PERSONAL CHANGES ATTRIBUTED TO HUMAN RELATIONS TRAINING BY PARTICIPANTS, INTIMATES AND JOB COLLEAGUES

Thesis for the Degree of Ph. D. MICHIGAN STATE UNIVERSITY ELIZABETH J. FORCE 1969 THESIS



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PERSONAL CHANGES ATTRIBUTED TO HUMAN RELATIONS TRAINING BY PARTICIPANTS. INTIMATES AND JOB COLLEAGUES

presented by

"Elizabeth J. Force

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ABSTRACT

PERSONAL CHANGES ATTRIBUTED TO HUMAN RELATIONS TRAINING BY PARTICIPANTS, INTIMATES AND JOB COLLEAGUES

By

Elizabeth J. Force

Participants (Ps) in an eight day human relations training lab, designed to enhance interpersonal competence, generated data permitting the comparison of perceived changes in Ps' subsequent behaviors, study of T-group process, and the exploration of new techniques for assessing these phenomena. "Significant others," consisting of one intimate (I) and one job colleague (C) were nominated by each of the fifty Ps. Five weeks pre-lab, data were provided by forty-eight Ps, forty-eight Is, and forty-six Cs; five months post-lab, similar data were assembled from forty-eight Ps, forty-one Is, and thirty-eight Cs. Additional data were gathered from all Ps in their individual T-groups on lab days 2 and 7. It was hypothesized that the personal encounter and feedback processes so central to human relations training labs would stimulate gains by Ps in the areas of communicative skills, interpersonal relationships and job effectiveness.

The lab apparently provided a "shake-up" or "cultureshock" experience. Ps' within-lab self-perceptions were sharply below their pre-lab self reports, with statistically significant decreases registering on many measures. Between days 2 and 7, however, their fellow T-groups members generally described Ps as gaining substantially on these same variables. Five months post-lab, Ps reported gains above their pre-lab level in all three areas (communicative skills, interpersonal relationships, job effectiveness), increasing significantly on seven of ten variables. Is generally confirmed these gains, sometimes in lesser degrees, except for viewing Ps as decreasing on friendliness and self confidence. These discrepancies were interpreted as reflecting Is' ambivalence about Ps' involvement in the lab and their subsequent changes, such as becoming more expressive, assertive, dominant, etc.

<u>Cs</u> rated <u>Ps</u> much more favorable pre-lab, but as shifting more negatively post-lab, than either <u>Ps</u> or <u>Is</u>. A "regression towards the mean" interpretation was offered for this shift. Because many <u>Cs</u> were fellow educators and rated <u>Ps</u> pre-lab in mid-summer, their initially high, seemingly inflated, ratings were thought attributable to the combination of reduced personal contact and a desire to help <u>Ps</u> "get in" the lab, while their post-lab ratings were made near the middle of the school year, at a time of increased contact, perhaps facilitating greater realism. All three (P, I, and C) data sources agreed that $\underline{P}s$ increased significantly on Data Seeking (seeking to obtain authentic reactions and information about how others experience \underline{P}) and Data Giving (giving authentic reactions and information to others about how \underline{P} experiences them). Supplementary descriptions of changes, collected both pre- and post-lab were especially positive post-lab from all three sources, adding rich, descriptive information to the quantitative data. Lab participation seemingly increased the interpersonal competence of most $\underline{P}s$, as perceived by both self and others, and was experienced as personally rewarding.

Proving useful were both established measured (La Forge-Leary Interpersonal Checklist and Harrison's Person Description Instrument X) and several newly developed scales of Openness, Data Seeking, Data Giving, positive and negative orientation to self and others, Feedback Seeking, Self Disclosure, and interpersonal change. Intercorrelations among these variables generally clustered meaningfully. Although Feedback Seeking and Self Disclosure seemed particularly potent variables in the group process, differences in trainer style and participant characteristics, also were important.

Amount of positive change varied considerably by Tgroups and appeared highly associated with Ps' views of trainer effectiveness. Inviting further study are the relationships between positive change and such variables as group composition, trainer attributes, and specific trainerparticipant interactions. It would also be interesting to explore the possibility of gathering data from observers not chosen by <u>Ps</u>. For viewing laboratory training experiences in appropriate perspective, the present findings underscore the value of research designs which include multiple measures, multiple observers, and a longitudinal orientation toward change.

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Elizabeth J. Force

A THESIS

Submitted to Michigan State University in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Department of Psychology

1969

For showing

^{it possible} for n

^a psychotherapist

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To Chris

For showing me the meaning of caring, and thus making it possible for me to take the first steps towards becoming a psychotherapist.

I would li mairman, Dr. Ma aiffith Freed f committee. I and telp and support a friend and and continuous a search. To Mary for her warm con I am grate wping the origi Also, I wish to assistance with ^{of completing t}} General, was be ^{anxieties} with , ^{in the} graduate ^{for th}eir suppo Finally, ^{Pants of the 19} ^{ang} those who s ^{Was essential f}

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Finally, I would like to thank the staff and participants of the 1968 summer State of Michigan Training Labs, and those who served as outside respondents whose cooperation was essential for the study.

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INTRODUCTION

This study was interested in exploring changes in interpersonal relationships as the result of an eight day human relations training laboratory. The areas investigated were the communicative process, feelings towards self and others, patterns of relating to others, and job effectiveness. A progressive picture of change was sought by collecting data before, during and after the lab. Before the design of this study is presented, the concept of the T group will be explored, and recent research reviewed.

The T Group Defined

The T group is an integral part of the larger entity known as laboratory, sensitivity, or human relations training. The lab can be described as a temporary residential community for approximately 30 to 150 people for one to three weeks. The participants may be complete strangers, slight acquaintances, or members of the same institution. The setting is geared to provide an intensive learning experience for its members. The T groups are usually composed of ten to fifteen people, and provide the core learning experiences. However, most labs also provide a wide range of additional activities, such as lectures, demonstrations, consultation on back home problems, and planned exercises to

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augment and support the learning in the T group. The lab community has a permissive atmosphere, and members are encouraged to test out new patterns of behavior. The T groups themselves, in contrast to the other activities, are relatively unstructured. In the T groups, the behavior emitted by the members in the group (here and now data) is the material discussed. It is assumed that when group members become anxious in the unstructured situation, their usual behavior patterns will be shaken up, and this will enable them to hear feedback about their behavior from other group members, and institute new behaviors. This, of course, is dependent upon an atmosphere of permissiveness and psychological safety. As members struggle to define the ambiguous situation, and begin to interact with one another, through the feedback process each learns about his own motives, feelings, and patterns of dealing with others; his impact on others; and the effectiveness of his interactions with individuals and groups. The modes of interacting are both verbal and non verbal. The lab philosophy assumes that psychological safety can be achieved quickly, anxiety facilitates new learning, behavior emitted in the group is similar to behavior emitted outside the group, and transfer of learning takes place to the back home setting.

The learning process may be aided by a group leader or trainer, or by various instruments. The trainer usually provides neither structure, nor direct leadership.

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He serves as a model, expressing his own feelings openly and honestly, providing constructive feedback, absorbing hostility non defensively, and supporting more open communication and expression of feelings in others.

Thus, in summary, a T group is part of a larger learning experience. It is composed of members who participate together with the goal of faciliting learning. What the focus of learning is provides the basis for the differences among lab situations--i.e., the focus of learning may be on personal growth, interpersonal relations, group process or functioning, or organizational improvement. The rationale or assumption is that in an ambiguous situation, a person can become more aware of himself and how he functions through the feedback provided by others. Thus, he can learn to relate more authentically and effectively in the groups, and can transfer this to his back home environment, and continue to grow and function more adequately.

Goals

The goals or objectives of a T group and of the whole lab experience can be conceptualized under two headings-those of individual personal growth, and those of facilitating change in the larger social environment. The following goals are sought for the individual: increased insight and understanding concerning one's own motives and behavior; increased understanding of one's impact on others; improved

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sensitivity to, (empathy); a wi facilitate or i mostic skills i more flexibilit: effective proble perceive and let paying attention from others; gre tiveness and sat stips. These go on the general of There are Joals. The mai are difficult t often the indiv ³⁰ supportativ such experience lation is not ^{lent}. T group: ^{legrotic} or ps that as human ^{popula}tions se any cases ^{Roups} in term sensitivity to, and understanding of, the feelings of others (empathy); a wider grasp of the kinds of behaviors that facilitate or inhibit group functioning; heightened diagnostic skills in interpersonal, social, and group situations; more flexibility and variety in social action patterns; more effective problem solving approaches; a greater ability to perceive and learn from the consequences of one's actions by paying attention to one's feelings, and seeking feedback from others; greater ability to give help; and greater effectiveness and satisfaction in one's interpersonal relationships. These goals are differentially emphasized depending on the general orientation of the lab.

There are, of course, obstacles to achieving the above goals. The main one is that long standing habit patterns are difficult to change in a short time, especially when often the individual goes back to his old, and frequently non supportative, environment with no further exposure to such experiences. Often, the transfer to the back home situation is not facilitated by enough practice and reinforcement. T groups have also been limited in helping severely neurotic or psychotic individuals. However, it will be seen that as human relations training has evolved over the years, populations served, and objectives have become broader, and in many cases there is little differentiation from therapy groups in terms of goals, process and members.

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Comparison With Therapy Groups

Initially, T groups served populations of professional helpers who had educative and consultative responsibilities; supervisors, managers and administrators; total organizational memberships; and youth groups. However, now client populations, and more laymen are included. T groups were initially structured to be quite different from therapy groups in terms of membership (normal versus abnormal); goals (improvement in the accuracy and sensitivity of members' perceptions of themselves and others with the objective of improving the functioning of the group to which the individual returned versus relieving patients' distress and achieving changes in individual patients); modification of attitudes (to people in general versus people close to the patient such as family); concentration on learning (more concentration on learning new patterns versus equal emphasis on unlearning as new learning); time period (three days to three weeks versus an indefinite period often); climate and structure (less gap between leader and members, and a supportative climate with less anxiety and content limitations, versus a gap between patients and therapists, a more threatening and anxiety provoking atmosphere with no limit to content). However, as the T group concept expanded and changed, distinctions between the two approaches have tended to diminish in many groups. This will be evident from the next section.

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According to Bradford (1967), laboratory training grew out of the general feeling that the pressure to change coming from the sciences left individuals and groups unprepared to handle such changes effectively. The actual forerunner of the lab experience was a workshop designed to develop more effective local leaders under the Interracial Commission in Connecticut in the summer of 1946. During this workshop, the members became aware that discussion of feelings and reactions was a powerful medium in the process of re-education. They found that an objective confrontation of group members with data about their behavior and its effects, along with nondefensive participation by members in discussion of this data, led to meaningful learnings about themselves, others' responses to them, and group behavior. Some of the staff from this workshop started the first three week lab at Bethel, Maine in the summer of 1947. Here a Basic Skills Training Group (BST) was the vehicle for learning change agent skills and concepts, as well as understanding group growth and development, and was a central part of the larger lab curric-The training staff included people from social psyulum. chology, adult education, sociology, philosophy of education, and researchers from clinical psychology and anthropology.

Following this first lab at Bethel, the history of the T group can be divided into two periods according to Bradford (1967): (1) 1949-55 concerned with separation of extraneous

training functions from the T groups; and (2) 1956 on, concerned with the reintegration of the T group into the larger lab design.

During the first period, staffs became more clinically oriented, interpersonal events were stressed more, and psychoanalytic and Rogerian theories supplemented Lewinian and sociological theories. Less emphasis was placed on learning specific skills and concepts. To facilitate transfer to the back home setting, consulting groups of like individuals with similar problems were formed with limited success. The BST groups were renamed T groups. There was concern that the T groups were becoming too clinical and too analogous to therapy groups, so action groups and later, skill groups were added with more of a sociological focus. Research was incorporated into the T groups and often the data was shared as feedback. The process of giving feedback was changed from having an assistant trainer give the feedback in a rather structured way, to having group members give it spontaneously. The trainers' role changed to being more active and involved.

During the second period, labs were developed for various occupational groups; regional labs sprange up; and alumni programs were instituted. Clearer guidelines were developed for the training of trainers. Theory presentations (individual and small group) were better interwoven into the lab. Skill exercises were included in the T groups,

and the content limits were expanded beyond "here and now" data.

The current period of T group history includes the blurring of lines between many T groups and many therapy groups and marathons. Bethel and other regional labs still retain labs that are primarily aimed at improving the individual's functioning in industry or education, and are thus focused on increased effectiveness in groups. However, there has, in addition, been a merger of the T group concept with the more clinical group therapy movement resulting in what are popularly called encounter groups. This branch focuses almost entirely on individual experiences and growth. Rogers (Hall, 1967) states that people are attracted to these groups out of loneliness and alienation. They are seeking new experiences and closeness with others. This is in sharp contrast to the earlier T groups where individuals came to learn better managerial or consultative skills. Rogers sees the encounter groups as making the individual more open to his inner experiences, more expressive of his feelings, more spontaneous in his reactions, more flexible, more vulnerable and more genuine and intimate in his interpersonal relationships. The clinical and experiential emphasis, in contrast to the educative emphasis, is apparent from this description. Included in this encounter group offshoot of the original laboratory training movement are the many groups at Esalen (Murphy, 1967). These groups are by and large experiential

groups, and ent awarenesses and ones. The emph rather than cog describing this the leaders are participants be the emphasis on decoming more n act necessarily

Initially Offerent from The less involuthe less involuthe intervention as follows: to tive and effect to learning about Froup discover analysis, and Tate conducive eralize and ap ford, 1967). Yolved initial groups, and entirely aim at broadening the individual's awarenesses and experiences, particularly his non verbal ones. The emphasis is on complete openness, and emotional rather than cognitive experiences. Argyris (1967), in describing this new trend, points out that in these labs, the leaders are more active and directive, and thus the participants become more dependent and learn less. With the emphasis on experiencing feelings, he sees the individual becoming more narcissistic, and having experiences that are not necessarily useful outside the lab.

Functions of the Trainer

Initially, the trainer's function was to be very different from that of the group therapist in terms of being much less involved as a leader and more as a member; and his interventions were to deal with group process rather than specific individuals. His purpose was conceptualized as follows: to help form a group that would be more sensitive and effective in social situation; to help remove blocks to learning about oneself, others and groups; to help the group discover and utilize action, observation, feedback, analysis, and experimentation; to help develop a group climate conducive to learning; and to help groups learn to generalize and apply their learnings to other situations (Bradford, 1967). Fiebert (1968) views the trainer as being involved initially as a "catalyst" by stimulating the group

to share feelings, take risks and communicate openly and honestly. Then, he becomes an "orchestrator," meaning that he is less active and guides the group in further interpersonal exploration. During this phase, other group members become more active in trainer-like roles. Finally, the trainer can choose to be a participant himself, or fade into the background.

In some of the more recent labs, the trainer has become more involved in a way similar to an active participating therapist.

T Group Process

Bennis (Bradford, 1967) viewed T group process in the following way. The first phase is one of dependence with three subphases of dependence-flight, counterdependencefight, and resolution-catharsis. The dependency phase evolves in response to the unstructured, ambiguous situation with a perceived, but not actual, authority figure. The group tries to get the trainer to give them direction. When this fails, some group members unsuccessfully try to assume leadership, and others behave in ways that have gained them approval from authority figures in the past. Two subgroups begin to emerge--one attempts to get some structure by appointing a leader and deciding on an agenda; the other opposes this. Both, however, are dissatisfied with the trainer, and thus eventually he is confronted and challenged. Those who have not identified with either subgroup by this time (independents) now take a dominant role and initiate discussion of the authority problem. This ends the dependency phase. Phase two is labelled interdependence, with subphases of enchantment-flight, disenchantment-fight, and consensual validation. Having dealt with the leader, the members now begin to deal with each other. Initially, positive feelings are the only ones recognized because of the need to preserve group harmony. Nevertheless, there is underlying hostility, and again two subgroups emerge--the overpersonals who want the positive feelings to remain unconditionally, and hence who want no confrontations; and the counterpersonals, who want to avoid any real intimacy. As the group nears termination, role evaluation forces confrontation and resolution. Again, the independents are instrumental by usually asking for feedback first, and lowering the anxiety about confrontations.

Fiebert (1968) characterized the group as initially having high hopes and expectations, mixed with doubts and fears. Gradually, a disillusionment and frustration grows, and is verbalized. This corresponds to Bennis' first phase, as the interaction, real or fantasied, centers largely between participant and trainer. Fiebert then describes the development and working through of interpersonal involvements, climaxing in deep love feelings. This corresponds to Bennis' second phase. Lastly, Fiebert describes spontaneous free behavior and separation.

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Glueck (1968) described four phases: individual centered, frustration and conflict over stereotypes, attempted group consolidation, and individual self assessment. Thelen and Dickerman (1949) described four phases: leadership struggle, frustration and conflict, cohesion and friendliness, purpose and urgency. Gottschalk (1966) described the psychoanalytic process of transference that evolves in a T group.

Several studies (Campbell and Dunnett, 1968) showed that individuals experience a high level of anxiety initially and in the middle of the T group, corresponding to the anxieties over dealing with the leaderless situation and with each other. This diminishes as the group nears termination. Klein (1968), in a poem, described vividly the various feelings an individual experiences as the T group begins (anxiety, insecurity, anger, impatience, need for structure, envy, hesitancy, risks, etc.). Bass (1962) did a mood check at various points during a lab, and found that anxiety and skepticism decreased as the group progressed.

Thus, T group process seems to follow a fairly predictable course of dealing first with the trainer and the general authority problem, followed by dealing with each other, at first unrealistically and cautiously, and then, more realistically. The group process is at first accompanied by anxiety, but this diminishes as resolutions of the problems are reached.

With this overview of what its goals are, how it functions, and the history of its development, the next section summarizes the research trends on human relations training labs from 1947 to the present.

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REVIEW OF THE LITERATURE

Process in the T Group

The research in this area suggests that as the T group continues to meet, structure emerges from an initially undifferentiated state. Bennis, Burke, Cutter, Harringtion, and Hoffman, (1957) found that norms about members' behavior were established early in the group, and tended to persist. Barron and Krulee (1948) found a movement from initial resistance to accepting responsibility, through a gradual acceptance of a method of operation, to organized and productive meetings. Cartwright (Bradford, 1957) found a positive relationship between group productivity and cohesiveness after three weeks; less distractibility from the task; and an increase in awareness of group structure. Norfleet (1948) found that reciprocal friendship choices increased as the group progressed over time. Lakin and Carson (1964) found no standard experience of group development. These studies deal with the development of the group over Studies of group process follow. time.

Stock and Ben-Zeev (1958) found that as the group progressed, the amount of expressed emotion remained constant, while the average work level increased. Four phases were identified: (1) exploratory attempts to establish

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In summary, the research seems to bear out the theoretical formulations about group process. The groups seem to develop through stages of resistance, defensiveness, and finally constructive work. This is in conjunction with group processes which involve initial struggles with authority problems, then struggles with interpersonal intimacy problems, followed by constructive working together as a group.

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Individual Behavior in the T Group

This section deals with how individuals generally behave in a T group. Blake and Mouton (1956) found that ascendent group members clashed more, participated more, and competed more with other group members, while submissive individuals avoided conflict, and emphasized group over personal goals. Bennis <u>et al</u>. (1957) found that persons scoring high in need abasement led least in the group; individuals who described themselves as high on pairing were seen as most friendly by others; and those scoring high on inclusion needs were seen as low participators.

Ascendent individuals were found to be more aggressive towards the trainer, while submissive individuals sought direction and support from the trainer. (Blake and Mouton, 1956).

Benne and Sheats (1948) identified different functional roles for members. Watson (1953) identified persons with common personality characteristics who expressed them in certain identifiable behavior patterns. She found that individuals with direct, oral-sadistic hostility were critical and aggressive, and individuals with high anxiety were uncomfortable in the unstructured group situation.

Foster (1958) found that an individual's professional value system affected how he viewed group leadership. Grace (1952) found little evidence that others see people acting in accordance with what they report are their major values.

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Gage and Exline (1953) found that members whose opinions were most similar to the group consensus, were judged to have the highest sensitivity to the feelings of fellow group members. Bass (1962) derived reliable sensitivity scores, and found that they correlated with influence in small group discussions, but bore little relation to the individual's orientation (self, interaction, task) in the group. Argyris (1965) found that individuals and groups could be scaled on interpersonal competence, and this correlated with competence as perceived by group members, staff, and observers.

This section points out that it is possible to identify personality characteristics or types in the group, and from this make some predictions about how individuals will behave in their T group. Characteristics such as dominance and submission, needs such as belonging, and position in the group are important in determining an individual's contributions in a group. It should also be noted that just relying on self report may not be the best method of assessing behavior, because individuals may not behave in ways which correspond to what they say their values, characteristics, needs, etc. are.

Relationship Patterns in the T Group

This area deals with group members' perceptions of one another and their choices of one another. It is usually

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studied through the use of some sociometric instrument. Browne and Crowe (1953) demonstrated that people spent more time with those who had similar philosophies of social change. They also found that rigid, tense members tended to choose one another in interactions; self sufficient memberms choose one another or rigid members; overtly hostile members choose one another and inhibited hostiles; dependent members choose inhibited hostiles and reverse. This was interpreted as members choosing to interact with persons like themselves, or persons who had traits that they would like to have. Bennis and Peabody (1959) found that member orientation towards authority and intimacy contributed to subgroup formation. Lieberman (1958) studied the relationship between personality and sociometric choice by having one group where members were paired on certain characteristics, and another group where there were no such pairings. Early in the group, subtypes tended to make choices as a unit, but as the group progressed, choices became more diffuse, and were influenced by more factors than similarity. Rosenberg (1951) found that rejected members tended to be more compulsive, competitive, and energetic, and less friendly than the accepted members. Also, they showed less capacity for personal relations. Monk (1950) found that persons with high acquaintance scores were rejected by and rejected their groups, while those with high visibility scores were more accepting and accepted. Smith, Jaffe, and

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Livingston, (1955) found that the members most in tune with the way the group perceived its members were seen as most effective by outside observers, and most powerful by members, but were not necessarily seen as most valuable. Rubin (1967) found substantial support for the hypothesis that an individual's level of anomy and his changes in self acceptance during the lab would lead to individuals with low anomy and high self-acceptance being more accepting of others. Bennis and Peabody (1962) found that members chose sociometrically people who were similar in their orientation to the group. Ben-Zeev (1958) found that members who participated with those they liked, showed a tendency on a projective test to express warmth and friendliness, and inhibit expressions of hostility and anger. Those who did not participate with those they liked, behaved in the reverse of the above group. Horowitz, Lyons, and Perlmutter, (1951) found that members who liked a particular group member tended to react positively to the contributions he made, while members who disliked him reacted negatively to the same ideas.

In summary, it is possible to identify patterns of friendship and interaction among members of a T group. These choices are based primarily on liking the individual; perceiving him as similar in some way, or admiring something in him. These choices remain fairly stable, and the choices have important implications for the development of the group, mainly in the possible subgroups that are formed, and how the contributions of individual members are evaluated.

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The Interaction of the Trainer in the T Group

This section reviews the functions and characteristics of the trainer in the T group. Back (1948) found that the leader was important in the dynamics of the group growth and development, and had an effect on the distribution of participation, types of contributions emphasized, and the types of topics.

Culbert (in press) studied trainer self-disclosure. Where trainers were seen as more self-disclosing, members more often entered into 'perceived therapeutic relationship' with each other rather than with the trainers. Also, self-awareness was evident more quickly when the trainer was more self-disclosing. Powers (1965) found that particular homogeneous groupings matched with particular trainers in orientation and behavior styles, were more effective for learning than others. Psathas and Hardert (1966) looked at trainer intervention, and normative T group patterns, and found that differences observed between T groups may result from differences in the trainer's ideology and style, or from differences in the group's development and concern. Smith (1966) found a significant relationship between identification with the trainer and change.

This section clearly points out the importance of the trainer in the development of the group, and the changes that are made by the group members. There is a suggestion that certain pairings of trainers and groups are more

effective than others, but more research needs to be done to identify these. This conclusion parallels the psychotherapy research, where it is clear that the therapist as a person, as well as his interaction with particular clients, is an important variable to consider when predicting and understanding change.

Factors Contributing to Change in the T Group

This section examines the evidence of factors that lead to change in general, as well as which factors lead to specific changes over the course of the T group. We have already seen that the trainer is an important variable contributing to change. The factors of response set, as well as motivation to change have been hypothesized to be important also. Watson (Bradford, 1957) identified a response set. People who expected to change and to use the lab constructively, did so, while those not expecting to gain from the lab, did not. Disenstadt (1967) found that readiness to change was important, and that this readiness was a function of personality factors, as well as back home factors. Miles (1960) found that desire to change, alone, was not a sufficient condition for change.

Another factor thought to be important for change is group composition. The assumptions initially concerning this variable were that heterogeneity would multiply the learning opportunities, while homogeneity would facilitate

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communication and transfer of learning. Lieberman (1958) studied the importance of group composition on changes in affective approach, and found that heterogeneous group composition was conducive to change. Those who did not change in affective approach were found to have personal characteristics so similar to the group atmosphere that there was no pressure nor opportunity to experiment with new behaviors. Stock and Hill (1958) looked at the subgroups of two T groups, and concluded that groups with a lot of diversity in their members, but with a common way of perceiving member participation, progressed the most. Harrison and Lubin (1965) studied differences in interpersonal behavior and learning in highly person-oriented versus work-oriented groups. It was found that homogeneous groups did not provide the confrontation needed for optimal learning. Personoriented members learned less because of the comfort and lack of challenge. Lieberman (1958) looked at groups formed with the full range of emotional modalities in comparison with those having a truncated range. The groups were found to differ in emotional cultures, and showed differential personality change. Pollack (1968) found that heterogeneous groups were more conducive to change. Greening and Coffey (1966) studied a homogeneous group of people who related in an impersonal manner. Significant learning seemed to be the result of sharing feelings about their problems in relating personally to others.

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The issue of heterogeneity versus homogeneity is not an either/or one. The composition of the group should apparently be thought of in terms of the goals of the group. It seems that homogeneous groups have an advantage in providing more opportunity for talking about problems that are common to the group, and might get passed over quickly in a heterogeneous group. However, the disadvantage to homogeneous groups is that there is usually less confrontation, and hence, less motivation for change. Although heterogeneous groups provide an impetus for change, there needs to be some common way of perceiving the group, goals, etc.

Next, the factors in the members or in the group that contribute to change are examined. Mathis (1955) developed an index to predict an individual's potential for learning and change. He hypothesized that internal conflict would facilitate change by stimulating the individual to search for solutions through group interaction. Interpersonal conflict, plus pairing and fight tendencies, made up his trainability index. It was found that high scorers on the three showed positive changes. Winter, Griffith, and Kolb, (1967) found that awareness of cognitive dissonance between personal goals and current behavior was positively related to successful, self-directed personal change. Gordon (1950) found that tolerance for interpersonal difficulties was associated with changes in self acceptance and understanding. Stock (1958) found that members who changed the most were

experie Less si change were i vidual ŝ led to desire ÷ cenavi recept Varia vere sensi Steel Cepti chang which tory acti for invc that atra depe had experiencing conflict over their self-concepts--they were less sure of the kinds of people they were than those who changed the least.

Miles (1960) found that certain personality variables were important in facilitating change, but that the individual's actual interaction process with the group was what led to change. This interaction should include an initial desire for change, a process of unfreezing of one's old behavior patterns, active involvement in the group, and reception and utilization of feedback. The personality variables of ego strength, flexibility, and need affiliation were found to mediate this interaction. He found changes in sensitivity and behavioral skill, but not in diagnostic skill. Steele (1968) found that preference for intuition as a perceptual mode was important in determining which individuals changed during a lab. He also identified a general factor which was positively associated with change, called laboratory style of behavior. This factor was composed of high activity, individuality, and collaboration; and a preference for helping, experimenting, dealing with feelings, becoming involved, and understanding process. Lieberman (1958) found that counterdependents changed most in a group with a warm atmosphere and an easy relationship with the trainer, while dependent and pairing members changed most in a group that had an atmosphere of struggle for leadership.

