrimination. The McCrimmon training was an unstructured encounter group experience. The treatment in the Harrison study was a laboratory for group development sponsored by NTL. Presumably, this training included a T-group component. The encounter group or T-group formats may not have been as supportive or nurturing as the Baldwin training program. Perhaps support leads to underdifferentiation, whereas the dynamics of an encounter or T-group leads to overdifferentiation.

A second (and perhaps more important) difference between these studies (Baldwin, 1972; McCrimmon, 1975; Harrison, 1966) was the use of different instruments to ascertain cognitive complexity. Baldwin used the Pieri Cognitive Complexity Simplicity Scale and the other two studies employed Kelly's Role Construct Repertory Test.

Whether HRT influences cognitive style may depend on both the training treatment as well as the specific measure of psychological differentiation. The participant's mobility is yet another factor which could determine how a person's cognitive style can be influenced by training.

In the case of training that is not exclusively supportive (as Baldwin's was), we may infer from this preliminary evidence that participation in HRT tends to be associated with an increase in cognitive complexity. Cognitive complexity is related to (yet not identical with) field independence. The difference between these constructs makes it difficult and probably invalid to infer a relationship between training and increased FI from these studies.

An adult's standing on the FDI continuum is characteristically stable over time (Witkin, Moore, Goodenough, & Cox, 1977). If, however, HRT was associated with an increase in FI, then we are left with a paradox. How is it that a training program designed to increase interpersonal competencies and sensitivity to others (both FD characteristics) can be associated with a shift toward greater FI ?

This paradox may be answered, in part, by understanding that the FDI continuum represents a tendency to rely on either external or internal referents (the FD and FI styles, respectively). Witkin and Goodenough (1977b) explain that "training in personal autonomy ... would, according to [their] model, contribute to increased skill in cognitive restructuring ..." (p.28). Perhaps some HRT programs encourage autonomy and a tendency to rely on internal

referents. If so, we might then expect increased interpersonal skill along with greater FI to result from training programs with such a focus.

Summary

Cognitive styles have a large influence upon how we see and organize our interpersonal world. These differences are not usually taken into account explicitly by educators or psychotherapists. However, a considerable body of literature suggests that the impact of cognitive styles on teacher/student and therapist/patient relationships is significant. The significance has been demonstrated in terms of student/client satisfaction with instructional/ therapuetic treatment, mutual attraction, and favorable ratings of others.

HRT is a field that draws from education and from psychotherapy (for normals). Although very few studies have attempted to explore the effect of cognitive styles in HRT, it appears that this research may yield considerable benefits to trainers who wish to be more attuned to individual differences. If research reveals significant findings indicating cognitive style influence on training outcomes, then this knowledge could be of considerable use to trainers in developing training programs.

Despite the possibility of a lack of significant research findings, other benefits can accrue to the trainer/consultant who is conscious of cognitive style differences. Being sensitive to individual differences is a first step toward accomodating them, even if explicit matching strategies are not yet available. The more the trainer is aware of individual differences (especially those as pervasive as cognitive style) the more effective s/he can be in designing and implementing training treatments.

References - Chapter IV

Anderson, C., & Slocum, Jr., J.W., Personality traits and their impact on T-group training success. Training and Development Journal, 1973 (December), 18-25.

Baldwin, B. A., Change in interpersonal cognitive complexity as a function of a training group experience, Psychological Reports, 1972, 30, 935-940.

Berzins, J. I., Therapist-patient matching. In A. S. Gurman and A. M. Razin (eds.), Effective Psychotherapy: A Handbook of Research. Oxford, England: Pergamon Press, 1977.

Bieri, J. & Blacker, E., The generality of cognitive complexity in the perception of people and inkblots. Journal of Abnormal and Social Psychology, 1956, 53, 112-117.

Bloomberg, M., Creativity as related to field independence and mobility. The Journal of Genetic Psychology, 1971, 118, 3-12.

Bodine, R. L., The effects of cognitive style, task structure, and task setting on student performance, Dissertation Abstracts International, 1976, 36A, 5935.

Botkin, E. B., Fixity-Mobility: Its relationship to field independence and rigidity. Dissertation Abstracts International, 34B, 1974, 4653.

Bunker, D.R., & Knowles, E.S., Comparison of behavioral changes resulting from human relations training laboratories of different lengths. Journal of Applied Behavioral Science, 1967, 3(4), 505-523.

Carr, J. E., The role of conceptual organizaiton in interpersonal discrimination. The Journal of Psychology. 1965, 59, 159-176.

Carr, J. E., Manual for the Interpersonal Discrimination Test. Draft copy obtained from the author (School of Medicine, University of Washington, Seattle, Washington, 98195), 1979.

Colker, R. L., Social perception and influence as a function of field dependence-independence, Dissertation Abstracts International, 1973, 34B, 407.

Cronbach, L. J. & Snow, R. E., Aptitudes and Instructional Methods. New York: John Wiley and Sons, 1977.

Cross, P. K., Accent on Learning. San Francisco: Jossey-Bass, 1976.

Del Gaudio, A.C., Psychological differentiation and mobility as related to creativity. Perceptual and Motor Skills, 1976, 43, 831-841.

Eisner, D.A., Developmental relationships between field independence and fixity-mobility. Perceptual and Motor Skills, 1972, 32, 767-770.

Elliot, R., Interrelationships among measures of field-dependence, ability, and personality traits. Journal of Abnormal and Social Psychology, 1961, 63, 27-36.

Folman, R.Z., Therapist-patient perceptual style, interpersonal attraction, initial interview behavior, and premature termination, Dissertation Abstracts International, 1973, 34B, 1746.

Gaeta, J. P., Teacher ratings by students as a function of match or mismatch in field dependence-independence, Dissertation Abstracts International, 1977, 37a, 7506.

Gilligan, J. F., Personality characteristics of selectors and non-selectors of sensitivity training. Journal of Counseling Psychology, 1973, 20(3), 265-268.

Goldstone, M. W., Verbal participation in small groups as a function of group composition. Dissertation Abstracts International, 1974, 35B, 1910.

Goodenough, D. R., The role of individual differences in field dependence as a factor in learning and memory. Psychological Bulletin, 1976, 83 (4), 675-964.

Goodenough, D. R., & Witkin, H. A., Origins of the field-dependent and field-independent cognitive styles. Princeton, New Jersey: Educational Testing Service, 1977.

Gruenfeld, L. & Arbuthnot, J., Field-independence, achievement values and the evaluation of a competency related dimension on the least preferred co-worker (LPC) measure, Perceptual and Motor Skills, 1968, 27, 991-1002.

Haronian, F. & Sugerman, A.A., Field independence and resistance to reversal of perspective. Perceptual and Motor Skills, 1966, 22, 543-546.

Harrison, R., Cognitive change and participation in a sensitivity training laboratory. Journal of Consulting Psychology, 1966, 30(6), 517-520.

Harrison, R., & Lubin, B., Personal style, group composition, and learning. Journal of Applied Behavioral Science, 1965, 1(3), 286-301.

Harvey, O., Hunt, D. E., & Schroeder, H., Conceptual systems and personality organizaiton. New York: Wiley, 1961.

Hickman, G.W., Factor analysis of selected dimensions of cognitive styles. Dissertation Abstracts International,1976, 36A, 6553.

Hunt, D. E., Matching Models in Education. Toronto, Canada: Ontario Institute for Studies in Education, 1971.

Hunt, D. E. & Sullivan, E. V., Between Psychology and Education. Hinsdale, Illinois: The Dryden Press, 1974.

Joure, S. A., Frye, R. L., Green, P. C., & Cassens, F. P., Examples of over-use of sensitivity training. Training and Development Journal, 1971 (December), 24-26.

Kelly, G., Psychology of personal constructs, 1955.

Kennedy, T. F., An exploration of the effects of sensitivity training upon selected personality traits. Dissertation Abstracts International, 1972, 33B, 2813.

Langley, C.W., Differentiation and integration of systems of personal constructs. Journal of Personality, 1971, 39, 10-25.

Lecomte, C., Cognitive styles and the effects of expected and unexpected evaluations about oneself on ratings of source, instruments, and self. Dissertation Abstracts International, 1976, 36A, 5949.

Lieberman, M. A., Yalom, I., & Miles, M. Encounter Groups: First Facts. New York Basic Books, 1973.

McCrimmon, J. K., Variables influencing increased cognitive complexity in the T-group setting. Dissertation Abstracts International, 1975, 36B, 2478.

Messick, S., The criterion problem in the evaluation of instruction: Assessing possible, not just probable, intended outcomes. In M. C. Wittrock & D. E. Wiley (Eds.) The evaluation of Instruction: Issues and Problems, New York: Holt, Rhinehart & Winston, 1970.

Messick, S., & Associates, Individuality and Learning. San Francisco: Jossey-Bass Publishers, 1976.

Mitchell, R. R., Relationships between personal characteristics and change in sensitivity training groups. Small Group Behavior, 1975, 6(4), 414-420.

Oltman, P. K., Goodenough, D. R., Witkin, H. A., Freeman, N., & Friedman, N., Psychological differentiation as a factor in conflict resolution. Journal of Personality and Social Psychology, 1975,32 (4), 730-736.

Poland, W. D., & Jones, J. E., Personal orientations and perceived benefit from a human relations laboratory. Small Group Behavior, 1973, 4 (4), 496-502.

Postuma, A.B., & Carr, J.E., Differentiation matching in psychotherapy, Canadian Psychological Review, 1975, 16 (1), 35-43.

Rappoport, P. S., The effects of field dependence and high and low structured human potential groups on personal and interpersonal response. Dissertation Abstracts International, 1975, 36B, 3064.

Rhodes, R. J., Carr, J. E., & Jurji, E. D., Interpersonal differentiation and perceptual field differentiation. Perceptual and Motor Skills, 1968, 27, 172-174.

Robinson, J. P., & Shaver, P.R., Measures of Social Psychological Attitudes. Ann Arbor, Michigan: Survey Research Center (Institute for Social Research), 1969.

Robinson, W. H., The differential effects of "relational immediacy" and "intrapersonal immediacy" workshops on field dependent and field independent participants. Dissertation Abstracts International, 1974, 34B, 5174.

Safer, J. M., Effects of sex and psychological differentiation on responses to a stressful group situation. Dissertation Abstracts International, 1975, 36B, 3068.

Schubert, P. W., Personality type and self-perceived change resulting from sensitivity group experience. Dissertation Abstracts International, 1972, 32A, 4360.

Simon, G., Langmeyer, D., & Boyer, R. K., Perceptual style as a determinant in the solution of a group task. Personality and Social Psychology Bulletin, 1974, 1, 252-255.

Smith, P.B. Controlled studies of the outcome of sensitivity training. Psychological Bulletin, 1975, 82(4), 597-622.

Spence, J. T., & Helmreich, R. L., Masculinity and Femininity: Their Psychological Dimensions, Correlates, and Antecedents. Austin, Texas: University of Texas Press, 1978.

Steele, F. I., Personality and the laboratory style. Journal of Applied Behavioral Science, 1968, 4(1), 25-45.

Stevenson, J. F., Individual differences in cognitive style and socioemotional skill. Dissertation Abstracts International, 1974, 35B, 2415-16.

Stogdill, R., Handbook of Leadership: A Survey of Theory and Research. New York: The Free Press, 1974.

Templer, A. J., A study of the relationship between psychological differentiation and management style. Personnel Psychology, 1976, 26, 227-237.

Wechsler, D., WAIS Manual. New York: The Psychological Corporation, 1955.

Witkin, H. A., Psychological differentation and forms of pathology. Journal of Abnormal Psychology, 1965, 70(5), 317-336.

Witkin, H. A., A cognitive style perspective on evaluation and guidance. Proceedings of the 1973 Invitational Conference on Testing Problems - Measurement for Self-Understanding and Personal Development, Educational Testing Service, 1973.

Witkin, H. A., Cognitive styles in personal and cultural adaption. Volume 11, 1977 Heinz Werner Lecture Series; Clark University Press, 1978.

Witkin, H. A., & Goodenough, D. R., Field dependence and interpersonal behavior. Psychological Bulletin, 1977(a), 84 (4), 661-689.

Witkin, H. A., & Goodenough, D. R., Field Dependence Revisited. Princeton, New Jersey: Educational Testing Service, 1977(b) (Educational Testing Service Research Bulletin No. RB-77-16).

Witkin, H. A., & Goodenough, D. R., & Oltman, P. K., Psychological differentation: Current status. Princeton, New Jersey: Educational Testing Service, 1977 (Educational Testing Service Research Bulletin No. RB-77-17) .

Witkin, H. A., Lewis, H. B. & Weil, E., Affective reactions and patient-therapist interactions among more differentiated and less differentiated patients early in therapy. Journal of Nervous and Mental Disease, 1968, 146 (3), 143-208.

Witkin, H. A., Moore, C. A., Goodenough, D. R. & Cox, P. W., Field-dependent and field-independent cognitive styles and their educational implications. Review of Educational Research, 1977, 47 (1), 1-64.

Witkin, H. A., Oltman, P. K., Raskin, E., & Karp, S. A., A manual for the embedded figures tests. Palo Alto, CA: Consulting Psychologists Press, 1971.

Witkin, H. A., Dyk, R. B., Paterson, H. F., Goodenough, D. R., & Karp, S. A., Psychological Differentation. New York: Wiley, 1962.

Witkin, H. A., Moore, C.A., Oltman, P. K., Goodenough, D. R., Friedman, F., Owen, D. R. & Raskin, E., Role of the field-dependent and field-independent cognitive styles in academic evolution: A longitudinal study. Journal of Educational Psychology, 1977, 69(3), 197-211.

Wong, K. L., Psychological differentiation as a determinant of friendship choice, Dissertation Abstracts International, 1977, 37B, 3639.

PART III

RESEARCH STUDIES

PREFACE TO RESEARCH STUDIES I, II, AND III

These three studies were undertaken over the spring and summer of 1979. Study 1 (n=13) was an exploratory study investigating, in general, the relationship between cognitive styles and outcomes from training. Study 2 (n=39) was designed to build on the findings of Study 1, and Study 3 was designed to build on both earlier studies. All studies employed at least two measures of cognitive style and used both self-reports and peer-rankings of training outcomes. All studies used a similar peer-ranking instrument. The self-report instrument was similar in studies 1 & 2 and was modified to a different type of self-report instrument in Study 3. In addition to self-reports and peer-rankings, Study 3 employed a test of cognitive knowledge.

C H A P T E R V

STUDY 1: NEW BRUNSWICK

Synopsis

This chapter reports a study investigating the influence of participant cognitive style (Field-Dependence-Independence) on human relations training outcomes. A number of other independent variables were investigated for possible correlations with various outcome measures. Subjects were 13 public utility employees participating in week-long company-sponsored HRT program. Thirty-three percent of the program time was spent in a T-group. The remaining program time was devoted to theory and structured exercises related to stages of group development and other topics. None of the self-report outcomes correlated with any of the independent variables. Field Independence was the only variable strongly correlated with participant peer-rankings of various behaviors/outcomes. Field Independents (FIs) were judged by their peers: (1) to be more task oriented, (2) to be more maintenance oriented, (3) to be more satisfied with the laboratory experience, and (4) to have learned the most from the laboratory experience when compared to Field Dependents

(FDs) (all at $p < .01$). The above four outcome measures were strongly intercorrelated. Previous cognitive style research predicts a task-orientation for FIs. It was unexpected, however, that FIs would be rated as being maintenance-oriented.

Introduction

The personality variable of cognitive style (how individuals organize their perceptions) has implications for the way people behave interpersonally. A review of cognitive style research (see Chapter IV; Witkin & Googenough, 1977a; Witkin, Moore, Goodenough, & Cox, 1977) suggests that there is a relation between a participant's cognitive style and his/her behavior in a human relations laboratory. Specifically, it was predicted that persons with a Field-Independent cognitive style would tend to assume the task-oriented roles in the laboratory, whereas Field-Dependent participants would tend to assume group-maintenance oriented roles in the laboratory.

This study was undertaken to explore whether cognitive style was correlated with training outcomes. If persons of different cognitive styles were differentially responsive to a training treatment, then strategies could be developed to modify the training so as to accomodate (or match) the cognitive style requirements of the HRT participants.

Method

Design.

This was a field-based study of a company-sponsored human relations training program. The basic purpose was to explore, in general, the relationship between participant cognitive style and outcomes from training. Cognitive style dimensions investigated were field-dependence-independence (Witkin,1978) and interpersonal discrimination (Carr, 1979). The major training outcomes were measured by self-reports (administered at the beginning, middle, and end of the training) and peer-rankings (at the end of the training). Also administered were measures of dogmatism (Forced-Choice Christie, Form II) and androgyny (Spence & Helmreich, 1978). This study explored the relationships among dogmatism, androgyny, participant age, highest educational level attained, cognitive styles, and outcomes from training.

Background and Description of Population.

This study was conducted in New Brunswick, Canada with employees of a large public utility company (n = 13). The participants (11 male, 2 female) had a mean age of 36 (range: 20-57) and a mean level of education of 10 years (range: 8-12). Prior to this lab all of the participants had attended a one week HRT event sponsored by their employer sometime in the past five years. Participants were both

supervisory and non-supervisory personnel. Although the laboratory did not require participants to reside at the training site, about two-thirds did so. About 33% of the laboratory time was spent in a T-group. The remaining time was spent in structured activities. The senior trainer for that event was the author of this chapter.

Description of Workshop.

This optional training program was sponsored by the participants' employer and was conducted over six days (Sunday evening to Friday noon) for a total of 38 hours. The major theme of the workshop was stages of group development.

The schedule of activities during the week was as follows: Sunday Evening - Get Acquanted Exercises (1 hr.), T-Group (2 hrs.), Presentation of Lab Schedule of Activities, Needs Assessment, & Modification of Schedule (1 hr.); Monday Morning - Theory & Structured Exercises (T&SE) re: Team Building (2 hrs.), Administration of Group Embedded Figures Test (GEFT) instrument (20 min.), T-Group (1 hr. 30 min.); Monday Afternoon - T&SE re: Group Needs & Leader/Member Functions (1 hr. 30 min.), T&SE re: Leadership Styles (1 hr. 45 min.); Tuesday Morning - (two different programs were put on by the two facilitators) Participants had a choice of T&SE re: Transactional Analysis or T&SE re: More on Leadership Styles (2 hrs.), T-Group (1 hr. 50 min.);

Tuesday Afternoon - T&SE re: Perceptual Errors (2 hrs.), T-Group (1 hr. 15 min.); Wednesday Morning - T&SE re: Planning by Objectives (1hr. 30 min.), T-Group (2hrs. 20 min.); Wednesday Afternoon - Theory and Feedback from GEFT, Discussion of Learning Styles (1 hr. 30 min.), Structured Feedback Exercise (1 hr. 45 min.); Thursday Morning - Structured Feedback Exercise - continued (3 hrs. 50 min.); Thursday Afternoon - T&SE re: Group Development Stages (3 hrs. 15 min.); Friday Morning Small Group Discussions re: Re-entry & Application of Learning (3 hrs.), Evaluation (20 min.), Closing Exercise (30 min.).

Independent Variables.

(1) GEFT - The Group Embedded Figures Test (Witkin, Oltman, Raskin, & Karp, 1971) was administered on Monday morning. This instrument provided a measure of perceptual discrimination. A high score on this instrument represents FI and a low score represents FD. The GEFT has a Spearman-Brown reliability coefficient of .82.

(2) IDT-M - A modified form of Carr's (1965, 1979) Interpersonal Discrimination Test (IDT) was administered at the last meeting of the program. This instrument provided a measure of interpersonal discrimination. Ss were asked to discriminate among the members of their T-group along a number of predetermined construct dimensions. The total

number of categories that Ss used to distinguish among members of their T-group yielded a score of interpersonal discrimination (IDT-M Discrimination). A high score represented a greater degree of interpersonal discrimination. The test-retest reliability for Carr's (1979) IDT is reported as .83 after one day and .63 after two months. This instrument is included in Appendix A.

(3) Spence-Helmreich Personal Attributes Questionnaire - This instrument was used to tap the tough and tenderminded dimensions of participants. Three separate scores resulted: a masculinity (tough-minded) score, a femininity (tender-minded) score, and a score on the masculine-feminine continuum (Spence & Helmreich, 1978). Participants took this questionnaire on Tuesday evening on a "take home" (self-administered) basis.

(4) Christie Forced-Choice Dogmatism Scale (Form II) - This instrument (Robinson & Shaver, 1969, p. 245-250) was an attempt to tap the mobile-fixed continuum that may interact with FDI. Highly dogmatic Ss were hypothesized to be more rigid and less capable of altering their preferred cognitive mode of perception. Mobile Ss were expected to be less limited by their cognitive style. This instrument was also administered on a "take-home" basis. Though "take-home" instruments are potentially less reliable, this instrument does not appear to have a socially desireable response set

and therefore it is expected that these scores were reliable.

Dependent Variables.

(1) Self-report instrument - This instrument consisted of 14 items. Eleven items described feelings or behaviors. The items were derived from a review of the cogntive style literature on interpersonal behavior (Mezoff, 1980c; Witkin & Googenough, 1977a; Witkin, Moore, Goodenough, & Cox, 1977). This instrument was designed to be brief and it was exploratory in nature. More items per category would have been desireable, however this is left to future research. Ss rated themselves by circling one of four choices (agree, agree somewhat, disagree somewhat, disagree) reflecting how they felt about their feelings/behavior in their T-group. The eleven items covered the following areas:

1. feel liked by others,
2. enjoy being with others,
3. enjoy physical closeness with others,
4. willingness to express anger,
5. attuned to others' unexpressed needs,
6. considers others' views and feelings,
7. looking for feedback,
8. active and involved participant,

9. primarily a spectator and observer,

10. performs group maintenance functions, and

11. performs task functions in group.

Items number 12, 13, and 14 on the instrument were scaled on a 7-point Likert scale. These items were designed to be global measures of the the variables of primary interest. Ss rated their satisfaction with the group experience (very dissatisfied - very satisfied), their learning and understanding as a result of the group experience (minimal learning - moderate learnings - learned a great deal), and the emotional impact of the group experience (no impact - some impact - large impact). The self-report was administered three times: after the first full day, after the third day, and at the completion of the program. This instrument is included in Appendix A.

The study hypothesized that FDs would: feel liked by others, enjoy being with others, enjoy physical closeness with others, be more attuned to others' unexpressed needs, be more considerate of others' views and feelings, look for feedback, act primarily as spectators and observers, and perform the group maintenance functions. The study hypothesized that the FIs would: be more willing to express anger, be active and involved participants, and perform the task functions in the group.

(2) IDT-M - The modified IDT (also serving as an independent variable) provided criterion measures for each participant along a number of dimensions (3). Each group member ranked the other members (including themselves, except as noted below) on the following dimensions:

1. concern for task,
2. concern for group maintenance,
3. satisfaction with group experience,
4. learning and understanding as a result of group experience,
5. who perceives the real you (exclude self),
6. most emotionally open,
7. most prrefer as a friend (exclude self),
8. who is most similar to you (exclude self).

Dimensions 1, 2, 3, 4, 6, and 7 were scored by taking the total ranking across all the Ss which yielded a group consensus (total) score on those dimensions. In addition to the FI-task orientation and FD-maintenance orientation predicted above (under the self-reports), it was hypothesized that FDs would be ranked as more emotionally open and more desired as friends. Dimensions 5 and 8 were scored as follows. Only those persons whom the S rated at either the high or low extreme category of the continuum

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(3) Each participant's rankings were treated as ordinal data. The ranks assigned to each person were then summed across all the participants.

were considered. For those extreme groups (perceives the real you - most & least; similar to myself - most & least) the average GEFT score of the person(s) at the extremes was computed. Matching effects were anticipated at the high end and mismatch effects at the low end of the scale.

(3) Selection of Learning Partner - Each participant made a choice of a learning partner after only three hours of group interaction. This partnership formed the basis of a "reflection group" which met at the end of each day to reflect on and share their learnings from that day. Based on findings reported by Witkin (1978), cognitive style matching effects were hypothesized among these dyads. That is, persons of similar cognitive styles were expected to choose each other.

(4) Percentage T-group Time Preferred - At the conclusion of the training, participants were asked to think about the balance of activities between structured exercises and time spent in a T-group. Ss were informed as to the actual percentage of T-group time of the lab they just finished (33%) and were asked to express a preference for what they would consider an ideal amount of T-group time (as a percentage of total training time). It was hypothesized that FDs would prefer a greater amount of T-group time than FIs.

Results

Table 1 reports the pearson correlation coefficients among the independent variables. GEFT scores were somewhat correlated with the IDT-M Discrimination Score ($p = .06$), however GEFT did not correlate with any of the other independent variables. The femininity scale of the Spence-Helmreich questionnaire was marginally correlated with the IDT-M Discrimination, reflecting less interpersonal discrimination among participants who reported themselves as having more feminine qualities. Correlations among the subscales of the Spence-Helmreich questionnaire are as would be predicted given the design of the instrument.

Table 2 reports the correlations between the independent variables and six of the dependent variables from the IDT-M. These dependent variables are the average ranking of all members (except for friendship choice which did not include the S's ranking of self). Of all the independent variables, the GEFT was correlated with five out of the six dimensions. The Spence-Helmreich Femininity subscale appears to correlate positively with outcomes, whereas the Masculine-Feminine subscale had a trend towards correlating negatively with outcomes. These last results are probably an artifact of the androgyny instrument, as the Femininity subscale has participants rate themselves on such

Table 1

Correlations Among Independent Variables (n = 13)

Measure	2	3	4	5	6
1. Group Embedded Figures Test	.47 t	.29	.21	.26	-.34
2. IDT-M Discrimination		.07	-.08	-.42 t	-.30
3. Christie Forced Choice Dogmatism			-.13	.01	-.42 t
Spence-Helmreich Questionnaire					
4. Masculinity Subscale				-.31	.53 *
5. Femininity Subscale					-.32
6. Masc.-Fem. Subscale					

t $p<.10$
* $p<.05$

Table 2

Correlations Between Independent Variables and Dimensions From the IDT-M (n=13)

Independent Variables	Dependent Variables from IDT-M					
	Task-Oriented	Maintenance-Oriented	Most Satisfied	Learned Most	Emotionally Open	Chosen as a Friend
GEFT	.78**	.82**	.65**	.72**	.49*	.37
IDT-M Discrimination	.06	.18	.29	.15	.21	-.20
Dogmatism	-.11	.20	.11	-.15	.15	.18
Masculinity	.20	-.03	-.36	.15	-.40t	-.15
Femininity	.49*	.45t	.26	.44t	.43t	.37
Masc.-Fem.	-.18	-.32	-.50t	-.17	-.37	-.49*

t $p<.10$

* $p<.05$

** $p<.01$

qualities as emotional, gentle, helpful, kind, aware of others, understanding of others, etc. Such qualities are likely to correlate with the reports of others regarding ratings on the Maintenance and Emotionally Open Criterion dimensions. These criteria dimensions, in turn, probably influence Satisfaction, Learning, and Friendship Choice. The Masculine-Feminine subscale has traits like agressive, dominant, indifferent to other's approval, never cries, etc. Such traits are unlikely to predict outcome except on the Task-dimension (and there they did not correlate positively!)

The outcome variable, Percentage of T-Group Preferred, was not correlated with any of the independent variables. Neither was it correlated with any of the other dependent variables.

Selection of Learning Partner data revealed no match-mismatch effects. The Correlation between S's own GEFT score and the GEFT of their partner was $r = -.01$ ($p = .49$).

Participants' GEFT scores were not correlated to the GEFT of others on either the "perceives the real you" or "similar to you" dimensions. Table 3 reports this data.

Table 4 reports the intercorrelations among some of the dependent variables from the IDT-M. The first four dimensions of the IDT-M are strongly interrelated. We suspected halo effects might have been the cause of Ss

Table 3

Correlations Between Participants' GEFT Scores and GEFT Scores of Others seen as "Perceiving the Real You" (Most and Least) and "Similar to You" (Most and Least). (n=13)

	Dependent Variables (Dimensions 5 & 8 from the IDT-M)			
	Perceives the Real You		Similar to You	
	Most	Least	Most	Least
GEFT	-.05	-.18	.03	-.38t

t p=.10

Table 4

Correlations Among Six Dimensions From the IDT-M (n=13).

Measure	2	3	4	5	6
1. Task-Oriented	.84***	.58*	.88***	.36	.44t
2. Maintenance-Oriented		.69**	.79***	.40t	.61*
3. Most Satisfied			.69**	.68**	.45t
4. Learned the Most				.38t	.31
5. Emotionally Open					.32
6. Chosen As Friend					

t $p < .10$

* $p < .05$

** $p < .01$

*** $p < .001$

rating these dimensions in a similar fashion. The IDT-M was a relatively difficult task for this population (average grade level = 10), and therefore we also were concerned about the accuracy and effort with which Ss filled out the Instrument. However, a careful scrutiny of the raw data revealed that neither of these explanations was likely (4).

Since the GEFT was the best predictor of the group ranked IDT-M criterion measures, T-tests were performed on all of the self-report items (3 administrations times 14 items) by dividing the population into two groupings based on their GEFT scores. This seemed like a fruitful tact since the GEFT scores had an especially large standard deviation (see Table 6). The low scoring group ranged from 5-9, and the high group ranged from 13-17. Since there were no scores between 9 and 13, there was a bimodal distribution on the GEFT measure.

Out of 42 T-tests only the following self-reports distinguished between the high and low GEFT groups:
Administration 1 - FDs reported themselves as primarily spectators and observers ($t = 2.43$, $p=.03$), FIs reported performing maintenance functions in the group ($t = 2.20$, $p =$

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(4) Ss made detailed discriminations as to the order of their group members rankings even when including persons in the same category. Comparison of the discriminations from one dimenison to the next showed that Ss rated the different dimensions separately and did not simply turn back to earlier dimensions to copy their previous rankings.

.05);

Administration 2 - FIs reported performing maintenance functions ($t = 2.65$, $p = .02$). On the third administration there was a trend to again support FIs rating themselves as maintenance-oriented($p = .16$). A trend also existed for the FDs to rate the group as having a stronger impact upon them during the first and second administration ($p = .13$ and .08, respectively). No other significant differences were found between the high and low GEFT groups on the self-report measures.

Although the self-report results are not particularly significant, two things may be noted about the above findings. First, FIs reported themselves as Maintenance-oriented. This result, while contradicting our hypothesis, was corroborated by the peer-ranking instrument. Second, while the other self-report relationships are not strong, they all support the direction of our other hypotheses.

Correlations were computed between the self-ratings and the ratings by others (from the IDT-M) on the following dimensions: task, maintenance, satisfaction, and learning. These results are found in Table 5. Self-Ratings were not generally correlated with the ratings of the group. The only exception was in the case of maintenance-oriented behaviors. It should be noted that while the data from the last

Table 5

Correlations Between Self-Ratings (At three testings during the lab) With Ratings of Others (At The End Of The Lab). (n=13)

Maintenance Score (Rated By Others) Correlated With Self-Rating At:		
Administration 1	Administration 2	Administration 3
.70**	.81***	.44t
Task Score (Rated By Others) Correlated With Self-Rating At:		
Administration 1	Administration 2	Administration 3
.49t	.42t	-.05
Satisfaction Score (Rated By Others) Correlated With Self-Rating At:		
Administration 1	Administration 2	Administration 3
-.27	.34	.09
Learning Score (Rated By Others) Correlated With Self-Ratings At:		
Administration 1	Administration 2	Administration 3
.34	.32	.29

t $p<.10$

* $p<.05$

** $p<.01$

*** $p<.001$

administration of the self-report was collected at the same time as the peer-ranking data, the correlations are the weakest there.

Table 6 reports ranges, means, and standard deviations for many of the variables discussed here. The only variables omitted from Table 6 were the self-report items (which did not significantly discriminate between persons with high and low GEFT scores) and the scores from the IDT-M dimensions 6 and 8. Means of scores from dimensions 6 and 8 did not differ significantly. However, there was a trend toward Ss feeling most accurately perceived by, and most similar to, persons with higher GEFT scores.

Discussion

FI participants appeared to be the most involved participants and appeared to gain the most. Table 2 indicates that the Field Independent participant was rated by group members as: (1) being task oriented, (2) being maintenance oriented, (3) being more satisfied with the group experience, (4) learning the most, and (5) being more emotionally open.

The extensive literature on FDI predicts the finding of FIs being task oriented. However, it was quite unexpected that FIs should also be rated as maintenance oriented and emotionally open. The following explanation is offered for

Table 6

Ranges, Means, And Standard Deviations of Selected Independent And Dependent Variables (n=13)

Measure	Range	Mean	Std. Deviation
GEFT	5- 17	11.54	4.33
IDT-M/Discrimination	13- 66	26.83	15.76
Dogmatism	8- 14	10.54	2.11
Masculinity	13- 30	21.23	4.83
Femininity	14- 31	21.69	5.31
Masc.-Fem.	9- 19	14.23	3.37
Task*	47-159	117.31	32.21
Maintenance*	68-164	125.69	27.67
Satisfaction*	109-156	135.54	15.53
Learning*	90-164	133.46	20.67
Emotionally Open*	96-156	131.62	17.60
Chosen As Friend*	89-135	114.92	17.09
% T-Group Preferred	20- 50	34.39	8.22

* These scores represent the sum of the rankings of each of the group members.

these unpredicted results: FIs were task and achievement oriented even when the task at hand was interpersonal relations. When their attention was focused on social learning in the group setting, FIs apparently "outperformed" FDs in the area of emotional openness and in providing group maintenance behaviors.

The finding of FIs being rated as the most satisfied and as having learned the most was consistent with earlier HRT research (Harrison & lubin; Mitchell) which showed task and achievement oriented persons as being high learners in lab settings. Support for the finding of FI superiority in HRT can also be found in Steele's (1968) study where analytic/problem-solving oriented persons profited most from training. It should be noted that the results of Poland and Jones (1973) appear to be contradictory to the present study.

The FI style may provide the HRT participant with superior analytic and cognitive structuring skills with which to interpret, analyze, and internalize their HRT experience. FI persons might be more likely to be satisfied, as well. This explanation is well founded in cognitive style theory: A great deal of cognitive style research documents the superior analytic abilities of FIs (Witkin,1978). Hypothesizing the effects of cognitive styles on HRT outcomes seems to be a viable alternative to the

explanations offered by Harrison & Lubin and others, namely: (1) that the task oriented members experienced "culture shock" and were, therefore, pushed toward change, and (2) that the interpersonally oriented members were already socially skilled and had less room to improve.

The hypothesis of FDs preferring low structure (more T-grouping) and FIs preferring high structure (less T-grouping) was not supported (5). There are at least two possible interpretations of this finding. First, the FDs preference for interpersonal interaction may have been fully satisfied by the structured activities. Second, the discomfort that FDs felt as a result of the T-group ambiguity possibly negated the expected preference of FDs for the interpersonal context provided by the T-group.

Cognitive style matching effects were not found in the selection of learning partners. Neither were matching effects observed in participants selections of what persons "perceive the real you" or "are most similar to you". However, the small sample size of this study (n=13) should engender caution in the interpretation of all findings.

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(5) The author has made the choice here to refer to learning climates that are intentionally designed to be ambiguous, such as a T-group, as being "unstructured." However, there is a structure to a T-group, despite the fact that participants may not perceive any such structure. A T-group might alternatively be called "complexly structured," whereas structured exercises (role plays, simulation games, etc.) might be called "simply structured."

Table 5 reveals that self-ratings were not corroborated by ratings of others. Self ratings have a reputation for being notorously unreliable. Not suprisingly, therefore, very few differences between FD and FI persons were found on the self-rating instrument. This unreliability is accounted for, perhaps, by understanding the influence that cognitive style has on a persons view of their world. It seems likely that FD and FI persons would have a different conceptualization (or different reference frame) for what constitutes, for example, "task oriented behavior." Each person judges themselves by his/her own private standard on a self-rating instrument. Only by taking the group's average rankings of each member can we hope to obtain an objective picture of a persons behavior (6). The study of Lieberman et al. confirms the utility and accuracy of outcome ratings based on co-participant evaluations (Lieberman, Yalom, & Miles, 1973).

Another finding of the present study is the high degree of intercorrelation among task, maintenance, satisfaction, and learning (see Table 4). Out of six possible correlations three reached $p < .001$, and two reached the $p < .01$ level of significance. Pearson r's ranged from .58 to .88. Halo effects, as mentioned in the Results section, probably did

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(6) When subgroups of FD and FI persons were compared, the results did not differ significantly from the aggregated group rankings.

not account for the clustering of group ranked outcomes. In some fashion the above four outcome variables clustered together and were predicted by high FI scores on the GEFT ($r = .65$ to $.82$, $p < .01$ for all four outcomes). In this human relations laboratory the field-independent persons were clearly the high learners, as seen by others.

Task and maintenance orientations have traditionally been thought of as independent dimensions. The considerable body of literature on leadership provides strong support for considering the two orientations separately (Stogdill, 1974). If the present finding is supported by other T-group research, then the conceptualization of task and maintenance orientation as dimensions performed by different people (or by different styles of people) may have to be modified in the HRT context. That is, in HRT one of the tasks <u>is</u> group maintenance.

References - Chapter V

Anderson, C., & Slocum, Jr., J.W., Personality traits and their impact on T-group training success. Training and Development Journal, 1973 (December), 18-25.

Carr, J. E., The role of conceptual organizaiton in interpersonal discrimination. The Journal of Psychology. 1965, 59, 159-176.

Carr, J. E., Manual for the Interpersonal Discrimination Test. Draft copy obtained from the author (School of Medicine, University of Washington, Seattle, Washington, 98195), 1979.

Harrison, R., Cognitive change and participation in a sensitivity training laboratory. Journal of Consulting Psychology, 1966, 30(6), 517-520.

Harrison, R., & Lubin, B., Personal style, group composition, and learning. Journal of Applied Behavioral Science, 1965, 1(3), 286-301.

Harvey, O., Hunt, D. E., & Schroeder, H., Conceptual systems and personality organizaiton. New York: Wiley, 1961.

Joure, S. A., Frye, R. L., Green, P. C., & Cassens, F. P., Examples of over-use of sensitivity training. Training and Development Journal, 1971 (December), 24-26.

Kelly, G., Psychology of personal constructs, 1955.

Lieberman, M. A., Yalom, I., & Miles, M. Encounter groups: First Facts. New York Basic Books, 1973.

Messick, S., & Associates, Individuality and Learning. San Francisco: Jossey-Bass Publishers, 1976.

Mitchell, R. R., Relationships between personal characteristics and change in sensitivity training groups. Small Group Behavior, 1975, 6(4), 414-420.

Poland, W. D., & Jones, J. E., Personal orientations and perceived benefit from a human relations laboratory. Small Group Behavior, 1973, 4 (4), 496-502.

Spence, J. T., & Helmreich, R. L., Masculinity and Femininity: Their Psychological Dimensions, Correlates, and Antecedents. Austin, Texas: University of Texas Press, 1978.

Stogdill, R., Handbook of Leadership: A Survey of Theory and Research. New York: The Free Press, 1974.

Witkin, H. A., Cognitive styles in personal and cultural adaption. Volume 11, 1977 Heinz Werner Lecture Series; Clark University Press, 1978.

Witkin, H. A., & Goodenough, D. R., Field dependence and interpersonal behavior. Psychological Bulletin, 1977(a), 84 (4), 661-689.

Witkin, H. A., Lewis, H. B. & Weil, E., Affective reactions and patient-therapist interactions among more differentiated and less differentiated patients early in therapy. Journal of Nervous and Mental Disease, 1968, 146 (3), 143-208.

Witkin, H. A., Moore, C. A., Goodenough, D. R. & Cox, P. W., Field-dependent and field-independent cognitive styles and their educational implications. Review of Educational Research, 1977, 47 (1), 1-64.

Witkin, H. A., Oltman, P. K., Raskin, E., & Karp, S. A., A manual for the embedded figures tests. Palo Alto, CA: Consulting Psychologists Press, 1971.

Witkin, H. A., Dyk, R. B., Paterson, H. F., Goodenough, D. R., & Karp, S. A., Psychological Differentation. New York: Wiley, 1962.

CHAPTER VI

STUDY 2: MASSACHUSETTS (*)

Synopsis

This study was undertaken to further investigate the influence of participant cognitive style on Human Relations Training outcomes (ranked by peer co-participants & self-reported). Subjects were 39 undergraduate students majoring in the social or behavioral sciences. The training consisted of two-thirds T-grouping, with the remainder devoted to theory sessions and structured experiential activities. In this study field-dependence-independence (FDI) was not correlated to any peer-ranked outcomes (concern for task, concern for group maintenance, satisfaction with group experience, learning and understanding as a result of group experience, & most emotionally open). When comparing FD and FI persons some differences in self-reports were evident in an analysis done of each individual T-group.

A related cognitive style variable, Interpersonal discrimination, was measured by Carr's (1965, 1979)

(*) The author wishes to formally acknowledge assistance received from Donald K. Carew of the University of Massachusetts in the design and data analysis of this study.

Interpersonal Discrimination Test. Interpersonal discrimination was significantly correlated with some peer-ranked outcome measures but not with self-report measures. This study found evidence of a high degree of variability across T-groups in the correlations among the variables investigated. However, in all T-groups task-orientation was highly correlated with maintenance-orientation. This suggests that these two dimensions, when rated by co-participants, may not be as independent as previously believed in the Human Relations Training setting.

Introduction

In the human relations training (HRT) field it is often difficult to know exactly what impact the training has on laboratory participants. Effects have been noted immediately after a training experience, and yet these sometimes fade out or become extinguished over time (Smith, 1975). Other effects may not be immediately apparant, yet can reach statistically significant levels after a period of weeks or months (Harrison, 1966). For a detailed treatment of the broad variety of possible outcomes from training see Smith (1975) or Chapter II of this dissertation. Chapter II also includes a discussion of many of the problems inherent in attempting to measure training effects (1).