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Glueck (1968) identified the ability to be open about oneself, and having a job that required interpersonal expertise as conducive to change. Harrison and Oshry (1965) looked at relationships between personal characteristics of individuals and the way they responded to T groups. People who learned most and changed most were described as open to the ideas of others, tolerant and accepting of others, good listeners, and not likely to blame organizational problems on the organization or the inadequacies of individuals. Miles (1965) identified organizational factors such as security, autonomy, power, and problem solving adequacy as important mediators to learning during the lab.

Sherwood (1965) found that the way an individual changed during the lab in self identity was dependent on the differential importance of the various group members giving him certain ratings, the individual's involvement in the group, and the extent of feedback received.

There is some evidence that longer labs produce more change (Johnson, 1967; Miles, 1960; Bunker and Knowles, 1967).

Gibb (1952) studied the effect of role playing with and without feedback on self insight, the capacity to conceptualize a new role, and role flexibility. Role playing was found to be an important part of training in terms of producing changes in these variables. Rosenberg (1952) found that members participating in role playing had both

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strong positive and strong negative feelings about it. Role playing did provide individuals with a way to make changes in their behavior.

Feedback is seen as one of the most important contributors to change in the T group. Lippitt (1959) studied the effects of feedback on changes in individual behavior. He studied pairs of individuals who were similar in the way they were described by others, and in the extent and direction others would like to see them change. One member in each pair was aware of his ratings, and how his fellow group members wanted him to change. Thirteen of the fourteen individuals who had received the feedback changed in the direction the group wanted, while only eight of the fourteen who received no feedback showed such changes. Gibb, Smith, and Roberts, (1955) found that groups that received feedback differed from those who did not in that the members felt more favorable towards the group, displayed a higher level of aspiration for their group, and expressed more negative feelings. It was also found that feeling oriented positive feedback resulted in the greatest efficiency, least defensiveness, and greatest participation. Miles (1958) was interested in what factors influenced the effectiveness of feedback. He found that strong negative feedback was most effective in inducing change. Behavior involving warm interpersonal relationships was more responsive to feedback than behavior related to task definition and accomplishment.

French et al. (1966) studied changes in self identity as related to amount of feedback received. They found that the greater the amount of feedback, the greater the change in self indentity; and that the lower a person's self evaluation on a dimension, the greater the change in self identity along that dimension. Dolb, Winter, and Berlow (in press) looked at self directed change, and found that feedback and committment to change combined to produce the greatest percentage of change. They found that feedback was more effective coming late in the lab. Gibb and Platts (1950) found that groups receiving neither special training (role playing) nor feedback, showed no change in self insight. Groups receiving both showed the most change, while groups receiving one or the other showed some change. Myers et al. (1969) found that reception of feedback was positively related to sensitivity to interpersonal relations and social interaction. More changes were evident if the individual both provided and received feedback, rather than just provided it.

Thus, feedback is seen to be probably the most important single component contributing to change effected through the lab. It is important in getting the individual to change his behavior especially if it is timed to come late in the experience, is accompanied by a committment to change, is positive and feeling oriented, or strongly negative in the context of a relationship, and is used in conjunction with something like role playing.
In summary, then, the main factors which are identified as contributing to change are as follows: a progression through unfreezing of old behaviors, involvement in the group, and reception of feedback; existence of conflict, internally, and interpersonally; tendencies towards pairing and fight behavior; an unstable self concept; characteristics of openness, tolerance, acceptance, and listening ability; role playing or some form of practice; and certain personality characteristics such as ego strength, flexibility, and need affiliation to mediate the change. The trainer and composition of the group are important, but not enough research has been done to clearly spell out their importance.

Impact of the T Group

The most important section of the research on T groups, and the one most related to this study, deals with the impact of the lab experience on the individual--i.e., what the changes made are. First, we will look at changes that are found during the lab, and then at changes that are found to persist after the lab.

Changes Observed During the Lab

Burke and Bennis (1961) found that perceived actual self, and perceived ideal self were much more congruent at the end of the lab then at the beginning, mainly due to changes in perceived actual self. Also, a member's self perception and the perception of him by other members of

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his T group were more similar at the end of training than at the beginning. As the T group progressed, members tended to agree more with one another about the amount of participation and activity of individuals in the group, but not in terms of friendliness or dominance of individuals. Members tended to change more in ways they perceived other group members, than group members saw themselves as changing. Clark and Culbert (1965) found some support for their theory that T group members became more self aware as a result of participating in mutually therapeutic relationships where feelings were expressed. Lundgren (1969) found that an individual's estimation of how others view him became more similar to how he viewed others at the end of the lab. Also, an individual's view of himself changed towards the estimated view of how others view him. Lastly, selfperceptions changed towards being more similar to perceptions of others at the end of the lab. Gassner et al. (1964) found that training was more likely to change an individual's perception of the phenomenal field than the phenomenal self.

Thus, during the T group experience, individuals' perceptions of others change more than their self perceptions; an individual's perception of himself becomes more congruent with how others view him and how he views others; and individuals have less incongruity between their actual and self percepts at the end of a lab.

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Baumgartel and Goldstein (1967) predicted that in an interacting group, members would become more like the highly valued members over the course of the lab. This was generally found to be true. Also, members increased in their 'wanted control' scores, and decreased in their 'wanted affection' scores. Kassarjian (1965) studied the effect of a lab on innter-outer direction, and found no significant relationships. Miles <u>et al</u>. (1959) found consistant improvement on sensitivity to feelings. Massarik and Carlson (1962) found few changes in the California Psychological Inventory after forty-eight hours of training. Changes that were identified were in the direction of increased spontaneity, and lowered overall control.

Bennis (1967) had subjects describe themselves in terms of thirty-four interpersonal roles at the beginning and end of the lab. The findings suggested that individuals have actually decreased their behavior in these areas, or have become more sensitive to their own role behavior.

Glidewell (1956) studied whether changes occurred in the way in which participants analyzed work problems. Participants were measured on three variables at the beginning and end of the lab: (1) seeing organizational problems in terms of multiple rather than single causes; (2) awareness of one's own involvement in the multiple causation of organizational problems; (3) definition of problems in terms of functions rather than adequacies or inadequacies of individuals.

Sixty percent of the lab participants changed constructively towards multi-causation, realistic self involvement, and functional problem definitions in solving problems.

Outcome Studies

The basic question in outcome studies involves transfer of training--does what is learned in the lab transfer to the back home setting, and is it maintained after the lab? Studies reporting general changes will be reported first, followed by studies relating changes to on the job performance.

Bunker (1965, 1967) studied the long range effects of participating in the 1960-1 summer labs at Bethel. Participants were seen to have changed more than controls in communicating more clearly, and effectively with co-workers; sharing and encouraging responsibility and participation among peers; understanding human behavior, understanding group process; sensitivity to the needs and feelings of others; and self awareness. Wedel (1957) studied several labs and found that, over time, participants changed their opinions about groups; increased in insight; and attributed many personal changes to the labs. Increased sensitivity to the feelings of others has been found in many studies (Massarik and Carlson, 1962; Miles, 1964; Bass, 1962).

Bowers and Soar (1961) found that teachers who had lab training made significant changes in their attitudes toward their pupils, and towards democratic leadership.

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Since a control group made similar changes, it was concluded that the same personality traits produced good teachers with or without training, but training increased the degree of difference between greater and lesser skill, and helped a teacher to realize more of his potential.

Harrison (1966) found that lab participants increased significantly in the use of inferential expressive concepts after the lab in comparison to concrete instrumental ones. This change was more marked as time went on. Smith (1964) found that members of training groups showed a convergence towards median scores on scales measuring their attitudes towards power and close personal relationships. Harrison (1962) found that lab participants tended to use more interpersonal descriptions of others, but usually only of individuals who had also been in the T group. Stock (1964) found increased interpersonal awareness and skill, and greater involvement of participants in groups and activities after the lab.

Lohman (Bradford, 1967) found no significant differences in self-adequacy after the lab. Gold (1968) found no significant changes in overall self-disclosure on follow-up. Schutz and Allen (1966) did extensive follow-up and concluded that lab participants do change during the lab, and this continues after the lab. They found that overly dominant individuals became less dominant, while overly submissive individuals became more assertive. Kernan (1963) found

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that Machiavellian scale scores increased after training. Rothaus <u>et al</u>. (1963) found participants to be less illnesscentered, dependent, and preoccupied with self after the lab.

A very important and controversial issue surrounding outcome studies of lab training has been the question of whether human relations training is valuable and effective, or disruptive for industrial settings (Campbell and Dunnett, 1968). Since substantial funds are currently being spent by industry on human relations training, and in many cases, attendance is mandatory, it also poses an ethical issue. Some of the changes instituted in labs, such as more consideration for subordinates, less dependence on others, less demand for subservience from others, lowering of defenses, and increased openness may be in opposition to requirements for effectiveness on the individual's job, and thus place him in a role conflict. This underlines the necessity for the goals and effects of labs to be clearly spelled out to industry. Following is a summary of studies concerned with job related changes.

Campbell and Dunnett (1968), in reviewing external criterion studies, stated that significant changes have been found after the lab in increased interpersonal sensitivity, heightened equalitarian attitudes, greater communication and leadership skills, increased consideration for others, and relaxed attitudes on the job. Stroud (1959)

found that lab participants became more people-oriented on the job, more analytic of their own roles, and more introspective when problems arose. Argyris (1965) found that board members who had attended a lab showed increased interpersonal competence in meetings subsequent to the lab. Buchanan and Brunstetter (1959) found more improvements on the job by workers who had attended a lab than those who had not.

Oshry and Harrison (1966) found that after the lab the participants saw themselves as less impersonal; saw a clear connection between the meeting of interpersonal needs and getting jobs done; and saw themselves as the most significant part of their work problems. However, they had difficulty translating their new perceptions into action. harrison (1962) found that lab participants had difficulty perceiving and responding in new ways to co-workers who had not been to a lab. Argyris (1962) found increases in openness, trust, confidence, and decreases in comformity, management by detail, crisis, fear and conflict. However, the participants had difficulty putting these changes into effect. These studies points to a general difficulty in transferring changes to the back home setting.

Friedlander (1967) found that work groups who participated in labs showed significant changes in group effectiveness, mutual influence, and personal involvement, but not in leader approachability, intragroup trust, nor

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evaluation of group meetings. Kernan (1963) found increases in the tendency to manipulate, and decreases in verbal reactiveness on the job, and the opposite off the job. Carron (1962) found that lab participants, after the lab, placed a higher value on consideration, and less value on structure in ideal leader behavior. Underwood (1961) found that supervisors showed decreased post-lab job effectiveness because they tended to vent their emotions on the job. Schein and Bennis (1965) reported more tension on the job after the lab because of clashes of values between lab and non lab participants. Buchanan (1964) described the conflict engendered when a whole unit attended a lab, but on return was in opposition to the prevailing values and structures in the larger organization.

There has been much criticism of human relations training for industry. Mc Nair (1957) stated that human relations training has been overemphasized. He stated that it makes people feel sorry for themselves, makes it easier for them to avoid responsibility, provides excuses for failure, and encourages people to act like children. Taylor (1967) also questioned the wide acceptance of the method, particularly emphasizing the artificial and isolated environment, and the lack of research demonstrating effectiveness. Greening (1964) defended lab training by stating that it does not make ineffective leaders, but rather can only open the individual to certain consequences of his

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leadership, and help him develop additional leadership patterns, if he so wishes. Neither he, nor Rogers, (Hall, 1967) found in follow-up the negative consequences and damage alluded to by opponents of the method. Campbell and Dunnett (1968) concluded, after reviewing studies to ascertain the effectiveness of lab training for industry, that the utility of lab training experiences for the individual and the organization may not be the same. The positive utility of human relations training for organizations rests on shaky grounds in their opinion. They concluded that the lab almost unanimously has positive value for the individual, but this may or may not profit the organization. House (1967) also expressed concern over the effect of lab training on management and organization. He stated that the anxiety generated, masks removed, increased consideration for subordinates, decreased dependence on others, etc. may be inappropriate on the job. He also stressed the role conflict often engendered, and the removal of behaviors and attitudes that are effective in industry (i.e., power, aggression, need for structure, dependence, low participation need, etc.). He recommended that industry carefully design labs to meet its needs, screen participants, make participation voluntary, and explain the lab procedure to participants ahead of time. All critics and supporters alike underline the need for continued research.

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Obviously, the question of how many individuals gain from a lab experience, and what they do learn is complex. There are numerous research problems to be described in the next section. Also, many individuals are already functioning effectively when they arrive at the lab. However, in summary, the following have been shown to be influenced by lab training: various self percepts, affective behavior, sensitivity to the behavior and feelings of others, sensitivity to group process, role flexibility, diagnostic ability, self confidence, problem solving approaches, communication processes, and leadership ability. Some of these changes are positive, and some are negative, depending upon the perspective from which they are viewed.

Research Problems

Campbell and Dunnett (1968) reviewed the research problems plaguing the research on lab training. One problem is that of measurement, since what is often investigated are changes in feelings and attitudes, rather than behaviors. These are always difficult to describe, let alone to scale in some meaningful way. Often, it becomes unclear as to whether an actual change is measured, or just familiarity with the scale, or new vocabulary. Once measures are developed, there are problems with the respondents. Self reports are likely to be biased, as most people give positive responses to a lab (Stroud, 1959). Observers, too, may be biased.

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They are usually closely related to the subject, in fact in many cases, picked by the subject, and very much aware that the subject has attended a lab.

Controls also present problems. Often, control groups are not included, nor is pre lab data sought so that the subjects may serve as their own controls. Control is rarely instituted over the numerous lab activities other than the T group, so one cannot really say that the changes were the result of what went on in the T group.

Group data are almost exclusively used, and this obscures the possibility that certain individuals may gain and certain others may be harmed by the experience. Variability in the training experience needs to be investigated more. Little research has been done on the trainer-participant interaction, and the trainer himself. Group composition has not been sufficiently explored.

Thus, many of the problems facing psychotherapy research also face the research on human relations training. Because of the short history of the method, a lot of these problems remain unattacked and unsolved.

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THEORETICAL BACKGROUND

In comparison with studies reviewed in the previous section, this study focused mainly on outcome. However, noting that few instruments have been established as useful in T group research, it also sought to test out some new instruments as well as a couple of established instruments. A third focus underlined by previous research was investigating the impact of the lab through the eyes of observers as well as the participants. The areas of group process, trainer variables and individual behavior in the groups were beyond the scope of this study, while change factors, outcome and relationship patterns were explored.

The data were collected in a lab whose focus was on interpersonal and personal growth rather than organizational change. Thus, changes were explored primarily in individual and interpersonal growth, and secondarily in job effectiveness. The assumption is made that the changes predicted (i.e., more openness, more seeking and using of feedback, more positive feelings about oneself and other, more assertiveness and more availability of anger) are desirable for good interpersonal relationships and individual functioning. The focus was on the individual's communicative process, relationship patterns, and overall job effectiveness, and

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how they changed as the lab progressed. In terms of communication, we were interested in the variables of openness, self disclosure, and more constructive use of feedback. The T group research has shown that these are central in the process of change in the lab situation, and that fairly consistently, the lab experience leads to increases on these variables. Thus, with some support from the lab training research, the process of sharing feelings and thoughts openly with others, receiving their reactions, and providing feedback to them is seen to be an effective means of improving one's interpersonal relations, and in some cases, one's job effectiveness. Improving this process is seen by the author to be valued in its own right, as well as for the changes it allows one to make. It was thought that change in this process in the specified directions would lead to changes in the individual's feelings about himself and others, and his general style of relating in terms of activity versus passivity. Thus, the more the communicative process is enhanced and improved, the more likely an individual is to feel positively about himself and others, the more warm and accepting he is likely to be in his interpersonal relationships, the more active and expressive he can be, the more realistic he will be in terms of his self perceptions and perceptions of others, and the more able he will be aware of and use anger more constructively.

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The T group was used as the vehicle for investigating these ideas because of its emphasis on the communicative process, especially involving openness and feedback, in making individual and interpersonal changes. The lab experience has been shown to be one where individuals' perceptions of themselves and others go through a shake up process, and then gradually become more realistic. Also, individuals have been found to increase in their satisfaction with themselves, their acceptance of others and their general interpersonal and job effectiveness. These changes have been found to be related to the communicative process in the T group; namely, how open an individual can be about himself, how constructively he can ask for and use feedback, and how involved he is in the group.

Thus, instruments were tested out for their usefulness in mapping the changes in the T group participants' communicative processes, interpersonal relationships and job effectiveness. Perceptions were also gotten from people in the back home setting, as it has been shown that participants, in typically responding positively to a lab, are not perhaps the most accurate evaluators of a lab experience. No attempt was made to control the lab experiences outside the T group itself. In this particular lab, there were many exercises outside the T group especially as the lab progressed. This design sought to maximize the individual's growth by expanding his changed patterns of relating beyond



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his own T group. Thus, although other lab exercises and experiences were designed to enhance T group growth, whatever change occurs must be tied to the whole lab experience.

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INSTRUMENTS

The instruments used were chosen or constructed according to their predicted ability to reflect the objectives of this study--i.e., to reflect communicative and interpersonal changes as the lab progressed, and to reflect changes which transferred to the back home situation. They are all described here, and are found in complete form in Appendix A.

Okay-Not Okay Scales (OK, OK)

These are two scales measuring one's general positive or negative perception of oneself and others. In their present form, they were designed by the author for this study, but have been used in groups in a slightly different form by Hurley (personal communication, 1968). They consist of two bipolar scales where subjects rate themselves (OK_s) and others (OK_o) on the dimensions of 'okay' and 'not okay.' A short paragraph precedes the scales describing what is meant by 'okay' and 'not okay.' Scores at the low end of the scale reflect negative perceptions, while high scores reflect positive perceptions (see Appendix A, p. 152).

The scale was derived from the theory of Eric Berne (1966). Berne identified four position in reference to self and others. These are:

1. I am okay, you are okay.

2. I am okay, you are not okay.

3. I am not okay, you are okay.

4. I am not okay, you are not okay.

Position (1) is seen as constructive; (2) as paranoid; (3) as depressive; and (4) as scizoid. Action types accompany these four attitudes. They are:

- Getting better--the individual feels that relationships with people and society are good.
- 2. In healthy persons, leads to such choices as ministry or law where the goals are to eliminate badness; in less healthy persons, the choice is to eliminate specific people to get rid of the badness they represent.
- 3. Sequestration--the individual separates himself from the okay people, usually in some institution.
- 4. Aesthetic or spiteful suicide.

This instrument was used to detect the changes in one's perceptions of oneself and others. A positive movement was predicted; that is, towards attitude (1).

General Behavior Ratings (O, DS, DG)

This instrument consists of three scales--openness, data seeking, and data giving. The openness, and data seeking scales are new measures developed by Hurley (personal communication, 1968) and revised somewhat for this study by the author to include a measure of data giving. The instrument measures how open the individual is in terms of here and now experiences in the group, how much data he seeks from other group members about their reactions to him, and how much data he gives to other group members about his reactions to them. The instrument was used before and after the lab as well as in the lab, and for this the instructions were modified to be more general.

The instrument consists of three nine point scales for openness, data seeking, and data giving, with low scores indicating low degrees of each variable, and high scores indicating high degrees of each variable (see Appendix A, pp. 153, 154).

This measure was used to assist in investigating the communicative process (see also, the self disclosure, and feedback scales). They show how active the individual is in his group, and, in general, outside the lab in sharing himself with others, asking for data about his impact on others, and giving others data about their impact on him. This process was expected to increase during the lab and maintain itself after the lab.

Self Disclosure Scale (SD)

This scale was constructed by John and Shirley Hurley (1967) based on Jourard's treatment of self disclosure (Jourard, 1964). The emphasis is on "general behavior, affect, apparent degree of honesty, and sincerity rather than

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number of self references, amount of verbalization, level of insight, or appropriateness of self concept." The scale also attempts to include motivation towards self disclosure. The scale involves rating all group members on a scale from one (self concealment) through eight (self disclosure). A description is provided for each point on the continuum, (see Appendix A, p. 156).

Jourard's emphasis on self disclosure grew out of his conception of self disclosure as an indication of mental health and a means of achieving a healthy personality. In contrast, self concealment is related to self alienation. Jourard stated "no man can come to know himself except as an outcome of disclosing himself to another person" (Jourard, 1964, p. 5). He distinguished between real self and public self, and stated that when there is a gap between the two, self alienation occurs. Jourard sees a curvillinear relationship between self disclosure and mental health.

Jourard developed the Jourard Self Disclosure Questionnaire (JSDQ) consisting of sixty items which are responded to in terms of how fully one reports disclosing himself to mother, father, male friend, female friend, spouse (Jourard, 1964). His research with the scale has shown self disclosure to be a product of perceiving the other person as similar to oneself in some way. Hurley and Hurley (1969) compared the JSDQ with the scale used in this study, the Hurley Self

Disclosure Rating (HSDR), and the Direct Disclosure Rating (DDR) which reflects quantitative measures of self disclosure. Most open (MO) and most closed (MC) member ratings were also used. The JSDQ was found to correlate negatively with the HSDR, DDR, and MO, but positively (p < .05) with the MC index. The JSDQ seemed to reflect defensiveness in terms of self report. The HSDR was found to have both predictive and consensual validation, and thus was chosen for this study.

The SD scale measures roughly the same dimension as openness, but is more detailed and specifically related to the group interaction of the T group. Participants were expected to increase in self disclosure by the end of the lab as it became more comfortable and safe to open up with one's fellow group members.

Feedback Scale (FB)

This scale relates to the data seeking measure described earlier, but also includes the dimension of how the feedback is used. This scale, like the HSDR, is worded for group use only. The scale looks in detail at the incoming aspect of feedback. It involves rating everyone in the group on a scale from one (no reception of feedback) through eight (active use of feedback). A description of each point along the continuum is provided (see Appendix A, p. 157).

The scale was developed from the beginnings of a scale constructed by Harold Benner (indirect communication) for use in his dissertation. Feedback represents the other half of the communicative process from openness or self disclosure. Both learning to be open and communicate about oneself, and learning to ask for, listen to, and use feedback constructively are involved in effective relationships. The assumption is that we need to become aware of our impact on others to operate effectively. In other words, we learn about ourselves by disclosing ourselves to others, and getting feedback from them about ourselves. Giving feedback involves a degree of honesty and openness that is often missing from interpersonal relationships. There are two sides to feedback--giving it, and receiving it. The giving part we have measured by DG. Giving it involves taking a risk of possibly being perceived as critical or hostile. Using it involves initially an ability to listen, and then an ability to weigh it in terms of the sender's motivation and perceptions to decide whether to use or ignore it. Feedback seems most useful when it describes an individual's behavior without placing a value on it; is well timed and later in the lab experience; is specific; is requested rather than imposed; is clearly communicated and checked; and is directed towards behavior that can be changed.

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Liking (L) and Time Spent (T)

These two measures were included as a control, as it was thought that possibly ratings would be biased by whether the individual was well liked or not. Participants were asked to rank all their group members in terms of how well they liked them, and how much free time they spent with them during the lab. For convenience, the two scales were printed on the same sheet as the general behavior ratings (see Appendix A, p. 154).

Interpersonal Check List (ICL)

This inventory, based on Leary's theory, (LaForge, 1963) consists of sixteen basic variables with eight items for each variable. The items are marked 'true' or 'false' with respect to the person being rated, with only 'true' items being used in the scoring. The items under each variable have differing weights (one through four) in the scoring. The variables are as follows: managerial, narcississtic, competitive, sadistic, aggressive, rebellious, distrustful, self effacing, masochistic, docile, dependent, cooperative, over conventional, hypernormal, responsible, autocratic. The sixteen variables are subsumed under two main axes of dominance-submission, and love-hate (see Appendix A, p. 159).

Numerous studies have used this instrument, but its usefulness for this study is its measurement of what are

considered to be two very important personality dimensions. Adams (1964) in an article defining mental illness as a phenomenon involving interpersonal behavior rather than a health or medical problem, cited the studies of interpersonal behavior where a circumplex structure around the two orthogonal axes of dominance-submission, and affectionhostility was identified as a comprehensive framework for viewing interpersonal behavior. Consequently, this instrument was employed as a means of studying how people's general relation styles changed over the course of the lab. As people become more open in the lab, receive feedback about their behavior, and begin to feel free to be themselves in the permissive atmosphere, it was expected that they would become more assertive, and express anger more freely. Preliminary data collected by Hurley (personal communication, 1968) on marathon and long term groups showed that participants saw themselves becoming more dominant and less loving after an intense group experience, while friends rating the participants tended to perceive the increase in hostility more than the increase in dominance. It is granted that those individuals who come to the lab and are already extremely dominant and/or hostile, will not show these changes. However, when looking at group data it was expected that this latter group would be in a minority, and thus the trend would still be towards increased dominance and hostility. This conclusion is based on the assumption that, at least

for a self-selected lab such as the one studied, there would be more people coming who had problems with assertiveness and anger, than the reverse.

Person Description Instrument X (PDIX)

The Person Description Instrument X was developed by Harrison as a semantic differential tool to study interpersonal perception. The scale reflects three major factors: interpersonal warmth and acceptance (I), power and effectiveness in work (II), and activity and expressiveness (III). Twenty-seven items make up these three scales. In Appendix A where the scale is given in full, (p. 160) a I, II, or III is marked beside each item to show which items are in which scales. Respondents rate themselves on a six point scale on each item, with one being low and six being high.

Harrison described the instrument as being useful in studies of interpersonal perception in small groups or organizations. In one study (Harrison, 1962) the PDIX was used with managers attending a sensitivity training lab. The results showed that the participants described themselves as more interpersonal and emotional after the lab. Another study (Harrison and Lubin, 1965) used the PDIX and found that work oriented and people oriented participants behaved quite differently. Harrison (1966) used the PDIX, and found that persons increased in the number of inferentialexpressive concepts they used after a lab experience. The PDIX can also be used to study interpersonal values, social distance, and interpersonal discrimination.

This measure was expected to detect changes as the lab progressed, and also to check on whether these were maintained after the lab. Participants were expected to increase in their warmth and acceptance of others and their activity and expressiveness as an indication of better communicative and relationship patterns. Increases in job effectiveness were also expected on the assumption that the kinds of changes made during the lab would be conducive to better job performance for these particular persons.

Descriptive Change

Included on the initial letter of instructions and on the follow-up letter (Appendix A, pp. 164, 167, 170) was a question about how the participant had changed in how he/she works with people. This question provided us with further unstructured information about job changes, as well as general changes. The question was taken from a study by Bunder and Knowles (1967), and the categories used for scoring this material are presented with the scale in Appendix A, pp. 173, 174).

Direct Ratings of Change

A change scale was completed after the lab. This scale developed by Aldenbrand (1969), has three items which are scored on a one through nine basis. The three items

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measure growth in interpersonal understanding, behavior change based on the above growth, and amount of such changes attributed to the lab. Scores were predicted to be on the high end of each scale (see Appendix A, p. 161).

The scales described above were all expected to contribute information to the basic questions asked here of what happens during a lab experience to an individual's communicative process, self perception, perception of others, interpersonal style of relating, and job effectiveness. The following measures investigate the communicative process: 0, DS, DG, SD, and FB. OK_s and OK_o tap positive and negative perceptions of self and others. I, III and ICL and the Change Scale investigate the interpersonal relationship changes. II and the descriptive change question give measures of job effectiveness. The descriptive change instrument also gives general information about changes perceived-interpersonal, communicative, attitudinal, global.

Scoring the Instruments

On OK_S, OK_O, O, DS, DG, SD, FB, L, T, and Direct Rating of Change the checks made on the various scales were directly translated into their numerical equivalent and recorded on a summary sheet (see scoring on instruments in Appendix A). Decimals were used in scoring. The ICL data were scored conventionally (LaForge, 1963). The scores of the three PDIX scales were added separatedly and then

summarized under the three headings for each person and recorded. The descriptive change reports were categorized according to the scoring system presented in Appendix A, p. 173, 174.