In addition to the difficulties inherent in measuring outcomes from training, the evaluation problem is compounded by the tendency for most HRT research to employ a "main effects" model. A main effects model compares the average outcomes (or gains) from a treatment group to the avverage outcomes from a control group.

There may be large differences among participants in their reactions to, and learning from, the HR laboratory experience. However, the main effects model may fail to discern these differential effects because the main effects model only considers the average gain across all the participants.

A matching model (or aptitude-treatment-interaction) approach (see Chapter III) appears to provide some insight into the phenomenon of the differential effects of training. By investigating the effects of training across various

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(1) These difficulties include (1) measurement suboptimization (imbalanced focus on limited set of criterion measures), (2) teaching suboptimization (imbalance in the goals that are taught), (3) measurement-orientation (neglecting more abstract goals because it is more convenient to focus on concrete ones; or vice versa), (4) the variety of goals in training, (5) the variations in instruments to measure outcomes, (6) test-sensitization effects (the influence of a pre-test on post-training evaluations), (7) test-treatment interactions, (8) problems in data collection (fade-out and delayed reaction effects), (9) bias of raters knowing who the experimental and control subjects are (lack of blind rating), (10) nonequivalence of of experimental and control populations, (11) difficulties in obtaining intersource consensus among raters, (12) value-biases in ratings, etc.

sub-populations of HRT participants one may be able to discern significant interactions in training outcomes between certain types of participants and certain training designs. These interactions suggest a differential responsiveness to training. These interactions might go undetected if only the average outcomes tapped by the main effects model were studied.

This research is the extension of Study 1 (Chapter V) exploring the influence of cognitive style on various HRT outcomes. Study 1 (n=13) found that subjects (employees of a Canadian public utility company) with a field-independent cognitive style were rated by the other group members; (1) to be more task oriented, (2) to be more maintenance oriented, (3) to be more satisfied with the laboratory experience, and (4) to have learned the most from the laboratory experience when compared to field dependent subjects (all at $p < .01$).

This study was undertaken to explore the relationship between cognitive styles and training outcomes. If persons of different cognitive styles were differentially responsive to a training treatment, then strategies could be developed to modify the training so as to accomodate (or match) the cognitive style requirements of the participants.

Method

Design.

This field-based study was conducted at the University of Massachusetts. The purpose was to explore the relationship between participant cognitive style and outcomes from training. Cognitive style dimensions investigated were field-dependence-independence (Witkin, 1973) and interpersonal discrimination (Carr, 1979). The major training outcomes were measured by a series of self-report measures (administered over the duration of the training) and peer-rankings (at the end of the training).

The training was a formal university course in group dynamics offered to undergraduates (most of whom were majoring in the social or the behavioral sciences). Ss (n = 39) were college-age and consisted of 7 males and 32 females. The training was conducted over a 9 week peroid and ran for 44 hours. The design included an evening pre-meeting, a one day, twelve hour, workshop and eight 4 hour weekly sessions. This was a first exposure to HRT for most of the participants. About 66% of the laboratory was devoted to time in a T-group. The rest of the time was spent in theory presentations and structured experiential activities to deal with the theories. Participants were randomly assigned to three groups that remained intact over the course of the training. Each of the groups was

facilitated by two advanced doctoral students. Facilitator pairs were balanced for sex (one male, one female). Two pairings were all-Caucasian, the third pairing was all-Black.

Measures of Independent Variables.

(1) GEFT - The group Embedded Figures Test (Witkin, Oltman, Raskin, & Karp, 1971) was administered on the second meeting of the course. This instrument provided a measure of perceptual discrimination or FI-FD. A high score on this instrument represents FI and a low score represents FD. The GEFT has a Spearman-Brown reliability coefficient of .82.

(2) IDT-M - A modified form of Carr's (1965, 1979) Interpersonal Discrimination Test (IDT) was administered at the last meeting of the program. This instrument provided a measure of interpersonal discrimination. Participants were asked to discriminate among the members of their T-group along a number of predetermined construct dimensions (e.g., concern for task, most emotionally open, etc.). The total number of categories that participants used in making distinctions among members of their T-group yielded a score of interpersonal discrimination (IDT-M Discrimination). A high score represented a greater degree of interpersonal discrimination. The test-retest reliability for Carr's

(1979) IDT is reported as .83 after one day and .63 after two months. This instrument is included in Appendix B.

Dependent Variables.

(1) Self-report instrument - This questionnaire consisted of 14 items. Eleven items described feelings or behaviors and participants rated themselves by circling one of four choices (agree, agree somewhat, disagree somewhat, disagree) reflecting how they felt about their feelings/behavior in their T-group. The eleven items covered the following areas:

1. feel liked by others,
2. enjoy being with others,
3. enjoy physical closeness with others,
4. willingness to express anger,
5. attuned to others' unexpressed needs,
6. considers others' views and feelings,
7. looking for feedback,
8. active and involved participant,
9. primarily a spectator and observer,
10. performs group maintenance functions, and
11. performs task functions in group.

The last three items on the instrument were scaled on a 7-point Likert scale. Participants rated their satisfaction with the group experience (very dissatisfied - very

satisfied), their learning and understanding as a result of the group experience (minimal learning - moderate learnings - learned a great deal), and the emotional impact of the group experience (no impact - some impact - large impact). This instrument is included in Appendix B.

It was hypothesized that FDs would: feel liked by others, enjoy being with others, enjoy physical closeness with others, be more attuned to others' unexpressed needs, be more considerate of others' views and feelings, look for feedback, act primarily as spectators and observers, and perform the group maintenance functions. We hypothesized that the FIs would: be more willing to express anger, be active and involved participants, and perform the task functions in the group.

The self-report was administered six times: after the first evening meeting, at the end of the day long workshop, the next evening meeting, and every alternate evening afterwards.

(2) IDT-M - The modified interpersonal discrimination test (also serving as an independent variable) provided criterion measures for each participant along a number of dimensions. Each group member ranked the other members on the following dimensions:

1. concern for task,
2. concern for group maintenance,

3. satisfaction with group experience,

4. learning and understanding as a result of group experience,

5. most emotionally open.

As a result of these rankings each person was ranked by all group members (including him/herself). The means of the rankings of each group member resulted in that group member's IDT-M dimensions score. This was individually computed for each of the five above dimensions.

In addition to the relationships between FI and task-orientation, and FD and maintenance-orientation predicted above (under the self reports), it was hypothesized that FDs would be ranked as more emotionally open.

Results

Findings From Analysis of Aggregated Sample.

Correlations Among Peer-Ranked Outcome Measures & Measures Of Perceptual And Interpersonal Discrimination. Correlation among the independent variables and the reer-ranked dependent variables are reported in Table 7. The correlations between the GEFT and the IDT-M Discrimination was r=.32 (p=.04). This was supportive of Carr's data which shows a correlation between the GEFT and the IDT of r=.36. The GEFT distribution was bimodal.

Table 7

Correlations Among Peer-Ranked Outcome Measures
& Measures of Perceptual and Interpersonal Discrimination (n=39)

Measure	2	3	4	5	6	7
1. GEFT	.32*	.08	.06	-.02	.05	.01
2. IDT-M Discrimination		.43**	.38*	.15	.25t	.24*
3. Task-Oriented			.84***	.62***	.65***	.78***
4. Maintenance-Oriented				.64***	.69***	.64***
5. Most Satisfied					.91***	.61***
6. Learned the Most						.53***
7. Emotionally Open						

t $p < .10$
* $p < .05$
** $p < .01$
*** $p < .001$

The IDT-M Discrimination was significantly correlated ($p < .05$ or less) with three out of the five peer-ranked outcome measures. The GEFT did not correlate with any of the dependent variables. Whereas interpersonal discrimination (measured by the IDT) was correlated to peer-ranked outcomes, perceptual discrimination was not.

Self-Reports Related To Measures of Perceptual & Interpersonal Discrimination. Using a median split on the IDT-M Discrimination and the GEFT, two-tailed T-tests were performed on all of the self-report data. Out of 34 T-tests (6 administrations times 14 items) none reached the $p < .025$ level of significance using a GEFT split. Using an IDT-M Discrimination split three T-tests reached $p < .025$ level. However, a significant finding at one administration was never corroborated by a significant finding at any other time. Chance effects may have accounted for any of the few trends observed in the self-report data.

Self-Reports Correlated With Peer-Ranked Outcome Measures. The self-reports taken from the last available administration were compared to peer-rankings taken at the end of the training. For T-groups A and C self-reports were taken at exactly the same time as the peer-ranked outcome measures. In T-group B the self-reports were not available from the last session, therefore the self-reports from the

previous session were used (2).

Table 3 reports the correlations between the five peer-ranked variables (task-oriented, maintenance-oriented, most satisfied, learned the most, and most emotionally open) with the fourteen items of the self report instrument.

One limitation should be noted in these correlations between others' rankings and final self-reports. THese correlations are constrained by a smaller sample size than the total. Only 26 out of the 39 participants filled out final self-reports that were usable for our analysis.

Some of the self-report items correlated strongly with the peer-ranked outcome measures. For example, group members who rated themselves as "active and involved participants" were rated favorably on all of the peer-ranked outcomes ($p < .01$ or better). Similar strong relationships were found for the self-report items: "enjoy being with others", "enjoy physical closeness", and "willingness to express anger". Other self-report items showed significant correlations with only some of the peer-rankings. Still other self-report items (such as, "attuned to others' unexpressed needs" and "considers others' views and feelings") were not

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(2) In T-groups A and C there were not significant differences between the last and the next-to-last administrations. This, therefore, provided the rationale for considering T-group B's data from the next-to-last administration as equivalent to the data from the last administrations of T-groups A and C.

Table 8

Self-Reports Correlated With Peer-Ranked Outcome Measures (n=26)

Self-Reports from the Last Available Administration

	Peer-Ranked Outcome Measures				
	Task Oriented	Maintenance Oriented	Most Satisfied	Learned The Most	Most Emotionally Open
Feel liked by others	.26	.15	.55**	.35*	.53**
Enjoy being with others	.37*	.27t	.48**	.35*	.60***
Enjoy physical closeness with others	.58***	.46**	.48**	.37*	.62***
Willingness to express anger	.51**	.52**	.42*	.44*	.51**
Attuned to others' unexpressed needs	-.01	.17	-.01	-.10	.01
Considers others' views and feelings	.05	.10	-.06	.04	-.02
Looking for Feedback	.47**	.44*	.28t	.31t	.23
Active and involved participant	.57***	.61***	.64***	.58***	.53**
Primarily a spectator and observer	-.52**	-.30t	-.28t	-.22	-.60***
Performs group maintenance functions	.56***	.51**	.21	.20	.43*
Performs task functions in group	.64***	.63***	.33*	.30	.42*
Satisfaction with the group experience	.19	.03	.58***	.48**	.41*
Learning and understanding as a result of the group experience	.21	.10	.60***	.52**	.32t
Emotional impact of the group experience	.29t	.11	.35*	.38*	.47**

t $p < .10$
* $p < .05$
** $p < .01$
*** $p < .001$

significantly correlated to any of the peer-rankings.

Table 8 indicates that the self-reports and rankings of others were highly correlated on those dimensions that were common to both scales. Self-rated task-orientation was correlated $r = .64$ ($p < .001$) with task-orientation ranked by others. The matched-pair correlations for maintenance-orientation, satisfaction, and learning were: $r = .51$ ($p < .01$), $r = .58$ ($p < .001$), and $r = .52$ ($p < .01$) respectively. The strength of the correlations for the matched pairs provides a high degree of external validity for both the self-report and the peer-ranking instruments. Furthermore, the correlations on the matched pairs lends further support for the validity of the correlations on non-matched pairs.

Findings From Analysis Of Individual T-Groups.

Relationships between the variables discussed above were analyzed on an individual T-group basis. This further analysis of the data was suggested by a fortuitous set of circumstances. The GEFT was administered to the group facilitators before the course began. These were not scored until late in the training, long after the leaders had paired off into co-facilitator teams. The facilitator pairing process serendipitously (3) resulted in cognitive

(3) This pairing process occured spontaneously and benefited

style matches among the three pairs of facilitators. One pair was extremely field independent (T-Group C: GEFT scores of 16 and 18); another was extremely field dependent (T-Group A: GEFT scores of 4 and 4); and in the last pair both facilitators had moderate GEFT scores (T-Group B: GEFT scores of 7 and 12).

Therefore, there was some basis for speculating that each pair of facilitators might provide different "types" of leadership in their T-groups. Looking at each group separately, comparisons were made across the groups to see if there was evidence of differential effects.

Self-Reports Correlated With Peer-Ranked Outcome Measures (By T-Group). A correlation analysis between self-reports and peer-rankings was performed for those dimensions common to both scales. It was as yet unknown whether the high degree of intercorrelation between self-reports and peer-rankings would be as evident in each individual T-group as existed in the aggregated sample (discussed above). Table 9 (constrained by a reduced sample size, n=26) indicates that the answer is negative: The intercorrelations between self-reports and peer-rankings

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this study by allowing further analysis of the data. However, the result of cognitively matched co-facilitator teams may not have been purely a result of chance. It should be noted that the cognitive style literature provides extensive documentation of greater interpersonal attraction in cognitively matched dyads.

Table 9

Correlations of Self-Reports with Ranking By Others on Dimensions Common to Both Scales (Aggregated & By T-Group)

Dimensions	Aggregated (n=26)	By T-Group A (n=7)	B (n=10)	C (n=9)
1. Maintenance	.51**	.36	.56*	.62*
2. Task	.64***	.37	.79**	.78**
3. Satisfaction	.58***	.48	.58*	.77*
4. Learning	.52**	.10	.72**	.86**

t $p < .10$
* $p < .05$
** $p < .01$
*** $p < .001$

were different across the three T-groups. The correlations are strongest for T-group C (the group led by FI facilitators), followed by T-group B (the group led by moderate FDI leaders). In T-group A (the group led by FD facilitators) there was not a significant correlation between individuals' ratings of themselves and the peer-rankings on any of the five dimensions.

Correlations Among Peer-Ranked Outcome Measures & Measures of Perceptual And Interpersonal Discrimination (By T-Group). Pearson correlations among peer-ranked outcome measures and measures of discrimination (perceptual & interpersonal) were computed (similar to Table 1) for each of the three groups. Table 10 provides the correlations among IDT-M Discrimination and the GEFT and the five peer-rated outcome measures for each T-group. The GEFT bore no relation to the outcome measures in the aggregated sample (see Table 1) nor when we investigated the correlations by T-groups individually (see Table 10).

Table 10 reveals three other interesting results. Task, Maintenance, Satisfaction, and Learning all intercorrelated strongly ($.77<p<.93$) for each of the T-Groups. This effect was most pronounced for the Task-Maintenance and Satisfaction-Learning pairings. T-group A (FD facilitators) demonstrated fairly strong corelations (3 out of 5 at $p<.05$) between the IDT-M Discrimination and the peer-ranked outcome

Table 10

Correlations Among Peer-Ranked Outcome Measures and Measures of Perceptual & Interpersonal Discrimination (By T-Group) (n=39)

(a) T-Group A (n=12)

Measure	2	3	4	5	6	7
1. GEFT	.22	.07	-.04	.04	.15	.00
2. IDT-M Discrimination		.79**	.59*	.44	.66*	.48t
3. Task-Oriented			.93***	.73**	.78***	.83***
4. Maintenance-Oriented				.74**	.81***	.78***
5. Most Satisfied					.93***	.76**
6. Learned the Most						.69**
7. Emotionally Open						

(b) T-Group B (n=13)

	2	3	4	5	6	7
1. GEFT	.41	.19	.08	-.03	-.05	.00
2. IDT-M Discrimination		-.18	-.09	.11	-.12	-.15
3. Task-Oriented			.77***	.64**	.81***	.25
4. Maintenance-Oriented				.85***	.85***	.04
5. Most Satisfied					.91***	.24
6. Learned the Most						.24
7. Emotionally Open						

(c) T-Group C (n=14)

	2	3	4	5	6	7
1. GEFT	.31	.18	.20	-.19	-.14	.19
2. IDT-M Discrimination		.59*	.53*	.15	.31	.40t
3. Task-Oriented			.91***	.65**	.67**	.92***
4. Maintenance-Oriented				.48*	.51*	.84***
5. Most Satisfied					.93***	.73**
6. Learned the Most						.70**
7. Emotionally Open						

t $p < .10$
* $p < .05$
** $p < .01$
*** $p < .001$

measures, the relationships were less strong in T-Group C (FI facilitators), and no correlations were evident in T-group B (moderate FDI facilitators).

The most emotionally open participants were also ranked very high on the other peer-ranked outcome measures, but only for T-group A and C. In T-group B emctional openness was not correlated to any of the other peer-ranked outcome measures. This result is puzzling, to say the least. Perhaps the variability among T-groups is large and mostly attributable to factors other than cognitive style.

These results did not lend support to a trait-by-treatment interaction. The effect of facilitator FDI on group ranked outcomes cannot be determined in the present study because our treatments may have been confounded by trainers race. The two FD facilitators for T-group A were both Black. The other facilitators were caucasian.

Whether race, cognitive style, or some unknown factor caused the variation among the T-groups one thing is clear: The correlations from Table 10 relating the IDT-M Discrimination to group ranked outcomes were markedly different for T-group B compared to T-groups A and C.

Analysis Of Variance Of Peer-Ranked Outcome Measures Across The Three T-Groups. The means and variances of the peer-ranked outcome measures were analyzed across the three

T-groups. Although the comparison of means yielded no significant differences, an analysis of the variance provided interesting results. Table 11 reports this data. T-group A had greater variance on the outcome measures than the other two groups on all five measures (four out of the five measures were at $p < .12$). Whatever the cause, the participants in T-group A were much more divergent in their opinions (in terms of ranking others) than were participants in the other two T-groups.

Self-Reports Related To Measures of Perceptual And Interpersonal Discrimination (By T-Group). In the case of the aggregated data (see above) very few differences in the self report based on either of the discrimination measures (GEFT or IDT-M Discrimination) were found. In analyzing the aggregated data using a GEFT split none of the 34 T-tests (two-tailed) reached a $p < .025$ level of significance. Quite different results were revealed when the same T-tests were performed on an individual T-group basis.

In T-group A (FD facilitators) six of the 34 T-tests reached the $p < .025$ level. On all six tests FD participants rated themselves higher than FI participants. Five of the six items on which the FDs rated themselves significantly higher were traits that FD persons characteristically display, thus supporting our hypotheses. FDs reported themselves as: enjoying being with others (administration #

Table 11

Means and Standard Deviations of Peer-Ranked Outcome Measures Across the Three T-Groups. Analysis of Variance with Cochrans C Value and Associated Probability

Concern for Task

T-Group	Mean	Standard Deviation	Cochrans C Value & Associated Probability
A	72	21	C=.43, p=.36
B	81	13	
C	74	20	

Concern for Maintenance

T-Group	Mean	Standard Deviation	Cochrans C Value & Associated Probability
A	80	21	C=.52, p=.10
B	77	14	
C	78	14	

Satisfaction With Group Experience

T-Group	Mean	Standard Deviation	Cochrans C Value & Associated Probability
A	73	23	C=.58, p=.03
B	82	15	
C	88	12	

Learning & Understanding From Group Experience

T-Group	Mean	Standard Deviation	Cochrans C Value & Associated Probability
A	80	15	C=.51, p=.12
B	82	11	
C	90	9	

Most Emotionally Open

T-Group	Mean	Standard Deviation	Cochrans C Value & Associated Probability
A	75	18	C=.55, p=.06
B	82	8	
C	77	14	

1, p = .003 and administration # 2, p = .015), attuned to others unexpressed needs (administration # 1, p = .02), considering others' views and feelings (administration # 1, p= .01), group maintenance-oriented (administration # 3, p = .02), and willing to express anger in the T-group (administration # 3, p = .005). All of these traits, except the last,, were what we hypothesized for FD participants. In an unexpected trend FDs also reported themselves as task-oriented (administration # 3, p = .046). It is interesting to note that these effects of higher FD self-reports occured early in the laboratory experience. During the last three administrations (which took place biweekly at the end of the follow-up groups) FDs continued to rate themselves higher on the above items, however these later self-reports did not reach statistical significance. This might reflect some different or changing self-perceptions on the part of FI participants as a result of the experience.

In T-group B (moderate FDI facilitators) six of the 34 T-tests reached the $p < .025$ level of significance. FIs rated themselves as: active and involve participants (administartion # 2, p = .003), group maintenance-oriented (administration # 1, p = .01 and administration # 2, p = .025), task-oriented (administartion # 2, p = .003), and most satisfied (administration # 4, p = .024). FDs rated

themselves as being primarily spectators and observers (administration # 2, p = .003). Some of our hypotheses were confirmed here: 1) FIs reported themselves as active and involved participants, 2) FIs reported themselves as task-oriented, and 3) FDs reported that they were spectators and observers. Contradicting our hypotheses was the finding that on two administrations FIs reported themselves as being group maintenance-oriented.