HYPOTHESES

The following relationships were hypothesized:

- 1. It was hypothesized that the measures used (O, DS, DG, OK_S, OK_O, SD, FB, PDIX, ICL) would relate positively to one another. These measures were predicted to positively correlate because they were measuring parts of an inter-related change process. The two scales of the ICL (dominance-submission, and love-hate) were constructed to be independent, and hence were not expected to show substantial positive correlations. The same would hold for the three scales of the PDIX (interpersonal warmth and acceptance, power and effective-ness in work, and activity and expressiveness).
- 2. Increases in scores were predicted for eight measures used during the lab (O, DS, DG, OK_S, OK_O, SD, FB and PDIX). Both self reports and group reports were expected to reflect increases on these measures.
- 3. Increases were predicted for the measures of O, DS, DG, OK_s, OK_o, PDIX, and ICL dominance-submission (ICL^d_s) after the lab. On the ICL love-hate (ICL¹_h),

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a decrease was predicted. The same pattern was predicted for self reports, intimates' reports and colleagues' reports.

- 4. The descriptive change reports were predicted to show substantially more positive than negative changes. It was hypothesized that more of these changes would be reported after the lab than before. Similar trends were predicted for self and observer reports.
- Scores were predicted to be at the upper end (five and above) for self and observer reports on the change scale.
- 6. Self reports were predicted to correlate positively with group reports and observer reports. The correlation between self and group reports at the end of the lab was predicted to be higher than at the beginning, as self and group reports have been shown to become more congruent at the end of training.
- 7. Self reports were predicted to be higher than group and observer reports initially, but this discrepancy was predicted to lessen as self perceptions, especially, became more accurate at the end of training.

METHOD

Subjects

Subjects for the study were all fifty participants in a training lab held at High Scope, Michigan, from August 17 through August 25, 1968. There were seventeen female, and thirty-three male participants. Their occupational breakdown was: five priests or pastors; two professors; one curriculum consultant; fourteen teachers (high and junior high); four principals; two school superintendents; one art coordinator; four counselors; two caseworkers; one psychiatrist; eleven students in psychology or social work; two housewives; and one director of marketing.

Also included in the study was a potential group of 100 observers. This group was picked by the participants to include one intimate (I) and one colleague (C) for each participant. This group of 'significant others' was chosen in such a way that whenever possible they had known the particular lab participant for whom they were serving as observer at least one year, and expected to be relating to them in the next year. The intimates were to be family or very close friends, and the colleagues were to be persons on the job who knew the participant well. For the most part, the intimate group was composed of spouses. The participants

were instructed on how to pick their observer in their initial letter of acceptance (refer to Appendix A, p. 162).

Design

This study was designed to overcome some of the research problems already discussed. Observer and group reports were used rather than solely relying on self-report data. A control group was not used, but pre lab data was collected on the participants as a base line. The process of change was studied not only during the lab, but also at a five month follow-up.

On July 15, 1968, about five weeks before the lab started, a letter (see Appendix A, p. 162) was sent to each lab participant notifying him of his acceptance in the lab, and requesting his participation in the study. He was instructed in how to pick his two observers, and given three data packets--one for himself, and one for each of his observers. The observer packets also contained letters explaining the project (see Appendix A, p. 164) and giving instructions on completing the material. The data was to be returned as soon as possible. To ensure confidentiality, data packets from observers were returned directly to the researcher, and were not seen by the participants.

Administered within the context of other within-lab research, the instruments were given on lab days two and seven with instructions to rate all members of their individual T groups. There were five T groups composed of ten participants and two trainers each. The initial within lab data were collected about twenty-four hours into the lab after about 5-6 hours of T group participation and a variety of group and research experiences. Data packets were administered on the afternoon of day two and collected that evening. Data were administered a second time during the afternoon of the seventh day and collected that evening. By this time participants had had considerable time together in their T groups and increasing amounts of time in groups with members of other T groups. Participants left the lab early the following afternoon.

On O, DS, DG, OK_S, OK_O, SD, FB each participant completed the measure for himself and also rated the other nine members of his T group. He ranked the other nine members of his group on L and T. For the PDIX however, each member rated himself and only four members of his T group--the two he liked best and the two he liked the least. This limitation was to cut down on the amount of data required from each person and ensure more complete cooperation.

The post lab data packets were sent out on January 13, 1969. Again, a letter was included to each participant (Appendix A, p. 170) requesting his cooperation. The two packets for his observers were included with his packet. Data were to be returned as soon as possible. Since data

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were a little slower coming in this time, reminder cards and phone calls followed up the original letter three weeks later.

| | Before | After | Day 2 | Day 7 |
|--------------------|--------|---------|-----------|-------|
| | | <u></u> | · <u></u> | |
| L | | | + | + |
| Т | | | + | + |
| 0 | + | + | + | + |
| DS | + | + | + | + |
| DG | + | + | + | + |
| OK _s | + | + | + | + |
| OKo | + | + | + | + |
| SD | | | + | + |
| FB | | | + | + |
| PDIX | + | + | + | + |
| ICL | + | + | | |
| CHANGE SCALE | | + | | |
| DESCRIPTIVE CHANGE | + | + | | |

Fig. 1.--Tally of instrument administration.

Data Inventory

The rate of returns was quite high. For the pre lab data, 48 lab participants (96%), 48 intimates (96%), and 46 colleagues (92%) responded. For the post lab data, 48 participants (96%), 41 intimates (82%), and 38 colleagues (76%) responded. All participants cooperated with the data collection within the lab, but due to misreading instructions, and missing scores on some group members when rated by others, there was less than complete data during the lab. Figure 2

describes the percent of lab participants (\underline{Ps}), intimates (\underline{Is}) and colleagues (\underline{Cs}) who completed each measure at the four data collection periods.

| | Be | fore | and | Afte | r La | b | | Withi | n Lab | |
|-----------------------|--------|-----------|--------|--------|-----------|----|------------|------------|------------------|-----------|
| | B P | efor I | e C | A P | fter I | c | 2nd SR* | Day GR* | $\frac{7th}{SR}$ | Day GR |
| L | | | | | | | | 98 | | 98 |
| Т | | | | | | | | 93 | | 98 |
| 0 | 94 | 92 | 92 | 96 | 82 | 74 | 60 | 98 | 76 | 99 |
| DS | 94 | 92 | 92 | 96 | 82 | 74 | 66 | 95 | 80 | 99 |
| DG | 94 | 92 | 92 | 96 | 82 | 74 | 62 | 92 | 78 | 99 |
| OK _s | 96 | 96 | 92 | 96 | 80 | 76 | 76 | 96 | 94 | 94 |
| OKo | 96 | 96 | 92 | 96 | 80 | 76 | 68 | 97 | 92 | 97 |
| SD | | | | | | | 100 | 98 | 98 | 99 |
| FB | | | | | | | 98 | 97 | 98 | 98 |
| PDIX | 76 | 96 | 92 | 96 | 80 | 76 | 100 | 99 | 98 | 97 |
| ICL | 96 | 96 | 92 | 96 | 82 | 76 | | | | |
| CHANGE SCALE | | | | 94 | 80 | 62 | | | | |
| DESCRIPTIVE CHANGE | | 80 | 82 | 56 | 64 | 52 | | | | |

*Note: SR = Self report; GR = Group report.

Fig. 2.--Percentages of respondents completing measures.

RESULTS

A complete inventory of all data collected before, during and after the lab from participants and observers is found in Appendix B, p. 175 through 182. The study is subdivided into three main areas of focus for presentation of the findings: testing of measures, investigation of changes and comparison of different respondents' perceptions.

Overview

Table 1 presents the stability correlations on the measures used at all four data collection periods. The OK scales are omitted because a nine point scale was used within the lab instead of the seven point scale used before and after the lab, thus invalidating a comparison across the four times.

The measures were the least stable when the before lab data was compared with the within-lab data. The long term stability (before vs after), within-lab stability and within vs after stabilities were all good. When the before vs after correlations of OK_s (.29), OK_o (.11), ICL_s^d (.83) and ICL_h^1 (.79) are added to this picture, it is apparent that the stability of the more complex and established measures (ICL, PDIX) exceeded the stability of the simpler rating

| | <u>Before</u> vs Day 2 | Before vs Day 7 | <u>Before</u> vs After | Day 2 vs Day 7 | <u>Day 2</u> Vs After | Vs After |
|-----|---------------------------|--------------------|---------------------------|-------------------|--------------------------|--------------|
| 0 | 17 | 59** | 56** | 09 | 24 | 58** |
| DS | 21 | 31 | 29* | 31 | 38* | 39* |
| DG | 07 | 12 | 28* | 12 | 15 | 05 |
| I | 40** | 34* | 44** | 42** | 16 | 42** |
| II | 11 | 11 | 30* | 46** | 43** | 62** |
| III | 37** | 43** | 70** | 38** | 43** | 47** |

TABLE 1.--Product-moment correlations of self reported ratings on scales used at the four data collections.^a

^aDue to varying N's, correlations of the same magnitude are not equivalent in statistical significance.

**p < .01, 2-tailed
*p < .05, 2-tailed</pre>

scales at all times. This finding suggests that less consistancy can be expected from the simple rating scales.

An overview of self-reported responses to the various measures over the course of the study is presented in Table 2.

As expected from the stability correlations, O, DS and DG showed variable patterns. The more stable PDIX showed a clear trend for day two means to be lower than before lab means; day seven means increased to a level close to the before lab means; and after lab means increased beyond

| | 0 | DS | DG | I | II | III |
|------------|--------|------|------|------|------|------|
| After Lab | 6.65 (| 5.81 | 6.38 | 39.1 | 41.5 | 39.4 |
| 7th Day | 5.11 | 4.77 | 5.56 | 38.0 | 39.5 | 35.3 |
| 2nd Day | 5.50 | 5.45 | 6.03 | 36.9 | 38.5 | 34.8 |
| Before Lab | 5.74 | 5.06 | 5.53 | 38.3 | 39.7 | 36.4 |

TABLE 2.--Self-reported means on six measured at four time points.^a

^aN's vary from 47 to 50 for I, II, and III and for O, DS, DG before and after the lab. N's for O, DS, DG for days two and seven range from 30-39.

before lab means. This trend, with the consequent withinlab decreases or no changes, in contrast to after lab increases, was important in interpreting the impact of the lab, and will be examined further in later sections.

The comparison of the three different respondents' perceptions (P, I, C) turned out to be one of the most important and interesting findings. Table 3 shows a comparison of the means for the three respondents on the pre lab measures.

Cs consistantly rated Ps higher than the Ps rated themselves on all measures except ICL_{h}^{1} , and OK_{O} , and higher than Ps were rated by Is on all measures except I and ICL_{h}^{1} . The tests of significance of these differences is presented later. The perceptions of Ps and Is were generally congruent,

TABLE 3.--Before lab means.a

| | 0 | DS | DG | OK s | око | I | II | III | $\operatorname{ICL}_{s}^{d}$ | ICL ¹ |
|----|------|------|------|------|------|------|------|------|------------------------------|------------------|
| Cs | 6.24 | 6.13 | 6.09 | 5.41 | 4.88 | 39.6 | 43.6 | 40.0 | 8.33 | 2.21 |
| Is | 5.57 | 5.00 | 5.55 | 5.13 | 4.86 | 39.7 | 42.8 | 37.7 | 5.44 | 2.75 |
| Ps | 5.75 | 5.08 | 5.44 | 5.26 | 4.89 | 38.1 | 39.7 | 36.4 | 4.75 | 2.44 |

^a<u>N</u>'s were 46 (Cs), 48 (Is) and 48 (Ps).

except that Ps rated themselves higher on PDIX. These initial differences in perceptions had considerable bearing on the types of changes reported by the three sources after the lab. A cluster analysis (Mc Quitty, 1961), presented in Figure 3, makes the divergent perceptions more meaningful. For Ps, the main cluster of variables was an 'instrumentbound' cluster composed of O, DS and DG. Since these variables were printed on one instrument, clustering could be expected. Next, Ps described themselves as 'other-oriented' with I being the key variable. The third cluster, as seen by Ps, was one of 'self-expressiveness' with ICL_s^d being the key variable. The 'instrument-bound' cluster was also evident in the reports of Is and Cs, but less salient. The clustering shown by Is was more similar to that of Ps than was that shown by Cs. Is clustered less on 'other-oriented,' but more on 'self-expressiveness' than did Ps. The clusters

tended to break apart somewhat with Cs. Cs showed the highest clustering on 'other-oriented,' and very low clustering on 'self-expressiveness.'



Fig. 3.--Clustering of variables before the lab.

Testing the Measures

Stability

The previous section reported generally good, but differential, stability for the various scales. Table 4 summarizes the stability correlations with-lab and before vs after the lab. All measures showed good stability within the lab on group reports, and lesser stability on self reports, as would be expected in a comparison between group and individual data. As mentioned in the previous section, the ICL and PDIX data were more stable than the other scales over the six month period of the study. Thus, the long term stability of the measures tended to vary according to the complexity of the scales, being highest with the 134 item ICL, next highest on the 27 item PDIX, and lower on the average on the simpler indices.

Interrelationships Among Measures

Hypothesis 1 predicted positive relationships among all measures (except for the separate scales in ICL and PDIX). Table 5 gives the within lab correlations among the measures for all fifty Ps. Table 6 gives the pre lab correlations among the measures for the reports of Ps, Is, and Cs. Intercorrelations were not computed for self reports within the lab because it was expected that a similar, but less stable, pattern would emerge in comparison with the

| TABLE 4PI | oduct-m | ioment | corre | lations | for | within- | -lab a | nd be: | fore v | s afte | r lab | scales | • | |
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| sr ₂ sr ₇ gr ₂ gr ₇ | .50ª | .32 ^c | .09 .44ª | .31 ^c .43 ^b | .12 .50 ^à | .24 .62ª | .13 .32 ^c | .31 .42 ^b | . 36 ^b | .42b .56a | .46ª | .38 ^b .26 ^c | | |
| SRpre ^{SR} post IpreIpost Cpre ^C post | | | .56ª35°32°. | .29 ^c .12 .47 ^b | .28 ^c .22 ^d .48 ^b | .29 ^c .57 ^a .53 ^a | .11 .38 ^c .33 ^c | | | .44 ^b .24d .63a | .30 ^c .31 ^c .76 ^a | .70a .69a .53a | .83a .84a .82a | .79ª .69ª .76ª |
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| | U | 02 | 21 ^d | 08 | 16 | 37 ^b | | | | | |
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TABLE 6.--Before lab intercorrelations among measures for reports by Ps, Is and Cs.

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 Significance levels: (l-tailed)

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group data. Post lab intercorrelations were also not computed because the high stability of the measures suggested that a pattern similar to the pre lab data would emerge.

Examination of Table 5 shows that all measures intercorrelated at a higher level at day 7 than at day 2, showing more consistancy of ratings across measures at the end of the lab. On day 2, fifty of the sixty-six correlations were positive and significant; eleven were positive, but non-significant; one was zero; one was negative and significant; and three were negative and non-significant. The negative ones were between T and I, O and OK, DS and OK, OK_ and III. Thus, at day 2, if Ps were seen positively on one variable, they were very likely to be seen positively on another. The exceptions were: Ps rated high on openness were rated as having less positive feelings about themselves than those rated low on openness. There was also a trend for time spent and interpersonal warmth and acceptance, data seeking and viewing others positively, and viewing oneself positively and activity and expressiveness to be negatively related. All these negative trends disappeared by day 7 when all sixty-six correlations were positive and significant at the .05 level of significance and above. Thus, hypothesis 1 was generally supported at day 2. and clearly supported at day 7.

For the pre lab data (Table 6), sixty-eight of the ¹³⁵ intercorrelations were positive and significant at the

.10 level of significance and above (28/45 by Ps, 24/45 by Is, and 16/45 by Cs). Thus, Ps showed the most consistancy across ratings, followed closely by Is. Cs were quite inconsistent in their ratings. There were twenty-two negative correlations (five by Ps, six by Is, and eleven by Cs), but only three were significant. Two of these three were between the two ICL scales which were not expected to relate positively, and the other was between DS and II by Is. Negative trends were found between I and III, and II and III, but I and II were positively related. The scales of the PDIX (I, II, III) were not expected to show positive correlations, however, in this study; I and II did not turn out to be independent scales on pre lab data. The scales measuring similar variables (I and ICL_{h}^{1} ; III and ICL_{s}^{d}) were significantly related except for III and ICL^d by Cs. Hypothesis 1 received some support on the pre lab data from Ps and Is, but little support from Cs.

The correlations among the three items on the change scale were all highly significant, as would be expected from such related items, see Table 7.

In the overview, it was seen that pre lab measures tended to form three clusters: an 'instrument-bound' cluster (O, DS, DG); and 'other-oriented' cluster (I, ICL_{h}^{1} , OK_{O} and sometimes OK_{s}); and a 'self-expressive' cluster (ICL_{s}^{d} , III and sometimes II and DG). For within-lab data, the ICL

| | | | Ps | Is | Cs |
|---------|-----|---|------------------|------------------|------------------|
| Items 1 | and | 2 | .68 ^a | .76 ^a | .78 ^a |
| Items 1 | and | 3 | .70 ^a | .68 ^a | .47 ^a |
| Items 2 | and | 3 | .83 ^a | .56 ^a | .44 ^b |

TABLE 7.--Correlations among the three change scale items.

Significance levels: a = p < .0005b = p < .005

was not used, and the measures of L, T, SD, and FB were added. Thus, it was difficult to compare the clusters. Figure 4 shows the clustering of measures at days 2 and 7.



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Fig. 4.--Cluster analysis of group based measures used within-lab.

The clusters showed limited stability from day 2 to day 7, with the core variables tending to remain highly linked. On day 7, the primary and secondary clusters from day 2 had reversed positions. The day 7 secondary cluster was a variant of the primary day 2 cluster with OK_s and II dropping out to form a minor third cluster. The 'instrumentbound' cluster appeared, linked with III as in pre lab data. The other variables tended to cluster around the strong SD-FB link which represented the key change process in the theoretical formulation.

The correlations between the different measures (in contrast to between the same measures) is an indication of the predictability of the various measures (refer again to Table 5). Prediction correlations were computed only on within-lab data. Several variables were best self-predictors, including, L, O, DG, OK_s , I and II. Best predicted from other day 2 variables are day 7 scores on T (DG), DS (DG), OK_o (OK_s), SD (OK_s), FB (SD), and 111 (DG). A systematic analysis of how the day 2 variables related to the day 7 variables based on summing the covariance of each day 2 variable for all day 7 variables, but omitting selfcorrelations, disclosed that the day 2 variables ranked in predicting power as follows: SD (1.43), OK_s (1.32), FB (1.25), DG (1.09), OK_o (1.08), L (1.05), II (1.04), DS (.88), O (.74), T (.40), I (.36), and III (.18). ALCON COMMON OF RALL COMMONSALE STRAIN OF

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Of the 144 correlations between day 2 and day 7 measures, 94 were positive and significant; 24 were positive and non-significant; 18 were negative and non-significant; and 8 were negative and significant. Again, in general, hypothesis 1 was supported. Four of the eight exceptions reaching significance involved T. Thus, amount of time spent with an individual on day 2 related inversely to how an individual was rated on OK_s , OK_o , SD and I on day 7. O, DS, and DG at day 2 did not positively predict T at day 7, and III did not positively predict L at day 7. The nonsignificant exceptions involved III negatively predicting OK_s , OK_o , SD, I and II; I negatively predicting O, DG and III; DG, DS and O negatively predicting OK_o and I; and T negatively predicting FB and II.

Another facet of the intercorrelations among measures involves the relationship of the measure of 'liking' to the other variables. On the day 2 intercorrelations, L was more highly related to the other measures than was T. On only OK_s and II did L correlate the highest of all variables, while T did not correlate highest with any other measure. On day 7, both L and T related highly with all measures, but neither L nor T had the highest correlation with any other measure. L fell about in the middle in terms of its ability to predict day 7 measures from its day 2 rankings, while T was a poor predictor. Thus, according to these two measures, both how much an individual is liked, and how much free time is spent with him were positively related to the ratings received on other measures. However, this was not likely to have distorted ratings greatly because L and T did not relate to the other scales significantly more than did the other measures. An additional analysis was done to explore further the question of the influence of 'liking' on ratings. The PDIX had not been filled out by Ps on all members of their T group; rather, it had been filled out only on the two individuals best and least liked by each T-tests were done between the scores of the most and Ρ. least liked Ps on the three PDIX scales. All t-tests were highly significant (beyond the .0005 level of significance) indicating that Ps liked best received significantly higher scores on I, II and III than those who were liked least. This trend was evident at both days 2 and 7, and in fact was more marked at day 7 for II and III, and about the same for I. The t-values for day 2 were as follows: 11.7 (I), 9.2 (II), and 5.7 (III). For day 7, the t-values were: 10.7 (I), 11.5 (II), 7.2 (III). Thus, when the ratings of persons on the extremes of the liking continuum were compared, 'liking' importantly influenced ratings.

Measurement of Change

According to the original hypotheses (hypotheses 2, 3, 4, 5), it was planned to examine changes within-lab by comparing day 2 and day 7 scores, and changes extending beyond the lab by comparing before and after lab data. Further comparisons made after inspection of the data revealed some interesting trends that did not show up on the two planned comparisons. The further analyses were between before and day 2 data, before and day 7 data, and day 7 data and post lab data.

Day 2 vs Day 7

Table 8 shows the <u>t</u>-tests for the group ratings (GR) and self ratings (SR) on scales used within-lab. These were one-tailed <u>t</u>-tests as increases had been predicted on all scales from day 2 to day 7 (hypothesis 2).

All group report values achieved significance at the p < .15 level and above for the total lab population, except on L. Ps, as a total group, were rated by their fellow T group members as significantly more open, more data seeking, more data giving, more positive in attitudes towards self and others, more self disclosing, receiving feedback more constructively, more warm and accepting, more powerful and effective in their work and more active and expressive on the seventh day of the lab in comparison with the second day. Also, Ps were seen by their group to have significantly
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|----|------|-------------------|-------------------|-------------------|---------------------|-------|-------------------|-------------------|-------------------|-------------------|-------------------|-------|
| GR | . 83 | 1.48 ^d | 1.35 ^d | 1.63 ^d | 1.12 ⁺ | 1.67+ | 2.81 ^b | 4.42 ^a | 4.47 ^a | 2.47 ^C | 2.65 ^C | 1.11+ |
| SR | | | 60 | 78 | -1.33 ^d | .98 | .73 | .68 | 1.49 ^d | 1.46 ^d | 1.12 ⁺ | .49 |
| | Si | gnifica | nce lev | els: a b | ייי מיש וו וו | 0005 | | | | | | |

/ets: a = p < .005 c = p < .005 d = p < .05 + = p < .15</pre>

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increased in the amount of time other group members spent with them, and non-significantly in how much they were liked by the other group members. Thus, for the total lab group, (all five T groups combined), hypothesis 2 was strongly supported.

Examination of the self ratings in Table 8 yielded an expected more variable picture of changes than did the There was a problem with sample size with these data, GRs. as due to misread instructions or defensiveness about selfrating, numerous Ps neglected to rate themselves on many of the scales. In many instances, there were only four or five Ps from a given T group responding; thus, extreme scores would tend to greatly affect the means. Nevertheless, except for three variables (O, DS, DG) the total group data for SRs generally supported hypothesis 2. Ps saw themselves as becoming significantly more constructive about using feedback, more warm and accepting and more powerful and effective in work. They reported a trend towards more positive feelings about themselves and others, more self disclosure and more activity and expressiveness. Contrary to predictions, they saw themselves as becoming significantly less likely to give data to others, and tending towards less openness and data seeking.

Although individual T group data is presented in a later section, it can be said here that self reports, when

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examined by groups did not support hypothesis 2 nearly as strongly as group reports. Self reports, in fact, were as likely to show decreases on scales as they were to show increases. There was apparently greater upheaval in self ratings than group ratings as the lab progressed. Group reports showed increases across all measures for the total group (11/12 significant), and most measures (53/60; 16 significant) for the five T groups. For the self reports on the total group, 7/10 measures showed increases (3 significant), and 3/10 showed decreases (1 significant). In the five T groups, 29/50 self reports showed increases (4 significant), and 19/50 showed decreases (5 significant). Thus, a discrepancy existed between self and group reports in terms of assessing change. This raised the question of whether the Ps saw themselves as decreasing on the measures within-lab, or were merely readjusting their perceptions as the result of the impact of the lab.

A different way of presenting this within-lab total group data is reported in Table 9. Here, the percentage of Ps that saw themselves (SR) and were seen by their group (GR) as increasing (+), decreasing (-) or remaining the same (=) on each scale is reported.

Ps saw more instances of no movement on the scales than did the groups in their ratings. GRs showed more instances of decrease than expected from the <u>t</u>-tests, indicating that, although their overall ratings across measures

| | | L | Т | 0 | DS | DG | OK _s | око | SD | FB | I | II | III |
|----|---|----|----|----|----|----|-----------------|-----|----|----|----|----|-----|
| | + | | | 42 | 27 | 32 | 42 | 39 | 35 | 42 | 53 | 61 | 57 |
| SR | = | | | 8 | 20 | 18 | 21 | 22 | 38 | 35 | 4 | 0 | 2 |
| | - | | | 50 | 53 | 50 | 37 | 39 | 27 | 23 | 43 | 39 | 41 |
| | + | 48 | 56 | 50 | 60 | 56 | 60 | 64 | 76 | 62 | 66 | 69 | 53 |
| GR | = | 0 | 6 | 1 | 1 | 4 | 2 | 4 | 0 | 8 | 0 | 0 | 0 |
| | - | 52 | 38 | 49 | 39 | 40 | 38 | 32 | 24 | 30 | 34 | 31 | 47 |

TABLE 9.--Percentage of Ps changing on each scale withinlab.

came out positively, quite a few individuals were viewed as having changed negatively. What seemed to have happened was that on GRs, the positive changes were much larger than the negative changes per individual, while in the SRs, the amount of negative change ascribed per individual somewhat out-weighed the amount of positive change. Thus, for GRs, on all variables but one (L), more Ps were seen as changing positively on the variables, and the amount of positive change per individual was greater than the amount of negative change per individual. In the SRs, more Ps were seen as changing positively on OK_s , SD, FB, I, II, and III; the same amount were seen as changing positively and negatively

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on OK_O ; and more Ps were seen as changing negatively on O, DS, DG. Also in the SRs, considerable percentages of Ps saw themselves as not changing at all on DS, DG, OK_S , OK_O , SD and FB.

Changes After the Lab

Changes reflected by the scales when before and after lab data were examined are reported in Table 10. A onetailed test of significance was used, as the changes predicted by hypothesis 3 were directional. Increases were predicted for all scales after the lab, except for ICL_h^1 where a decrease was predicted (hypothesis 3).

Except on ICL_h^1 , Ps reported increased on all scales. They saw themselves as having become significantly more open, data seeking, data giving, warm and accepting, powerful and effective in work, active and expressive, and dominant (significant at P < .15 level and above). They reported a trend towards more positive views of self and others. Inconsistent with the prediction, they reported a small increase on ICL_h^1 . Thus, hypothesis 3 was strongly supported for SRs after the lab. Some interesting contrasts occurred between the observer reports and SRs. In contrast to the within lab reports where GRs were considerably more favorable than SRs, post-lab observer reports were less favorable than SRs. The perceptions of change recorded by Ps and observers were rather divergent post-lab, with Ps

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|--------------------|--------------------|--------------------|--------------------|-------------------|-------------------------|------------------------|-------------------|-------------------|-------------------|----|
| 1.29 ⁺ | -2.32 ^C | -1.92 ^C | -1.04 ⁺ | .34 | .79 | -1.14 ⁺ | 1.71 ^C | 1.85 ^C | .40 | υ |
| -1.32 ^d | 1.22+ | .92 | .43 | 51 | .68 | 06 | 2.13 ^C | 1.84 ^C | 1.30 ^d | н |
| • 08 | 1.48 ^d | 4.66 ^a | 2.22 ^C | 1.58 ^d | .53 | • 50 | 3.59 ^a | 3.03 ^b | 3.86 ^a | SR |
| ICL ¹ | ICL ^d | III | II | Ι | 0K ₀ | 0K s | DG | DS | 0 | |
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reporting more positive changes than either Is or Cs. Nevertheless, Is generally supported hypothesis 3 although less well than did Ps. Cs, however, were generally contrary to hypothesis 3 except for DS and DG.

Is supported hypothesis 3 by reporting that they saw the Ps as having become significantly more open, data seeking, data giving, dominant and less loving; and nonsignificantly more positive towards others, powerful and effective in work and active and expressive. They contradicted hypothesis 3 by reporting that they viewed Ps as having non-significantly decreased in positive feelings towards self, and in warmth and acceptance of others. Cs supported hypothesis 3 by viewing Ps as having become significantly more data seeking and data giving, and nonsignificantly more open, positive towards others and warm. They did not support hypothesis 3 in their view of Ps as having become significantly less positive about themselves, powerful and effective in work, active and expressive, dominant and more loving.

In comparing these post-lab data with within-lab data, Ps have changes from reporting decreases to increases in the communicative process as measured by O, DS and DG. Other change trends remained in the same direction for Ps. Observer reports paralleled the trends reported by GRs on O, DS, DG OK, but contradicted them on OK, I, II, and III.

Table 11 extends the analysis of post-lab data by reporting the percentage of Ps that increased (+), decreased (-) or remained the same (=) on each scale in the pre-post comparison.

| | | 0 | DS | DG | OK _s | ОКо | I | II | III | $\operatorname{ICL}_{s}^{d}$ | $\operatorname{ICL}_{h}^{1}$ |
|----|---|----|----|----|-----------------|-----|----|----|-----|------------------------------|------------------------------|
| | + | 57 | 60 | 61 | 43 | 43 | 57 | 66 | 74 | 61 | 47 |
| SR | = | 26 | 20 | 22 | 21 | 17 | 3 | 2 | 3 | 3 | 2 |
| | - | 17 | 20 | 17 | 36 | 40 | 40 | 32 | 23 | 36 | 51 |
| | | | | | | | | | | | |
| | + | 46 | 46 | 51 | 26 | 42 | 46 | 59 | 51 | 62 | 62 |
| I | = | 31 | 28 | 31 | 41 | 19 | 3 | 3 | 7 | 2 | 0 |
| | - | 23 | 26 | 18 | 33 | 39 | 51 | 38 | 42 | 36 | 38 |
| | | | | | | | | | | | |
| | + | 39 | 53 | 44 | 38 | 50 | 44 | 36 | 31 | 28 | 44 |
| С | = | 33 | 19 | 33 | 24 | 18 | 3 | 11 | 5 | 11 | 3 |
| | - | 28 | 28 | 23 | 38 | 32 | 53 | 53 | 64 | 61 | 53 |

TABLE 11.--Percentage of Ps changing on each scale after the lab.

The trend for Ps to see the impact of the lab more positively than observers is evident. Also, Is saw the impact as positive for more Ps than did Cs. In most cases, Is and Cs reported more cases of individuals being unaffected by the lab on particular variables.

The change scale (Appendix A, p. 161), completed after the lab, gave further information on changes due to the lab. Table 12 shows the proportion of Ps, Is and Cs who checked each point on the three items of the scale. Most agreed that Ps had grown in understanding interpersonal behavior during and after the lab (item A); and a strong majority thought that Ps had subsequently changed their behavior based on this understanding (item B). This increased understanding was also widely regarded as linked to the lab experience (item C). Ps reported more growth in understanding interpersonal behavior at post test than immediately after the lab (t = 4.25, p < .005). Hypothesis 5 was supported, as scores clearly fell above point five on the three scales for all three respondents. On item A, very few saw the Ps as having grown none, somewhat or completely in their interpersonal understanding. The consensus was that they had increased their interpersonal understanding more than expected. On item B, the majority reported that the Ps had changed their behavior a lot, but did some slipping back. More checked the extremes on this item than on A. The lab was almost never seen to be the whole impetus for change, but in a few (7% of Ps and 10% of Is and Cs) cases it was perceived as irrelevant (item C.) For the majority, the lab was seen as importantly responsible for the change in understanding interpersonal behavior.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|-----------------|-----|-----|-----|-----|-----|-----|-----|-----------|-----|
| ITEM A | | | | | | | | | |
| SR ₁ | .00 | .06 | .11 | .09 | .26 | .09 | .34 | .04 | .02 |
| SR ₂ | .00 | .04 | .02 | .09 | .13 | .17 | .28 | .23 | .04 |
| I | .00 | .04 | .04 | .04 | .21 | .19 | .28 | .17 | .02 |
| С | .00 | .00 | .04 | .12 | .19 | .21 | .30 | .11 | .02 |
| ITEM B | | | | | | | | | |
| sr ₂ | .05 | .00 | .13 | .00 | .21 | .03 | .49 | .03 | .08 |
| I | .11 | .00 | .11 | .00 | .13 | .00 | .50 | .03 | .13 |
| с | .05 | .03 | .16 | .00 | .32 | .03 | .32 | .00 | .08 |
| ITEM C | | | | | | | | | |
| SR ₂ | .07 | .00 | .10 | .00 | .47 | .03 | .33 | .00 | .00 |
| I | .10 | .00 | .13 | .00 | .27 | .00 | .57 | .03 | .00 |
| С | .10 | .00 | .10 | .03 | .63 | .00 | .13 | .00 | .00 |
| | | | | | | | | . <u></u> | |

TABLE 12.--Proportions checking each point on the change scale.

Note: SR₁ refers to changes immediately following th lab.

 SR_2 refers to changes at the post test period five months after the lab.

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One last measure of change involved the written descriptions. Perhaps because these data relied upon the subjects' initiative, these were among the most incomplete data with forty Is, forty-one Cs giving pre-lab returns, but only thirty-two Is, and twenty-six Cs (plus twentyeight Ps) reporting after the lab. Before the lab, 35% of the Is, and 59% of Cs wrote "no change"; 55% of Is and 34% of Cs described positive changes; and 13% of Is and 7% of Cs listed negative changes in describing changes Ps had made in the six months period preceding the lab. After the lab, no Ps, 3% of Is and 15% of Cs wrote "no change"; while 97% of Ps, 88% of Is and 77% of Cs described positive changes. Three percent of Ps, 13% of Is and 19% of Cs wrote negative changes in describing Ps since the lab. Clearly, the reports of change were overwhelmingly positive for those who completed these data.

These data were examined for any indications that withholding of this information might have adverse implications. No clear evidence was found. In only three cases where the descriptive change reports were missing were there decreases reported for the Ps across the majority of scales. In the other cases of missing data for written descriptions, many times the whole data packet had not been returned, but when it had, the other scales showed consistent increases or no clear-cut pattern.

In summary, then, most changes written in response to the question of "how has P changed in his working with people" were positive. People tended to report general changes not necessarily directly linked to this question. The "no change" category, used so abundantly before the lab, was infrequently used post-lab. Also, those who completed this information before and after the lab reported substantially more positive changes post-than pre-lab. Figure 5 summarizes the data of those individuals who gave written responses on both occasions. It shows how their responses were categorized each time in terms of no change, positive or negative change. The 'more' and 'less' in Figure 5 refer not to the quality of the responses, but to the actual number of changes categorized as positive or negative. The reports of Ps are not included because no prelab written data had been elicited from them. Only one of the twenty-eight Ps reporting post-lab recorded a negative change.

The upper third of Figure 5 shows the numbers of Ps who received more positive descriptions post- than pre-lab (twenty as seen by Is; fifteen as seen by Cs). The middle third shows the number of Ps who received more negative descriptions post- than pre-lab (four as seen by Is; seven as seen by Cs). The lower third records the number of Ps who were not seen as changing in the written descriptions pre- to post-lab (seven as seen by Is; five as seen by Cs).

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| PRE | POST | Ĩ | <u>C</u> |
|-----------------|----------------------|----|----------|
| no change | positive change | 11 | 11 |
| negative change | positive change | 3 | 2 |
| positive change | more positive change | 6 | 2 |
| positive change | less positive change | 2 | 3 |
| no change | negative change | 1 | 1 |
| positive change | negative change | 1 | 2 |
| positive change | no change | 0 | 1 |
| no change | no change | 1 | 3 |
| positive change | positive change | 5 | 1 |
| negative change | negative change | 1 | 1 |

Fig. 5.--Comparison of written change reports pre- and post-lab.

These written changes were not limited to one per person. On the pre-lab data, 33 positive changes were reported by Is on 22 Ps; 23 positive changes were reported by Cs on 14 Ps; 9 negative changes were reported by Is on 5 Ps; and 3 negative changes were reported by Cs on 3 Ps. Post-lab, Is reported 64 positive changes on 28 Ps, and 6 negative ones on 4 Ps; Cs reported 34 positive changes on 20 Ps, and 7 negative ones on 5 Ps; and Ps reported 79 positive changes on 27 persons, but only one negative one. Thus, both the number of positive changes, and the number of Ps reported as showing positive changes increased postlab.

Table 13 reports the proportions of positive changes falling into the various categories. These are the categories reported by Bunker and Knowles (1967), and printed in Appendix A, p. 173, p. 174.

| | Inti | mate | Coll | eaque | Participant |
|--------------|------|------|------|-------|-------------|
| Categories | Pre | Post | Pre | Post | Post |
| Als | .12 | . 27 | .22 | .21 | .20 |
| Alr | .00 | .05 | .04 | .09 | .05 |
| Alu | .00 | .00 | .04 | .00 | .01 |
| A2 | .00 | .02 | .13 | .06 | .04 |
| A3 | .06 | .05 | .00 | .03 | .09 |
| A4 | .00 | .00 | .00 | .00 | .03 |
| A5 | .03 | .02 | .00 | .00 | .00 |
| A6 | .00 | .02 | .09 | .09 | .03 |
| A7 | .03 | .09 | .00 | .03 | .03 |
| B1 | .12 | .03 | .04 | .06 | .01 |
| B2 | .00 | .00 | .00 | .00 | .01 |
| B3 | .21 | .13 | .04 | .18 | .09 |
| В4 | .03 | .06 | .09 | .03 | .06 |
| B5 | .00 | .05 | .00 | .00 | .03 |
| B6 | .09 | .11 | .09 | .03 | .09 |
| B7 | .03 | .05 | .04 | .03 | .04 |
| B8 | .09 | .06 | .17 | .15 | .19 |
| Cl | .09 | .02 | .00 | .03 | .01 |
| Unidentified | .03 | .02 | .00 | .00 | .00 |
| | | | | | |

TABLE 13.--Proportion of descriptive changes in each change category.

After the lab, Ps, Is, and Cs all saw the most change coming in Als--the sending part of communication. Ps also rated insight into self and role (B8), sensitivity to others' feelings (B3), self confidence (B6), and risk

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taking (A3) high. The other frequently used categories for Cs were B3, B8, self control (A6), and the listening aspect of communication (Alr); and for Is they were B3, B6, and warmth (A7). Thus, the main changes described fell into the descriptive categories of more open and communicative, more aware of self and one's role, and more sensitivity to others' feelings.

Verbatim accounts of these written descriptions of change are not included in the data inventory as confidentiality of reports had been promised to both participants and observers. These data, however, included much richer descriptions of the changes observed than are portrayed by the category analysis. Many were moving accounts of important personal changes experienced by participants and observed by intimates or colleagues. These accounts cannot be presented in full, but selected examples of the kinds of changes frequently described follow. Examples of communicative changes (Als, Alr) were: "more open and less reserved, verbalize feelings and share more openly, more open in expressing feelings about others, more open in saying what is on my mind, more direct and honest, a new freedom in expressing feelings, listen more attentively to what is being said, listen more intensely and empathically, more willing to listen to what others are saying." Changes in working and relating with others (A2) were described with such phrases as: "better able to relate to others,

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relate to others more effectively, more willing to discuss disagreements." Risk taking (A3) was illustrated by: "much more prone to speak up in dissent, more honest with others even at the personal risk of being rejected or misunderstood, less fear of confronting others with negative data, less hesitiant to disagree." Changes in self control (A6) were typically expressed as: "better self control of emotions, not getting upset so quickly." "Experiences others more fully and accurately, more aware of other people and their feelings, more understanding, more sensitive to others' responses, understand and feel others' emotions much more" were all classified under sensitivity to others' feelings (B3). The self confidence category (B6) included descriptions of feelings of increased self-esteem and self worth as well as confidence in one's abilities and ideas. The category of comfort (B7) included increased comfort with intimacy, authority, and new people and situations. The category of insight into self and role (B8) covered the most diverse descriptions of change. Personal changes described under this category included "increased awareness of self, became acutely aware of my passivity, of the way people in groups perceived me and of my reliance on position; more sensitive and aware of her need for husband and marriage; understands self better and has set some specific goals, more aware of how he reacts to people and they to him." The job changes also covered under B8 included the

assuming of more responsibility in jobs, adjusting better to job demands, functioning more effectively on the job, receiving promotions and coping with new demands and new roles. The global judgments of change (Cl) included such changes as divorce, going into therapy as the result of a change process stated at the lab, specific personality changes that could not be subsumed under the other categories (i.e., "has gone from a dependent to a more independent type"), weight loss and "new person" descriptions.

In summary, with respect to the descriptive change reports, it can be said that hypothesis 4 was strongly supported as predominantly positive changes were described and more such changes were described after the lab than before. The three sources tended to agree on their perception of these changes, although both intimates and colleagues reported more negative changes than did participants.

Longitudinal Change Picture

The shifts in how Ps perceived change from within-lab to post-lab, along with the unexpected decreases in SRs within-lab led to further data analysis. Pre-lab and day 2 data, pre-lab and day 7 data and day 7 and post-lab data were compared to get a longitudinal picture of change. Twotailed tests of significance were used because a prior predictions had not been made. Table 14 shows these

three analyses. Examination of Tables 8, 10 and 12 shows the emergence of a pattern. The first time data was collected after the pre-lab base line measures was on day 2 of the lab. Scales tend to record decreases from pre-lab to day 2, indicating that Ps saw their behavior more negatively at the beginning of the lab than one month previously. Group reports at day 2 were also lower than observer reports before the lab. Moving to the seventh day of the lab, it has already been shown that in comparison with day 2, GRs showed increases, and SRs tended to show decreases (Table 8). However, when day 7 and pre-lab data were compared, clear-cut decreases across all scales were reported. It appears that both Ps and their observers were rating guite high before the lab, but that the Ps had begun to lower their self perceptions by day 2. The decreases in SRs when day 2 and day 7 data were compared could be showing this continuous reevaluating of self perceptions within the lab. GRs in contrast were possibly able to record increases within-lab because their perceptions were more stable (based on more data), and not biased by initially high ratings. Increases across all scales were found in the day 7 with post-lab comparison, indicating that the change process continued beyond the lab.

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| | Ъ | re vs Day | 2 | | Pre vs Da | τ 7 | Da | ıy 7 vs I | Post |
|-----|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|-------------------|-------------------|-------------------|
| | SR | I-GR | C-GR | SR | I-GR | C-GR | SR | GR-I | GR-C |
| 0 | -1.01 | -2.90 ^C | -4.83 ^b | -1.96 ^d | -1.38 | -2.97 ^C | 4.49 ^b | 1.91 ^d | 3.88 ^b |
| DS | .78 | -1.39 | -4.70 ^b | 84 | 29 | -2.59 ^C | 3.04 ^C | 1.22 | 3.66 ^b |
| DG | 1.32 | -3.17 ^C | -4.30 ^b | 11 | -1.50 | -3.32 ^C | 1.85 ^d | 3.31 ^c | 4.28 ^b |
| п | -1.85 ^d | -6.84 ^a | -5.83 ^a | 10 | -3.02 ^C | -3.27 ^C | 1.78 ^d | 2.05 ^C | 2.20 ^C |
| II | -1.44 | -5.29 ^b | -7.83 ^a | 46 | -3.85 ^b | -5.02 ^b | 3.11 ^C | 3.46 ^a | 3.81 ^b |
| III | -1.97 ^d | -5.45 ^a | -8.47 ^a | -1.35 | -2.67 ^C | -4.88 ^b | 4.27 | 2.68 ^C | 4.30 ^b |
| | | | | | | | | | |

Note.--Negative t-test values on the pre vs day 2 comparison indicate higher scores before the lab. Negative values on the pre vs day 7 comparison also indicate higher scores before the lab. Positive values on the day 7 vs post-lab comparison indicate higher scores after the lab.

| .0005 | .005 | .05 | .10 |
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| മ | മ | മ | գ |
| H | H | 11 | II |
| g | ൧ | υ | Ъ |
| Significance levels: | | | |

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Comparison Between T Groups

Stability of the Measures

The stability correlations for the five T groups are presented in Table 15. PDIX was omitted from these calculations of stability and intercorrelations for the five T groups because of the special sample used (two "most liked" and two "least liked" T group members) for that instrument.

TABLE 15.--Product-moment correlations by T groups--group report data.

| Groups | L | Т | 0 | DS | DG | OKs | ОКо | SD | FB |
|--------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| 1 | .56 ^C | 09 | .46 ^d | .26 | .51 ^d | .79 ^a | .36 | .17 | 07 |
| 2 | .62 ^C | .19 | .09 | 32 | .12 | .67 ^C | .51 ^d | .29 | .10 |
| 3 | .35 | 35 | .25 | .53 ^C | .38 | .77 ^a | .04 | .40 | .45 ^d |
| 4 | .36 | .70 ^b | .52 ^C | .61 ^C | .50 ^d | .32 | .28 | .40 | .51 ^d |
| 5 | .54 ^C | .32 | .64 ^C | .55 ^C | .75 ^a | .36 | .19 | .68 ^C | .55 ^C |

Significance levels: a = p < .0005 b = p < .005 c = p < .05 d = p < .10

The five groups showed considerable variation with respect to the stability of the measures. The measures showed the most stability in group 5, followed by groups 4, 1, 2 and 3. L, O, DS, DG, OK, and FB were fairly stable

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across groups, while T, OK_o, and SD were quite unstable across groups. Stability correlations were not computed for self reports in the five T groups because of the small sample size in most instances.

Intercorrelations Among Measures

The correlation matrices for the five T groups are presented in Appendix B, p. 183 to 187. For all five groups, more intercorrelations were significant at day 7 than day 2, indicating greater consistency in rating as people became more acquainted. Table 16 shows a comparison between the intercorrelation matrices of the five T groups.

Group 5 clearly showed higher intercorrelations among the measures, followed by groups 4, and 1, 2, then 3. The numerous negative and non-significant correlations on day 2 tended to diminish by day 7 in all groups. Negative correlations in the five groups at both days 2 and 7 mainly involved T, but a few also involved DS, DG, OK, and OK.

Considerable variation existed across the five groups in how each measure was best predicted at day 7. Table 17 shows these patterns of prediction. Scanning across the rows for each group shows which measures were the best predictors.

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| TABLE |

| | Significant | Positive Correl | ations | Significant 1 | Negative Corre | lations |
|------------|-------------|-----------------|---------|---------------|----------------|---------|
| Groups | Day 2 | Day 7 D | lay 2x7 | Day 2 | Day 7 | Day 2x7 |
| T | 31 | 86 | 16 | m | 0 | Ч |
| 2 | 39 | 83 | 21 | S | 0 | 4 |
| e | 39 | 69 | 16 | 8 | 0 | Ч |
| 4 | 56 | 58 | 46 | 0 | 0 | 7 |
| Ŀ | 42 | 100 | 5 3 | 11 | 0 | 0 |
| | | | | | | |
| All Groups | 76 | 100 | 69 | 9 | 0 | 17 |
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| Groups | ц | £ | ο | DS | DG | OKs | oKo | DS | ЪВ |
|------------|-----|-----|----|-----------------|----------------------|-------------------|-------------------|-----------------|-------------------|
| l | ц | 0 | 0 | 0K ₀ | 0 | 0K _S | E | FВ | 0K _s |
| 5 | ц | DS | H | DS | DS | OK s | ц | oKo | L,OK _S |
| m | Г | 0 | DS | FВ | FB | OK <mark>s</mark> | 0K <mark>s</mark> | FB | Ч |
| 4 | oKo | Τ,Ο | DG | FΒ | ok _o , sd | 0K ₀ | DS | 0K _s | ч |
| Ŋ | SD | 0 | 0 | DG | DG | DS | 0 | SD | SD |
| All groups | ц | DS | 0 | DG | Ð | OKs | OKs | OKs | SD |

Measurement of Change

Table 18 shows the <u>t</u>-test values for the group ratings on within-lab measures for the five T groups. Examination of the five groups showed less support of hypothesis 2 than the total group which would be expected because of the smaller sample size and more variability found per group. The trend was for each group to show increases across the measures in group ratings, but many of the <u>t</u>test values did not reach significance. With a sample size of ten, of course, the changes would have to be large and consistent to reach statistical significance. Inspection of the raw data showed that when the individual groups failed to achieve statistical significance or showed a negative trend on a particular measure, it was usually the result of extreme scores of one or two individuals.

Group 2 showed the most significant increases (6), followed in order by groups 1 (4), 3 (3), 4 (2) and 5 (1). Group 5 showed the most decreases (5). The variables showing the most change within these five groups were: SD, FB, OK_o, and II. Thus, the most changing was done within-lab on self disclosure, use of feedback, positive views towards others and power and effectiveness in work according to individual T group data on group reports. Although not reaching significance within any individual T group, the total group was reported to have significant gains in interpersonal warmth and acceptance (1).

TABLE 18.--T-test values on within-lab measures based on GRs for each T group.

| | fi | ο | DS | DG | 0K _s | oKo | SD | Ъ В | н | II . | III |
|---|-------------------|-----|-------------------|--------------|--------------------|-------------------|-------------------|-------------------|------|-------------------|-----|
| 1 | 44 | .81 | .76 | .73 | -1.51 ^d | 2.68 ^C | 1.29 | 1.68 ^d | 1.27 | 1.42 ^d | .32 |
| | 1.47 ^d | .70 | .59 | .95 | 3.36 ^b | 1.69 ^d | 1.46 ^d | 2.64 ^C | 1.13 | 1.67 ^d | .62 |
| | 1.01 | .91 | .53 | .35 | 1.23 | .34 | 3.57 ^b | 3.84 ^b | 1.14 | 1.71 ^d | .71 |
| | 29 | .87 | 1.71 ⁺ | .54 | .56 | 1.59 ^d | 2.60 ^C | 1.01 | 1.17 | .92 | .51 |
| | .26 | .28 | .39 | - .30 | × | .65 | 1.55 ^d | 1. 35 | .70 | 18 | .10 |
| | | | | | | | | | | | |

x = insufficient data

| .0005 | .005 | .05 | .10 | .15 |
|----------------------|------|-----|-----|-----|
| v | v | v | v | v |
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| Significance levels: | | | | |

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Table 19 shows the t-test values for the self reports on within-lab measures for the five groups. The self reports of the five T groups show more of a negative trend than the total group SR data. O showed decreases in three groups, DS in three, DG in four, OK in one, OK in two, SD in one, I in one and III in three. Only FB and II showed no decreases. The SRs from group 2 showed increases on nine scales and decreases on one. Groups 3 and 5 showed increases on 6 and 5 scales respectively, but decreases on 4 and 3 scales respectively. Groups 1 and 4 showed increases on 4 and 5 scales, respectively, but decreases on 6 and 5 scales, respectively. The most positive change was shown on feedback, power and effectiveness in work and interpersonal warmth and acceptance. There were tendencies towards positive change in positive feelings towards self and others and activity and expressiveness. Data seeking, data giving and openness rather consistently showed negative change.

Thus, in summary, the five groups showed variability in assessing within-lab change. GRs tended to support hypothesis 2 across all five groups, while SRs tended to negate hypothesis 2 across the five groups.

From the data presented on the five groups, it is apparent that these groups varied considerably despite the fairly consistent trends for the total lab population. Group 5 showed more agreement on the ratings followed by groups 4, 1, 2, and 3. Group 2 reported the most positive

| | | | | | | | 101 201 | | • • • • • • | |
|--------|--------------------|--------------------|--------------------|------|--------------------|------|--------------|------|----------------------------|------|
| Groups | 0 | DS | DG | OKs | 0K ₀ | SD | FВ | н | II | III |
| - | -1.86 ^d | .96 | -1.94 ^C | 63 | 1.41 | 32 | .00 | 1.21 | 1.56 ^d | 05 |
| 7 | 2.00 ^d | 1.29 | 2.05 ^d | 1.05 | 1.83 ^d | .67 | .38 | 36 | • 59 | 1.08 |
| £ | 43 | 1. 05 | 75 | 1.10 | 17 | 60 | 1. 07 | 1.31 | . 80 | .13 |
| 4 | - 56 | -3.87 ^C | - 46 | .23 | -2.07 ^C | • 39 | 1. 04 | .40 | .05 | 23 |
| Ŋ | • 00 | -1.13 | - 93 | .35 | .56 | 1.31 | .83 | .90 | .76 | 09 |
| | | | | | | | | | | |
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TABLE 19.--T-test values on within-lab measures based on SRs for each T group.

Significance levels: a = p < .0005b = p < .005c = p < .05d = p < .10 ļ

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changes within-lab on group reports, followed in order by groups 1, 3, 4 and 5. Group 2 also showed the most increases on self reports within-lab, followed by groups 3, 5, 1 and 4. In terms of change data, group 2 appeared to have been the most effective group, and group 4 the least effective.

The inter-group variation was examined further by recording from the complete data inventory which Ps showed increases or decreases across the majority of scales, and which had no clear-cut pattern. Increases were defined as the number of scales showing gains being at least two more than those showing losses. Decreases refered to the number of scales showing losses being at least two more than those showing gains. Table 20 shows the number of Ps per T group classified as increasing, decreasing or balancing gains and losses across the within-lab measures. Group 2, again, showed the greatest gains.

The post-lab data were examined for Ps who showed clear-cut increases or decreases across the majority of measures. It was not possible to separate most Ps into either category, because the trend was for Ps to show increases on some scales, decreases on others and remain the same on still others. However, twenty-four Ps were identified as reporting that the lab had a decidedly positive impact on them (the number of scales showing gains was at least three more than those showing losses). Twelve of

| | | 1 | | 2 | | 3 | | 4 | | 5 |
|------------------------------|----|----|----|----|----|----|----|----|----|----|
| | SR | GR |
| Gained | 3 | 4 | 6 | 7 | 3 | 7 | 4 | 4 | 3 | 4 |
| Lost | 2 | 4 | 1 | 3 | 4 | 3 | 4 | 3 | 4 | 3 |
| Balanced Losses and Gains | 5 | 2 | 3 | 0 | 3 | 0 | 2 | 3 | 3 | 3 |

TABLE 20.--Ps patterns across scales within each T group by SRs and GRs.

these 24 Ps were in groups 5 and 3 (6 each) and 4 came from each of groups 1, 2 and 4. Is identified 15 Ps that they saw as clearly benefitting from the lab. Of these 15, 7 came from group 2, with 2 each from the remaining 4 groups. Cs identified only 8 Ps as clearly benefitting from the lab. Three came from group 1; 2 each from groups 2 and 5; and 1 from group 3. In terms of a majority negative impact, only 3 Ps fell into this category on SRs. Two were from group 1, and one from group 2. Three Ps were identified by Is as decreasing across most scales. One came from group 1, and 2 from group 3. Cs identified 6 Ps as having decreased on the majority of scales. Three were from group 4, and one each from groups 1, 2 and 5. Thus, differential change data by groups was still evident after the lab.

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The comparison among T groups was tied in with some research conducted on the lab by Hurley (personal communication, 1969). He measured Ps' perceptions of the effectiveness of the trainers in their groups. He found that the overall effectiveness ratings that the groups gave their trainers were: 14.5 for group 5, 14.1 for group 2, 13.9 for group 3, 12.8 for group 1 and 12.3 for group 4. His complete findings are found in Appendix B, p. 188. Thus, groups 5 and 2 rated their trainers as most effective, followed by groups 3, 1 and 4. These results closely parallel the results found in this study showing group 2 to be the most effective group overall, and group 4 the least effective. Obviously, the perceived effectiveness of trainers is an important variable in determining change in the groups.

Comparison of Ratings by Different Sources

It was hypothesized that self and group ratings would be positively correlated (hypothesis 6). Table 21 shows that all SR-GR correlations were positive, and all were significant except OK₀, I and II on day 2, and SD on day 7. Thus, in general, hypothesis 6 was supported, and it was shown that there was considerable relationship between the way an individual rated himself and others in his T group rated him. This relationship was stronger at day 7 than at day 2 on all measures except SD.