In T-group C (FI facilitators) only one T-test (out of 84) reached the $p < .025$ level. On administration # 5 FDs reported themselves as considering others' views and feelings (p = .02). This finding was supportive of our hypothesis. Trends were evident on the last administration indicating that FIs rated themselves higher on: feel liked by others, enjoy being with others, enjoy physical closeness, and willingness to express anger (p values from .05 to .20).

Descriptive Statistics. Statistics for peer-ranked outcome measures and the two tests of discrimination are reported in Table 12.

Table 12

Ranges, Means, and Standard Deviations of Peer-Ranked Outcome Measures and the Tests of Perceptual & Interpersonal Discrimination

Measure	Ranges	Mean	Std. Deviation
GEFT	2- 18	10.82	5.37
IDT-M Discrimination	5- 23	13.06	5.03
Task*	29- 99	75.62	17.96
Maintenance*	39-100	78.59	16.29
Satisfaction*	37-100	81.38	17.88
Learning*	55- 98	83.87	12.14
Emotionally Open*	43-98	78.13	13.66

* Details of the scoring scheme used for these dimensions are available from the author. These scores represent the average (scaled out of 100%) of the ranking of each of the group members.

Summary of Results and Discussion

The findings of this study were not generally supportive of Study 1 which indicated strong correlations between a field-independent cognitive style and peer-ranked outcome measures (viz., task-orientation, group-maintenance-orientation, highest satisfaction, highest learners). The present study found no differences between FI and FD persons in terms of the grouped ranked outcomes or the self-report measures when the aggregated sample was considered.

The present study found that Task-orientation, Maintenance-orientation, and Emotional Openness (all peer-ranked) were correlated significantly with the measure of interpersonal discrimination. Furthermore, an analysis of each T-group found evidence of stronger correlations between these variables in two out of the three groups. One group (B), in contrast to the two others (A and C), evidenced no relationship between the score of interpersonal discrimination and peer-ranked outcome measures.

It is not possible to explain these differences among the three T-groups. The effects of trainer style or the different dynamics occuring in the group may have in some way contributed to these differences. The results do tell us that the variation among T-groups can be great. Further

support for differential effects of different T-groups is found in the analysis of variances in Table 11. T-group A (when compared to T-groups B and C) showed less agreement or consensus in terms of ranking the qualities of its group members on the IDT-4 dimensions.

Whereas T-group B differed from the others in showing no correlations between interpersonal discrimination and peer-ranked outcomes, T-group A demonstrated a significantly larger variability in their averaged rankings. Although the participants were randomly assigned to groups and the groups were equivalent in terms of field-dependence-independence (FDI), very different ranking patterns occured. The differences in facilitator FDI, race, or other unknown factors may have contributed to the variability in ranking patterns.

Supportive of Study 1 were the findings of a high degree of inter-correlation among: Task-orientation, Maintenance-orientation, Satisfaction, and Learning. The Task and Maintenance dimensions correlated at $r = .84$ ($p < .001$). This suggests that Task and Maintenance orientation (rated by peer participants) in the human relations setting may not be as independent as earlier research has led us to believe. Participants rated as most satisfied were also rated as having learned the most ($r = .91$, $p < .001$).

Final participant self-reports showed a strong

correlation to various peer-ranked outcomes. Those persons who reported themselves as: enjoying physical closeness, willing to express anger, and being active and involved participants were rated high on all the peer-ranked outcomes (see Table 2). This supports the recent research of Lieberman, Yalom, and Miles (1973) as well as the findings of earlier T-group investigations: Active and involved group members are much more likely to be seen by others as achieving positive outcomes. Interestingly, those persons reporting that they were attuned to others' unexpressed needs and considered others' views and feelings (both FD traits) were no more likely to achieve positive gains than those persons ranking themselves low on these traits. Apparantly self-reports of "social-sensitivity" are not correlated to others' perceptions of positive gains from a T-group experience.

Rankings by others were corroborated by the self-reports taken at the end of the training. In two of the three T-groups (B and C) the rankings of others were significantly positively correlated ($p < .05$ or less) with participants' self-reports. In the third T-group (A) the rankings were positively correlated, however none reached significance (see Table 9).

Aggregated self-reports did not differ between the high and low discriminating groups (either on the GEFT or on the

IDT-1 Discrimination). However, when self-reports were analyzed on an individual T-group basis some differences emerged. The group facilitated by the FD facilitators (T-group A) tended to have FD participants report themselves higher on a number of dimensions. In particular, FDs tended to report themselves as both task- and maintenance-oriented. In the group with moderate FDI facilitators (T-group B) FI participants tended to rank themselvees higher on a number of dimensions. In fact, a finding contradictory to the the results from T-group A was revealed: FIs in T-group B rated themselves higher on both task and maintenance orientation. Very few differences between FI and FD participants were evident in the T-group (C) with FI facilitators.

The self-reports achieved significance ($p < .025$) on only 13 out of 252 T-tests when comparing high and low FI groups. The overall lack of definitive findings can be in part accounted for, perhaps, by understanding the influence that cognitive style has on a person's view of his/her world. It seems likely that FD and FI persons would have a different conceptualization (or different reference frame) for what constitutes, for example, "task oriented behavior." Each person judges his/herself by his/her own private standard on a self-rating instrument.

There were considerable differences between this population and the population of Study 1. In addition to

differences of culture (Massachusetts v. New Brunswick), educational background (college population v. grade 10 average education), age (college-aged v. mean age of 36), and life-style (student v. in-career), one additional difference is noteworthy. This study consisted primarily of females while Study 1 consisted primarily of males. The GEFT instrument (employed in both studies) is a better predictor of FI for men than for women (Witkin, Oltman, Raskin, & Karp, 1971). This may have accounted, in part, for this study's lack of strong findings supporting the relationship between FI and high peer-rankings on training outcomes.

Conclusion

The analysis of the self-reports by T-group serves to highlight a point made earlier (with regard to peer-rankings): By aggregating data across treatment groups significant interactions can be obscured. When the data are aggregated across FI and FD participants, information about how each subpopulation is affected in a particular T-group can be lost. Furthermore, by aggregating data across (presumably similar) T-group treatments, information about the interactions between the treatments and the various subpopulations can be lost. For example, FDs tended to rate themselves as task and maintenance-oriented in the group led by FD facilators, whereas FIs tended to rate themselves as

task and maintenance-oriented in the group led by moderate FDI facilitators. In the aggregated data, these trends cancelled each other out, and without looking for differential effects these findings would have gone unnoticed. Further research is needed to clarify the impact of facilitator cognitive style on outcome measures. The results of this study suggest some interaction which at this point is unclear.

References - Chapter VI

Anderson, C., & Slocum, Jr., J.W., Personality traits and their impact on T-group training success. Training and Development Journal, 1973 (December), 18-25.

Carr, J. E., The role of conceptual organizaiton in interpersonal discrimination. The Journal of Psychology. 1965, 59, 159-176.

Carr, J. E., Manual for the Interpersonal Discrimination Test. Draft copy obtained from the author (School of Medicine, University of Washington, Seattle, Washington, 98195), 1979.

Cronbach, L. J. & Snow, R. E., Aptitudes and Instructional Methods. New York: John Wiley and Sons, 1977.

Cross, P. K., Accent on Learning. San Francisco: Jossey-Bass, 1976.

Gruenfeld, L. & Arbuthnot, J., Field-independence, achievement values and the evaluation of a competency related dimension on the least preferred co-worker (LPC) measure, Perceptual and Motor Skills, 1968, 27, 991-1002.

Harrison, R., Cognitive change and participation in a sensitivity training laboratory. Journal of Consulting Psychology, 1966, 30(6), 517-520.

Harrison, R., & Lubin, B., Personal style, group composition, and learning. Journal of Applied Behavioral Science, 1965, 1(3), 286-301.

Harvey, O., Hunt, D. E., & Schroeder, H., Conceptual systems and personality organizaiton. New York: Wiley, 1961.

Joure, S. A., Frye, R. L., Green, P. C., & Cassens, F. P., Examples of over-use of sensitivity training. Training and Development Journal, 1971 (December), 24-26.

Kelly, G., Psychology of personal constructs, 1955.

Lieberman, M. A., Yalom, I., & Miles, M. Encounter groups: First Facts. New York Basic Books, 1973.

Messick, S., The criterion problem in the evaluation of instruction: Assessing possible, not just probable, intended outcomes. In M. C. Wittrock & D. E. Wiley (Eds.) The evaluation of Instruction: Issues and Problems, New York: Holt, Rhinehart & Winston, 1970.

Messick, S., & Associates, Individuality and Learning. San Francisco: Jossey-Bass Publishers, 1976.

Mitchell, R. R., Relationships between personal characteristics and change in sensitivity training groups. Small Group Behavior, 1975, 6(4), 414-420.

Poland, W. D., & Jones, J. E., Personal orientations and perceived benefit from a human relations laboratory. Small Group Behavior, 1973, 4 (4), 496-502.

Rhodes, R. J., Carr, J. E., & Jurji, E. D., Interpersonal differentiation and perceptual field differentiation. Perceptual and Motor Skills, 1963, 27, 172-174.

Smith, P.B. Controlled studies of the outcome of sensitivity training. Psychological Bulletin, 1975, 82(4), 597-622.

Witkin, H. A., Cognitive styles in personal and cultural adaption. Volume 11, 1977 Heinz Werner Lecture Series; Clark University Press, 1978.

Witkin, H. A., & Goodenough, D. R., Field dependence and interpersonal behavior. Psychological Bulletin, 1977(a), 84 (4), 661-689.

Witkin, H. A., & Goodenough, D. R., & Oltman, P. K., Psychological differentation: Current status. Princeton, New Jersey: Educational Testing Service, 1977 (Educational Testing Service Research Bulletin No. RB-77-17) .

Witkin, H. A., Lewis, H. B. & Weil, E., Affective reactions and patient-therapist interactions among more differentiated and less differentiated patients early in therapy. Journal of Nervous and Mental Disease, 1968, 146 (3), 143-208.

Witkin, H. A., Moore, C. A., Goodenough, D. R. & Cox, P. W., Field-dependent and field-independent cognitive styles and their educational implications. Review of Educational Research, 1977, 47 (1), 1-64.

Witkin, H. A., Oltman, P. K., Raskin, E., & Karp, S. A., A manual for the embedded figures tests. Palo Alto, CA: Consulting Psychologists Press, 1971.

Witkin, H. A., Dyk, R. B., Paterson, H. F., Goodenough, D. R., & Karp, S. A., Psychological Differentation. New York: Wiley, 1962.

C H A P T E R VII

STUDY 3: NOVA SCOTIA

Synopsis

Study 3 investigated the relationship between cognitive style and outcomes from training in a highly structured HRT program. Subjects were 45 Nova Scotia public school principals. The training was a thirty contact-hour introductory HRT program administered over 2 and 1/2 weeks. The training included lecturettes, role-plays, simulations, video-feedback skill-training, and other structured exercises. This study employed a Solomon Four-Group design for measures of self-reports. Also administered were (1) a peer-ranking instrument, and (2) tests of cognitive knowledge (recall and application of theory from textbook and/or lectures). Statistically significant differences were found between experimental and control groups on self-reports and tests of cognitive knowledge, thus documenting the effectiveness of the training program. In general, cognitive style was uncorrelated to outcomes from training.

Background

This research project was the extension of two earlier studies undertaken to explore the relationship between participant cognitive style and outcomes from human relations training (HRT). Previous studies revealed that measures of psychological differentiation correlated with peer-ranked outcomes from training (satisfaction, learning, task-orientation, and maintenance-orientation). The two preliminary studies both employed a relatively unstructured training design (1). However, the results of the two studies were not consistent. In Study 1 participant Field-Independence (as measured by Witkin's Group Embedded Figures Test) was correlated with peer-ranked outcomes. In Study 2 interpersonal discrimination (measured by a modified version of Carr's Interpersonal Discrimination Test) was correlated with peer-ranked outcomes.

This Third study explored the relationship within and between measures of participant cognitive style and various outcomes from training. Outcome measures included:

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(1) The author has made the choice here to refer to learning climates that are intentionally designed to be ambiguous, such as a T-group, as being "unstructured." However, there is a structure to a T-group, despite the fact that participants may not perceive any such structure. A T-group might alternatively be called "complexly structured," whereas structured exercises (role plays, simulation games, etc.) might be called "simply structured."

peer-rankings, self-rankings, and cognitive outcomes from an objectives-referenced test.

Rationale For Variables Studied & The Treatment Program

The reason for employing Field-Dependence-Independence and Interpersonal Discrimination as measures of cognitive style is because they were found to correlate with peer-ranked outcomes in the two earlier studies. In contrast to Studies 1 and 2, this study employed a highly structured training program. The training treatment was a thirty hour introductory human relations training course. This program is described in detail on "A Behavioral Objectives-Based Human Relations Curriculum" available from ODT Associates or ERIC document reproduction service (Mezoff, 1980h). This training involved a strong cognitive component; including a textbook, additional readings, a set of behavioral objectives, and a 15-30 minute mini-lecture for every two hours of training. Topics included listening skills, self-perception, other- perception, non-verbal communication, group dynamics, leadership, and conflict resolution (2).

In the two earlier studies (See chapters V and VI) the

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(2) The author was the trainer for this HRT program.

high learners were persons at greater levels of psychological differentiation (i.e., Field-Independents and persons scoring high on the test of interpersonal discrimination). Persons low in psychological differentiation often have difficulty in unstructured, ambiguous learning situations (Witkin, Moore, Goodenough, & Cox, 1977). The unstructured nature of the earlier training treatments may have biased outcomes (at least when ranked by peers) against Field-Dependent and low interpersonallly discriminating persons. The use of a highly structured training treatment is an attempt to see if these possible biases extend to highly structured training. If even a highly structured training format consistently results in Field-Dependents (FDs) being seen by others as learning the least, then there might be some reason to screen them from training, or provide them with an alternative type of training that is better suited to their cognitive styles. On the other hand, if a high structure training treatment is not biased in favor of Field-Independent (FI) persons, then that format would appear to be the most suited to a mixed cognitive style group.

Method

Measures

Four types of measures were used: cognitive style, cognitive course outcomes (knowledge of factual course material), peer-rankings, and self-ratings. Copies of all the instruments discussed below can be found in Appendix C.

Cognitive Outcomes were measured by an objectives-referenced test (ORT). These tests (forms A & B) were first pilot tested during this research project. The ORTs were generated from an Item Generation and Scoring Manual (Mezoff, 1980f) that was developed by the author and was keyed to the list of cognitive course objectives (Mezoff, 1980h). The manual is available from ODT Associates or ERIC Document Reproduction Service. The ORTs measured factual knowledge about HRT. There were 25 fill-in items per test.

Peer-rankings were made on the modified version of Carr's (1979) Interperonal Discrimination Test (IDT-M). See Chapter 6 for a detailed description of this instrument.

Self-rankings were made on the Self-Assessment Scale developed by the author. The self-assessment scale was a Retrospective Pretest-Posttest type of instrument (Howard & Daley, 1979; Howard, Schmeck & Bray, 1979; Mezoff, 1979). On the posttest this instrument has a posttraining rating scale

as well as a revised pretraining scale. Participants can thus re-rate where their skill levels were initially (pretraining) in light of the training experience. The Retrospective Pretest-Posttest instrument controls for the effects of the participant changing his/her reference frame from pre- to posttraining.

Cognitive style was measured by two approaches: perceptual discrimination and interpersonal discrimination. Perceptual discrimination was measured by Witkin's Group Embedded Figures Test (GEFT). Interpersonal discrimination was measured by Carr's (1979) original IDT and also by the author's modified version (IDT-M).

Experimental Design

There were two experimental groups (E1: n=26, E2: n=19) and two control groups (C1: n=21, C2: n=15). A Solomon four-group design (Campbell & Stanley, 1963, p. 24) was employed for the Self-Assessment Scale and the IDT. The Objectives-Referenced Tests were given as a pre-test and post-test (Groups E1 and C1 got Form A as the pre-test and Form B as the post-test; Groups E2 and C2 got Form B as a pre-test and Form A as the post-test). See Figure 12 for the research design.

It was not possible to administer the GEFT to the control groups due to time constraints. The peer-ranking

Nova Scotia Human Relations Research Project

EXPERIMENTAL DESIGN

	Pre-	Post-
E1	Objectives-Referenced Test (Form A) Self-Assessment Scale -Pre Group Embedded Figures Test	Objectives-Referenced Test (Form B) Self-Assessment Scale { Revised Pre / Post Interpersonal Discrimination Test Peer-Ranking Instrument (IDT-M)
E2	Objectives-Referenced Test (Form B) Interpersonal Discrimination Test Group Embedded Figures Test	Objectives-Referenced Test (Form A) Self-Assessment Scale { Revised Pre / Post Interpersonal Discrimination Test Peer-Ranking Instrument (IDT-M)
C1	Objectives-Referenced Test (Form A) Self-Assessment Scale -Pre	Objectives-Referenced Test (Form B) Self-Assessment Scale { Revised Pre / Post Interpersonal Discrimination Test
C2	Objectives-Referenced Test (Form B) Interpersonal Discrimination Test	Objectives-Referenced Test (Form A) Self-Assessment Scale { Revised Pre / Post Interpersonal Discrimination Test

FIGURE 12

instrument was only administered to the treatment groups since this instrument involved rating peers in a small discussion group (a situation not available in the control groups).

Participants

The participants were Nova Scotia public school principals in the first year of a four-year program in Educational Leadership. Control group subjects were third year students in the same program. Controls received a thirty-hour structured training program on the topic of curriculum development. Topics covered included: determining goals of the school, identifying curriculum objectives, organizing curriculum planning committees, planning of curriculum, and implementing, evaluating, and re-structuring curriculum. The course was taught as an interactive simulation. Small groups were employed. Participants made decisions regarding planning and implementing curriculum. The consequences of those decisions were fed-back to the participants in the form of "live" data (e.g., crisis phone calls, computer printouts, unanticipated press releases, etc.). Subjects were 80% male, the mean age was 33 (=6), and the mean number of years on the job was 10 (=5).

Limitations of Study

This section will discuss some of the constraints and limitations of this research project. This investigation is Field Study research as opposed to a Field Experiment (Kerlinger, 1973). Many factors were not controlled, and this contributed to difficulties in the analysis of the data.

Non-Equivalence of Experimental Groups.

A more rigorous experimental design (called a field experiment) would have considered the entering first-year students as a pool of subjects and randomly assigned students to either Group E1, or Group E2. Assignment to groups actually occured on a first-come first-serve basis. Early applicants had their choice of groups (and most people requested Group E1).

Groups E1 and E2 were equivalent on all personality and demographic variables. However, when comparing their respective self-report ratings it was apparant that the groups were significantly different in their self-assessments. It is not clear why these differences between group E1 and E2 existed. Groups E1 and E2, for whatever reasons, were not equivalent. Therefore, comparisons could not be legitimately made between the

outcomes from E1 and E2.

Non-Equivalence of Experimental Group Population and Control Group Population. It was known in advance that students in a third year course would serve as controls for the experimental subjects. This practice, although practical and pragmatic, failed to meet the more rigorous criteria that a "field experiment" design would have required. A field experiment would call for one population from which subjects would be randomly selected for either the training treatment or the control group.

Since a large sample pool was unavailable and random selection for training was not feasible or practical, the research was implemented with the knowledge that the first and third year administrative block students were not equivalent groups. This non-equivalence was the result of three main factors: 1) controls had already received a course somewhat similar to the experimental treatment two years prior, 2) controls were two years more advanced in the Educational Leadership program, and 3) controls were provided with a course that included some theory components on leadership similar to content taught in the treatment groups.

The aforementioned problems might have contaminated the research and precluded any comparison between experimental

and control groups. However, pre-test data on the self-assessment scale and the objectives-referenced test (form A) provided an adequate basis for assuming equivalence between group E1 and C1. Pre-test data precluded the possibility of considering equivalence between E2 and C2 for analysis purposes.

Problems Related to Administration of Instruments in Control Group. In both control groups the instruments were administered by faculty other than the author. These faculty were provided with detailed and precise written instructions for administering the instruments (see Appendix C for sample instruction sheet). Despite this precaution, it became apparant to the author that the administration in Control group C2 did not go smoothly. Subjects in both control groups were informed of the nature of their participation in this research. However, in C2 subjects either did not understand or did not believe the nature of their "control group" status. Informal reports revealed that some subjects believed the author was trying to "trip them up" by testing them on material taught in earlier years, so as to ascertain their recall of that material. In control group C2 this social dynamic generated some hostility towards this research project. This may have resulted in some resistance to effective administration of the instruments and thus,

unreliability of scores.

Results

Results will be discussed in eight sections: (1) outcomes from training (contrasting experimental and control groups), (2) correlations among measures of cognitive style, (3) correlations among self-reports (post-training) (4) correlations among peer-ranked outcomes (post-training), (5) self-report outcomes related to cognitive styles, (6) peer-ranked outcomes related to cognitive styles, (7) objectives referenced test scores related to cognitive styles, and (8) reliability and validity of measures used in this research. A brief summary section at the end will recap and highlight the most significant findings.