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| | 0 | DS | DG | OK _s | око | SD | FB | I | II | III |
|---------------------------------|------------------|--|----------------------------------|------------------------|--|--|------------------|------------------|------------------|------------------|
| SR2GR2 | .57 ^a | .41 ^C | .45 ^b | .42 ^b | .22 | .35 ^b | .39 ^b | .21 | .19 | .48 ^b |
| SR ₇ GR ₇ | .76 ^a | .53 ^a | .73 ^a | .43 ^b | .32 ^b | .17 | .47 ^a | .42 ^b | .27 ^C | .74 ^a |
| | Note: Signif: | SR ₂ GF SR ₇ GF icance | $R_2 = 0$ $R_7 = 0$ e leve | day 2 day 7 els: | compar compar a = p b = p c = p d = p | ison ison < .000 < .005 < .05 < .10 | 05 | | | |

TABLE 21.--Correlations between self and group ratings within-lab.

Positive correlations were also predicted between self and observer ratings, and between the ratings of observers (hypothesis 6). Table 22 shows these correlations. Seven of these sixty correlations were negative, but only one achieved the .05 level of significance. This involved the ratings of Ps and Cs on DG after the lab. More agreement was found among the three sources in their ratings before the lab than after. On the twelve scales, Ps and Is had five significant correlations before the lab, and three after; Ps and Cs had seven before and four after; and Is and Cs had seven before and two after. This lessening of agreement after the lab was reflected in the different perceptions of change reported by the three sources.

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| 07 $.44^{b}$ $.10$ $.37^{b}$ $.16$ $.46^{a}$ $.70^{a}$ $.04$ $.24^{c}$ $.09$ $.32^{c}$ $.39^{b}$ $.42^{b}$ $.23^{d}$ 17 $.25^{c}$ $.45^{b}$ $.38^{b}$ $.39^{b}$ $.40^{b}$ $.12$ $.14$ $.00$ $.03$ $.21$ $.27^{c}$ $.74^{a}$ 25^{c} $.13$ $.04$ $.12$ $.00$ $.28^{c}$ $.39^{c}$ $.20$ $.23$ $.00$ $.26$ $.48^{b}$ $.02$ $.27^{d}$ | ß | DG | OKs | 0K | н | II | III | ICL ^d | ICL ¹ |
|---|---|-------------------|------------------|-------------------|------------------|-------------------|------------------|------------------|------------------|
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | ' | .07 | .44 ^b | .10 | .37 ^b | .16 | .46 ^a | | .70 ^a |
| $\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$ | | .04 | .24 ^C | 60. | .32 ^c | .36 ^C | .39 ^b | .42 | д. |
| .12 .14 .00 .03 .21 $.27^{c}$.74 ^a 25^{c} .14 .00 .03 .21 $.27^{c}$.74 ^a 25^{c} .13 .04 .12 .00 $.28^{c}$.39 ^c .39 ^c .20 .23 .00 .26 .48 ^b .02 .27 ^d | | .23d | 17 | • 25 ^C | .45 ^b | . 38 ^b | .39 ^b | .40 ^b | - |
| 25 ^c .13 .04 .12 .00 .28 ^c .39 ^c .20 .2 ³ .00 .26 .48 ^b .02 .27 ^d | | .12 | .14 | 00. | • 03 | .21 | .27 ^C | .74 ^a | |
| .20 .23 .00 .26 .48 ^b .02 .27 ^d | 1 | • 25 ^c | .13 | .04 | .12 | • 00 | .28 ^C | .39 ^C | |
| | | .20 | .23 | .00 | .26 | .48 ^b | .02 | .27 ^d | |

Note: Subscript 1 refers to pre-lab data; subscript 2 refers to post-lab data.

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There was considerable divergence between Cs and the other two sources, as has been previously noted.

As on the scales in Table 22, there was some disagreement among the three sources in their perceptions on the change scale. Ps and Is agreed significantly on all three items (item 1, $.50^{b}$; item 2, $.36^{c}$; and item 3, $.58^{a}$). Ps and Cs agreed significantly on item 3 ($.35^{b}$), and item 2 ($.27^{d}$). They disagreed non-significantly on item 1 (-.13). Is and Cs showed little relationship in their ratings (item 1, -.09; item 2, .00; and item 3, .06).

Thus, when the ratings of Ps, Is and Cs were compared across all the scales, it appeared that they did not agree as well as predicted in hypothesis 6. Cs, especially, tended to give ratings that were unrelated to either Ps or Is. The incongruity was greatest between the ratings of Cs and Is.

These incongruities in ratings signaled different perceptions of change. Referring back to Table 10, it is apparent that the impact of the lab was seen differently by the three sources. Ps reported significant increases on O, DS, DG, I, II, III, and ICL_s^d , and non-significant, but supportative trends on OK_s and OK_o . Is concurred with Ps on more of these changes than did Cs. Is also saw positive change on O, DS, DG and ICL_s^d , and to a lesser degree on OK_o , II and III. However, they disagreed with Ps on OK_s and I by reporting decreases, and on ICL_h^1 by reporting

a decrease. Is seem to be describing a distance in interpersonal relationships, and self dissatisfaction with which Ps disagreed. Cs, in turn, picked up a different focus. In contrast to both Ps and Is, they saw Ps as decreasing on ICL^d_s, III, and II. They agreed with Is, but not with Ps in reporting a decrease on OK. They agreed with Ps, but not with Is on reporting slight increases on I and ICL_h^1 . They supported the positive trend reported by both Ps and Is by reporting significant increases on DS and DG, and slight increases on O and OK_{O} . Pulling this all together, the three sources perceived similar increases in the communicative process as measured by O, DS, and DG. Is and Ps perceived increases in assertiveness and job effectiveness, while Cs perceived decreases (II, III, ICL_s^d). Ps and Cs saw more self-acceptance and warmer relationships, while Is contradicted this (I, ICL_{h}^{1} , OK_{s} , OK_{o}).

Thus, Ps reported more changes after the lab than were reported by Is and Cs. In general, Is tended to view the lab as having a positive impact for Ps, while Cs tended to report a negative impact.

It had been hypothesized (hypothesis 7) that SRs would be higher (but not necessarily significantly so) than the ratings of others, but that these discrepancies would decrease both within the lab, and after. Table 23 presents a comparison of SRs with GRs within-lab. For the total group, SRs were higher than GRs on all measures on day 2

| | 0 | DS | DG | OK s | ок | SD | FB | I | 11 | 111 |
|---------------------------------|--------------------|--------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Group 1 | | | | | | | | | | |
| SR2GR2 | 1.84 ^a | .03 | 2.02 ^C | .48 | 1.10 | 1.96 ^C | 2.34 ^C | | | |
| SR7GR7 | -2.94 ^C | -2.48 ^C | 1.24 | 1.10 | 2.00 ^C | .37 | .89 | | | |
| Group 2 | | | | | | | | | | |
| SR2GR2 | .95 | .41 | 1.23 | .10 | 43 | 2.30 ^C | 2.50 ^C | | | |
| SR ₇ GR ₇ | . 34 | -2.88 ^C | .58 | .25 | 1.11 | 2.23 ^C | .68 | | | |
| Group 3 | | | | | _ | | | | | |
| SR2GR2 | .75 | .55 | 1.44 ^d | 2.11 [°] | 1.43 ^d | 2.21 ^C | 2.32 ^C | | | |
| SR7GR7 | 89 | .58 | 11 | 4.12 ^b | 1.51 ^d | 72 | .48 | | | |
| Group 4 | | | | | | _ | | | | |
| SR ₂ GR ₂ | 1.45 | 3.04 ^C | 1.28 | 2.71 [°] | 2.49 ^C | 1.73 ^d | 2.42 ^C | | | |
| SR7 ^{GR} 7 | .24 | -1.78 ^d | 15 | 2.61 ^C | 57 | 04 | 4.96 ^b | | | |
| Group 5 | | | | | | | | | | |
| SR ₂ GR ₂ | .40 | 1.33 | .39 | 1.49 | 1.50 ^d | 1.28 | 2.41 ^C | | | |
| SR ₇ GR ₇ | 2.60 ^C | .13 | .45 | x | 1.60 ^d | 2.40 ^C | 2.16 ^C | | | |
| Total Group | | | | | | | | | | |
| SR ₂ GR ₂ | 2.36 ^C | 1.81 ^C | 2.89 ^C | 2.87 ^C | 2.00 ^C | 4.35 ^a | 5.43 ^a | 3.51 ^b | 3.17 ^b | 2.41 ^C |
| SR7GR7 | 97 | -2.33 ^C | .53 | 2.75 ^C | 2.15 ^C | 1.41 ^d | 3.00 ^b | 2.08 ^C | 1.03 | 1.84 ^C |
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TABLE 23.--T-test values comparing self and group reports within-lab.

Note: Positive <u>t</u> values indicate SR higher; negatives ones indicate GR higher. Subscripts 2 and 7 refer to days 2 and 7 of the lab. x = insufficient data.

Significance levels: a = p < .0005 b = p < .005 c = p < .05 d = p < .10 of the lab. This discrepancy generally lessened by day 7 (O, DG, SD, FB, OK_s, I, II, III), aside from minor inconsistencies (OK_o, DS). These data confirm the earlier observation that self scores tended to drop by day 7, while group scores tended to increase.

Again, there was less uniformity among the five groups. Generally, the trend was for SRs to be higher on day 2 and to decrease by day 7. The exceptions were: 0 for group 5; OK_s for groups 1, 2 and 3; OK_o for groups 2, 3 and 5; SD for group 5; and FB for group 4. The lowering of SRs was not consistently reflected in the five groups, as would be expected from the earlier findings about differentiation in the five groups. Hypothesis 7 stands supported for the total lab population, but not for the five individual T groups.

Hypothesis 7 had also predicted that SRs would be higher than observer reports, but had made no prediction about whether Is or Cs would rate higher. We have already seen in the overview comparison of pre-lab means that this hypothesis was not supported. Table 24 reports the test of significance of the differences noted in the overview, as well as post-lab differences. A two-tailed test of significance was used in comparing Is and Cs, and a onetailed test for the P-I, and P-C comparisons.

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| TABLE |

| ICL ¹ | 38 1.49 | .12 -1.05 | 48 -1.22 |
|------------------|--|--|--|
| ICL ^d | 40 | -2.67 ^c 62 | -2.44 ^C 45 |
| III | -1.43 ^d .44 | -3.88 ^a .38 | -2.32 ^c .32 |
| II | -2.92 ^b -2.41 ^c | -5.22 ^a -2.25 ^c | 08 |
| н | -2.05 ^C .08 | -1.58 ^d 26 | .02 |
| oKo | 51 | 12 99 | .31 15 |
| OKs | .36 1.34 ^d | 26 99 | 62 |
| DG | 06 63 | -1.65 ^d -1.43 ^d | -1.53 ^d 18 |
| DS | . 86 | -4.16 ^a -2.65 ^c | -3.27 ^c -2.37 ^c |
| 0 | 23 -1.72 | -1.52 ^d 21 | -1.83d 43 |
| | SR ₁ I1 SR ₂ I2 | $s_{R_1}c_1$ $s_{R_2}c_2$ | $_{12c_1}^{1}$ |

Note: Positive t values indicate SR, and negative t values indicate I and C higher in the SR-I, and SR-C comparisons. In the I-C comparison, positive t values indicate I higher, and negative ones, C higher.

Significance levels: a = p < .0005b = p < .005c = p < .05d = p < .10 おうろう ちょうく たいしまうちょう たいあい

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On no pre-lab measure were SRs significantly higher than those of Is or Cs. Is and Cs clearly tended to give higher ratings than Ps before the lab, especially Cs. This trend was significant for Is on I, II, III, and nonsignificant on O, DG, OK, ICL. Only on DS and OK did the ratings of Ps marginally exceed those of Is before the lab. Cs rated significantly higher than Ps on O, DS, DG, I, II, III and ICL_s^d , and non-significantly higher on OK_s and OK_o . Only on ICL_h^1 did Ps rate higher than Cs, but the difference was trifling. Post-lab, the discrepancies between SRs and observer reports tended to diminish. However, the overall picture was still one of both observers rating higher than Ps. Cs tended to rate higher than Is at both times. Hypothesis 7 was only partially supported in relation to the reports of Ps and observers. It was not supported in that SRs were not higher than observer reports. It was generally supported in that the discrepancies between Ps and observers, and between the two observers tended to diminish after the lab.

Hypothesis 7 was more supported on the change scale data. On this scale, the reports of Ps exceeded those of Is ($\underline{t} = 2.67$, $\underline{p} < .05$), and Cs ($\underline{t} = 2.42$, $\underline{p} < .05$) on item 1. Ps rated higher than Is ($\underline{t} = .98$, non-significant), and Cs ($\underline{t} = 1.80$, $\underline{p} < .10$) on item 2. Ps also rated higher than Is ($\underline{t} = 3.31$, $\underline{p} < .01$), and Cs ($\underline{t} = 4.89$, $\underline{p} < .001$) on item 3. Is rated higher than Cs on all three items (on item 1, $\underline{t} = 2.06$, $\underline{p} < .05$; on item 2, $\underline{t} = 1.36$, non-significant; and on item 3, $\underline{t} = 2.82$, $\underline{p} < .01$). Thus, Ps saw the most change, followed by Is, then Cs. This trend was consistent across all measures.

On the descriptive change reports, there was general agreement both on the categories used, and amount of change reported. There was also agreement on seeing most of the change as positive. Is and Cs saw more instances of 'no change' than did Ps. Is and Ps reported more positive changes than did Cs, as well as more changes per person. The descriptive change reports showed the most congruity among the three sources.

Negative Impact and Missing Data Cases

The data for those few Ps for whom the lab apparently had a negative impact were given special attention (three as described by Ps, three by Is and six by Cs). Nothing particularly outstanding was found in the available data about these Ps. There was no significant trend for them to view themselves, or for their T group to view them, as decreasing across the majority of scales within the lab. However, the pre-lab data showed tendencies for more scales to be rated low than high, especially on the ICL and OK scales. Whether this trend statistically separated these negative impact cases from the other Ps was beyond the scope of this study. A similar pattern was found when the data was examined for those Ps on whom there was missing data post-lab. Where the missing post-lab data corresponded to missing pre-lab data, not much could be deduced except uncooperative Ps or observers. For cases where data was missing only after the lab, some were easily explained by death, moving away or entering therapy. For the remainder, there was no discernible trend for the Ps to have had clearly positive or negative experiences within-lab. However, on pre-lab data, a number of low scores across measures, the ICL and OK scales in particular, was noted.

Hypothesis Summary

Hypothesis 1. Supported.

Hypothesis 2. Supported for GRs for the total group, and the five T groups. Not supported for SRs in the five T groups, and partially supported for SRs in the total group.

Hypothesis 3. Generally supported for Ps, but less so for Is and Cs.

> Hypothesis 4. Clearly sustained. Hypothesis 5. Clearly sustained.

Hypothesis 6. Supported for self and group reports. Only partially supported for self and observer report. Hypothesis 7. Supported for total group data withinlab, and less so for the five groups. Not supported for self and observer reports, except in a lessening of discrepancies.

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DISCUSSION

The results demonstrate that the lab participants generally made gains in their communicative processes, interpersonal relationships, and job effectiveness which seem attributable to the intensive eight day human relations training lab. Many of these changes were maintained for as long as five months after the lab. The evidence of change was somewhat more complex, however, than had been anticipated. The revealed changes proved highly contingent upon both the source of data and the specific variables and measures utilized. No simple summary of the findings will suffice. All hypotheses were not substantially supported, and some interesting additional findings emerged.

Many of the findings were congruent with the findings of other studies. Self reports were found to be more congruent with group reports at the end than beginning of the lab, and group ratings revealed more change in the participants than did self reports (Burke and Bennis, 1961). The lab was found to have an almost uniformly positive valence for the lab participants after the lab (Campbell and Dunnett, 1968; Stroud, 1959). Outcome studies with training labs have most consistently shown changes in communication,

understanding human behavior, sensitivity to others, self awareness, and job effectiveness (Bunker, 1965, 1967; Campbell and Dunnett, 1968). This study concurred with these findings by reporting positive changes in communication, relational facility, self and interpersonal awareness, interpersonal sensitivity and job effectiveness as measured by the change scale, the descriptive change reports and the scales. Most within-lab studies have found the main changes in the communicative process; namely, feedback and openness or self disclosure (Miles, 1958; Lippitt, 1959; Gibbs and Platts, 1950). This study found the most change in feedback, with self disclosure also showing considerable change. Bennis (1967) found that participants recorded decreases in describing interpersonal behavior during a lab, and offered the explanation of increased sensitivity to one's roles, rather than actual behavioral decreases. A similar explanation will be offered for the decreases in self reports found within-lab in this study.

One goal of this study was to investigate the utility of several measures for human relations training research. The various measurement scales used in the study appear to have functioned satisfactorily in terms of achieving good within-lab reliability, as well as over the six months period of the study. Also, scales measuring similar variables (O and SD; FB and DS, DG; I and ICL_h^1 ; III and ICL_s^d) generally intercorrelated highly, yielding evidence of



construct validity. Although the measures were generally found to intercorrelate positively, they showed differential ability to predict day 7 scores from day 2 ratings. The more complex measures (ICL, PDIX) were seen to be more stable and predictable than the simpler rating scales constructed for the study. Although O and SD, and FB and DS, DG correlated highly and were supposedly measuring similar variables, they behaved differently. SD and FB tended to be more stable, probably because of the more complex structure of the scales such that each point on the scales was precisely defined. The O, DS and DG scales gave the respondent more freedom in interpreting the points on the scales, and hence likely produced more variability. These three scales (O, DS, DG) seemed to reflect best the direction of the change process. They showed clear decreases withinlab reflecting the shake-up process, and clear increases post-lab reflecting positive change. It was anticipated that possibly the OK scales would not discriminate well (i.e., everyone might rate on the upper end of the scale). Surprisingly, this proved untrue, as the measure was able to detect change, and worked rather well.

A possible question concerning the measures and the change process involves the issue of whether the changes reflected by the measures were the result of the participants learning the terminology of the measures and becoming aware of what changes were desired in the course of the lab.

This question also would extend to whether the observers were describing desired rather than actual changes since they were aware of the participants' involvement in the lab, and would likely be familiar with the changes associated with human relations training by reading the popular literature. There are several contraindications in the data to such an explanation of the findings. Participants described changes within the lab which are not in accordance with desired change (i.e., less openness, data seeking, data giving, and minimal changes on positive feelings about self and others, self disclosure and activity and expressiveness). Post-lab, changes across measures were not all uniform, suggesting that people were not responding in accordance with some preconceived model of desired change. Also, changes such as decreases in positive feelings towards self, love, dominance and activity, and minimal changes on several other variables are not what would be expected if the respondents were rating to approximate a desirable picture of change. Lastly, the written descriptions of change had a feeling of emotional involvement and honesty that precludes an explanation of the findings that suggests changes were the result of some form of positive response bias.

'Liking' was not found to contaminate the measures when it was averaged across groups. However, it was found to greatly affect the ratings on the extremes of the liking continuum. With middle rankings omitted, individuals

liked best clearly received notably higher PDIX scores than those liked least. This finding stood out more as the lab progressed, and friendship bonds between individuals strengthened. It remains unclear whether individuals are rated high because they are liked, or are liked because they rate highly on the variable or whether these are interacting processes. The influence of liking on ratings should be investigated in further research.

A second area investigated was the change perceived in the lab participants within and after the lab. When the results relevant to the hypotheses of change were examined, it seemed that two different processes were being measured. One was the process we had hoped to measure, namely, the increases on the variables investigated. The other was a re-evaluation and adjustment of perceptions based on seeing one's impact on others. The two processes seemed to interact in such a way that data often appeared inconsistent and difficult to integrate. Looking first at the withinlab data, we saw that the group reports uniformly supported the hypothesis of positive change. Examination of self reports and a longitudinal look at the data underlined the need for assessing change at several different points, and having more than one data source. The within-lab self report data were quite inconsistent. Some scales showed increases, while others showed decreases, with the overall trend being towards decreases. Scales which correlated

positively sometimes registered opposite changes. Decreases were most evident on the least stable measures (O, DS, DG). However, the decreases cannot be attributed to instrument problems alone, because they occurred across all scales. An explanation of the within-lab decreases on self reports seems to lie in relating the within-lab data back to the pre-lab data. Self reports were quite high before the lab, possibly because individuals wanted to appear favorably to the lab staff, or possibly because individuals generally err positively on self ratings. The trend was for the self ratings to decrease once the individual got to the lab, so that scores on all scales were lower on the second and seventh days of the lab in comparison with pre-lab. One of the results of a T group is that individuals learn to describe themselves in a way more similar to the descriptions of others in their group. We saw this in the increase in selfgroup correlations at the end of the lab. This change seems to involve a lowering of self perceptions from perhaps an unrealistic high before the lab's impact. The lowering of self perceptions probably also reflects the changes produced by adjusting to a new reference group-one that is striving to be honest and authentic in their perceptions of self and The fact that the greatest within-lab changes occurred others. on the feedback scale suggests that receiving data about oneself from others was a central happening in the groups.

This feedback process apparently allowed the individuals to align their self perceptions more with the group consensus. The negative and positive changes recorded by participants within-lab can be viewed as different degrees of readjustment of perceptions as a result of feedback, rather than behavioral changes per se. It seems to be evidence of the "unfreezing" process described by Miles (1958). Entering the lab and finding oneself among a completely different reference group is sometimes experienced as a variant of "cultural shock" by participants. They have no secure and comfortable relationships as they have back home, and are being asked to let down their defenses and drop whatever masks or facades are familiar to them; hence the "unfreezing" process where perceptions are altered and related to the new reference group.

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In summary, the impact during the lab experience for the individual was apparently one of receiving feedback about his behavior from his fellow T group members, and then readjusting his perceptions of himself to be more congruent with this feedback. As reported by the individual participants, this experience was something of a shake-up or unfreezing process, entailing both positive and negative shifts. As reported by average scores from the T groups, however, the overall influence of this experience resulted in general positive changes on all <u>measures</u>, although several individuals were seen as showing decreases. The group reports catch less of the upheavel process than do the self reports. The hypotheses did not adequately take this unfreezing process into account in attempting to assess change.

Moving to the post-lab data, again the two facets of change complicated the picture. Five months removed from the lab, the upheaval in self perceptions apparently had subsided, and the participants were looking back on the lab favorably, and reporting the kinds of changes hypothesized. Intimates tended to underline the changes reported by participants, while colleagues tended to negate them, except for gains in the communicative processes. Since participants seemed to have nearly uniform positive reactions after a lab, an objective assessment of what changes have actually taken place must attend to both the highly positive self reports, and the somewhat less positive observer reports.

An important finding relevant to the change data was that averaging across measures and groups obscured some important individual data. For instance, although group reports showed positive change over all measures withinlab, several <u>individuals</u> were reported as showing decreases on the various measures. More such decreases were evident in the within-lab self reports. Although most participants reported that the lab had been a positive experience for them, examination of individual post-lab data showed that

the typical participant gained, lost, or remained the same on approximately equal numbers of scales. Very few reported gains across the majority of the scales. Since the change data across variables resulted in generally positive movement, the gains made on the average were larger than the average losses. However, looking exclusively at that facet of these data obscures the fact that some losses did occur in individual participants. This study, although noting these cases where several losses occurred, was not able to find sufficient clues in the data to identify these individuals meaningfully pre-lab, or to ascertain what happened differently to them within-lab. It was noted that individuals who showed several losses post-lab had tended to receive below average pre-lab scores, especially on the ICL. One can speculate that these individuals who made negative or minimal changes were so submissive or withdrawn that they did not become sufficiently involved in the group to change. (Sherwood, 1965, has noted that involvement is important if change is to occur.) Or, they may have interacted in a hostile manner and been rejected from the group, and hence, again not become sufficiently involved to change. More research is needed to identify these negative impact cases.

Another interesting finding concerning the change data was that measurement scales and written descriptions yielded rather dissimilar pictures. The descriptive change reports were quite positive by all three sources, yet the colleagues

reported losses across several of the rating scales. Colleagues reported communicative, interpersonal, and job improvements in their descriptive change reports, but only communicative changes showed significant gains on the ten scales. Possibly, people feel hesitant to write out negative perceptions, whereas they will record them on a scale where it seems more impersonal. An alternative is that the scales were not sufficiently sensitive to reflect the kinds of changes which were expressed in written words.

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The findings that the five T groups behave differently and recorded different amounts of change points out the need for research on group composition that was not part of this study. Along with the variable of group composition, trainer variables, and trainer-participant interaction variables appear to affect the differential functioning of the groups. This study did find that the effectiveness of the groups, in terms of gains shown on the variables, was positively related to how effective the trainers were perceived by their group. We have also speculated that submissive and hostile members may not gain in the group. Future research should endeavor to highlight the factors of group composition and the kinds of inter-trainer and trainer-participant interactions which lead to successful group experiences. The third area of investigation was the comparison between the self perceptions and the perceptions of others. The difference between self and group reports has been mentioned. The self reports appear to reflect a shake-up or unfreezing process that the individual undergoes in readjusting his high pre-lab perceptions to be more congruent with the feedback he receives from his new reference group. The group sees the individual as making gains on the variables studied through this shake-up and feedback process. Although the theoretical formulations emphasized the feedback process and changes in self perceptions, its effect on the individual within-lab ratings was not fully anticipated.

A very important finding was the lack of agreement between self and observer reports, especially, self and colleague reports. Considerable research involves only self report data, but the present findings underline the limitations of that approach. More convergence was found between ratings pre- than post-lab. It was noted that all three sources rated quite high pre-lab. If the participants were rating high to appear favorably, it is likely that they chose observers who would also rate them favorably. If so, they apparently did a good job, because, contrary to prediction, the observers, especially colleagues, rated even higher than participants. These observer ratings, especially colleagues, were so high pre-lab on many scales that little room was left for post-lab gains. Some differences

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could be expected between intimates and colleagues because they have different types of relationships with the participants. It is likely that the participant-colleague relationships would be more distant and casual than the participantintimate relationships. However, quite distinct differences were found between the perceptions of intimates and colleagues. Participants and intimates essentially converged in their pre-lab perceptions, and in their perceptions of post-lab changes. Intimates diverged from participants in their perceptions of post-lab changes in seeing the participants as having become less warm and accepting, loving and less positive about themselves than reported by participants. These findings were hinted at by comparable pre-lab discrepancies. They could reflect negative or ambivalent feelings which intimates (mainly spouses) might have about the participants' involvement in the lab without them. Intimates may feel both left out and threatened by possible or fantasied changes or involvements that participants may have at the lab. Intimates' views may also reflect ambivalencies about the reported changes by participants towards more assertiveness, dominance and expression of anger. The decrease in positive self feelings (OK_c) reported by both intimates and colleagues may reflect a viewing of the participants as having more authentic self perceptions, and hence more openness to their negative attributes post-lab. This may have also resulted in more expression of

negative affect. The fact that the participants reported gains on this scale may reflect a different interpretation-they may have been reporting positive feelings about themselves (self satisfaction) because they had been able to make such changes.

Colleagues, as mentioned, had widely divergent perceptions from both intimates and participants. Pre-lab, colleagues rated higher than the other two sources. Thev also presented a kind of "nice guy" image of the participants, describing them as very "other-oriented," and not too dominant or assertive. There is a question of why colleagues would rate so differently from intimates. The intimates, having closer relationships to the participants, may have felt less obliged to rate the participants as "nice guys," especially considering their ambivalent feelings about the lab. The colleagues in this study, considering that most of the participants were involved in schoolrelated jobs, were largely school personnel. Since the prelab data were collected during summer vacation, it is very possible that the colleagues were relatively out of touch with the participants. Hence, lacking immediate data, they may have rated the participants in a manner that they felt would help the participants out--thus, the "nice guy" image. Post-lab data were collected about mid-year when the colleagues would be having intensive contacts with the participants. Thus, they may have been able to rate more

realistically, both because they had more data available, and because the lab was past. Colleagues' post-lab ratings, then, possibly represent an adjustment in ratings with the same effect (picture of decreases) shown when the participants re-evaluated their perceptions within-lab.