A detailed analysis of outcomes from this training has been reported by the author elsewhere (Mezoff, 1980 e). The focus of this dissertation is on the interaction of cognitive styles and training outcomes for differently structured HRT programs. Therefore, those findings contrasting experimental and control groups will not be reported in detail here. A summary of those findings is included in number (1) below.

(1) Comparison of Experimental and Control Groups Based On:

A.) Self-Ratings of Skills and Awareness. Scores represent the difference between the post-course ratings less the revised pre-course ratings (done at the time of posttesting). In contrasting groups E1 and C1, differences were found on all six dimensions. Four of these comparisons reached the p = .02 (or less) level of significance. These scores represent students' assessment of their increase in skills over the duration of the course. The dimensions and the appropriate statistics (means, t-value and 2-tailed probability) are shown below in Table 13. Thus, on four dimensions measured (awareness of how others see me, perceptiveness of group dynamics, perceptiveness of individual's feelings, perceptiveness of non-verbal communication), the experimental group rated their increase in skill as greater than the control group. These results demonstrate the effectiveness of the experimental treatment based on participant self-ratings.

B.) Cognitive Outcomes. The results from the objectives-referenced tests (ORTs) were compared between groups E1 and C1. On the pre-test these groups were similar. On the post-test, however, statistically significant differences were found: Group E1 achieved higher test scores

Table 13

Comparison of E1 and C1 on Difference Scores (perceived change) from six dimensions of Self-Rating instrument.

	Mean E1	Mean C1	t-value	2-tailed probability
Listening Skills	15	10	1.6	.117
Awareness of Own Feelings	11	6	2.0	.051
Awareness of How Others See Me	24	12	2.8	.008
Perceptiveness of Groups Dynamics	19	9	2.5	.019
Perceptiveness of Individual's Feelings	13	5	2.6	.012
Perceptiveness of Non-Verbal Communication	18	4	4.4	<.0001

at statistically significant levels. The mean for E1 was 14.5, compared to the mean for C1 of 8.0. When measured by a T-test the scores were different at the .006 level of significance. Therefore, experimental group E1 learned more factual knowledge about human relations than did control group C1.

Results from the ORTs were also compared between E2 and C2. These groups were significantly different on the pre-test measure. Therefore, the post-test comparisons were made via an analysis of covariance. This statistical procedure adjusted for the differences in pre-test means

between E2 and C2. The differences on the post-test indicated that the experimental group (E1) performed at a significantly higher level than the control group (C2) (F-value = 9.94; p = .005)(2). Therefore, experimental group E2 learned more factual knowledge about human relations than did control group C2.

These results strongly document the effectiveness of the instructional treatment, based upon the objectives-referenced tests of cognitive content.

(2) Correlations Among Measures of Cognitive Style.

Measures of cognitive style included Field-Dependence-Independence (FDI) and Interpersonal Discrimination. FDI was measured by Witkin's GEFT instrument administered at the beginning of training. Interpersonal discrimination was measured by (1) Carr's IDT before training for groups E1 and C1, (2) Carr's IDT after training for all four groups, and (3) the IDT-M developed by the author and administered after training to the experimental groups.

The correlations among these measures of cognitive style are shown in Table 14. As with all the other data reported in this results section, the correlations are

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(2) The pre-test means were: E2=13.6, C2=6.1. The post-test means were: E2=28.5, C2=9.2.

Table 14

Correlations Among Measures of Cognitive Style

Measure	Group E1 (n=24) 2	3	4
1. GEFT	□	-.13	.00
2. Carr's IDT-Pre		□	□
3. Carr's IDT-Post			.09
4. IDT-M-Post			

	Group E2 (n=19) 2	3	4
1. GEFT	.18	.23	-.03
2. Carr's IDT-Pre		.90***	.71***
3. Carr's IDT-post			.63**
4. IDT-M-Post			

□ Cannot compute

t $p < .10$
* $p < .05$
** $p < .01$
*** $p < .001$

reported seperately for each experimental group. In group E1 the IDT-post was not correlated to the IDT-M-post. In group E2 the IDT-pre and the IDT-post were correlated at r=.90 ($p<.001$). In group E2 the IDT-M-post was correlated significantly with both the IDT-pre ($r = .71$, $p<.001$) and the IDT-post ($r=.63$, $p<.01$).

The high degree of intercorrelation among the three IDT measures in group E2 is supportive of the findings of Carr (1979). While the author's IDT-M-post was correlated to the IDT-post at $r=.63$ ($p<.01$) for E2, no significant correlation was evident in group E1 ($r=.09$). The cause of this inconsistency cannot be determined at present. The most probable reason is the difference between the formats of the instruments (the IDT-M used predetermined construct dimensions, whereas the IDT uses the subject's own construct dimensions). Why the correlation should be high in group E2 and lacking in group E1 remains an enigma.

For the purposes of data analysis in the remainder of the results section the three IDT measures will be treated independently. Each measure of interpersonal discrimination will be analyzed for possible interaction with outcomes from training.

(3) Correlations Among Self-Rankings.

At the end of training, participants ranked themselves on six dimensions: listening skills, awareness of own feelings, awareness of how others see me, perceptiveness of groups, perceptiveness of individuals, and non-verbal communication skill. Scores were computed as difference scores between post-training self-ranking and the revised rankings of where participants ranked themselves (retrospectively) at the beginning of the training. The difference scores represent participants assessment of skill increases over the duration of the training.

The correlations among the six dimensions are shown in Table 15. In group E1 only 3 out of 15 correlations reached the $p<.01$ level of significance. In group E2 ten out of 15 correlations reached the $p<.01$ level of significance. No explanation is offered for the inconsistencies across the two experimental groups other than the fact that these populations may not have been identical.

Two of the three significant ($p<.01$) correlations in Group E1 were corroborated by significant ($p<.01$) correlations in Group E2, and the third one reached the $p<.05$ level in Group E2. Thus, the three significantly correlated pairings of self-reports were: listening skills &

Table 15

Correlations Among Six Dimensions From The Self-Rating Instrument/Post-Training

Group E1 (n=24)

Measure	2	3	4	5	6
1. Listening Skills	.28t	.16	.06	.26	.63***
2. Awareness of Own Feelings		.18	.45*	.58***	.31t
3. Awareness of How Others See Me			.55**	.25	.23
4. Perceptiveness of Groups				.32t	.15
5. Perceptiveness of Individuals					.31t
6. Non-Verbal Communication Skill					

Group E2 (n=19)

	2	3	4	5	6
1. Listening Skills	.87***	.60**	.63**	.51**	.42*
2. Awareness of Own Feelings		.58**	.45*	.58**	.51**
3. Awareness of How Others See Me			.61**	.55**	.41*
4. Perceptiveness of Groups				.42*	.28
5. Perceptiveness of Individuals					.67***
6. Non-Verbal Communication Skill					

t $p < .10$
* $p < .05$
** $p < .01$
*** $p < .001$

non-verbal communication skill, awareness of own feelings & perceptiveness of individuals, and awareness of how others see me & perceptiveness of groups. The literature in person perception supports the current findings: awareness of own feelings and awareness of how others see me being correlated with perceptiveness of individuals and groups (Zalkind & Costello, 1962).

(4) Correlations Among Peer-Ranked Outcomes.

At the end of the training each participant ranked each of his/her small group members on nine dimensions. Dimensions rated were: listening skills, awareness of own feelings, awareness of how others see me, perceptiveness of groups, perceptiveness of individuals, learning and understanding as a result of the training, most emotionally open, non-verbal communication skill, and power and influence in the small group.

The correlations among these nine dimensions are shown in Table 16. In some cases correlations found in group E1 are supported by similar correlations in group E2 (e.g., dimensions 1&4, 3&4, 3&5, 4&5, 2&8, 5&8, 4&9, 7&9). In other cases correlations found in E1 are not supported by correlations in group E2 (e.g., dimensions 1&5, 1&6) and correlations in group E2 are not supported by correlations in group E1 (e.g., dimensions 1&2, 2&3, 2&4, 3&6, 5&6, 1&7,

Table 16

Correlations Among Nine Dimensions From Peer-Ranking Instrument/Post Training

Group E1 (n=24)

Measure	2	3	4	5	6	7	8	9
1. Listening Skills	-.06	.62***	.68***	.53**	.48**	-.15	.21	.20
2. Awareness of Own Feelings		.18	-.01	.09	-.45*	.15	.55**	-.02
3. Awareness of How Others See Me			.45*	.63***	.04	.33t	.39*	.37*
4. Perceptiveness of Groups				.36*	.41*	.06	.09	.57**
5. Perceptiveness of Individuals					.16	.34t	.47**	-.04
6. Learnings & Understandings						-.08	-.14	.19
7. Emotionally Open							.21	.51**
8. Non-Verbal Communication Skill								-.06
9. Power & Influence in Group								

Group E2 (n=19)

	2	3	4	5	6	7	8	9
1. Listening Skills	.77***	.35t	.66***	.18	.17	.63**	.46*	.55**
2. Awareness of Own Feelings		.54**	.62**	.30	.33t	.58**	.55**	.58**
3. Awareness of How Others See Me			.54**	.43*	.55**	.40*	.62**	.38t
4. Perceptiveness of Groups				.47*	.25	.46*	.58**	.52*
5. Perceptiveness of Individuals					.62**	.31t	.48*	-.05
6. Learnings & Understandings						.46*	.43*	.31t
7. Emotionally Open							.45*	.47*
8. Non-Verbal Communication Skill								.41*
9. Power & Influence in Group								

t $p < .10$
* $p < .05$
** $p < .01$
*** $p < .001$

2&7, 4&7, 6&7, 4&8, 6&8, 2&9, 8&9).

The inconsistencies in the correlations across the two groups cannot be explained (other than by the groups being substantially different). In group E2 the scales were more highly inter-correlated than in group E1. The large number of inconsistencies makes one wonder about the power or replicability of the scales which do overlap.

(5) Self-Ranked Outcomes Related to Cognitive Styles.

In group E1 the self-ranked outcomes (assessment of skill increases over the training period) were not correlated to any of the measures of cognitive style (See Table 17). In group E2 the GEFT correlated negatively with participant assessments of their skill increases on (1) listening skills ($p<.01$), (2) awareness of own feelings ($p<.001$), and (3) awareness of how others see me ($p.01$). In other words, in group E2 Field-Independent (FI) persons (with high GEFT scores) ranked themselves significantly lower in their changes in skills over the course of training. Conversely, in group E2 Field-Dependent (FD) persons rated themselves significantly higher on their self-assessment of increases in skills.

In group E2 persons low in interpersonal discrimination skill (as measured by the IDT-pre and IDT-post) tended to give themselves higher self-assessments of skill increases

Table 17

Correlations Between Measures of Self-Ratings and Cognitive Style

DIMENSIONS OF SELF-RATING INSTRUMENT

Group E1 (n=24)

Measure	GEFT	Carr's IDT-Pre	Carr's IDT-Post	IDT-M-Post
1. Listening Skills	-.01	□	.31t	.04
2. Awareness of Own Feelings	.12	□	.01	-.04
3. Awareness of How Others See Me	.03	□	-.18	.26
4. Perceptiveness of Groups	.05	□	.20	.33t
5. Perceptiveness of Individuals	.32	□	-.10	.01
6. Non-Verbal Communication Skill	-.06	□	.05	.12

Group E2 (n=19)

1. Listening Skills	-.56**	-.34t	-.52*	-.12
2. Awareness of Own Feelings	-.69***	-.32t	-.43*	-.06
3. Awareness of How Others See Me	-.53**	-.20	-.29	.02
4. Perceptiveness of Groups	-.19	-.42*	-.55**	-.39t
5. Perceptiveness of Individuals	-.22	-.02	-.11	.07
6. Non-Verbal Communication Skill	-.24	.05	-.04	.31t

□ Cannot compute

t $p < .10$
* $p < .05$
** $p < .01$
*** $p < .001$

on the dimensions of listening skills, awareness of how others see me, and perceptiveness of groups. Persons high in interpersonal discrimination tended to give lower self-assessments of skill increases on all dimensions.

(6) Peer-Ranked Outcomes Related to Cognitive Styles

In groups E1 and E2 the nine peer-ranked outcomes were not correlated significantly with any of the measures of cognitive style. Table 18 reports these data.

(7) Objectives-Referenced Test Scores Related to Cognitive Styles.

The objectives-referenced tests (ORTs) measured cognitive knowledge acquired through reading the textbook and attending class. In group E1 the ORTs were not correlated with any measure of cognitive style. In group E2 the ORT (post-test, Form A) was correlated to the GEFT and the IDT-post (both at $p<.05$). However, ORT pre-test scores (on Form B) indicated that these cognitive styles were already correlated with high ORT scores before the training began. Further, the gain in knowledge was not significantly different for different cognitive style groups (e.g., FI or FD persons). The only conclusion one can make from these data is that in group E2 (only), FI and interpersonally discriminating persons tended to score higher on the ORT pre-test (i.e., they had more of the information before

Table 18

Correlations Between Peer-Rankings and Measures of Cognitive Style

Group E1 (n=24)

Measure	MEASURES OF COGNITIVE STYLE			
	GEFT	IDT-Pre	IDT-Post	IDT-M-Post
1. Listening Skills	.01	□	-.02	-.07
2. Awareness of Own Feelings	-.07	□	-.32t	.18
3. Awareness of How Others See Me	-.11	□	-.06	.03
4. Perceptiveness of Groups	-.05	□	-.06	-.04
5. Perceptiveness of Individuals	.13	□	-.29t	-.18
6. Learnings & Understandings	-.18	□	-.04	.17
7. Emotionally Open	.00	□	-.17	.23
8. Non-Verbal Communication Skill	-.04	□	-.08	.14
9. Power & Influence in Group	.02	□	.09	.33t

Group E2 (n=19)

Measure	MEASURES OF COGNITIVE STYLE			
	GEFT	IDT-Pre	IDT-Post	IDT-M-Post
1. Listening Skills	-.06	-.04	.14	-.23
2. Awareness of Own Feelings	.07	-.02	.06	-.24
3. Awareness of How Others See Me	.00	-.27	-.15	-.19
4. Perceptiveness of Groups	-.14	.01	.15	-.29
5. Perceptiveness of Individuals	-.03	.04	.12	-.03
6. Learnings & Understandings	-.27	-.10	-.23	-.07
7. Emotionally Open	-.15	.32t	.34t	.09
8. Non-Verbal Communication Skill	.06	.21	.30	.26
9. Power & Influence in Group	.07	.09	.13	-.22

□ Cannot compute

t $p < .10$
* $p < .05$
** $p < .01$
*** $p < .001$

training began).Table 19 reports these data.

(8) Data on Reliability and Validity of Measures.

Measures of Cognitive Style. Test-retest reliability for the IDT measure was available from groups E2 and C2. Difficulties in administration of the IDT-post in group C2 invalidated the data from that control group. In group E2 (n=19) test-retest reliability over the training period (2 1/2 weeks) for the IDT was r=.90 ($p<.001$). This reliability is stronger than that reported by Carr (1979).

Self-Ratings. The self-rating instrument pre-test consisted of four scales. Each scale consisted of a single item. Comments from participants indicated that two of these scales were "double-barrelled" (e.g., requiring a combined rating of two separate elements). Therefore, the post-test self-rating instrument was expanded to six scales (consisting of the two unchanged original ones plus the two "double-barrelled" scales separated into two scales each).

Test-retest reliability of the self-rating instrument could only be obtained from the two scales that remained unchanged from pre- to post-test. These scales were (1) perceptiveness of non-verbal communication and (2) listening skills. Control group C1 had eleven persons who took both the pre- and post-test self-rating instrument. The test-retest reliability (over a 2 1/2 week period) for scale

Table 19

Correlations Between Measures of Cognitive Style and Objectives-Referenced Tests of Cognitive Outcomes

MEASURES OF COGNITIVE STYLE

Group E1 (n=24)

Measure	Objectives-Referenced Test Pre-Test: Form A	Objectives-Referenced Test Post-Test: Form B
1. GEFT		
2. IDT-Pre	-.13	-.20
3. IDT-Post	□	□
4. IDT-M-Post	.12	-.31
	.22	-.32

MEASURES OF COGNITIVE STYLE

Group E2 (n=19)

Measure	Objectives-Referenced Test Pre-Test: Form B	Objectives-Referenced Test Post-Test: Form A
1. GEFT		
2. IDT-Pre	.33t	.48*
3. IDT-Post	.32t	.44t
4. IDT-M-Post	.41*	.50*
	.11	.12

□ Cannot compute

t $p < .10$
* $p < .05$
** $p < .01$
*** $p < .001$

1 was .59 ($p<.025$) and for scale 2 was .94 ($p<.001$). These reliabilities indicate that at least 2 of the scales were sufficiently stable over time (Nunnally, 1967). There is no reason to suspect that any of the other four post-test scales were any less reliable.

Validity of the self-rating instrument is supported by the fact that persons in the treatment group E1 rated themselves significantly higher ($p<.025$) on their assessments of skill increases on four out of the six dimensions, when compared to persons in control group C1.

The validity of the self-rating instrument is not supported by the peer-rankings in the small discussion groups. For example, on dimensions common to both instruments in group E1 the correlations were: listening skills, $r=-.07$; awareness of own feelings, $r=-.09$; awareness of how others see me, $r=-.07$; perceptiveness of groups, $r=-.45$ ($p<.05$); perceptiveness of individuals, $r=-.01$; and non-verbal communication skill, $r=-.41$, ($p<.05$). Similar non-significant data are found in group E2. Table 20 reports these data as well as all the intercorrelations of items between the two instruments.

Objectives-Referenced Tests (ORTs). ORT Forms A and B were first piloted during this research. The measure of reliability used in this analysis is the coefficient of internal consistency, the standardized item alpha. These

Table 20

Correlations Between Self-Ratings and Peer-Rankings

Group E1 (n=24)

PEER RANKINGS Measure	Listening Skills	Awareness of Own Feelings	Awareness Of How Others See Me	Percept. of Groups	Percept. of Individ.	Non-Verbal Communication Skill
1. Listening Skills	-.07	.01	-.36*	-.34t	.10	.05
2. Awareness of Own Feelings	-.56**	-.09	.02	.15	-.02	-.46*
3. Awareness of How Others See Me	-.06	-.03	-.07	-.02	-.09	-.09
4. Perceptiveness of Groups	.21	-.20	-.39*	-.45*	.12	.03
5. Perceptiveness of Individuals	-.16	.12	.13	-.09	-.01	-.10
6. Learnings & Understandings	.07	-.14	-.18	-.41*	-.24	.26
7. Emotionally Open	.14	.01	.38*	.21	-.22	-.22
8. Non-Verbal Communication Skill	-.38*	-.02	.21	.15	.05	-.41*
9. Power & Influence in Group	.26	-.47**	-.13	-.20	-.20	-.20

Group E2 (n=19)

PEER RANKINGS Measure						
1. Listening Skills	-.43*	-.27	-.16	-.15	-.23	.02
2. Awareness of Own Feelings	-.50*	-.31t	-.29	-.26	-.35t	-.15
3. Awareness of How Others See Me	-.19	-.07	.23	-.07	-.03	.12
4. Perceptiveness of Groups	-.52*	-.33t	-.08	-.23	-.28	-.19
5. Perceptiveness of Individuals	-.20	.05	-.15	-.20	-.17	-.07
6. Learnings & Understandings	.07	.18	.17	-.05	.03	.21
7. Emotionally Open	-.38t	-.34	-.01	-.19	-.13	-.02
8. Non-Verbal Communication Skill	-.59**	-.38t	-.11	-.56**	-.44*	-.15
9. Power & Influence in Group	-.49*	-.36t	-.13	-.46*	-.08	-.06

t $p < .10$
* $p < .05$
** $p < .01$
*** $p < .001$

coefficients are reported in Table 21. Since the two forms are not parallel they cannot be compared to each other.

On the post-tests both forms were sufficiently reliable (test-retest reliabilities of .60 and .80). These tests are validated by the fact that group E1 outperformed group C1 on the post-test at the p=.006 level of significance and Group E2 outperformed Group C2 at p=.05. Since E1 and E2 received the training and C1 and C2 did not, one would expect such a significant difference. Therefore, this is contributing evidence to the validity of the test.

Further validation of the ORTs is found in the increases of the reliability coefficients from pre- to post-testing. An increase in reliability from pre- to posttesting indicates that the subjects are shifting from a random pattern of responding to greater consistency of responses. This consistency means that the response patterns are converging on one content domain: the domain of the content taught in the experimental treatment. Form A increased from .13 (group E1) to .60 (group E2) and Form B increased from .54 (group E2) to .80 (group E1). The fact that the measures of internal consistency increased over the course of the training supports the test as measuring what was taught in the training.

Peer-Ranking Instrument. The peer-ranking instrument was generally uncorrelated with self-reports. This was the

Table 21

Reliability of Objectives-Referenced Tests as Measured by Coefficient of Internal Consistency (Standardized Item Alpha)

	Pre-Test (Form A)	Post-Test (Form B)
Group E1	.13	.80
Group C1	.51	.70

	Pre-Test (Form B)	Post-Test (Form A)
Group E2	.54	.60
Group C2	.49	.76

only opportunity to establish validity data on this instrument. See previous discussion under Self-Rating Instrument.