It is interesting to note that if the colleagues' post-lab findings are attended to without a comparison with their pre-lab ratings, or the ratings from other sources, a picture emerges similar to that cited by opponents of lab training (Campbell and Dunnett, 1968; McNair, 1957). What emerges is the picture of lowered dominance, activity, assertiveness, aggressiveness, job effectiveness and increased self doubts. The fact that this picture can be somewhat invalidated by comparison with the reports of others, and other kinds of data from colleagues (change scale, and written descriptions) points out the need for multiple measure and multiple observers.

As mentioned at the beginning of this section, the results are difficult to integrate and generalize. One reason seems to be that the hypotheses of change were too simple to account for the complex and intricate process of change generated by human relations training. It was speculated that the main impact of the lab would be in the communicative process; namely, individuals would learn to be more open and self disclosing, and would learn to ask for, listen to and use feedback constructively. Through this

process, the individual would be able to move towards better interpersonal relationships (more warmth, acceptance of others, activity and expressiveness, accessibility to feelings, and positive feelings towards self and others) and increased job effectiveness. It was assumed that these changes could be measured within the lab and after by increases on the scales used. It had not been anticipated that the reports of self and others would differ substantially. The results suggest a more complex process. The main contaminating factor was that people have different perceptions and these discrepancies were much larger than expected. One of the functions of the lab was to "shakeup or unfreeze" the individual's self perceptions. This also complicated the within-lab change findings. A third complicating factor was the high and often contradicting ratings of observers. This caused the post-lab change data to be non-uniform. Considering all factors, probably the reports of intimates best reflect what change took place.

The findings plainly suggest that, by the measures used, most participants benefitted importantly from the lab. Also, lab participation provides considerable "shakeup" for the individual. Changes continued beyond the lab, and after returning home, most participants felt that the lab had been a positively meaningful experience. They felt more open and effective in their communicative process, more effective in their interpersonal relationships, more

positive about themselves and others, and more effective in their jobs. Both intimates and colleagues agreed with the communicative changes, and intimates tended to agree with the other changes. It was speculated that ambivalencies about the lab colored the intimates' assessment of interpersonal changes. Colleagues stood out as distinctly different in their perceptions. This was explained by an adjustment of ratings process similar to that undergone by participants within the lab. Although the reports of observers are certainly important, their agreement or disagreement with the participants does not alter the importance of the experience for the individual participants. Judging from the character of the written reports, the lab stirred up numerous feelings in both participants and observers, the majority of which were distinctly positive.

The implications from this study for further research are many. The effect of 'liking' on the ratings received by participants should be explored further to ascertain just how much the ratings are influenced by this variable as well as whether it is the 'liking' or the favorable ratings which come first. The measures should be tested out in further studies to obtain additional data concerning their reliability and validity. The "shake-up" or "culture shock" process needs more careful consideration in evaluating change. One of the most important findings involved the necessity of multiple observers and measurement of change at several different points. Data from either a single source, or at only one point in time would have yielded highly inadequate and incomplete impressions. If possible, it might be useful to have reports from observers not chosen by the subjects, as well as ones who were unaware that the subject had participated in a lab. This might add a different perspective to the data, although admittedly such observers would be difficult to obtain. Lastly, the results have pointed out that the need for further research into the effects of group composition, trainer variables and trainer-participant interaction variables on the effectiveness of individual T groups. Also, trainers and participants might be matched to achieve more specific changes, depending on which variables are identified as important.

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SUMMARY

Fifty participants in an eight day, living-in, human relations training lab, held in the summer of 1968 were studied to explore the effects of laboratory training on communication, interpersonal relationships and job effectiveness. Ancillary data were collected from two outside observers (one intimate and one job colleague) for each participant. New measurement scales were tested out. To provide a base-line, data were collected one month prior to the lab from participants and observers. During the lab, somewhat overlapping sets of data were collected within T groups on the second and seventh days. Five months after the lab, data were again solicited from the participants and both observers to provide a follow-up perspective.

The new scales used included simple ratings of openness, data seeking, data giving, positive and negative feelings about self and others, and more refined ratings of self disclosure and feedback. Harrison's PDIX was used to measure interpersonal warmth and acceptance, power and effectiveness in work and activity and expressiveness. The two principal factors of the Interpersonal Check List (dominance-submission, and love-hate) were also used. Direct ratings of increased interpersonal awareness and

resultant behavioral changes, along with subjective descriptions of change in interpersonal relationships completed the instruments used in the study.

The theoretical basis of the study was that the participants, during the lab, would change their behavior based on the feedback they received from their fellow T group members. It was thought that positive changes would occur in the communicative process, in interpersonal relationships and in job effectiveness. Hypotheses were formulated predicting that the various measurement scales would positively correlate; participants would show gains on the various scales at the end of the lab and post-lab; reports of self and group, and self and observers would positively correlate.

The results were divided into three main areas for reporting and discussing the findings: testing of the measures, assessment of participant change, and comparison of change ratings across the different sources. Excellent data collection cooperation was gained as pre-lab data packets were received from 92-96% of the observers and from 96% of the participants. The corresponding post-lab data packet returns were 76-82% for observers and 96% for participants. The measures were found to be essentially reliable, positively related and fairly sensitive to the changes investigated. The more complex measures (ICL, PDIX) revealed greater stability than the rating scales constructed for

the study. Among the rating scales employed, the self disclosure and feedback measures proved especially useful. All measures yielded results which would encourage their utilization in similar research projects.

The "change" process proved to be more complex than anticipated. Within the lab, a "shake-up or unfreezing" process, perhaps akin to "culture shock" complicated the investigation of within-lab changes on self report data. Participants seemingly experienced an "unfreezing" process early in the lab, perhaps generated by the feedback from fellow T group members, with a resultant modification of self perceptions. Thus, both increases and decreases were recorded on self reports within-lab. The group reports, being averaged across nine fellow T group members for each participant, reflected less of the shake-up process, and showed increases on all scales within-lab. Increases were found for participants in liking by fellow T group members, time as a spare time companion, openness, self disclosure, data seeking, data giving, feedback, positive views towards self and others, interpersonal warmth and acceptance, power and effectiveness in work, and activity and expressiveness.

The five T groups seemingly differed in both their internal processes and impact. It was possible to differentiate the groups on effectiveness and stability of ratings. The overall positive impact of the individual T group was

found to relate positively with the perceived overall effectiveness of the trainers.

Five months after the lab, the participants almost uniformly reported positive benefits. Their reports concurred with all the predicted gains (O, DS, DG OK_{s} , OK_{o} , I, II, III, ICL_s^d , and change scale), and their descriptive change reports were all positive except one. The predicted decrease on ICL_h¹ was not found; instead a very small increase was found. Intimates agreed closely with the gains reported by participants, although the gains intimates reported tended to be smaller. Intimates disagreed with lab participants in reporting decreases in interpersonal warmth and acceptance, love and positive self feelings. These findings were discussed in terms of the intimates' possible general resentment and ambivalence towards the lab based on feeling excluded, or by being threatened by the participants apparently increasing in expressiveness, with its elements of assertiveness, dominance and accessibility of angry feelings. The intimates' reports of lowered positive selffeelings among the participants was seen as possibly reflecting the participants' becoming more aware and expressive of unpleasant affects. Participants, by contrast, showed that they felt positive about their enhanced ability to express such affects. Colleagues' perceptions of change in the lab participants sharply differed from those of both the participants and their intimates. Although minimally

agreeing with the gains reported in communication, they reported losses in dominance, activity and expressiveness, job effectiveness and positive feelings towards self.

The difference in changes reported by participants, intimates and colleagues was reflected in different patterns of rating both pre- and post-lab. The ratings of observers and participants were found to agree less than expected and contrary to prediction, observers, especially the colleagues, generally rated the participants more favorably pre-lab than the participants had rated themselves. Participants and intimates, having closer relationships, tended to concur more often than participants and colleagues, or intimates and colleagues. These highly favorable, but divergent, ratings by colleagues pre-lab were attributed to their having less data available than intimates, but wishing to be helpful to the participants. Hence, they tended to describe the participants as "nice quys." Post-lab, colleagues were probably having more contact with the participants (in most cases participants and colleagues were both employed in the same school system, and the follow-up data were collected about mid-year while the pre-lab data had been collected during the previous summer break), and thus, rated more realistically. This change in rating procedures produced losses on the scales. Thus, the post-lab reports of colleagues were regarded more as re-evaluations of pre-lab perceptions, and less as reports of actual changes in the participants.

The self and T group ratings were more convergent than were the self and observer ratings. Self and group ratings converged more toward the lab end as the self ratings, affected by the shake-up process, more closely approximated group reports.

The findings suggest that the lab generally had a highly positive impact upon the participants. There were some instances of negative consequences, but these seemed minimal. Subjective reports, solicited at follow-up, were almost all clearly positive. Losses were confined to the scales. Tentative evidence suggests that the few negative impact cases involved individuals who were either too submissive, or too hostile to become actively committed to the T group "encounter" process. Trainer and group effectiveness ratings also had some relationship to the negative impact cases.

The present findings suggest the desirability of research designs which employ multiple observers, multiple measures and a longitudinal data collection. Further research might fruitfully focus on such variables as the specific impact of the group leader(s), or trainer(s), trainer-participant interaction, and group composition on the effectiveness of the T group.

BIBLIOGRAPHY

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BIBLIOGRAPHY

- Adams, B. 'Mental illness' or interpersonal behavior? Amer. Psychol., 1964, 19, 191-97.
- Argyris, C. Exploration in interpersonal competence--I, J. Appl. Behav. Sci., 1965, 1, 58-83.
- Argyris, C. Explorations in interpersonal competence--II, J. Appl. Behav. Sci., 1965, 1 (3), 255-69.
- Argyris, C. On the future of laboratory education, J. Appl. Behav. Sci., 1967, 3 (2), 153-83.
- Back, K. W. Interpersonal relations in a discussion group, J. Soc. Issues, 1948, 4, (Bethel 1947), 61-65.
- Barron, M. E. and Krulee, G. K. Case study of a basic skill training group, J. Soc. Issues, 1948, 4, 10-30.
- Bass, B. M. Reactions to '12 angry men' as a measure of sensitivity training, J. Appl. Psychol., 1962, <u>46</u>, 120-24.
- Bass, B. M. Mood changes during training lab, <u>J. Appl.</u> Psychol., 1962, <u>46</u> (5), 361-64.
- Baumgartel, H. Report on research: human relations laboratory, session I, Bethel, Maine, summer 1960, unpublished manuscript. Washington, D. C.: National Training Laboratories, 1961.
- Baumgartel, H. and Goldstein, J. W. Need and value shifts in college training groups, J. Appl. Behav. Sci., 1967, 3 (1), 87-101.
- Benne, K. D. and Sheats, P. Functional roles of group members, J. Soc. Issues, 1948, 4, 41-49.
- Bennis, W. The relationship between some personality dimensions and group development, unpublished material. Boston University Human Relations Center, 1956.

۰.


- Bennis, W. G. and Peabody, D. The conceptualization of two personality dimensions and sociometric choice, Boston: Human Relations Center, Boston University, 1959. Unpublished typewritten manuscript.
- Bennis, W. R., Burke, H., Cutter, H., Harrington, and Hoffman, J. A note on some problems of measurement and prediction in a training group, <u>Group Psychother</u>., 1957, 10, 328-41.
- Ben Zeev, S. Sociometric choice and patterns of member participation, in Stock, D. and Thelen, H. A. (eds.), Emotional dynamics and group culture, Washington D. C.: National Training Laboratories, 1958, Ch. 4, 26-34. (Bethel, 1951.)

- Berne, E. Principles of group treatment. New York Oxford University Press, 1966.
- Blake, R. R., Mouton, J. S., and Fruchter, B. A factor analysis of training group behavior, <u>J. Soc. Psychol.</u>, 1962, 58, 121-30.
- Bowers, N. D., and Soar, R. S. Evaluation of laboratory human relations training for classroom teachers. Studies of human relations in the teaching-learning process: V. final report. U. S. Office of education contract No. 8143. Columbia University of S. Carolina.
- Bradford, L. P., Gibb, J. R., Benne, K. D. (eds.). <u>T group</u> theory and laboratory method innovation in re-education. John Wiley & Sons Inc., 1964.
- Buchanan, P. C. Evaluating the effectiveness of laboratory training in industry, Explorations in human relations training and research, report no. 1, 1965. Washington, D. C. National Training Laboratories. NEA.
- Bunker, D. R. and Knowles, E. S. Comparison of behavioral changes resulting from human relations laboratories of different lengths, J. Appl. Behav. Sci., in press.
- Bunker, D. R. Individual applications of laboratory training, J. Appl. Behav. Sci., 1965, I, (2), 131-48.
- Burke, R. L. and Bennis, W. G. Changes in perception of self and others during human relations training, Human Relat., 1961, 14, 165-82.

- Campbell and Dunnette. Effectiveness of T. group experiences in mangerial training and development, <u>Psych. Bull.</u>, 1968, <u>70</u>, 73-104.
- Clark, J. O. and Culbert, S. A. Mutually therapeutic perception and self awareness in a T group, <u>J. Appl.</u> Behav. Sci., 1965, I, (2), 180-94.
- Culbert, S. A. Trainer self disclosure and member growth in two T groups, J. Appl. Behav. Sci., in press.
- Eisenstadt, J. W. An investigation of factors which influence response to lab training, J. Appl. Behav. Sci., 1967, 3 (4), 575-78.
- Fiebert, M. Sensitivity training: an analysis of trainer intervention and group process, <u>Psych. Reports</u>, 1968, 22 (pt. 1), 829-38.
- Foster, B. R. Some interrelationships between religious values, leadership concepts, and perception in group process of professional church workers, unpublished doctoral dissertation. University of Michigan, 1958, 123 pp.
- French, J. R. P., Jr., Sherwood, J. J. and Bradford, D. L. Change in self identity in a management training conference, J. Appl. Behav. Sci., 1966, 2 (2), 210-18.
- Friedlander, F. The impact of organizational training laboratories upon the effectiveness and interaction of ongoing work groups, <u>Personnel Psych</u>., 1967, <u>20</u> (3), 289-307.
- Gage, N. L. and Exline, R. V. Social perception and effectiveness in discussion groups, <u>Human Relat.</u>, 1953, <u>6</u>, 381-96.
- Gassner, S. M., Gold, J. and Sradowsky, A. M. Changes in the phenomenal field as a result of human relations training, J. Psychol., 1964, 58, 33-41.
- Gibb, J. R. Effects of role playing upon (a) role flexibility and upon (b) ability to conceptualize a new role, Amer. Psychol., 1952, 7:310.
- Gibb, J. R., Smith, E. E. and Roberts, A. H. Effects of positive and negative feedback upon defensive behavior in small problem-solving groups. Paper read at A. P. A. Meetings 1955.

- Gibb, J. R. and Platts, G. N. Role flexibility in group interaction, Amer. Psychol., 1950, 5:491.
- Glidewell, J. C. Changes in approaches to work problems analysis during management training, Washington, D. C.: Second American National Red Cross School for Management Development, 1956, unpublished mimeographed manuscript, 22 pp. (Red Cross, 1956).
- Glueck, W. F. Reflections on a T-group experience, Personnel, 1968, 47 (7), 500-04.
- Gold, J. An evaluation of a laboratory human relation training program for college undergraduates, <u>Diss</u>. Ab., 1968, 28 (8-A), 3262-63.
- Gordon, T. What is gained by group participation? Educational Leadership, 1950, 7, 220-26. (Bethel, 1949.)
- Gottschalk, L. A. Psychoanalytic notes on T groups at the human relation laboratory, Bethel, Maine, <u>Comprehen</u>sive Psychiatray, 1966, 7 (6), 472-87.
- Grace, G. L. and Grace, H. A. The relationship between verbal and behavioral measures of value, <u>J. Educ.</u> Res., 1952, 46, 123-31.
- Greening, T. C. Sensitivity training: cult or contribution, Personnel, 1964, 41 (3), 18-25.
- Greening, T. C., Coffey, H. S. Working with an impersonal T group, J. Appl. Behav. Sci., 1966, 2 (4), 401-11.
- hall, M. H. Carl Rogers speaks out on groups and the lacks of a human science, Psychology Today, Dec. 1967, Vl #7.
- Harrison, R. The Person Description Instrument X, unpublished manuscript.
- Harrison, R. Cognitive change and participation in a sensitivity training laboratory, <u>J. Consult. Psych.</u>, 1966, 30 (6), 517-20.
- Harrison, R. and Lubin, B. Personal style, group composition, and learning, part I, J. Appl. Behav. Sci., 1965, I, (3), 786-94.

- Harrison, R. and Oshry, B. Report to SAED of GESAED-BUHRC training study, unpublished manuscript prepared for the Small Aircraft Engine Department of General Electric by the Boston University Human Relations Center, 1965.
- Horwitz, M. and Cartwright, D. P. A projective method for the diagnosis of group properties, <u>Hum. Relat.</u>, 1953, 6, 397-410.
- Horowitz, M. W., Lyons, J., Perlmutter, H. V. Induction of forces in discussion groups, <u>Human Relat.</u>, 1951, <u>4</u>, 57-76.
- House, R. T group education and leadership effectiveness: A review of the empirical literature and a critical evaluation, Personnel Psych., 1967, Vol. 20 #11, 1-30.
- Hurley, J. R. and Hurley, S. J. Towards authenticity in measuring self-disclosure, <u>J. Counseling Psychology</u>, 1969, Vol. 16, No. 3, 271-74.
- Hurley, S. J. Self disclosure in counseling groups as influenced by structured confrontation and interpersonal process recall, unpublished doctoral dissertation, Michigan State University.
- Jenkins, D. H. Feedback and group self-evaluation, <u>J. Soc</u>. Issues, 1948, 4, 50-60.
- Jennings, E. E. Forces that transform a collection into a group, Personnel J., 1956, 35, 126-30.
- Jennings, E. E. Today's group training problems: A review and summing up, Personnel J., 1957, 36, 86-9.
- Johnson, L. K. The effect of trainer interventions on changes in personal functioning through T group training, Diss. Ab., 1967, 27 (12-A), 4132.
- Jourard, S. M. The transparent self. D. Van Nostrand Company, Inc., 1964.
- Kassarjian, H. H. Social character and sensitivity training, J. Appl. Behav. Sci., 1965, I, (4), 411-40.
- Kernan, J. Laboratory human relations training--its effects on the 'personality' of supervisory engineers, Doctoral Dissertation, Department of Psychology, New York University, 1963.

.....

- Klein, D. T group: opening moments, <u>J. Appl. Behav. Sci.</u>, 1968, <u>4</u> (1), 125-27.
- Kolb, D. A., Winter, S. K., and Berlew, D. E. Self directed change: two studies, J. Appl. Behav. Sci., in press.
- LaForge, R. Research use of the ICL. Oregon Research Institute Technical Report, Vol. 3, #4, Oct. 1963.
- Lakin, M. and Carson, R. C. Participant perception of group process in group sensitivity training, <u>Int. J. Gr.</u> Psychother., 1964, 14, 116-22.
- Lieberman, M. A. The influence of group composition on changes in affective approach, in Stock, D., and Thelen, H. A. (eds.) Emotional dynamics and group culture. Washington, D. C.: National Training Laboratories, 1958. Chapter 15, 131-39.
- Lieberman, M. A. The relationship between the emotional cultures of groups and individual change, unpublished Doctoral Dissertation, The University of Chicago, 1958. 200 pp.
- Lieberman, M. A. The relation of diagnosed behavioral tendencies to member-perceptions of self and of the group, in Stock, D. and Thelen, H. A. (eds.) <u>Emo-</u> tional dynamics and group culture. Washington, D. C.: National Training Laboratories, 1958. Chapter 5, 35-49.
- Lieberman, M. A. Sociometric approach related to affective approach, in Stock, D. and Thelen, H. A. (eds.) Emotional dynamics and group culture. Washington, D. C.: National Training Laboratories, 1958. Chapter 8, 71-83.
- Lippitt, G. L. Effects of information about group desire for change on members of group, unpublished Doctoral Dissertation, American University, 1959, 165 pp. (Bethel, 1949.)
- Lubin, B. and Zuckerman, M. Affective and perceptualcognitive patterns in sensitivity training troups, Psych. Reports, 1967, 21 (2), 365-76.
- Lundgren, D. C. Interaction process and identity change in T groups, Dissertation Abstracts, 1969, <u>29</u> (3-A) 961-62.

- Marrow, A. J. Events leading to the establishment of the National Training Laboratories, J. Appl. Behav. Sci., Vol. 3, #2, 1967, 144-50.
- Massarik, F. and Carlson, G. The California Psychology Inventory as an indicator of personality change in sensitivity training, Masters Thesis, University of California, Los Angeles, 1960.
- Mathis, A. G. Development and validation of a trainability index for laboratory training groups, unpublished Doctoral Dissertation, The University of Chicago, 1955, 82 pp. (Bethel, 1952.)
- McNair, M. P. What price human relations, <u>Harvard Business</u> Review, March-April, 1957, 15-22.
- McQuitty, L. L. Elementary factor analysis, Psych. Reports, 1961, 9, 71-78.
- Miles, M. B. Human relations training: processess and outcomes, J. Counsel Psych., 1960, 7, 301-06.
- Miles, M. B. Changes during and following laboratory training: A clinical-experimental study, <u>J. Appl. Behav</u>. Sci., 1965, 1 (3), 215-42.
- Miles, M. B. Learning processess and outcomes in human relations training: A clinical-experimental study. In Schein, E. and Bennis, W. (eds.) <u>Personal and</u> organizational change through group methods. New York: Wiley, 1965, 244-54.
- Miles, M. B., Cohen, S. K. and Whitam, F. L. Changes in performance test scores after human relations training, New York: Horace Mann-Lincoln Institute of School Experimentation, Teachers College Columbia University, 1959. Mimeographed manuscript, 35 pp. (Bethel, 1958, and other laboratories.)
- Monk, M. A. The effect of acquaintance and visibility on group behavior, Ann Arbor: Research Center for Group Dynamics, The University of Michigan, 1950. Unpublished dittoed manuscript, 13 pp.
- Murphy, M. Esalen--where it's at, <u>Psychology Today</u>, Dec. 1967, Vl, #7.

- Myers, G., Myers, M., Goldberg, A. and Welch, C. Effect of feedback on interpersonal sensitivity in laboratory training groups, J. Appl. Behav. Sci., 1969, 5 (2), 175-85
- Norfleet, R. Interpersonal relations and group productivity, J. Soc. Issues, 1948, 4, 66-69.
- Oshry, B. I., Harrison, R. Transfer from here and now to there and then: changes in organizational problem diagnosis stemming from T-group training, <u>J. Appl.</u> Behav. Sci., 1966, 2 (2), 185-98.
- Peters, D. R. Identification and personal change in laboratory training group, unpublished Doctoral Dissertation, Alfred P. Sloan School of Management, M.I.T., 1966.

where the second second second

- Pollack, H. B. Change in homogeneous and heterogeneous sensitivity training groups, <u>Diss. Ab.</u>, 1968, <u>28</u> (11-B), 4762-63.
- Powers, J. R. Trainer orientation and group composition in laboratory training, unpublished Doctoral Dissertation, Case Inst. of Tech, 1965.
- Psathas, G. and Hardert, R. Trainer interventions and normative patterns in the T group, J. Appl. Behav. Sci., 1966, 2 (2), 149-69.
- Rosenberg, M. J. A preliminary report on the relation of personality factors to sociometric position in Bethel groups V and VI, Ann Arbor: Research Center for Group Dynamics. The University of Michigan, 1951. Unpublished dittoed manuscript. 7 pp.
- Rosenberg, P. P. An experimental analysis of psycho-drama, unpublished Doctoral Dissertation, Harvard University, 1952, 41 pp. (Bethel, 1950.)
- Rothaus, P., Morton, R. B., Johnson, D. L., Cleveland, S. E. and Lyle, F. A. Human relations training for psychiatric patients, Archives of General Psychiatry, 1963, 8 (6), 572-81.
- Rubin, I. Increased self-acceptance: A means of reducing prejudice, J. Pers. Soc. Psychol., 1967, 5, 233-38.

- Schutz, W. C. and Allen, V. L. The effects of a T-group laboratory on interpersonal behavior, J. Appl. Behav. Sci., 1966, <u>2</u> (3), 265-86.
- Shepard, H. A. and Bennis, W. G. A theory of training by group methods, Hum. Rel., 1956, 9, 403-14.
- Sherwood, J. J. Self identity and referent others, Sociometry, 1965, 28, 66-81.
- Sikes, W. W. A study of some effects of a human relations training laboratory, unpublished Doctoral Dissertation, Purdue University, 1964.
- Smith, A. J., Jaffe, J. and Livingston, D. G. Consonance of interpersonal perception and individual effectiveness, Human Relat., 1955, 8, 185-97.

- Smith, P. B. Attitude changes associated with training in human relations, British J. Soc. Clin. Psych., 1964, 3, 104-12.
- Smith, P. B. T-group climate, trainer style, and some tests of learning, unpublished manuscript, School of Social Studies, University of Sussex, England, 1966.
- Steele, F. I. Personality and the 'laboratory style,' J. Appl. Behav. Sci., 1968, 4 (1), 25-45.
- Stock, D. and Ben-Zeev, S. Changes in work and emotionality during group growth, in Stock, D. and Thelen, H. A. (eds.) Emotional dynamics and group culture. Washington, D. C.: National Training Laboratories, 1958. Chapter 21, 192-206.
- Stroud, P. V. Evaluating a human relations training program, Personnel, 1959, <u>36</u> (6), 52-60.
- Taylor, K. F. Some doubts about sensitivity training, Australian Psychologist, 1967, 1 (3), 171-79.
- Thelen, H. A. and Dickerman, W. Stereotypes and the growth of groups, Educational Leadership, 1949, 6, 109-16.
- Watson, J. Preliminary report on blacky research, Bethel, 1950, Ann Arbor: Research Center for Group Dynamis, The University of Michigan, 1952. Unpublished.

- Watson, J. The application of psychoanalytic measures of personality to the study of social behavior, paper read at American Psychol. Ass. meetings, September 1953. Unpublished mimeographed manuscript, 6 pp.
- Watson, J. Some social psychological correlates of personality: A study of the usefulness of psychoanalytic theory in predicting to social behavior, unpublished Doctoral Dissertation, The University of Michigan, 1953. 238 pp.
- Watson, J. Personality determinants of behavior in small face-to-face groups, paper read at 36th annual Institute of the Society for Social Research of the University of Chicago, May 1959. Unpublished typewritten manuscript, 11 pp.
- Wedel, C. C. A study of measurement in group dynamics laboratories, unpublished Doctoral Dissertation, The George Washington University, 1957. 149 pp.
- Winter, S. K., Griffith, J. C. and Kolb, D. A. The capacity for self direction, Working Paper 245-67, Alfred P. Sloan School of Management, M.I.T., 1967.

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APPENDICES

APPENDIX A

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Instruments

GENERAL BEHAVIOR RATINGS (Pre and Post Lab)

Please read the following instructions carefully and rate yourself on the three variables. When making these ratings, try to not confine yourself to thinking only of close or intimate relationships, but also consider how you are in groups, with people at work, etc.

OPENNESS: Focus on how much you share your reactions, thoughts, and feelings with other people. If you typically offer a very limited or disguised presentation of yourself to others, rate yourself low on openness. If you typically share yourself fully and authentically with others, rate yourself higher on openness. Place an X on the scale below at the point which best illustrates your Openness.

| OPENNESS: | | |
|-----------|---------|-----------|
| MINIMALLY | AVERAGE | MAXIMALLY |
| 1 | | 7 |

DATA SEEKING: Focus on how often you seek to obtain authentic reactions and information about how other people experience you. Consider whether you elicit and encourage the reactions of others to you. Often people block others from providing such feedback by being threatening, being too timid, keeping in the background, or disguising interpersonal difficulties. Place an X on the scale below at the point at which best illustrates your Data Seeking.

| DATA SEEKING: | | |
|---------------|---------|-----------|
| MINIMALLY | AVERAGE | MAXIMALLY |
| 1 | 3 | 8 9 |

DATA GIVING: Focus on how often you give authentic reations and information to others about how you experience them. Consider how often you give feedback to others about how you experience their thoughts, feelings, or behaviors. Place an X on the scale below at the point which best illustrates your Data Giving.