Summary

The training accomplished its desired objectives in terms of both participant self-reports of learning as well as Objectives- Referenced Tests (ORTs) of cognitive outcomes. Participants in treatment Group E1 self-rated themselves higher than the control group (C1) subjects on all 6 dimensions, four of which were statistically significant (at $p<.025$). Both treatment groups performed better than control groups on the ORTs at $p<.01$.

Cognitive styles were generally not correlated to peer-ranked outcomes from training. In one of the two treatment groups (E2) the Field-Independent (FI) persons tended to rate themselves as evidencing less growth over the course of the training. This finding is consistent with (and predicted by) cognitive style theory. FIs are less susceptible to reporting changes in attitudes, beliefs, or knowledge. They are not as easily influenced to change their opinions as Field-Dependent persons are.

The differential influence of various cognitive styles on participant self-reports may be of greater influence than the training itself. FIs showed significantly higher

self-reports than FDs on the Likert rating scale used in Study 2. In this study (using the Retrospective Pretest-Posttest instrument) an opposite trend occured: FDs rated themselves higher than FIs (in group E2 only). These conflicting results may be a function of the FD and FI cognitive styles responding differentially to the two types of instruments rather than the training impacting FD and FI persons differentially.

Overall, instrumentation employed in this study was adequate. Contributing to the validity of the results were (1) the IDT test-retest reliability was high ($r=.90$, $p<.001$), (2) test-retest reliability for the self-rating instrument was computable on two scales and found to be adequate or high ($r=.59$, $p<.025$; $r=.94$, $p<.001$), (3) self-reports increased significantly more for the treatment group E1 than the control group C1 over the course of training (E2 and C2 were not comparable on self-reports), and (4) Objectives-Referenced Tests increased significantly more for the treatment groups than the control groups over the course of training.

Limitations on the validity of the results include (1) lack of correlation between self-ratings and peer-rankings, (2) non-identical treatment groups, (3) non-matched control groups, and (4) difficulties in administration of instrumentation in control group C2.

References - Chapter VII

Campbell, D.T. & Stanley, J.C. Experimental and quasi-experimental designs for research. Chicago: Rand McNally Publishing Company, 1963.

Carr, J. E., Manual for the Interpersonal Discrimination Test. Draft copy obtained from the author (School of Medicine, University of Washington, Seattle, Washington, 98195), 1979.

Kerlinger, F. Foundations of Behavioral Research. New york: Holt, Rinehart, & Winston, 1973.

Howard, G.S. & Dailey, P.R. Response shift bias: A source of contamination of self-report measures. Journal of Applied Psychology, 1979, 65 (2),144-150.

Howard, G.S., Schmeck, R.R., & Bray, J.H., Internal invalidity in studies employing self-report instruments. Journal of Educational Measurement, 1979, 16 (2), 129-135.

Mezoff, B., The retrospective shift: A human relations training phenomenon. Amherst, MA.: ODT Associates (ERIC Document Reproduction Service No. ED not yet assigned), 1979.

Mezoff, B. Human Relations Training Project (Report to the Nova Scotia Department of Education). Amherst, MA: ODT Associates, 1980e.

Mezoff, B. Item Generation and Scoring Manual (to accompany A Behavioral Objective-Based Human Relations Curriculum). Amherst, MA.: ODT Associates (ERIC Document Reproduction Service No. ED not yet assigned),, 1980f.

Mezoff, B. A Behavioral Objective-Based Human Relations Curriculum . Amherst, MA.: ODT Associates (ERIC Document Reproduction Service No. ED not yet assigned), 1980h.

Nunally, J.C. Psychometric Theory. New York: McGraw Hill, 1967.

Witkin, H. A., Moore, C. A., Goodenough, D. R. & Cox, P. W., Field-dependent and field-independent cognitive styles and their educational implications. Review of Educational Research, 1977, 47 (1), 1-64.

Zalkind, S.S. & Costello, T.W., Perception: some recent research and implications for administration. Administrative Science Quarterly, 1962, 7 (2), 218-235.

CHAPTER VIII

SUMMARY

This chapter presents a summary and recap of the key findings from studies 1, 2, and 3. The implications of these research findings are then discussed. The limitations of these studies are then noted. Then directions for future research are presented.

Summary of Studies and Key Findings

Study 1. This was a field-based study of a company-sponsored human relations training program. The basic purpose was to explore, in general, the relationship between participant cognitive style and outcomes from training. Cognitive style dimensions investigated were field-dependence-independence (FDI) (Witkin,1978) and interpersonal discrimination (Carr, 1979). The major training outcomes were measured by self-reports (administered at the beginning, middle, and end of the training) and peer-rankings (at the end of the training).

This study was conducted in New Brunswick, Canada with employees of a large public utility company (n = 13). The participants (11 male, 2 female) had a mean age of 36 (range: 20-57) and a mean level of education of 10 years (range: 8-12). Prior to this lab all of the participants had attended a one week HRT event sponsored by their employer sometime in the past five years. Participants were both supervisory and non-supervisory personnel. Although the laboratory did not require participants to reside at the training site, about two-thirds did so. About 33% of the laboratory time was spent in a T-group. The remaining time was spent in structured activities.

Field-Independence was the only variable strongly

correlated with participant peer rankings of various behaviors/outcomes. Field Independents (FIs) were judged by their peers: (1) to be more task oriented, (2) to be more maintenance oriented, (3) to be more satisfied with the laboratory experience, and (4) to have learned the most from the laboratory experience when compared to Field Dependents (FDs) (all at $p < .01$). The above four outcome measures were strongly intercorrelated.

Study 2. This field-based study was conducted at the University of Massachusetts. The purpose was to explore the relationship between participant cognitive style and outcomes from training. Cognitive style dimensions investigated were field-dependence-independence (FDI) (Witkin, 1978) and interpersonal discrimination (Carr, 1979). The major training outcomes were measured by a series of self-report measures (administered over the duration of the training) and peer-rankings (at the end of the training).

The training was a formal university course in group dynamics offered to undergraduates (most of whom were majoring in the social or the behavioral sciences). Ss ($n = 39$) were college-age and consisted of 7 males and 32 females. The training was conducted over a 9 week peroid and ran for 44 hours. The design included an evening pre-meeting, a one day, twelve hour, workshop and eight 4

hour weekly sessions. This was a first exposure to HRT for most of the participants. About 66% of the laboratory was devoted to time in a T-group. The rest of the time was spent in theory presentations and structured experiential activities to deal with the theories. Participants were randomly assigned to three groups that remained intact over the course of the training. Each of the groups was facilitated by two advanced doctoral students. Facilitator pairs were balanced for sex (one male, one female). Two pairings were all-Caucasian, the third pairing was all-Black.

In this study perceptual discrimination (the cognitive style known as field-dependence-independence) was not correlated to any peer-ranked outcomes (concern for task, concern for group maintenance, satisfaction with group experience, learning and understanding as a result of group experience, & most emotionally open). However, some differences in self-reports were evident in an analysis done of each individual T-group.

A related cognitive style variable, Interpersonal discrimination, was measured by Carr's (1965, 1979) Interpersonal Discrimination Test. Interpersonal discrimination was significantly correlated with some peer-ranked outcome measures but not with self-report measures. This study found evidence of a high degree of

variability across T-groups in the correlations among the variables investigated. However, in all T-groups task-orientation was highly correlated with maintenance-orientation. This suggests that these two dimensions, when rated by co-participants, may not be as independent as previously believed in the Human Relations Training setting. A major conclusion of this paper is that human relations research should continue to explore the differential effects of various training treatments across various subpopulations of participants.

There were considerable differences between this population and the population of study 1. In addition to differences of culture (Massachusetts v. New Brunswick), educational background (college population v. grade 10 average education), age (college-aged v. mean age of 36), and life-style (student v. in-career), one additional difference is noteworthy. This study consisted primarily of females while Study 1 consisted primarily of males. The GEFT instrument (employed in both studies) is a better predictor of FI for men than for women (Witkin, Oltman, Raskin, & Karp, 1971). This may have accounted, in part, for this study's lack of strong findings supporting the relationship between FI and high peer-rankings on training outcomes.

Study 3. This field-based study was a component of the Province of Nova Scotia's "Administration Block" leadership training program for school administrators. In contrast to Studies 1 and 2, this training program was highly structured in nature. The previous studies revealed that psychological differentiation (FDI in Study 1, Interpersonal Discrimination in Study 2) correlated with peer-ranked training outcomes. This third study explored the relationship within and between measures of participant cognitive style and various outcomes from training. Outcome measures included: peer-rankings, self-rankings, and cognitive outcomes from an objectives-referenced test.

Statistically significant differences were found between experimental and control groups on self-reports and tests of cognitive knowledge, thus documenting the effectiveness of the training program. In general, cognitive style was uncorrelated to outcomes from training.

Implications

The main purpose of this dissertation was to explore cognitive style as a crucial individual difference that influences outcomes from HRT. Unfortunately, the findings in these studies were not consistent. Therefore, strong statements about the differential effectiveness of HRT cannot be made. Two additional areas of interest arose as a result of the analysis of findings from these studies.

The implications from this series of research projects span three major areas: (1) implications of findings related to the instruments employed, (2) variability in outcomes across presumably similar subpopulations, and (3) the relationship between cognitive style and outcomes from training. Each of these areas will be discussed in the following sections.

Implications Related to Instrumentation

The validity of the self-report and peer-ranking instruments in Study 2 (n=26) was supported by the high degree of intercorrelation (all $r>.50$; $p<.01$) of the scales common to both instruments. The self-report instrument was a 4-point Likert scale. (A similar self-report instrument was

employed in Study 1 (1)). The peer-ranking instrument was a modified version of Carr's IDT (1979) using specified construct dimensions (a similar peer-ranking instrument was employed in all three studies).

In Study 3 the self-report scale was changed to a 10-point Retrospective Pretest-Posttest Instrument. Recent research indicates that persons' self-ratings become less reliable as their reference frame for the rating is altered by the training experiences (Howard & Daley, 1979; Howard, Schmeck, & Bray, 1979; Mezoff, 1979). This unreliability is known as a "Response-Shift" bias. To control for this phenonema the Retrospective Pretest-Posttest Design has participants retrospectively rate where they see themselves as having been prior to training. Shifts have been noted in both classroom (Howard, Schmek, and Bray, 1979), interviewing skills training (Howard and Daley, 1979), and HRT settings (Mezoff, 1979).

The 10-point Retrospective Pretest-Posttest rating scale used in Study 3 should have been more reliable and valid than the 4-point Likert scale used in Studies 1 and 2. However, self-reports and peer-rankings were correlated in Study 2, whereas they were not correlated in Study 3. One possible explanation follows. The self-reports in Studies 1

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(1) the correlations between self-report and peer-ranked scales in Study 1 (n=13) did not support the strong correlations evidenced in Study 2.

and 2 were a simple self-rating on 4-point scale. The self-report rating in Study 3 was actually a post-training difference score, the score representing "how I see myself now, posttraining" less "how I see myself as having been prior to the training." The difference score represents the subject's self-assessment of growth or change over the course of the training.

The variable FDI might interact with the "response-shift" type of instrument employed in Study 3. FI persons tend to be less influenced by others opinions (Oltman, Goodenough, Witkin, Freeman, & Friedman, 1975). Similarly, one might expect that they would be less prone to shifting their reference frame and less subject to the response-shift bias. Since the self-reports in Study 3 were difference scores, FI persons may evidence lower ratings than FD persons on that type instrument than would be evident on a posttest only rating (2).

The differential influence of various cognitive styles on participant self-reports may be of greater influence than the training itself. FIs showed significantly higher self-reports than FDs on the Likert rating scale used in Study 2. In study 3 (using the Retrospective

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(2) On the self-report instrument in Study 3 participants ranked themselves retrospectively first. Therefore, comparisons of just posttest scores would not be valid, as they may be influenced by the fact that participants did the retrospective ranking first.

Pretest-Posttest instrument) an opposite trend occured: FDs rated themselves higher than FIs (in group E2 only). These conflicting results may be a function the FD and FI cognitive styles responding differentially to the two types of instruments rather than the training impacting FD and FI persons differentially. (Alternatively, these conflicting results may just be sampling or general population differences.)

This research has demonstrated the importance of employing a variety of measures. In these studies instruments tapped gains from training across a number of dimensions. Studies 1 and 2 measured self-reports and peer-rankings and study 3 added the dimension of cognitive knowledge. Further, each study employed at least one measure of cognitive style.

A variety of instruments measuring both independent and dependent variables is important. Many relationships would not have been uncovered had the variety of instrumentation been less inclusive. For example, in Study 2 if only the cognitive style of Field-Dependence-Independence (an independent variable) had been investigated, then the relationship between Interpersonal Discrimination and outcomes from training would not have been uncovered. The author suggests that future researchers be particularly cautious about exclusively employing the GEFT to measure

cognitive style when subjects are comprised of both sexes or are all-female. In all-male populations the GEFT may, however, be adequate.

Similarly, a variety of outcome measures (dependent variables) is important so that change may be ascertained along different dimensions. In Study 1, if only self-reports had been investigated, then no significant results would have been evidenced. By including peer-rankings, very strong correlations ($p<.01$) were revealed. A wide variety of gains are possible from HRT. Unless attempts are made to tap a range of outcomes, then many changes may go unmeasured.

As discussed in Chapter II, the kind of instrument employed may play as strong a part in determining relationships as the treatment itself. The disparity in correlations between Study 2 and Study 3 may be, in part, a function of the change to a different kind of self-report instrument (i.e., a 4-point Likert scale to a 10-point retrospective pretest-posttest difference instrument).

Further research needs to be done to establish the reliability of these measures, and to determine which type of self-report is more valid. Researchers should be cognizant of the biases inherent in both types of instruments (i.e., simple Likert scales may favor FIs, retrospective pretest-posttest scales may favor FDs).

Because of the reactivity of most HRT rating

instruments (3), the author strongly urges the utilization of the Solomon Four-Group design (Campbell & Stanley, 1962) in future HRT research. The Four-Group design controls for these confounding interactions.

Variability in Outcomes Across Treatment Groups.

In Study 2 participants were randomly assigned to one of three T-groups. Each T-group had different pairs of group facilitators. Despite the fact that all three groups had common theory sessions and identical schedules, the outcomes were significantly different across the three groups. For example, Interpersonal Discrimination was significantly positively correlated with peer-ranked task-orientation and maintenance-orientation for T-groups A and B, while these pairings were negatively correlated for T-group B. Also, peer-ranked emotional-openness correlated significantly with all other peer-ranked measures in T-group A and C, while no significant correlations were found in T-group B.

Self-reports and peer-rankings were significantly correlated in T-groups B and C, while no significant correlations were found in T-group A. When an analysis of variance was performed on the peer-rankings the probability of the groups being different was found to be statistically

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(3) Pretest-posttest interaction and pretest-treatment interaction.

significant. The five scales had Cochrans C values from .43 to .58 (associated probability values were: .36, .12, .10, .06, and .03). Thus indicating that at least one of these groups was different from the other two.

Whether differences in facilitator personality or style or some random phenomenon accounted for these differences cannot be determined at the present time. Whatever the cause of the variability, it must be concluded that given the same treatment design different T-groups can experience significantly different types of outcomes.

In Study 3 the treatment was identical. Both the course design and facilitator were held constant. Participants in the two classes (despite not being randomly assigned) were equivalent on all demographic and personality measures. As in Study 2, the Study 3 findings revealed significant differences across the two groups. Self-report dimensions revealed a strong degree of intercorrelation for group E2 (10 out of 15 correlations reached the $p<.01$ level), while in group E1 intercorrelations were less evident (3 out of 15 correlations reached the $p<.01$ level).

In Study 3 the intercorrelations among the measures of cognitive style were different across the two groups. The intercorrelations among the peer-rankings were also different for the two groups. In group E1 there were two significant correlations that were not supported by the

findings from group E2. In group E2 there were 13 significant correlations that were not supported by the findings from group E1.

In both Studies 2 and 3 it is noteworthy that significant positive correlations found in one treatment group were counterbalanced by non-significant or negative correlations in another treatment group. This phenomena had the effect of "washing out" the significance of the findings when the subpopulations were aggregated. In other words, if the population were analyzed as a whole, then significant differences would have gone unnoticed. By analyzing each separate T-group (Study 2) or class (Study 3) evidences of differential effects in each subpopulation were found.

Future researchers are strongly urged to beware of these effects. Caution should be exercised (even in the case of random assignment to identical treatment groups) in determining whether subpopulations are impacted in similar ways by a common treatment. Only if the subpopulations are impacted in similar ways should the data be analyzed on an aggregate basis. Aggregating data from apparantly similar groups that are effected differently by the treatment can obscure significant differences.

Cognitive Style and Outcomes from Training

This topic was intended to be the major focus of this series of research studies. Unfortunately, the inconsistencies among the studies makes it impossible to make a strong case that cognitive style relates to outcomes from training. Despite the differences in participant populations and training treatments, it seems appropriate to speculate on one trend that seems to occur across all three studies: It appears that more Field-Independent (FI) (or highly Interpersonally Discriminating) participants are rated by peers as the high learners in unstructured HRT (i.e., HRT involving a T-group component). On the other hand, when the training treatment is highly structured (as in Study 3) then the training is not biased to any particular cognitive style.

The data supporting this hypothesis will now be reviewed. The first two studies (involving relatively unstructured HRT) revealed that psychological differentiation correlated with peer-ranked outcomes from HRT. Psychological differentiation, represented by the construct of Field-Dependence-Independence (FDI), was correlated with peer-ranked outcomes in Study 1 but not in Study 2. Psychological differentiation, represented by the construct Interpersonal Discrimination, was correlated with peer-ranked outcomes in Study 2 but not in Study 1. In the

third study (involving highly structured HRT) neither of these constructs was significantly related to peer-ranked training outcomes.

The inconsistency between Studies 1 and 2 might be attributable to the differences in the participant population. The population in Study 1 was mostly male, while the population in Study 2 was mostly female. The instrument used to ascertain FDI (the GEFT) is a less accurate predictor of FDI for women than for men. Therefore, the differences in sex of the populations may have accounted for FDI correlating significantly with peer-rankings in Study 1 but not in Study 2.

The treatment in Studies 1 and 3 were more similar to each other than they were to the treatment in Study 2. The author was the facilitator for both Studies 1 and 3. Much of the content of the training was similar. The length and spacing of the training was similar (4). Studies 1 and 3 were both conducted in Maritime Canada and the populations were predominantly male.

If only Studies 1 and 3 were compared, then it appears that FI is correlated with peer-ranked outcomes in unstructured HRT (Study 1), but not in structured HRT (Study 3). If these relationships are supported by other studies,

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(4) Study 1 involved 38 hours of training over 1 week and Study 3 involved 30 hours of training over 2 1/2 weeks. In contrast Study 2 involved 44 hours over a 9 week period.

then it would appear that HRT for groups with persons of varying cognitive styles should be highly structured. It remains to be seen whether unstructured HRT is more successful for groups of FI persons (i.e., engineers, archetects, etc.) than a structured training treatment. To determine this, more objective outcome measures will have to be developed.

Limitations

The findings reviewed in this summary chapter and the implications drawn from them are constrained by a number of limitations. The findings from Study 1 (where participant FI cognitive style was highly correlated with peer-rankings) are constrained by the small sample size (n=13).

Study 2 evidenced differential effects across three separate T-groups and these effects are not consistent or explainable by any factors that were investigated. Some undetermined variable (such as facilitator style) might have caused the differential effects, or the findings could be simply a result of random variability in a T-group experience or due to error resulting from weakness in the measuring instruments.

The author was the trainer for both Studies 1 and 3. Experimenter bias could have entered into these studies. The author is highly FI (GEFT score of 16). If the author's FI

style was evident to Study 1 participants, then this model of facilitator behavior might have influenced participants to rank as high learners those individuals most similar in style to the facilitator. This effect was not evident, however, in the structured training program of Study 3.

The self-report instrument in Studies 1 and 2 did not control for a "response-shift" bias (discussed earlier on page). The differences in self-report instrumentation in Studies 1 and 2 compared to Study 3 might have contributed to the differences in findings. Further, the self-report instrument used in Study 3 might be biased against FI persons, as they are less likely to alter their reference frames than FD persons are.

Future Research

One major outcome of this project is to call for HR research that employs a design which takes into account the differential effects of training on various participant subpopulations. In particular, the findings from Studies 1 and 2 support this position. Large scale aptitude-treatment-interaction research projects (with multiple treatments and large sample sizes) are unlikely in HRT. However, when providing a single training treatment, it seems crucial to understand whether the training is affecting different persons in different ways. Researching differential effects, even within a single treatment training program, is important for two reasons. If differences are found: 1) the training could then be better tailored to participant needs, and 2) unproductive matches of certain participants with certain types of training can be avoided.

One of the most promising variables for exploring differences in responsiveness to training is participant cognitive style. Future investigations of the influence of participant cognitive styles on HRT outcomes should take the following factors into consideration:

1. The cognitive style dimension that is investigated should be one that is likely to interact with the type of

treatment that HRT provides. In addition to Field-Dependence-Independence other researchers might consider investigating cognitive complexity versus simplicity, reflectiveness versus impulsivity, and tolerance for unrealistic experiences (Messick, 1970). The rationale for choosing these variables is that they seem intuitively well-matched to interact with the dynamics at work in HRT settings. Their importance needs to be empirically tested.

2. Though not studied here, research related to Field-Dependence-Independence should take into account mobility and rigidity as an intersecting dimension (Witkin, 1978). This dimension will probably affect training outcomes, too. Mobile individuals are those persons that can shift or adapt their perceptual style contingent upon the situational demands. Research findings may be clouded by the presence of mobile individuals' if this variable is not controlled.

3. Raters, other than participants, should be included in the evaluation of training outcomes to corroborate the measures obtained here through co-participant and self-report rankings. Evaluations by the group facilitators, trained observers, and back-home colleagues could be included to form an inter-source consensus.

4. The reliability of self ratings by participants could perhaps be increased by having trainees rate

themselves against some objective standard (e.g., a videotape modeling certain types of behaviors). Behaviorally-anchored rating scales might make self-reports more reliable than the Likert scales or Retrospective Pretest-Posttest types of instruments employed in these studies.

5. Interaction effects of cognitive styles will probably be more evident if the training treatment that is provided is relatively "pure". A purely structured approach to training (e.g., micro-counseling) might conceivably produce a completely different effect than a pure unstructured approach (e.g., exclusively T-grouping).

6. The length and spacing of the training treatment is a variable that may influence differential outcomes for persons of varying cognitive styles. For example, FDs need stronger "triggers" to stimulate learning. Therefore, they are less likely to be affected by training programs of shorter duration. Differential effects related to the length and spacing of training have been noted by Schubert (1972) and Bunker & Knowles (1967).

7. The nature of the outcome variables chosen (i.e., peer-rankings, self-ratings, ratings by observers, etc.) and the measures used (both the format and the content) to assess those variables may be differentially positive for different cognitive styles. Clarity regarding such "bias" is

critical. Standard Likert self-report scales may be biased in favor of FIs, whereas Retrospective Pretest-Posttest instruments may be biased in favor of FDs.

Endnote Human relations trainers pay lip service to individual differences, but infrequently modify their training designs to accomodate the perceptual or cognitive styles of participants. Understanding the differences among persons of varying cognitive styles is a first step towards accepting the styles of others. Acceptance can be a difficult task, especially if others' styles are at variance with our own style or incompatible with our predetermined training design. If we can adopt the same behavioral flexibility that we encourage in our participants, then we will be better able to adapt ourselves and our training designs to the cognitive style needs of trainees.

References - Chapter VIII

Bunker, D.R., & Knowles, E.S., Comparison of behavioral changes resulting from human relations training laboratories of different lengths. Journal of Applied Behavioral Science, 1967, 3(4), 505-523.

Campbell, D.T. & Stanley, J.C. Experimental and quasi-experimental designs for research. Chicago: Rand McNally Publishing Company, 1963.

Carr, J. E., The role of conceptual organizaiton in interpersonal discrimination. The Journal of Psychology. 1965, 59, 159-176.

Carr, J. E., Manual for the Interpersonal Discrimination Test. Draft copy obtained from the author (School of Medicine, University of Washington, Seattle, Washington, 98195), 1979.

Howard, G.S. & Dailey, P.R. Response shift bias: A source of contamination of self-report measures. Journal of Applied Psychology, 1979, 65 (2),144-150.

Howard, G.S., Schmeck, R.R., & Bray, J.H., Internal invalidity in studies employing self-report instruments. Journal of Educational Measurement, 1979, 16 (2), 129-135.

Messick, S., The criterion problem in the evaluation of instruction: Assessing possible, not just probable, intended outcomes. In M. C. Wittrock & D. E. Wiley (Eds.) The evaluation of Instruction: Issues and Problems, New York: Holt, Rhinehart & Winston, 1970.

Mezoff, B., The retrospective shift: A human relations training phenomenon. Amherst, MA.: ODT Associates (ERIC Document Reproduction Service No. ED not yet assigned), 1979.

Schubert, P. W., Personality type and self-perceived change resulting from sensitivity group experience. Dissertation Abstracts International, 1972, 32A, 4360.

Witkin, H. A., Moore, C. A., Goodenough, D. R. & Cox, P. W., Field-dependent and field-independent cognitive styles and their educational implications. Review of Educational Research, 1977, 47 (1), 1-64.

Witkin, H. A., Oltman, P. K., Raskin, E., & Karp, S. A., A manual for the embedded figures tests. Palo Alto, CA: Consulting Psychologists Press, 1971.Witkin, H. A., Dyk, R. B., Paterson, H. F., Goodenough, D. R., & Karp, S. A., Psychological Differentation. New York: Wiley, 1962.

APPENDIX A

3/1979

Name or I.D. #_____

Laboratory Research Instrument

Directions

Please consider your total experience in this course, up to and including the present moment.
Circle the response that most clearly reflects your feelings.
Answer questions 1-11 using the response format below:

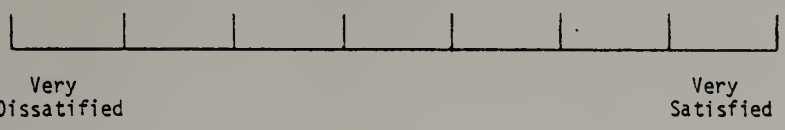
A = Agree
AS = Agree Somewhat
DS = Disagree Somewhat
D = Disagree

1. At the present moment I feel liked by other members of my group. A AS DS D
2. At the present moment I enjoy being with the other members of my group. A AS DS D
3. At the present moment I enjoy being physically close (i.e., holding hands, touching) with other members of my group. A AS DS D
4. In this course if I felt angry at another group member, I would express my anger directly toward that person. A AS DS D
5. In this course I am sensitive to the needs of other group members, even if they don't verbally express their desires. A AS DS D
6. In this course I take other's views and feelings into consideration before I do or say something. A AS DS D
7. In this course I look to others for feedback on how I am doing or how I am coming across. A AS DS D
8. Up to this point I have been an active and involved participant in my T-group. A AS DS D
9. Up to this point I have been primarily a spectator and/or an observer in my T-group. A AS DS D
10. Up to this point I have taken initiative in encouraging collaboration, cooperation, and participation among members of my group. A AS DS D
11. Up to this point I have taken initiative in suggesting activities, tasks, and topics to be discussed in my group. A AS DS D

/PLEASE SEE REVERSE SIDE/

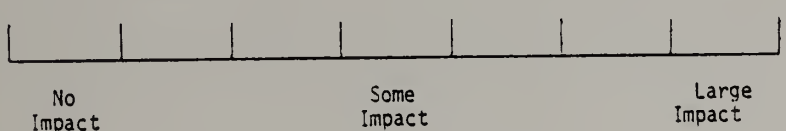
Answer questions 12-14 by placing an "X" on the scale that corresponds to each item. Place your make between the vertical lines [e.g., |X| (*correct*)]. Do <u>not</u> make your mark on a vertical line [e.g., |X (*incorrect*)].

12. My satisfaction with my group experience, up to this point in time, has been:



13. My learnings and understandings as a result of my experiences in my group, have been:

14. To date, this group experience has made an emotional impact on me:



IDT-M 3/79

POST-LAB QUESTIONNAIRE

Listed below are the members of your T-group.

Please tear off this cover page, so you can use it to refer to members by their number on the attached questionnaire.

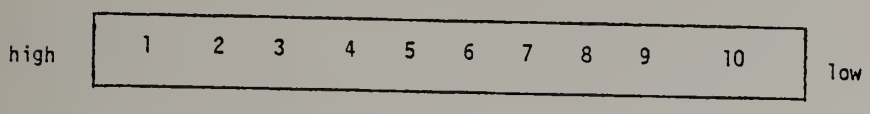
Number	Name
1	_____
2	_____
3	_____
4	_____
5	_____
6	_____
7	_____
8	_____
9	_____
10	_____
11	_____
12	_____
13	_____
14	_____
15	_____
16	_____
17	_____

Name or I.D.#_____

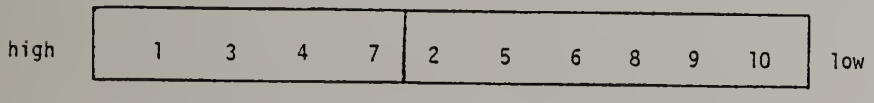
Directions

On each of the following pages you will be asked to compare the members of your group along different dimensions. We want you to show what people are similar on a given dimension, if there are any similar, and what people are different, if there are any that are different. In addition, if any are different, we want you to show how they are different.

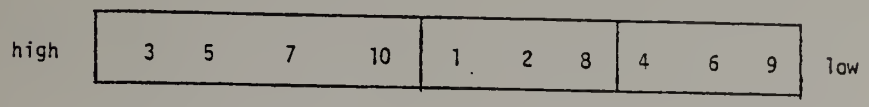
For example, let us say that "honesty" is the dimension in question and your group (including you) has 10 members. Now, if you thought that there was really no difference between everyone, that yourself and the other group members were equally "honest", then you would have one group and would represent this by merely putting everyone's number in one box:



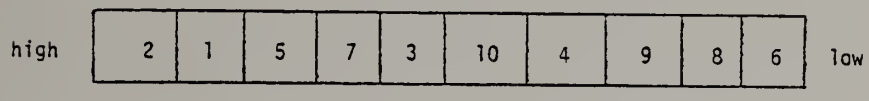
Or let us say that you thought Persons 1, 3, 4, and 7 were "honest" or more "honest", and that Persons 2, 5, 6, 8, 9, and 10 were not "honest" or less "honest". Then you would have two groups and would represent this by dividing the rectangle into two boxes:



Or what if you thought that Persons 3, 5, 7, and 10 were very "honest", Persons 1, 2, and 8 were less "honest", and that Persons 4, 6, and 9 were least "honest". Then you would have three groups and would represent this by dividing the rectangle into three boxes:



In the same way, you could also use four, five, six, or more boxes, if you like, to compare everyone. The limit of boxes would be the number of people in your group. As a last example, let us say that none of the nine others and yourself were alike, that you were all different, that Person 2 was most "honest", Person 1 next most "honest", Person 5 next, then Person 7, then Person 3, then Person 10, then Person 4, then Person 9, then Person 8, and finally Person 6 the least "honest" of all. You would then use ten boxes to represent this:



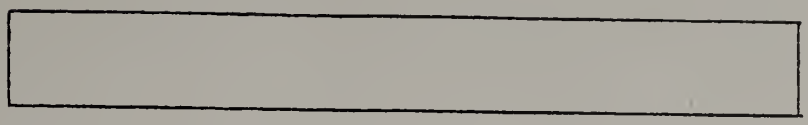
In other words, you can divide this group of ten people in any way you like by using one, two, three, four, five, six, or more boxes (up to ten). The idea is that if people are alike, then they should be in the same box, and if they are different, they should be in different boxes. Each box should represent less of the quality and more of its opposite as you move from left to right.

Please note on dimensions 5, 7, and 8 that you are to exclude yourself from the list. On dimensions 5, 7, and 8 you can therefore only have a maximum of nine boxes.

Dimension 1

CONCERN FOR TASK

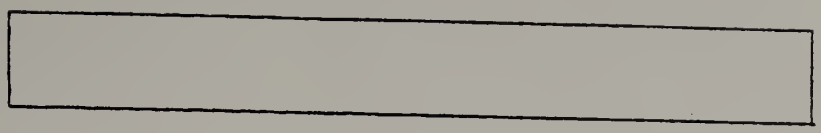
consistently suggested ways the group could accomplish tasks or activities

high  low

Dimension 2

CONCERN FOR GROUP MAINTENANCE

consistently encouraged collaboration, cooperation, and participation in the group

high  low

Dimension 3

SATISFACTION

highest degree of satisfaction
with the group experience

high  low

Dimension 4

LEARNING AND UNDERSTANDING

highest degree of learnings and understandings as a result of the group experience

high  low

Dimension 5

PERCEIVES THE REAL YOU

whom in your group do you feel perceives the real you?

most  least

(exclude yourself)

Dimension 6

MOST EMOTIONALLY OPEN

whom in your group (including yourself)
is the most emotionally open?

most  least

Dimension 7

I WOULD LIKE AS A FRIEND

whom in your group would you like most as a friend?

most  least

(exclude yourself)

Dimension 8

MOST SIMILAR TO YOU

whom in your group do you
feel is most similar to you?

most  least

(exclude yourself)

APPENDIX B

3/1979

Name or I.D. #_____

Laboratory Research Instrument

Directions

Please consider your total experience in this course, up to and including the present moment.
Circle the response that most clearly reflects your feelings.
Answer questions 1-11 using tne response format below:

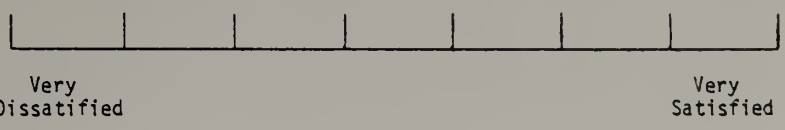
A = Agree
AS = Agree Somewhat
DS = Disagree Somewhat
D = Disagree

1. At the present moment I feel liked by other members of my group.	A	AS	DS	D
2. At the present moment I enjoy being with the other members of my group.	A	AS	DS	D
3. At the present moment I enjoy being physically close (i.e., holding hands, touching) with other members of my group.	A	AS	DS	D
4. In this course if I felt angry at another group member, I would express my anger directly toward that person.	A	AS	DS	D
5. In this course I am sensitive to the needs of other group members, even if they don't verbally express their desires.	A	AS	DS	D
6. In this course I take other's views and feelings into consideration before I do or say something.	A	AS	DS	D
7. In this course I look to others for feedback on how I am doing or how I am coming across.	A	AS	DS	D
8. Up to this point I have been an active and involved participant in my T-group.	A	AS	DS	D
9. Up to this point I have been primarily a spectator and/or an observer in my T-group.	A	AS	DS	D
10. Up to this point I have taken initiative in encouraging collaboration, cooperation, and participation among members of my group.	A	AS	DS	D
11. Up to this point I have taken initiative in suggesting activities, tasks, and topics to be discussed in my group.	A	AS	DS	D

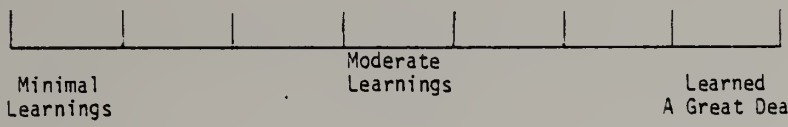
/PLEASE SEE REVERSE SIDE/

Answer questions 12-14 by placing an "X" on the scale that corresponds to each item. Place your make between the vertical lines [e.g., |X| (correct)]. Do not make your mark on a vertical line [e.g., |X (incorrect)].

12. My satisfaction with my group experience, up to this point in time, has been:



13. My learnings and understandings as a result of my experiences in my group, have been:



14. To date, this group experience has made an emotional impact on me:

IDT-M 3/79

POST-LAB QUESTIONNAIRE

Listed below are the members of your T-group.

Please tear off this cover page, so you can use it to refer to members by their number on the attached questionnaire.

Number	Name
1	_____
2	_____
3	_____
4	_____
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7	_____
8	_____
9	_____
10	_____
11	_____
12	_____
13	_____
14	_____
15	_____
16	_____
17	_____

Name or I.D.#_____

Directions

On each of the following pages you will be asked to compare the members of your group along different dimensions. We want you to show what people are similar on a given dimension, if there are any similar, and what people are different, if there are any that are different. In addition, if any are different, we want you to show how they are different.

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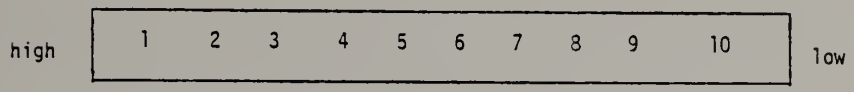
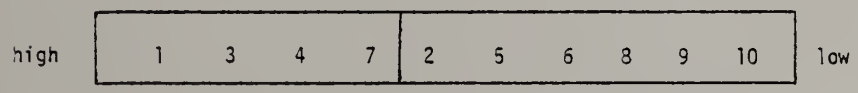
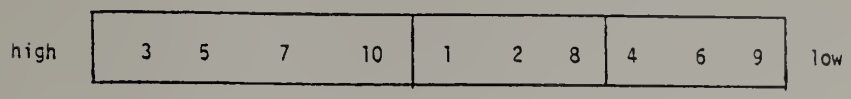


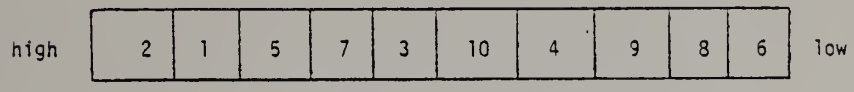
Or let us say that you thought Persons 1, 3, 4, and 7 were "honest" or more "honest", and that Persons 2, 5, 6, 8, 9, and 10 were not "honest" or less "honest". Then you would have two groups and would represent this by dividing the rectangle into two boxes:



Or what if you thought that Persons 3, 5, 7, and 10 were very "honest", Persons 1, 2, and 8 were less "honest", and that Persons 4, 6, and 9 were least "honest". Then you would have three groups and would represent this by dividing the rectangle into three boxes:



In the same way, you could also use four, five, six, or more boxes, if you like, to compare everyone. The limit of boxes would be the number of people in your group. As a last example, let us say that none of the nine others and yourself were alike, that you were all different, that Person 2 was most "honest", Person 1 next most "honest", Person 5 next, then Person 7, then Person 3, then Person 10, then Person 4, then Person 9, then Person 8, and finally Person 6 the least "honest" of all. You would then use ten boxes to represent this:

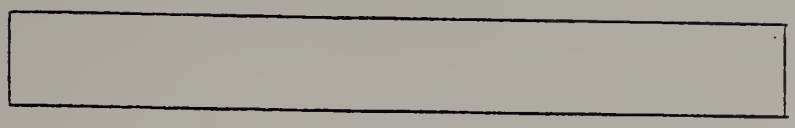


In other words, you can divide this group of ten people in any way you like by using one, two, three, four, five, six, or more boxes (up to ten). The idea is that if people are alike, then they should be in the same box, and if they are different, they should be in different boxes. Each box should represent less of the quality and more of its opposite as you move from left to right.

Dimension 1

CONCERN FOR TASK

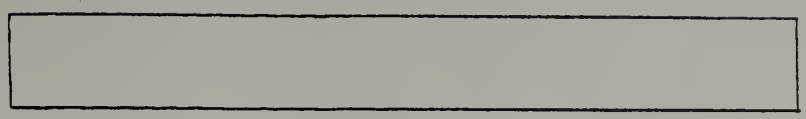
consistently suggested ways the group could accomplish tasks or activities

high  low

Dimension 2

CONCERN FOR GROUP MAINTENANCE

consistently encouraged collaboration, cooperation, and participation in the group

high  low

Dimension 3

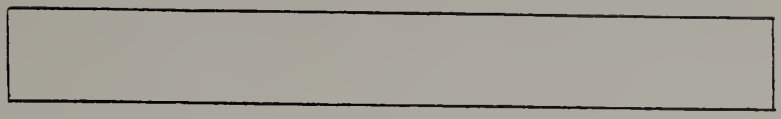
SATISFACTION

highest degree of satisfaction
with the group experience

Dimension 4

LEARNING AND UNDERSTANDING

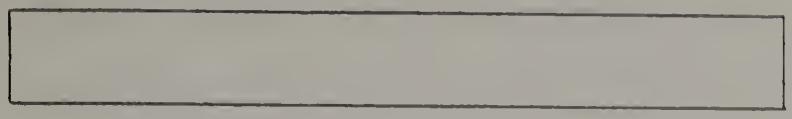
highest degree of learnings and
understandings as a result of
the group experience

high  low

Dimension 5

MOST EMOTIONALLY OPEN

whom in your group (including yourself)
is the most emotionally open?

most  least

APPENDIX C

PROFESSIONAL NUMBER [ ]

BELOW ARE FOUR DIMENSIONS. PLEASE RATE YOURSELF ON A SCALE OF ZERO TO ONE HUNDRED BY PLACING AN "X" AT THE POINT THAT BEST DESCRIBES YOUR PRESENT SKILL LEVEL. THE LEFT END OF THE LINE (ZERO) INDICATES A COMPLETE ABSENCE OF THE SKILL. THE RIGHT END (ONE HUNDRED) INDICATES THE SKILL LEVEL THAT YOU CONSIDER TO BE THE HIGHEST ATTAINABLE (E.G., A PERFECT LISTENER).

LISTENING SKILLS - THE ABILITY TO GIVE CAREFUL ATTENTION TO WHAT OTHERS ARE SAYING; TO HEAR, COMPREHEND, AND RETAIN THE ESSENTIAL POINTS IN THE SPEAKER'S MESSAGE.