 DATA GIVING:
 AVERAGE
 MAXIMALLY

 1......2......3......4......5......6......7.....8......9

RATINGS OF BEHAVIORS (Within Lab)

You are asked to rate all the members of your group, including yourself, on several different dimensions of behavior using the definitions given below. For some of these ratings, you will be asked to focus exclusively upon the specified behaviors of these persons within this group. In these instances, exclude your impressions of how these people act elsewhere, including all outside the group contacts, whether casual or intimate; also exclude your impressions of how they act "back home." It is essential that you use the full range of ranks permitted (1 through 9) in making each rating. First, think of the individuals who represent the most and least of the described behavior in your group, and assign the extreme numbers (9 and 1) to them. Then work from each extreme towards the middle making sure that you assign each number to at least one person in your group, although the same rank may be assigned to more than one person.

First of all, rank the members of your group from 1 through 9 according to how much you like them. Above the lines given below, write the initials or first names of all persons in your group, and below this line enter a number from 1 through 9, with 1 indicating the person you like most, and so on up to 9--which indicates the person you like least.

Next, rank the members of your group from 1 through 9 according to how much time you have spent with them <u>outside this group</u>. Again, list the initials of all group members in the spaces provided below; also do the same for the three subsequent ratings. Then assign a number from 1 to 9 as you did before with 1 indicating the person you have spent the most time with outside the group, and so on up to 9-which indicates the member you spent the least time with.

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OPENNESS: Focus on how fully each person has shared, within this group, personal reactions, thoughts, and feelings with the other group members. The emphasis is on "here and now" interaction, such as how one felt when confronted, challenged, or ignored by others in this group; "back home" experiences, or "childhood traumas" are largely irrelevant except when directly related to "here and now" interactions. Persons who have offered very limited or disguised presentations of themselves should be rated low. Those who have fully and authentically shared themselves, should be rated higher. Remember to use the full scale of 1 (minimally open) to 9 (maximally open). Proceed as before in listing names and ranks, but using the scale illustrated below:

| OPENNESS | | |
|----------|---------|---------|
| MINIMAL | AVERAGE | MAXIMAL |
| 1 | .3 | |

DATA SEEKING: Consider how fully each person in your group has sought to obtain authentic reactions and information about how the other group members have experienced them <u>within this group</u>. One of our goals has been to supply and process fresh information concerning how each individual relates to others. How fully has each person sought to elicit and encourage others to share their reactions and views of him? Persons may block others from providing data in many ways, including a threatening manner, being too timid, by keeping in the background, or even by disguising their interpersonal difficulties. Again, the focus is on the "here and now," so consider only how fully each person has sought to obtain a better grasp of how he or she relates to others within this group. Please utilize the full scale of 1 (minimal data seeking) to 9 (sought maximal data) as illustrated below:

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| DATA SEEKING: | | |
|---------------|---------|---------|
| MINIMAL | AVERAGE | MAXIMAL |
| 12 | .3 | 8 9 |

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DATA GIVING: Reflect on how fully each person has attempted to give authentic reactions and information to others about how he experiences them within this group. How fully has each person sought to give feedback to others about how they experience their thoughts, feelings, or behaviors? Again, the focus is on "here and now," so consider only how fully each person has attempted to give others a better grasp of how they experience them in this group. Also remember that sometimes a lot of words tend to be confusing, so persons who are especially clear in their communication may give more data in a few words than others give in many words. Persons who tend to hold back such data should be rated below average. Please apply this measure as illustrated below:

SELF-DISCLOSURE RATING SCALE

Shirley J. Hurley and John R. Hurley

Michigan State University Last Lansing, Michigan

The concept of Self-Disclosure with which this scale is concerned is described by Sidney Jourard in <u>The Trans-</u> <u>parent Self</u> (1964). How self-disclosing a person should be rated depends more upon the direction of his perceived motivation and intent than it does upon the number of selfreferences, amount of verbalization, level of insight, or the appropriateness of the self-conception. The person's general behavior, affect, apparent degree of honesty, and sincerity must all be taken into account.

For example, a person who constantly talks about himself in the group may not be a real self-discloser when carefully observed but may be wearing a mask of transparency or playing a "game" of "See how open and honest I am." Glibness and pseudo self-revealing statements may be nearly as defensive or as self-concealing as complete refusal to talk about feelings. Psychology, social work, and counseling students are often found playing at this game of "dig my great insights."

Difficult to rate accurately is the individual who seems to think a lot about his behavior but who often arrives at very erroneous or naive conclusions about himself. Even if it is obvious that the individual is a long way from knowing or being completely honest with himself, but appears genuinely motivated to move toward further self-discovery, he should be rated in the self-disclosing direction.

Obviously no individual is completely transparent and openly self-disclosing in all situations, but there are some who seem deeply motivated to move in this direction and are almost always willing to examine their thinking or behavior. An important feature of this rating scale is the attempt to assess motivation toward "openness."

Please list all the group members, including the leader(s) and yourself, in the indicated spaces on the following page. Identify yourself(S) on the list. Read all the rating classifications carefully, noting the distinctions between adjacent categories, before attempting to use them. Then place the appropriate rating number after each name. These ratings are only for descriptive purposes, so please try to avoid giving pre-dominantly positive ratings or overusing the middle positions on the scales.

| | 8 | SELF-DISCLOSING | <pre>good 8. Is actively in- n own volved in sharing 1 re- thoughts and feel- from ings about self and others in group aly interactions. Al- vard though not always / which transparent the ad with person seems to be some- highly motivated is un- dow appears uncom- tabout fortable with this iactions goal. NE A</pre> |
|---|--------------|-----------------|---|
| | 7 | | 7. Seems in contact with feelings and veals them f time to time fime to time Seems genuin motivated to seens for the can be share others, but this goal. presses more gresses more presses more presses to the rs. IGN TO EACH O |
| 6. Often partici- pates in group in- teraction and seems genuinely involved and con- cerned for others; feelings and prob- lems but rarely reveals own per- sonal feelings. The person who strequently plays helper but hardly ever plays helpee epitomizes this type. | ONVENTIONAL | 9 | YOURSELF (S) . ASS |
| Plays the role a conventionally iendly person but rely reveals self. Pe outgoing and ngenial but is mited by confor- ty to a social de restricting iversation largely ideas and safe ings or inti- te topics. Seems re inhibited than fensive in emo- onal expression. | INVOLVED C | s | THE LEADER(S) AND |
| · 요엽 2 2 2 2 2 2 2 6 6 5 3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 | •• | F-CONCEALING | 4. Seems quiet and withdrawn from group interaction and uses passivity as a de- fense against he exposure of anxiety and fear. Conveys by expression or other non-verbal be- havior an attitude of wanting to com- municate with others but of not knowing how or of being afraid to try. |
| م ب <mark>ن</mark> ج ا | £ | COVERTLY SELF | 3. Seems guiet and withdrawn from group inter- action and uses action and uses fense against in- volvement with volvement with volvement with social partici- patiton. Hostility patitor. patitor. patitor. patitor of berees solons of boredom, sulkiness or anger. THE NAMES OF YOUR GI |
| <pre>2. The effect a festred self-image is lest self-image is lest obvious than type 1. Rigidity of thally concealed by a plear and accept opinions of other momentarily, but momentarily, but itshes a new defai 11shes a new defai tother rationalizations other rationalizations</pre> | F-CONCEALING | 2 | ES BELOW TO WRITE |
| i. Makes an op- trous effort to proyect some de- sired self-image. Seems to contin- dally express opinions, ratio- nalize, or make defensive state- often predict- ally structure ally structure seens very rigid. Person seems not to haar or accept ficeas or feelings of otners. | OVERTLY SEL | | LSE THE SPAC |

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INTERPERSONAL CHECK LIST

INSTRUCTIONS: Please indicate whether you view each of the qualities listed below as being either mostly true (T) or mostly false (F) as they apply to ______. It is very important that you indicate either T or F for each item, even if you are some-what uncertain of your choice. Also, try to work quickly; most people can complete this information in less than 15 minutes.

1 Able to give orders 2 Appreciative 3 Apologetic 4 Able to take care of self 54 Gives freely of self 5 Accepts advice readily 6 Able to doubt others 7 Affectionate and understanding 8 Acts important 9 Able to criticize self 10 Admires & imitates others 61 Hot-tempered 11 Agrees with everyone 12 Always ashamed of self 13 Very anxious to be approved of 14 Always giving advice 15 Bitter 16 Bighearted and unselfish 17 Boastful 18 Businesslike 19 Bossy 20 Can be frank and honest 21 Clinging vine 22 Can be strict if necessary 23 Considerate 24 Cold and unfeeling 25 Can complain if necessary 75 Makes a good impression 26 Cooperative 27 Complaining 77 Meek 28 Can be indifferent to 78 Modest others 29 Critical of others 30 Can be obedient 31 Cruel and unkind 32 Dependent 33 Dictatorial 34 Distrusts everybody 35 Dominating 36 Easily embarrassed 37 Eager to get along with others 38 Easily fooled 39 Egotistical & conceited able 40 Easily led 41 Encouraging others 42 Enjoys taking care of others 43 Expects everyone to admire him 97 Self-punishing 98 Self-confident 44 Faithful follower 45 Frequently disappointed 99 Self-seeking 46 Firm but just 47 Fond of everyone 100 Shrewd & calculating 48 Forceful

- 49 Friendly
- 50 Forgives anything

51 Frequently angry 52 Friendly all the time 53 Generous to a fault 55 Good leader 56 Grateful 57 Hard-boiled when necessary 107 Slow to forgive a wrong 58 Helpful 59 Hard-hearted 60 Hard to convince 62 Hard to impress 63 Impatient with others' mistakes 64 Independent 65 Irritable 66 Jealous 67 Kind and reassuring 68 Likes responsibility 69 Lacks self-confidence 70 Likes to compete with others 71 Lets others make decisions 72 Likes everybody 73 Likes to be taken care of 74 Loves everyone 76 Manages others 79 Hardly ever talks back 80 Often admired 81 Obeys too willingly 82 Often gloomy 83 Outspoken 84 Overprotective of others 85 Often unfriendly 86 Oversympathetic 87 Often helped by others 88 Passive and unaggressive 89 Proud and self-satisfied 90 Always pleasant & agree-91 Resentful 92 Respected by others 93 Rebels against everything 94 Resents being bossed 95 Self-reliant & assertive 96 Sarcastic

101 Self-respecting 102 Shy 103 Sincere & devoted to friends 104 Selfish 105 Skeptical 106 Sociable and neighborly 108 Somewhat snobbish 109 Spineless 110 Stern but fair 111 Spoils people with kindness 112 Straightforward and direct 113 Stubborn 114 Suspicious 115 Too easily influenced by friends 116 Thinks only of self 117 Tender and soft hearted 118 Timid 119 Too lenient with others 120 Touchy and easily hurt 121 Too willing to give to others 122 Tries to be too successful 123 Trusting and eager to please 124 Tries to comfort everyone 125 Usually gives in 126 Very respectful to authority 127 Wants everyone's love 128 Well thought of 129 Wants to be led 130 Will confide in any one 131 Warm 132 Wants everyone to like him 133 Will believe anyone 134 Well-behaved

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| THE | PERSON | DESCREDTION | THSTRIMENT |
|-----|-----------|-------------|-------------|
| IIL | r L K SUN | DESCRIPTION | TNSTRUMMENT |

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| The bipolar sca has behaved in best represents | recent weeks. Encircle the point on each scale which your impression of's behavior. | (write in name) | |
|--|---|------------------------|-----|
| NONDEFENSIVE | 1 | DEFENSIVE | I |
| LOW ABILITY | 1 | HIGH ABILITY | II |
| SHOWS FEELINGS | 1 | HIDES FEELINGS | III |
| TACTLESS | 1 | TACTFUL | I |
| INFORMED | 1 | UNINFORMED | II |
| RESERVED | 1 | CUTSPOKEN | III |
| SYMPATHETIC | 1 | UNSYMPATHETIC | I |
| INCOMPETENT | 1 | COMPETENT | II |
| ENTHUSIASTIC | 1 | UNENTHUSIASTIC | III |
| THREATENING | 1 | NONTHREATENING | I |
| LOW STATUS | 1 | HIGH STATUS | II |
| EMOTIONALLY EXPRESSIVE | 1 | UNEMOTIONAL | TTT |
| CONSIDERATE | 1 | INCONSIDERATE | I |
| UNINFLUENTIAL | 1 | INFLUENTIAL | 11 |
| QUIET | 1 | LOUD | III |
| ACCEPTS OTHERS | 1 | REJECTS OTHERS | I |
| LOW PRESTIGE | 1 | HIGH PRESTIGE | 11 |
| DEMONSTRATIVE | 1 | UNDEMONSTRATIVE | 111 |
| FLEXIBLE | 1 | INFLEXIBLE | I |
| IRRESPONSIBLE | 1 | RESPONSIBLE | 11 |
| ACTIVE | 1 | PASSIVE | 111 |
| REJECTS SUGGESTIONS | 1 | ACCEPTS SUGGESTIONS | I |
| THOROUGH | 1 | CARELESS | II |
| NONCOMMITTAL | 1 | COMMITS SELF | III |
| ACCOMMODATING | 1 | STUBBORN | I |
| LAZY | 1 | HARDWORKING | II |
| PARTICIPATES MUCH | 1 | PARTICIPATES LITTLE | III |

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DIRECT RATINGS OF CHANGE

A. On the whole, describe how much you have grown in understanding interpersonal behavior during and since the lab. Put an "X" on the scale to designate where you were at the end of the lab, and a "Y" to designate where you are now.

| | but | I've t I vag | grown son uely unde | newhat, erstand it | | I un than | more ed to | | | |
|----|--------|-----------------|------------------------|-----------------------|----------------------|----------------|---------------|---------------------------|--|------------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| No | change | | | I un signifi | derstand cant new | some things | | my u has g as I cou | nderstand: rown as fi ld have e: | ing ully xpected |

B. Describe how much you have been able to change your behavior since the lab based on how much you have grown in your understanding of interpersonal behavior. Put an "X" on the scale to designate where you are now.

| S | poradic and u | incon- | I have made and am comfortable with quite a few behavior changes, but | | | | te a but I | I | |
|-----|-------------------------|--------|---|-----------|--------|----------|---------------|-------|--|
| tro | trolled behavior change | | | back to r | ny old | patterns | ever so | often | |
| 1 2 | 3 | 4 | 5 | 6 | | 7 | 8 | 9 | |

no behavior change some behavior change especially when I try I'm a new person NAME AND A DESCRIPTION OF A DESCRIPTIONO

C. How much of your increased interpersonal understanding was due to the experiences during the summer lab? Put an "X" on the scale to designate how much was due to the lab.

| | littl | helped a e but vag | guely | helped very much in a wide variety of areas or areas of central importance | | | | | |
|-----|-------|-----------------------|--------|--|--------|---|------|-------|-------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| the | lab | | helped | l prettv m | uch by | | help | ed me | so mu |

was irrelevant

helped pretty much by sparking some new awareness helped me so much that I feel overwhelmed

July 15, 1968

Dear Summer Lab Participant:

I am pleased to advise you of your acceptance to the summer 1968 SMTL Human Relations Laboratory. As you have heard, we have changed the lab site from the traditional location at Camp Kett to a more centrally accessible and rustic locale at High/Scope. Complete information about this new location is enclosed.

As part of a program aimed at more fully understanding the influence of SMTL sponsored labs upon "back home" relationships, all participants in this summer's lab are asked to cooperate in a well-planned research study. We are seeking better information than is currently available concerning the impact of lab participation upon subsequent experiences with such "external observers" as intimates (family or close friends) and working colleagues (peers, supervisors, or subordinates). Thus, we seek data from yourself and two other persons who have such relationships with you. These research materials will not be examined before the lab; consequently they cannot influence your group assignments, nor will the training staff be aware of any such data about you. No research information about individuals will be released to anyone.

This current data collection requires about one hour of your time and lesser amounts from the persons you nominate. All lab participants will be expected to complete some additional instruments during the lab. There will also be at least one post-lab data collection, perhaps about six months from now, which will require additional data from you and your nominees. The research design will be fully explained during the lab; if you are curious about the data sought from your "observers" you may look in the enclosures which we request that you pass along to them as soon as pos-<u>sible</u>. To give these "observers" maximal freedom in their responses, it seems reasonable that these data be returned directedly to us without any obligations to review them with you beforehand.

In selecting your two "observers," it is important that you choose one "intimate" (spouse or close friend), and one working colleague. It is desirable to select individuals who have known you for at least a year and preferably longer. Also, it is important that these persons be willing to cooperate with the research procedures, and be likely to maintain these relationships with you during the next few months. Enclosed are three instrument packets--one, marked S, contains materials on which you are asked to describe facets of yourself; the other two packets, marked O, are to be given to (1) an intimate acquaintance (family member or friend) and (2) to an "on the job" colleague (not participating in this Lab) who knows you well. Please pass these packets along as soon as possible and try to return them before August 1st. All instruments have been numbered so they can readily be identified in following the instructions below:

- I. Encircle the point on each scale which best represents how you see yourself as behaving in the recent past and present.

Your cooperation is essential for the success of this study and is very much appreciated.

Sincerely,

John R. Hurley, Ph.D. Dean, 1968 Summer Lab



July 15, 1968

Dear "Observer":

, by passing this packet to you, joins me in requesting that you provide impressionistic information about him or her to a research project related to his/her participation in the August, 1968 State of Michigan Training Laboratory (SMTL) in Human Relations Training. The SMTL staff are very interested in learning more about how lab participation influences the participant's interactions with other important persons in their lives both in the employment and personal sectors.

The enclosed instruments have been designed or selected so that they will require less than an hour of your valuable time. The most time-consuming of these, a list of 134 phrases or words to be answered true or false, takes the average college student about 15 minutes to complete, and you should do it as quickly as you can.

All information about individuals participating in this project, either as "observers" or lab participants is regarded as entirely confidential by the research staff and will not be released to anyone. The findings will be described only in terms of "group trends." The staff of the summer lab will have no access to any of this information. A second phase will occur some months after the end of our summer lab, when you will again be requested to complete some similar instruments. This later phase is required to obtain information about "before" versus "after" impressions of the participant's behavior.

The materials which we request your assistance with have been numbered to facilitate instructions. Please read these instructions carefully and return the completed packets not later than July 31st.

I. Encircle the point in each scale which best represents your impressions of the participant's behavior at present in the setting (job, home, friend) where you know him/her best.

II. The instructions are self-explanatory, but remember to give your impressions of the lab participant, not yourself. III. The "SELF" scale should be rated according to how you think the participant views himself or herself; the "OTHERS" scale according to how you think he/she generally perceives others.

IV. Change the instructions so that you give your impressions of the lab participant, rather than yourself. Make sure you rate him/her according to how open he/she seems in relationships; or howmuch data-giving or data-seeking you believe that he/she does.

V. Please answer the questions on the following page.

Sincerely,

John R. Hurley, Ph.D. Dean, 1968 Summer Lab A. Please make a brief statement which includes: (a) how long you have known the participant well, and (b) the context (job, friend, family) in which you have known him or her best:

B. Over a period of time people sometimes change in the ways that they relate to others. If you believe that the participant has changed his/her behavior in working with people in any specific way as compared to six months ago, please give a short description of their changes:

The realization of this research project would not be possible without your helpful cooperation. If you wish, I will be pleased to send you a summary of the findings when it is completed. My address is:

> John R. Hurley, Ph.D. Department of Psychology Michigan State University East Lansing, Michigan 48823

--THANKS AGAIN FOR YOUR HELP--

January 13, 1969

Dear Observer:

, by passing this packet to you, again joins me in requesting that you supply impressionistic information about him or her. This is the final phase of the same research project you participated in during last July or August relevant to the 1968 SMTL Human Relations Laboratory. Since we are interested in learning how the participant's interactions with other important persons in their lives is influenced by the labs, this post-lab data is essential. Thus, we are asking for less than an hour of your time to provide the data for this all important phase of the research project.

Again, all information given about each person is entirely confidential, and will not be released to anyone. Our findings will be described only in terms of "group trends."

The materials with which we request your assistance have been numbered to facilitate instructions. Please read these instructions carefully, and return the completed packets before February 1.

V. Encircle the point in each scale which best represents your impressions of the participant's behavior at present in the setting (job, home, friend) where you know him/her best.

VI. The instructions suffice, but remember to give your impressions of the lab participant, not yourself.

IVV. The 'self' scale should be rated according to how you think the participant views himself/herself; the 'others' scale according to how you think the participant generally perceives others.

VIII. Give your impressions of the lab participant rather than yourself. Make sure you rate him/her according to how open he/she seems in relationships; or how much datagiving, or data-seeking you believe he/she does.

IX. Please answer the questions on the following page.

Your cooperation is greatly valued for the success of the study hinges on having complete returns to compare with the data collected earlier.

Sincerely,

John R. Hurley, Ph.D. Dean, 1968 Summer Lab



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A. Over a period of time, people sometimes change in the ways that they relate to others. If you believe that the participant has changed his/her behavior in working with people in any specific way since the lab in August, please give a short description of their changes.

- B. 1. Do you think the participant has grown in understanding interpersonal behavior during and since the lab?
 - (a) none
 - (b) somewhat, but vague
 - (c) understands some new things
 - (d) quite a bit
 - (e) fully

2. Has the participant changed his/her behavior based on his/her growth in understanding interpersonal behavior?

- (a) none
- (b) sporadic behavior changes
- (c) some, but noticeable effort
 involved
- (d) a lot with some slipping back
- (e) is a new person

3. In your opinion, how much of the participants increased interpersonal understanding was due to the experiences during the summer lab?

- (a) lab was irrelevant
- (b) some help, but vague
- (c) helped pretty much as he/ she gained some new awareness
- (d) very much
- (e) completely
January 13, 1969

Dear Summer Lab Participant:

I am requesting your help again in the research project dealing with the impact of our summer 1968 SMTL Human Relations Laboratory at High Scope upon subsequent behavior. Four and one-half months have now elapsed since the lab and it is time to collect the follow-up data. You will recall that we are seeking better information than is currently available about the impact of lab participation upon subsequent experiences with intimates and working colleagues. Thus, again we need data from you, and from the <u>same two</u> "significant others" you chose for the pre-lab data collection back in July or early August.

Completing these data will probably require less than one hour of your time and, perhaps, even less from your "others." As before, if you are curious about the data sought from them, feel free to look in the enclosures, but pass them along as soon as possible, please. Also as before, to give these observers maximal freedom in their responses, we request that these data be returned directly to us without any obligation to review them with you beforehand.

Enclosed are three instrument packets--one, marked S, contains materials on which you are asked to describe facets of yourself; the other two packets, marked O, are each to be given to one of the two "others" chosen by you earlier. Please pass these packets on to them soon, and try to have them returned before February 1. All instruments have been numbered so they can be readily identified in following the instructions below.

- V. Encircle the point on each scale which best represents how you see yourself as behaving in the recent past (after the lab) and present.
- VI, VII, VIII, IX. All necessary instructions are given on the instruments.

Please answer the question on the following page.

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Your assistance is crucial at this time, for the usefulness of the study hinges on having follow-up data to compare with that collected several months ago. Thus, complete returns are essential.

Thanks again for your valuable help.

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Sincerely,

John R. Hurley, Ph.D. Dean, 1968 Summer Lab

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Over a period of time, people sometimes change in ways that they relate to others. If you believe that you have changed your behavior in working with people in any specific way since the August lab, please give a short description of these changes:

The realization of this research project would not be possible without your helpful cooperation. If you wish, I will be pleased to send you a summary of the findings when it is completed.

It will take several months, however, to analyse and compare the data and to prepare an adequate summary.

My address is: John R. Hurley, Ph.D. Department of Psychology Michigan State University East Lansing, Michigan 48823

Content Categories for Verbal Descriptions of Change*

A. OVERT OPERATIONAL CHANGES--DESCRIPTIVE

- 1. Communication
 - S. Sending--Shares information, expresses feelings, puts ideas across, is more open.¹
 - R. Receiving--More effort to understand, listens attentively, understands.
 - U. Unspecified--Communicates better, communication skills improved.
- 2. <u>Relational Facility</u>--Cooperative, tactful, less irritating, easier to deal with, able to negotiate.
- 3. <u>Risk Taking</u>--Willing to take stand, less inhibited, experiments more.
- 4. Increased Interdependence--Encourages participation, involves others, greater leeway to subordinates, less dominating, lets other think.
- 5. Functional Flexibility--More flexible, takes group roles more easily, goes out of way, contributions more helpful, less rigid.
- 6. <u>Self Control--More self discipline</u>, less quick with judgment, checks temper.
- 7. Warmer More affectionate, more expressive of positive feelings.
- B. INFERRED CHANGES IN INSIGHT AND ATTITUDES
 - Awareness of Human Behavior (intellectual comprehension)--More conscious of why people act, more analytic of others' actions, clear perceptions of people.
 - 2. <u>Sensitivity to Group Behavior--More conscious of</u> group process, aware of subcurrents in groups.
 - 3. <u>Sensitivity to Others' Feelings</u>--More capacity for understanding feelings, more sensitive to needs of others.

- 4. Acceptance of Other People--Able to tolerate shortcomings, considerate of individual differences, patient.
- 5. <u>Tolerance of New Information--Willing to accept</u> suggestions, considers new points of view, less dogmatic, less arbitrary.
- 6. Self Confidence
- 7. <u>Comfort--Relaxed</u>, at east (specific as to setting or activity).
- Insight into Self and Role--Understands job demands, more aware of own behavior, better adjusted to job, surer identity.¹

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- C. GLOBAL JUDGMENTS
 - Gross characterological inferences, noncomparable references to special applications of learning, references to consequences of change.
- D.¹ NONE

¹Added by the author. *Bunker and Knowles, J. Appl. Beh. Sci., 1967, V 3, #2.

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APPENDIX B

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Data Inventory

TABLE B-1.--Data inventory--within lab.