TERRIBLE LISTENER 0 10 20 30 40 50 60 70 80 90 100 PERFECT LISTENER

AWARENESS OF OWN FEELINGS AND BEHAVIORS - THE ABILITY TO BE ATTUNED TO ONE'S FEELINGS AND BE AWARE OF HOW ONE IS PERCEIVED BY OTHERS.

TOTALLY UNAWARE 0 10 20 30 40 50 60 70 80 90 100 TOTALLY AWARE

PERCEPTIVENESS OF OTHERS - THE ABILITY TO PERCEIVE AND UNDERSTAND WHAT IS HAPPENING IN TERMS OF INDIVIDUAL BEHAVIOR AND GROUP PROCESSES.

TOTAL LACK OF PERCEPTIVENESS 0 10 20 30 40 50 60 70 80 90 100 TOTALLY PERCEPTIVE

ABILITY TO USE AND INTERPRET NON-VERBAL COMMUNICATION (E.G., FACIAL EXPRESSIONS, GESTURES, ETC.)

NO ABILITY 0 10 20 30 40 50 60 70 80 90 100 EXPERT ABILITY

REFLECTION GROUP QUESTIONNAIRE

LISTED BELOW ARE THE MEMBERS OF YOUR REFLECTION GROUP.

PLEASE TEAR OFF THIS COVER PAGE, SO YOU CAN USE IT TO REFER TO MEMBERS BY THEIR NUMBER ON THE ATTACHED QUESTIONNAIRE.

NUMBER	NAME
1	_____
2	_____
3	_____
4	_____
5	_____

Professional Number [ ]

Directions

On each of the following pages you will be asked to compare the members of your group along different dimensions. We want to show what people are similar on a given dimension, if there are any similar, and what people are different, if there are any that are different. In addition, if any are different, we want you to show how they are different.

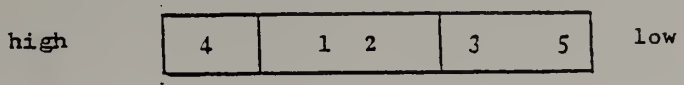
For example, let us say that "honesty" is the dimension in question and your group (including you) has 5 members. Now, if you thought that there was really no difference between everyone, that yourself and the other group members were equally "honest", then you would have one group and would represent this by merely putting everyone's number in one box:

high | 1 2 3 4 5 | low

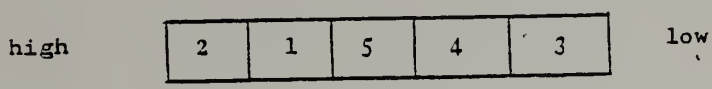
Or let us say that you thought Persons 1 and 5 were "honest" or more "honest", and that Persons 2, 3, and 4 were not "honest" or less "honest". Then you would have two groups and would represent this by dividing the rectangle into two boxes:

high | 1 5 | 2 3 4 | low

Or what if you thought that Person 4 was very "honest", Persons 1 and 2 were less "honest", and that Persons 3 and 5 were least "honest". Then you would have three groups and would represent this by dividing the rectangle into three boxes:



In the same way, you could also use four or five boxes if you like, to compare everyone. The limit of boxes would be the number of people in your group. As a last example, let us say that none of the others and yourself were alike, that you were all different, that Person 2 was most "honest", Person 1 next most "honest", Person 5 next, then Person 4, and finally Person 3 the least "honest" of all. You would then use 5 boxes to represent this:

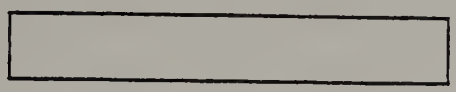


In other words, you can divide this group of five people in any way you like by using one, two, three, four or five boxes. The idea is that if people are alike, then they should be in the same box, and if they are different, they should be in different boxes. Each box should represent <u>less</u> of the quality and more of its opposite as you move from left to right.

Dimension 1

LISTENING SKILLS

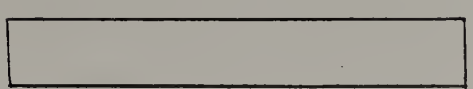
Ability to give careful attention to what others are saying: to hear, comprehend and retain the essential points in the speaker's message.

high  low

Dimension 2

AWARENESS OF OWN FEELINGS

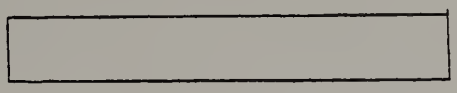
Ability to be attuned to (and aware of) one's own Feelings.

high  low

Dimension 3

AWARENESS OF HOW OTHERS PERCEIVE ME

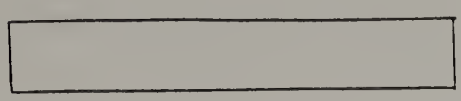
Knowing how I come across to other people, and knowing how they react to me and perceive me.

high  low

Dimension 4

PRECEPTIVENESS OF GROUPS

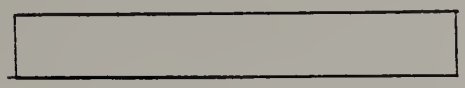
Ability to perceive and understand and what is happening in terms of group interaction or dynamics, and why people behave as they do in group situations.

high  low

Dimension 5

PERCEPTIVENESS OF OTHERS (INDIVIDUALLY)

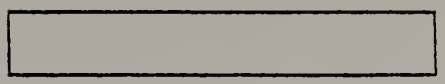
Ability to tell how other individuals are feeling.

high  low

Dimension 6

LEARNING AND UNDERSTANDING

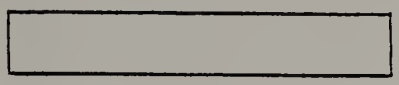
Highest degree of learnings and understandings as a result of this class.

high  low

Dimension 7

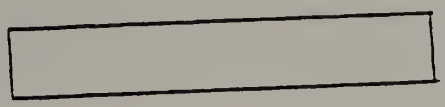
MOST EMOTIONALLY OPEN

Who in your group (including yourself) is the most emotionally open?

most  least

Dimension 8

ABILITY TO USE AND INTERPRET NON-VERBAL COMMUNICATION

high  low

Dimension 9

INFLUENCE

Whom in your group has been the most influential or powerful member?

Professional Number

Skill Rating Scale

This instrument is designed to let you rate yourself on six different dimensions. You will be asked to rate your skill levels as of today and also to rate your skill levels 2 1/2 weeks ago. These ratings may by the same or they may be different depending on whether you feel you have changed (increased or decreased) your skill levels in these areas since the beginning of summer school.

The left hand side of the page represents your skill levels at the beginning of summer school (July 2, 1979). Think back to your first day of classes. How would you rate yourself on the listed skills? Please rate yourself on a scale of zero to one hundred by placing an "x" at the point that best describes your skill level on July 2. The left end of the line (zero) indicates a complete absence of the skill. The right end (one hundred) indicates the skill level that you consider to be the highest attainable (e.g., A perfect listener).

After you have completed the left side of the page for all the skills, go on to the right side. The right side represents your skill levels as of today. Rate yourself in the same fashion by placing an "X" at the appropriate point between zero and one hundred.

My Skills As Of July 2

Listening Skills - The ability to give careful attention to what others are saying; to hear, comprehend, and retain the essential points in the speaker's message.

Terrible Listener 0 10 20 30 40 50 60 70 80 90 100 Perfect Listener

---

Awareness of Own Feelings - The ability to be attuned to one's feelings.

Totally Unaware 0 10 20 30 40 50 60 70 80 90 100 Totally Aware

My Skills Today

Listening Skills - The ability to give careful attention to what others are saying; to hear, comprehend, and retain the essential points in the speaker's message.

Terrible Listener 0 10 20 30 40 50 60 70 80 90 100 Perfect Listener

---

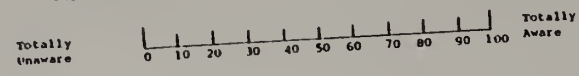
Awareness of Own Feelings - The ability to be attuned to one's feelings.

Totally Unaware 0 10 20 30 40 50 60 70 80 90 100 Totally Aware

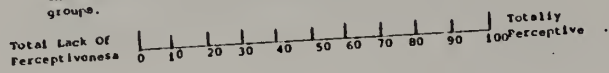
Skill Rating Scale

My Skills As of July 2

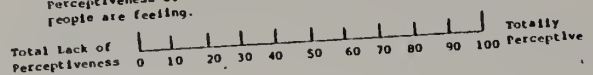
Awareness Of How Others Perceive Me - Knowing how other people see me and how I come across to others.



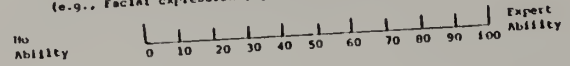
Perceptiveness Of Groups - Understanding the dynamics and interactions that occur in groups, and understanding people's behavior in groups.



Perceptiveness Of Others - The ability to perceive how other people are feeling.

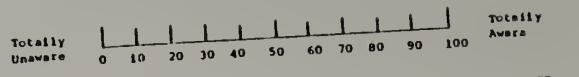


Ability To Use and Interpret Non-Verbal Communication - (e.g., Facial expressions, gestures, etc.)

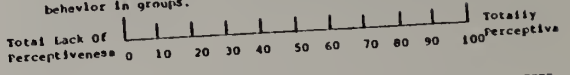


My Skills Today

Awareness Of How Others Perceive Me - Knowing how other people see me and how I come across to others.



Perceptiveness of Groups - Understanding the dynamics and interactions that occur in groups, and understanding people's behavior in groups.



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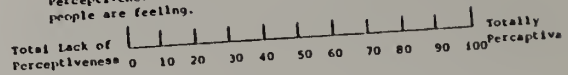

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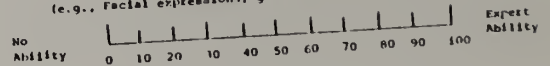


LDT- W
Post

CHARACTERISTICS OF CO-WORKERS

This is a survey of the various ways people describe one another. It is not a test, and so there are no"right"or "wrong" answers. We are going to ask you to describe some people you know. As you do this, please write legibly and express yourself as clearly as possible.

On the first three lines below write the names of three persons you know and generally like that you work with in your school. On the next three lines write the names of three persons you know and generally dislike, or like least. These persons should also be co-workers. If you cannot think of any co-workers then you may use the names of anyone you know. However, do not use relatives.

List six different persons.

(1) _____
(2) _____
(3) _____
(4) _____
(5) _____
(6) _____

This list of names is for your convenience. Throughout the rest of the questionnaire each person will be referred to by number only, that is, Person (1), Person (2), and so on. You may want to tear off this page in order to refer to it more easily as you complete the rest of the questionnaire. When you are through filling this booklet out, you may destroy this cover page. You need not return the cover page with the rest of the questionnaire.

Professional Number [ ]

PERSON M

Now, think about yourself. We shall call you Person M. In the left hand column below write three qualities or characteristics you have which you like.

Next, write their opposites in the right hand column.

QUALITY	OPPOSITE
1. _____	_____
2. _____	_____
3. _____	_____

-3-

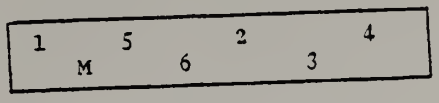
PERSON M

Now, we want you to think of three qualities or characteristics you have which you do not like, or like least, and write them in the left hand column below. Again, write their opposites in the right hand column.

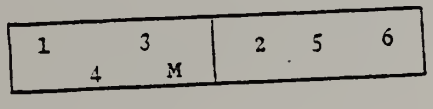
QUALITY	OPPOSITE
1. _____	_____
2. _____	_____
3. _____	_____

Now, turn back to Page 2 in this booklet and look at the first quality you listed for yourself. How would you compare the six people you have named and yourself on this first quality? We want you to show what people are similar on this quality, if there are any similar, and what people are different, if there are any that are different. In addition, if any are different, we want you to show how they are different.

For example, let us say that "honesty" is the quality in question. Now, if you thought that there was really no difference between everyone, that yourself and the six others were equally "honest", then you would have one group and would represent this by merely putting everyone's number in one box:



Or let us say that you thought Persons 1, 3, 4, and M (yourself) were "honest" or more "honest", and that Persons 2, 5, and 6 were not "honest" or less "honest". Then you would have two groups and would represent this by dividing the rectangle into two boxes:



Or what if you thought that Persons 3, 5, and M (yourself) were very "Honest", Persons 1 and 2 were less "honest", and that Persons 4 and 6 were least "honest". Then you would have three groups and would represent this by dividing the rectangle into three boxes:

3 5 M	1 2	4 6

In the same way, you could also use four, five, six, or even seven boxes, if you like, to compare everyone. As a last example, let us say that none of the six others and yourself were alike, that you were all different, that Person 2 was most "honest", Person 1 next most "honest", Person 5 next, then Person M (yourself), then Person 3, then Person 4, and finally Person 6 the least "honest" of all. You would then use seven boxes to represent this:

2	1	5	M	3	4	6

In other words, you can divide this group of seven people in any way you like by using one, two, three, four, five, six, or seven boxes. The idea is that if people are alike, then they should be in the same box, and if they are different, they should be in different boxes. Each box should represent <u>less</u> of the quality and more of its opposite as you move from left to right.

Now, go back and compare everyone, the six others and yourself, on each of the <u>six</u> qualities you used to describe yourself (Pages 2 and 3).

The test that you are about to take is being given to students for the first time. This trial administration is what is called "pilot-testing".

Naturally, we hope that you will give careful thought to your responses. However, the way that you feel about this test is nearly as important as the answers that you put down. For example, are the test items confusing, or misleading? Do you feel that some of the items are trick questions, or are ambiguous? Is the physical spacing of the questions helpful to you as a test-taker? Are any of the questions "give-aways"?

Your personal reactions to this test are very important. Please feel free to comment in the test booklet itself or use the bottom of this page or the last page at the end for your comments.

Your cooperation in this research project is greatly appreciated.

SPACE BELOW FOR YOUR COMMENTS ON THIS TEST

EA565 OBJECTIVES REFERENCED TEST - FORM A

Professional Number [ ]

1. The four elements basic to all communication are:

   (1) A person to originate a thought or idea.
   (2) The idea itself.
   (3) _____.
   (4) Someone to receive the idea.

2. List six guidelines for listener feedback:

   (1) _____
   (2) _____
   (3) _____
   (4) _____
   (5) _____
   (6) _____

3. Accepting all of our feelings is important. Psychological research suggests that people are less defensive if they have an objective _____.

4. In the Johari Window, we can increase the common knowledge (open self) area by the processes of _____ and _____.

5. In transactional analysis, the "wooden leg" game of "I can't do it because I'm sick" is an example of the T.A. life position of _____.

6. If we hear the following statement, "You shouldn't do that!", we would say that the statement came from the _____ ego state (using T.A. terminology).

7. One of the early research finding related to object perception was that _____.

8. If we fill in the gaps about information or data that we have not observed, this is probably an occurrence of the perceptual error of _____.

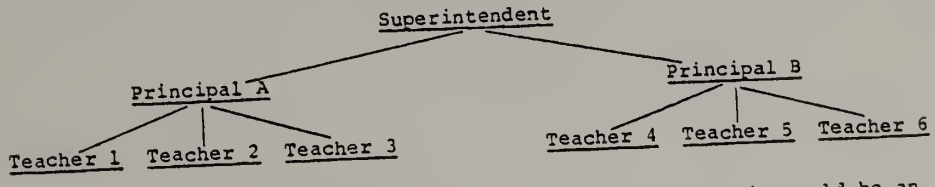
9. A fifth grade teacher is mistakenly told his students are below average in ability. After a mid-term assessment, we observe that the teacher has evaluated his students (on the average) as one grade-level below another class of equal ability. This phenomenon may be an occurrence of the perceptual error of _____.

10. "Tuna" is more easily understood than "edible seafood" because it is a more _____ description.

11. Message incongruency occurs when body language and verbal language are _____.

12. Messages are communicated through words, facial expressions, and vocal tones. A. Mehrabian believes that words alone account for approximately _____ percent of the total impact of the message.

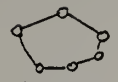
13. In the organization chart below Teacher 1 needs to communicate with Principal B.



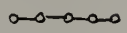
If Teacher 1 communicates directly with Principal B, this would be an example of the _____ communication network.

14. In item 13 (above), the advantages of this form of communication would be _____.

15. Below are three organizational linkages:



Circular



Serial

Radial

Rank order the morale associated with each.

Good Morale _____
Poor Morale _____
Very Poor Morale _____

16. One of the assumptions underlying McGregor's Theory X is:
_____.

17. One advantage of the grapevine is _____
_____.

18. A leader communicates to her subordinates, "Let's all pull together and get this job finished by Tuesday!"
This is an example of a (an) _____ leadership style.

19. Two major independent components of leader behavior have been found by leadership researchers. These two components are _____
_____ and _____.

20. If we believe that there is no one "best" leadership style, and that different subordinates (and/or tasks) may require different styles, we are likely to employ a (an) _____ theory of leadership.

21. A (an) _____ leader would be likely to believe McGregor's Theory X assumptions about people.

22. The following statement is related to the process dimension of group life:

"I think we're working well together as a team."

The following statement,

"I think we ought to get this job done by prioritizing the items on the agenda."

is related to the _____ dimension of group life.

23. When conflict exists between two or more persons, we call it a (an) _____ conflict.

24. A long bitter strike, where labor and management lose wages and profits, is an example of a (an) _____ conflict.

25. Below is a message and four possible responses.

Industrial engineer to his boss: "I won't be able to complete Project 82 by the deadline we set last month. The specifications for the mountings haven't arrived - just one of many things that have gone wrong and have got me fed up with the project."

(a) So you don't like what you're doing?
(b) Why don't you just try a little harder?
(c) Call the vendor and demand the specifications.
(d) You're troubled by the things that have gone wrong which are delaying the project.

The reflective response is _____.

Professional Number _____

Sex: Male _____ Female _____

Age _____

Number of Years as a Teacher _____

Number of Years as an Administrator ___

YOUR COMMENTS AND REACTIONS TO THIS TEST

EA565 Section 2
Fundamentals of Educational Leadership

Bob Mezoff
Summer, 1979

Tentative Schedule***

Date	Topics	Activities*	Assignments	General Objectives
July 2		Introductory Exercise Clarify Objectives Determine Needs and Goals Instrumentation		Orientation Needs Assessment
July 3	Communication and Listening Skills	Attending Microskill Practice	Ch. 1, 2** and handouts	To increase your knowledge about the communication process and improve your skills in interpersonal communication.
July 4	Self-Perception	Self-Percepton Exercise	Ch. 3	To achieve greater self-understanding and to use this understanding to communicate more effectively with others.
July 4 (Extra session)	Other-Perception Language and symbols	Film: "Eye of the Beholder" Discussion Groups	Ch. 4 and handout	To be more aware of the perceptual errors of self and others, and the steps one can take to decrease those errors.
July 5	Non-Verbal Communication Problem Solving	Broken Squares Exercise	Ch. 8 and handout	To increase your awareness of the importance of non-verbal communication.
July 6	Communication Flow	One & Two Way Communication	Ch. 9	To increase your understanding of the dynamics of one- and two-way communication.
July 9	Communication Networks	Problem-Solving in Nets Exercise	handout	To increase your knowledge of the structural aspects of communicatin in the interpersonal and organizational contexts.

DATE	TOPICS	ACTIVITIES	ASSIGNMENTS	GENERAL OBJECTIVES
July 10	Leadership Functions	Leadership Exercise	Handout	To increase your understanding of leadership functions and the various dynamics that occur within groups.
July 11	Observation Skills	Consensus-Seeking Exercise		To make you a more skillful observer of group process.
July 11 (Extra session)	Group Process Member Roles	New Truck Role Play	Ch. 5	To increase observation skills and improve your understanding of the roles that people assume in groups.
July 12	Decision-Making	Vroom Model Exercise	Handout	To expose you to a contingency model of decision-making and to practice using that model.
July 13	Problem-Solving Conflict Reduction	Ucli Orance Exercise	Ch. 6	To provide a cognitive and affective understanding of conflict resolution. To provide you with skills and techniques that will assist you in dealing with conflict.
July 16	Learning Styles Open	Data Feedback from GEFT		To understand the differences in cognitive (learning) styles that exist, and to discuss their implications in our interpersonal behavior.
July 17	Open	Instrumentation		
July 18		Summary and Closure Re-entry Applications Instrumentation		

* Each day's activity will be followed by a 15-20 minute reflection group meeting.

** Textbook is Let's Talk, Sathré, Olson and Whitney (2nd Edition).

*** This is a tentative schedule. Other alternative topics include:

1. analyzing problems (In-Basket Exercises and/or Pigors Incident Method),
2. interpersonal styles (Firo-B Instrument),
3. attitudes and feelings in the workplace (Mary Manager Role Play),
4. personality evaluation feedback (instrument),
5. expressing feelings (theory and exercise),
6. feedback for individual participants,
7. transactional analysis (theory and exercise),
8. defense mechanisms (theory and role play),
9. hidden agendas (role play),
10. attending and influencing microskills (videotape skills practice),
11. cross cultural helping,
12. creativity training.