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| | III | 34.4 | * 36.5 | * 45.4 | 33.5 34.9 | 36.3 34.0 | 25.7 14.1 | 23.9 35.9 | 27.3 35.7 | 34.5 | * 21.9 | 41.1 35.3 | 35.9 40.6 | 37.6 38. 4 | 25.0 | 29.1 29.0 |
|-------|---------|--------------|-------------------|-------------------------|--------------|--------------|----------------------|--------------------|-------------------|-------------------|--------------|------------------------------|--------------|----------------------|--------------------|--------------|
| | II | 40.5 | * 40.5 | * 43.3 | 39.0 35.4 | 34.7 39.9 | 36.7 33.0 | 29.3 36.5 | 34.8 38.3 | 35.7 | * 39.2 | 41.6 42.6 | 36.9 45.4 | 38.1 39.3 | 33.5 * | 40.2 41.6 |
| | H | 39.3 | * 38.7 | * 37.4 | 37.6 38.2 | 32.7 36.2 | 3 3.3 31.6 | 31.9 34.5 | 32.3 38.6 | 33.7 | * 35.1 | 41.1 41.6 | 29.3 30.1 | 29.6 33.0 | 22.8 | 37.6 39.5 |
| | FB | 5.0 6.7 | 3.6 4.8 | 3.9 6.9 | 4.3 4.9 | 5.0 | 3.8 | 2.8 | 5.3 | 4.0 | 2.9 4.1 | 5.8 | 3.0 5.1 | 4.1 5.1 | 3.7 6.2 | 4.6 4.9 |
| L . | sD | 5.0 | 4.1 5.7 | 5.9 | 5.4 5.6 | 5.1 5.4 | 4.7 3.6 | 4 .0 6.2 | 5.1 6.3 | 4.0 5.4 | 4.2 3.8 | 5.8 | 3.4 5.8 | 4.8 | 3.0 | 5.7 |
| Repor | oxo | 6.1 7.6 | 5.2 | 5.1 8.1 | 5.4 8.8 | 7.3 6.3 | 5.2 | 5.3 4.3 | 6.7 7.2 | 4.8 5.6 | 6.0 | 5.9 | 4.2 6.2 | 5.7 6.4 | 3.8 | 6.3 5.2 |
| roup | ok s | 6.0 | 4.6 | 6 .0 * | 6.4 | 5.1 6.2 | 6.8 6.2 | 4.4 4.6 | 6.7 6.2 | 5 . 6 * | 6.2 3.9 | 5.3 4.7 | 6.7 7.0 | 7.0 6.6 | 4 .1 5.2 | 5.4 |
| ean G | 8 | 6.9 6.9 | 3.2 5.4 | 5.8 7.6 | 5.9 3.8 | 5.9 4.0 | 4.8 | 2.0 6. 4 | 5.3 7.0 | 4.1 4.9 | 2.2 2.8 | 5.2 4.6 | 6.6 6.8 | 7.3 7.1 | 5.1 5.2 | 5.4 3.4 |
| Σ | DS | 5.0 | 3.8 5.1 | 6.8 8.3 | 3.6 4.9 | 7.1 4.0 | 4.0 1.9 | 2.6 6.4 | 4.7 | 5.2 | 2.0 5.8 | 5.4 5.1 | 6.1 5.4 | 4.4 5.0 | 5.9 6.3 | 5.9 3.8 |
| | 0 | 4.4 | 5.9 6.6 | 6.1 8.8 | 4.2 3.9 | 6.9 4.2 | 3.6 1.3 | 2.8 6.1 | 4.6 5.2 | 4.8 4.0 | 1.9 5.3 | 5.1 2.8 | 4.3 6.6 | 6.7 6.0 | 4.3 | 5.9 4.3 |
| | ÷. | 6.1 4.0 | 4.4 4.1 | 5.3 3.8 | 4.7 5.3 | 7.3 5.1 | 5.7 6.6 | 4.9 3.9 | 4.3 | 5.0 | 4.8 5.8 | 5.2 | 4.2 4.2 | 5.0 4.1 | 5.6 5.4 | 5.7 4.8 |
| | 1 | 4.0 | 3.6 4.4 | 5.0 2.1 | 4.7 4.9 | 3.7 5.3 | 5°0 5.8 | 6.7 5.8 | 4.9 3.1 | 5.8 6.1 | 6.1 6.4 | 4. 5. 4 | 7.0 | 5.8 4.9 | 5.9 | 3.8 3.6 |
| | III | 44.0 41.0 | 39.5 44.8 | 42.0 51.0 | 18.5 21.9 | 33.0 37.0 | 30.4 20.8 | 23.0 32.8 | 30.5 33.7 | 42.5 36.0 | 23.1 25.0 | 31.0 33.0 | 30.7 43.5 | 34.0 29.0 | 33.5 38.6 | 29.0 30.7 |
| | II | 47.0 50.0 | 28.5 40.6 | 34.0 48.0 | 37.5 28.0 | 45.0 46.0 | 40.9 44.6 | 30.0 36.6 | 37.5 39.6 | 36.5 37.2 | 26.0 33.8 | 42.0 3 4. 0 | 42.5 48.5 | 3 1.0 38.0 | 36.8 35.6 | 37.0 43.6 |
| | г | 36.0 39.0 | 41.0 44.2 | 34.0 48.0 | 42.5 35.7 | 46.0 40.0 | 38.1 33.7 | 39.5 43.0 | 38.5 42.2 | 30.5 39.9 | 32.9 39.4 | 37.0 34.0 | 23.5 30.5 | 28.0 35.0 | 29.6 29.5 | 42.0 45.4 |
| L | FB | ဖအ | ~ ~ | ЧЧ | 2 1 | وو | υ'n | e v | 9 1 | n 4 | é û | وو | ഗയ | φũ | 99 | ۍ و |
| tepor | SD | ထ ထ | 41 | てて | s o | é C | აი | é û | وو | ഹ | 41 | e e | 98 | وو | ~~ | 5 7 |
| elf R | oko | no | و ۱ | ۍ و | 5 7 | • • | 1 00 | \sim | | ا و | $ \sim \sim$ | 9 | აა | 1 1 | e 3 | 9 |
| S S | ok s | ω ω | 1 1 | ഗര | 2 | - 1 | 10 | ۰ ۲ | 1 1 | 5 | ۲ « | 5 | ∞ ∞ | 1 00 | m 6 | 11 |
| | DG | 86 | 11 | 68 | ω'n | 1 1 | œ ۳ | ω'n | 9 | ഹഗ | м Ф | 1.75 | 9 1 | 68 | 4 r | 1 1 |
| | DS | ۲ 4 | 11 | υ o | 5 | I I | L 2 | 9 1 | I m | Г4 | чυ | രഹ | 2 5 | 8 ۲ | ~~ | 1.1 |
| | 0 | 7 8 | I I | აი | 4 N | 1 1 | 1 2 | 6 F | ıv | Г 4 | чъ | ۱v | 2 r | ۱m | 68 | гі |
| | Code | 10 | 02 | 03 | 04 | 05 | 90 | 07 | 80 | 60 | 10 | 11 | 12 | 13 | 14 | 15 |

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| on't. |
|-------|
| о |
| B-1 |
| TABLE |

| | III | 0 33.8 6 43.1 | 4 26.6 3 22.8 | • • | 7 35.5 | 0 35.3 2 33.1 | * 8 22.7 | 3 29.6 | * * | 3 31.6 5 34.7 | 6 34.5 9 31.9 | 1 40.7 | 4 45.4 | 5 36.3 0 27.3 | 5 32.1 5 33.1 | י 35 R |
|--------|------|------------------|--------------------|-----------------------|--------------|-----------------------|--------------|--------------|--------------|--------------------|------------------|---|--------------|---------------------|------------------|--------|
| | H | 36. | 30. | * * | 35. | 30.0 | * E | * 27. | * * | 35. | 39. | 40. | 42. | 24. | 38. | 5 |
| | н | 21.4 | 24.7 | * * | 40.6 43.0 | 31.6 35.2 | * 38.7 | * 35.1 | * * | 38.5 40.3 | 36.7 35.2 | 34°4 | * 38.8 | 31.1 19.5 | 34.0 35.1 | , , |
| | FB | 2.3 | 1.7 | 4.4 5.3 | 4.9 | 5.4 | 1.8 4.7 | | 2.8 4.2 | 4.4 5.7 | 5.8 4.9 | 5.9 5.2 | 4.7 | 3.4 1.8 | 3.4 4.7 | • |
| | SD | 1.6 | 2.7 | 5.6 5.7 | 5.8 7.8 | 5.3 6.9 | 3.1 4.4 | 3.3 4.0 | 2.6 5.3 | 5.1 | 5.9 5.6 | 5.2 | 4.6 6.4 | 3.1 1.2 | 4.8 4.0 | |
| Repor | oxo | 2.1 6.1 | 5.0 | 5.1 6.3 | 6.1 8.0 | 5.0 6.0 | 5.2 | 5.1 4.6 | 4.9 5.4 | 6.0 7.8 | 7.1 5.9 | 6.0 6.1 | 5.1 | 3.2 1.8 | 4.8 5.3 | , |
| Group | oK | 3.4 | 5.4 4.9 | 5.3 4.9 | 7.0 7.8 | 6.2 5.0 | 4.4 4.6 | 3.2 | 2.2 5.8 | 6.9 7.7 | 5.9 | 6.6 6.7 | 3.9 5.4 | 3.8 3.4 | 5.7 6.3 | 6 |
| Mean | g | 3.6 | 3.1 2.4 | 5.9 | 5.4 8.6 | 5.7 6.1 | 1.2 | 2.9 | 5.8 3.0 | 4.6 5.2 | 6.4 6.7 | 7.8 7.8 | 6.6 7.7 | 4.8 | 4.1 | 1 |
| | DS | 5.0 | 1.7 | 6.6 | 5.6 | 5. 8. 8. | 1.9 | 3.2 | 5.4 0.0 | 4.8 | 6.8 | 6.0 | 4.3 | 2.7 | 3.8 | |
| | 0 | 4.6 | 2.7 | 6.1 | 8.1 | 5.7 | 1.6 | 1.2 1.6 | | 5.2 | 4.8 | 6.3 | 6.1 | 2.1 | 4.3 | • |
| | F | 5.0 | 44 14 | 6.4 7.4 | 6.1 4.0 | 6.3 | 44 | 5.2 | 6.1 6.3 | 5.7 3.8 | 3.9 4.6 | 5 . 7 | 4.0 | 4.8 6.6 | 2.7 | |
| | 1.1 | 6.4 4.8 | 4 .7 6.0 | 4.7 | 4.2 3.2 | 6.6 7.3 | 5.1 4.0 | 5.4 0.4 | 7.9 5.7 | 4. 0 3.6 | 3.6 4.9 | 4.8 5.3 | 3.0 4.6 | 6.7 7.8 | 2.0 | • |
| | H | 37.5 51.0 | 30.8 26.6 | 37.5 26.5 | 36.0 40.5 | 4 3.1 39.9 | 31.0 31.0 | 35.5 21.5 | 40.9 36.7 | 30.5 36.7 | 41.6 42.1 | 43.5 40.5 | 48.0 45.5 | 41.0 30.0 | 34.0 38.0 | |
| | H | 35.5 28.0 | 39.3 36.1 | 3 4. 5 30.5 | 42.2 45.6 | 41.3 37.3 | 44.0 46.0 | 32.0 28.4 | 33.4 35.1 | 33.5 34.4 | 44.0 43.0 | 44.3 46.5 | 46.0 49.4 | 38.0 42.0 | 36.0 28.0 | |
| | н | 37.5 25.0 | 32.9 28.3 | 39.5 38.5 | 34.9 46.0 | 3 4.7 32.7 | 46.0 44.0 | 26.6 24.5 | 25.9 39.0 | 34.5 41.5 | 41.4 44.0 | 38.5 32.5 | 37.0 45.5 | 44.0 35.0 | 28.0 33.0 | |
| | FB | 92 | 7 4 | ŝΩ | وم | 6 00 | ュァ | т т | وو | ₩ 4 | e e | てて | 9 1 | 6 7 | 4 M | |
| teport | SD | ~~ | m 7 | ► 4 | 6 9 | 00 4 | 5 ٢ | 01 IN | 6 2 | ω | 6 1 | ~ ~ | 80 80 | տտ | 4 0 | |
| Self R | 0Ko | 1.0 | 5 T | 1 ٢ | r 6 | ıv | r 2 | N 4 | 6 1 | 1 00 | ~~ | $ \sim \sim$ | ~~ | m in | 9 | |
| | OK. | | ഗഗ | וח | ۲6 | 5 7 | r 6 | -4 M | é n | ~~ | ထထ | ~ ~ | co co | 0 10 | 69 | 1 |
| | 3 | 1 00 | 89 17 | v) -# | ~~ | 64 | • • | 10 | 8 7 | 1 1 | 9 | <u></u> 0,00 | וה | U I | vo -+ | |
| | DS | 01 | n n | 40 | 2 5 | r 4 | 1 1 | 1 -4 | 5 7 | 1 10 | 00 1~ | 1~ 10 | ວວ ວວ | סו | m m | |
| | 10 | 1 00 | m -1 | ω m | ოთ | 6 in | 11 | 1 1 | 1017 | 1 10 | 91~ | 1 - 1- | 6 8 | in I | <i>4</i> 9 | , |
| | Code | 17 | 18 | 19 | 70 | 71 | | 2 | 7 7 | 25 | а С | la la | 8 ~1 | 67 | 10 | 1 |

TABLE B-1.--Con't.

| | III | * 31.6 | 29.2 | 25.9 38.2 | 35.9 31.3 | 28.0 37.3 | 29.5 29.0 | 30 .5 25 .6 | 25 .6 | 33.0 40.6 | 29.7 17. 4 | * 27.1 | 38.6 29.0 | * * | 31.2 36.3 |
|-------|-----------------|--------------|-------------------|-------------------|--------------|--------------|--------------|------------------------------|---|----------------------|----------------------|--------------|-----------------------|----------------------------|--------------|
| | II | * 37.4 | 40.3 | 35.6 42.5 | 36.3 35.8 | 45.3 43.2 | 38.8 38.6 | 39.3 43.9 | 32.6 | 4 1.8 45.7 | 28.7 22.2 | * 34.8 | 33.6 27.3 | * * | 39.7 42.7 |
| | н | * 40.8 | 38.3 * | 21.9 35.9 | 35.4 33.2 | 39.7 39.0 | 40.5 38.7 | 36.0 43.1 | 30 . 5 * | 22.7 36.0 | 27.0 24.9 | * 30.8 | 31.1 30.2 | * * | 37.2 33.9 |
| | FB | 3.8 5.3 | 4.0 3.9 | 2.4 6.3 | 4.4 8.4 | 3.7 | 4.6 4.6 | 3.1 4.8 | 3.4 4.8 | 8°5 | 1.7 | 4.2 | 2.2 | 6.0 | 6.1 4.7 |
| L. | SD | 4.9 5.1 | 4.3 4.6 | 2.4 | 4.8 4.4 | 4.7 | 5.1 | 4.7 4.9 | 3.3 6.2 | 4.4 6.6 | 2.6 1.8 | 5.6 4.8 | 4.6 5.1 | 6.1 6.8 | 6.1 5.1 |
| Repor | oko | 6.3 6.2 | 5.9 | 4.1 6.6 | 5.2 | 6.1 6.1 | 6.3 4.7 | 5.4 6.3 | 5.3 | 2.8 6.0 | 3.3 | 5.1 | 8°5° 8°5° | 6 .0 6 .2 | 6.2 4.3 |
| roup | oK _s | 5.4 4.7 | 4 .6 * | 8.1 7.7 | 5.0 | 6.1 6.8 | 5.4 5.4 | 5.6 6.2 | 6.3 5.9 | 6.4 | 5.8 * | 4.3 4.9 | 4.8 3.6 | 5.3 6.3 | 5.8 |
| ean G | BG | 2.9 3.6 | 4.1 3.7 | 3.4 7.8 | 5.7 3.7 | 5.2 | 4.1 4.6 | 2.8 4.1 | 3.2 5.4 | 6.9 7.8 | 3.0 1.2 | 5.1 4.6 | 6.7 3.2 | 5.8 6.4 | 7.1 6.1 |
| X | DS | 3.0 3.0 | 5.3 3.3 | 4.6 5.0 | 5.8 4.6 | 3.2 6.9 | 4.0 3.9 | 1.8 2.8 | 4.0 7.8 | 3.3 7.1 | 3.7 1.4 | 5.2 3.7 | 5.8 4.1 | 5.6 7.3 | 5.4 6.0 |
| | 0 | 3.8 2.6 | 5.2 3.4 | 5.1 7.1 | 7.0 3.7 | 5.0 5.6 | 4 .3 | 1.7 2.4 | 4.0 6.6 | 4 .0 6.3 | 3.8 1.1 | 5.3 4.7 | 5.3 5.1 | 6.6 7.7 | 6.6 4.6 |
| | ч | 7.2 6.1 | 5.2 | 5.1 4.8 | 4.3 6.1 | 4.6 4.6 | 6.4 4.8 | 5.7 | 7.6 3.2 | 4.7 | 5.4 7.4 | 5.2 4.8 | 3.8 5.3 | 5.0 4.9 | 4.1 4.4 |
| | г | 5.0 3.4 | 4.7 5.1 | 5.9 3.4 | 5.2 7.9 | 4.9 4.8 | 5.2 | 4.6 3.4 | 5.6 4.2 | 6.7 4.1 | 7.0 9.0 | 5.7 5.1 | 5.2 | 3.7 4.3 | 3.6 4.6 |
| | III | 26.8 33.9 | 33.0 33.6 | 31.5 | 41.2 24.9 | 26.0 32.0 | 35.0 33.0 | 29.5 26.7 | 29.5 40.5 | 37.0 49.0 | 38.5 21.2 | 33.5 35.0 | 39.0 30.2 | 36.5 46.5 | 34.3 37.4 |
| | II | 39.3 33.1 | 37.5 34.6 | 40.5 | 43.6 34.0 | 35.0 39.0 | 36.0 34.0 | 43.5 44.7 | 26.5 42.5 | 44.0 48.0 | 46.8 42.6 | 39.0 43.0 | 4 3.0 33.2 | 40.5 43.8 | 44.0 44.8 |
| | п | 43.2 40.8 | 33.6 38.6 | 37.5 | 39.9 33.2 | 33.0 40.0 | 39.0 37.0 | 33.5 39.8 | 38.5 39.5 | 4 0.0 37.0 | 33.6 27.2 | 37.5 42.0 | 36.5 31.8 | 34.5 46.0 | 34.6 34.6 |
| | FB | وو | ŝη | ופי | οũ | 40 | e e | 98 | $ \sim \sim$ | ഗയ | 77 | وو | Ω 4 | w 4 | ~ ~ |
| eport | sD | 99 | و و | 7 5 | r 4 | 49 | 04 | ~ ~ | 4 1 | co co | γ Γ | o o | м л | 9 ٢ | 6 7 |
| elf R | oko | 8 | 1 1 | 96 | 6 | 7 6 | é ù | 10 | 49 | ∞ ∞ | 11 | 6 8 | 9 7 | ۰ ۲ | 8 9 |
| S | ok s | 9 8 | 9 | 96 | 6 | 4 v | τ v | וס | 7 | 6 8 | | 49 | Q 4 | ഗയ | 8 |
| | ğ | ۲ 5 | υm | 10 | 8 7 | 99 | 0 4 | 11 | 6 8 | 16 | 4 4 | 1 -1 | 1.1 | 41 | 99 |
| | DS | ۲ 8 | 4 0 | 1.1 | co co | 2 5 | 0 4 | 1.1 | φıΩ | 1 00 | 8 T | 19 | 1.1 | ا وت | ~ ~ |
| | 0 | 1 6 | იე 4 . | ıv | 6 7 | é a | ທີ່ທ | 1.1 | 8 | 1 00 | ı ۲ | ыı | 1.1 | пı | 6 |
| | Code | 38 | 39 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 53 |

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TABLE B-1.--Con't.

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| | III | 22.3 | 39.7 41.8 | 28.2 32.7 | 32.4 41.5 | * 16.0 | 37.2 35.5 |
|--------|-----------------|--------------|----------------------------|--------------------|--------------------|--------------|---------------------|
| | II | 9.8 0.8 | 5.2 1.9 | 2.4 | 1.9 8.9 | * 0.6 | 1.2 |
| | | .12 | | .23 | .2 3 | • 2 | 4 4 |
| | н | 39 | 22 | 0.4 8.6 9.0 | 6. 4 6. 4 | * m m | 4 4 1 0 |
| | FB | 2.8 | 2.9 2.6 | ы. 5.98 С. | 4 .1 6.2 | 5.2 | 6°3 |
| | SD | 4.7 6.6 | 3.1 3.3 | 4.2 5.3 | 4.2 6.8 | 6.0 3.8 | 5.9 6.4 |
| Report | ok _o | 6.9 6.9 | 4.9 5.1 | 5.7 5.4 | 5.7 6.6 | 4.7 5.9 | 6.8 6.8 |
| toup | oK _s | 5.9 7.1 | 4 .8 4 .0 | 4 .9 5.3 | 5.2 | 3.1 4.1 | 6.7 6.6 |
| ean G | DG | 2.2 8.0 | 5.6 4.8 | 3.6 2.2 | 2.7 | 4.0 | 7.6 7.6 |
| Ŵ | DS | 1.8 6.7 | 6.6 4.9 | 3.8 2.7 | 4.2 4.9 | 7.6 3.0 | 7.27.3 |
| | 0 | 2.3 6.9 | 7.1 6.2 | 3.1 2.3 | 2.4 6.4 | 8.1 4.8 | 7.1 6.8 |
| | F | 5.0 3.6 | 3.6 4.6 | 6.7 3.9 | 7.34.0 | 5.0 5.6 | 4.8 4.7 |
| | ч | 4.8 3.1 | 5.9 6.7 | 5.2 3.3 | 6.2 6.0 | 5.2 4.2 | 2.8 3.2 |
| | III | 29.5 34.3 | 43.5 42.9 | 35.5 37.0 | 39.0 36.4 | 29.5 23.3 | 36.0 38.0 |
| | II | 33.0 37.8 | 39.5 44.6 | 40.5 40.3 | 40.5 37.9 | 36.5 27.7 | 39.0 43.0 |
| | н | 33.5 34.3 | 40.5 36.3 | 44.0 44.5 | 37.0 41.8 | 35.5 35.0 | 44.0 44.0 |
| | FВ | o ۱ | ~~ | وو | υv | 4-1 | 5 |
| eport | SD | м Г- | ~~ | ~ ' | 94 | L 4 | و و |
| elf Rt | oko | | 11 | | იი | Ω 4 | 6 |
| S | ok s | 10 | 1 00 | ~ ~ | 7 | 5 2 | 9 |
| | DG | ە 1 | 1 1 | 4 | ۱n | • | œ وب |
| | DS | ١m | 1 1 | 4 | ۱m | 1 -1 | 8 |
| | 0 | و ا | 1 1 | 41 | 1 2 | 1 -1 | |
| | Code | 54 | 55 | 56 | 57 | 58 | ×× |

*Not computed because too much missing data.

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TABLE B-2.--Data Inventory--Pre and Post Lab.

| 1 | υ | l I | | ŝ | | ŝ | Ś | Ś | | ŝ | e | Ś | Ś | S | ٢ |
|--------|--------|----------|------------------|------------|------------------|-------------------|--------------------|----------------|---------------|------------------|------------|----------------|--------------|-------------|--------------|
| | n) | | | - | | | ŝ | 5 | : | <u>م</u> | 2 | 5 7 | | | 8 |
| | | | 4 N | - 9 | r 0 | нн | 0.4 | 0.00 | | ~ 4 | -1 m | 40 | | e. | r.0. |
| | ICL | | | | <u>ه</u> ب | ~ <u>~</u> ~ | <u>۳</u> . | | °.' | فن | 11 | 41 | ś | 41 | 1 |
| | 80 CP | | •• | 40 | 6 3 | 16 | 6 00 | 8.9 | Ν. | 9.0 | -15 | é s | νo | 5. | <u>.</u> . |
| | ICL | | 13. | 6 B | 11. 8. | 15. 14. | л. 10. | 14. | . ' | 18. | - 0 | 10 | 18 | 10 | 51 |
| | I | | •• | <u>ه</u> . | <u>.</u> . | ••• | ŝ | ŝ | °., | . 9. | ÷.0 | 80. | ŝ | 5.1 | s. 5 |
| | H | | 48 | 45 | 46 | 47 | 42 | 40 | 33 | 41 | 243 | 38 29 | 44 | 44 | |
| a n fa | н | 1 | | ••• | 0.0 | | 5. 2 8.5 | 8.2 9.5 | -1.1 | 4.4 | 4.5 | 2.7 | 4.5 | 5.1 | с.5 6.5 |
| lea | | | | 44 | 10 4 | ÷ | 4 m 0.0 | in in In in | • | 44 | 44 | • • • • • | 44 | 5 m | - 4 4 - 4 |
| Col | H | | 0.6 | 0.0 | 8.0 | 8.0 | 35.0 | 11. | | 35. | 5.0 | 33. | 35. | 36. | 33. |
| | 0 | | 0 ~ | 00 | 00 | 00 | чo | ŝ | °., | v, 🖛 | • 0 | <u>.</u> | <u>.</u> . | <u>،</u> ٥. | ŝ |
| | ŏ | | ς. γ. | - v | - e. | | v. 4 | | 4 | 4.0 | | ~ s | ** | وب در م | ~ ~ ~ |
| | ă N | | 7.0 | 5.5 | 6.0 | 9.9 9.0 | s | 5.0 | 5.1 | 4 v | 4 S | 5.2 | <u>ہ</u> و | ف ف | ÷., |
| | - 0 | | | | | | | | | | | ~ ~ | | - | |
| | ă | | с , э, | 7 9 | ه ه | ~ ~ | r. r. | ι Φ | ا ف | ഗയ | in in | (*1 * 1 | | 1- 0 | ••• |
| | SC | | б | აი | 9 1 | ∿ 4 | 41 | ا وت | ıو | ഗജ | 49 | 9 4 | ~ ~ | 88 65 | 4 |
| | 0 | | 6 6 | ۳r | ~ ~ | ~ ~ | ۶ م | | ~ ' | 8 ~1 | m m | ∞ ◄ | co co | 88 05 | ~ v |
| | ιu | 5 | ٢ | Ś | ę | ŝ | ~ | ٢ | ч | ~ | ŝ | 5 | 2 | m | ~ |
| | 8 | 6 | - | - | 2 | 6 | - | ۲ | - | 2 | - | - | - | ŝ | - |
| | - E | 80 | 4 17 | രംഗം | 9 6 8 | 5 6 8 | 2 C 9 | - 9 | 9 2 2 | ~ 4 | 4-1- | | 8 7 | 0 8 9 | ר רפ |
| | ICI | 5.4 | 15. | 04 | . 4 | 6. 2. | 9. 9. | ŗ. | <u>،</u> ، | <u>.</u> | | <u>.</u> | 10. | 40 | |
| | ຕູຫ | <u>.</u> | .2 | ~ °. | <u>و</u> | <u>، ،</u> | 5.5 | 8.9 | - . •. | <u>.</u> | | | 9.4 | 40 | ÷ |
| | 1 S | 133 | 10 | 11 8 | 9 16 | 12 | 80 | 104 | 46 | 16 | ۰ ٦ | 108 | 12 | ŝ | 80 |
| | H | 4.0 | 9.0 8.0 | 5.0 | 3.2 | 4.0 3.0 | 3.5 | 6.0 | 2.2 | 9.0 6.0 | 6.2 | 3.6 2.0 | 3.0 | 0.4 0.4 | 2.7 |
| nat | | 44 | 44 | 44 | 4 4 | 0 0 ~ 4 | ~ ~ ~ | ~ ~ 0 7 | ~ r 7 | 44 | 4 5 | 44 44 | •• | ~~ | 5 m |
| ati | H | 18. | 36. | 5°. | 40. | 54. | 1 0. | 39. | 32. | 50. | - 51. | 37. | 52. 48. | ÷. | 44. |
| Ĥ | | 00 | 00 | 0 7 | ەق | 00 | ເດັບ | 0.0 | Ś | 00 | - | •0 | 00 | 00 | - |
| | ч | 48 | 53 46 | 38 37 | 4 8 35 | 47 45 | 37 41 | 39 | 42 31 | 4 9 49 | 5. | 37 44 | 33 | 44 | 29 |
| | ×° | 0.0 | 0.0 | 0.4 | | 0.0 | 5.0 | | 5.5 | 0.0 | 6.0 | 0.0 | 0.0 | 0.0 | 5.2 |
| | ر م | 00 | 00 | 0.0 | 40 | 00 | 10 1 | 0.0 | u ao | 00 | | 00 | 00 | 00 | ~ ~ ~ |
| | ō | 0 0 | 6.0 | 10 N | فف | in o mo | 10.0 | 5.0 | 44 | فف | ن ف س | 99 | فوف | | |
| | ň | | | | | | | | | | | | | ~~~ | 5 |
| | ñ | | | | | | 1.15 | | | | | ~~ | | | ~ |
| | | -7.0 | w w | • | 1.1. | 15 (5) | | | | ww | | 1.00 | | | |
| | 15 | | • | ~ | | 10 | 2 | | 3.5 | ~ | 5 | .0 | | | 7.2 |
| | | | م. | 8 | | | ~ | 8 | | | • | ••• | وت | Ś | 6 |
| | | • | ف | ۲. | | с л | | | ~ | 89 | s. | in. | ۲. | Ś | 9 |
| | Ā | 7.8 | 7.4 | 80 | | | 80 | 7.9 | 4.1 | 2 | | ŝ | 80 | 7 | 7 |
| | ተኇ | <u>ه</u> | 80.00 | | | s. 4. | 77 | . | 8.1. | <u>.</u> | ~ | | | <u>.</u> | 75 |
| | ¥. | 0.4 | 24 | 54 | 80 ~~ | ۳ . | 94 | en 1 | 4 | | °7 | 11 | 41 | U ii | -11 |
| | ้ป | 1.5 | 8.2 6.8 | 1.7 9.1 | 3.8 | 6.1 1.6 | 7.7 8.1 | 9.5 9.3 | 4.8 6.9 | 2.9 4.9 | 5.7 2.7 | 0.9 | 4.7 | 9.5 .5 | 6.1 |
| õrt | н | 0 | 80 10 | - 0 0 | 00 | 00 | 8 m | 67 | 2 C I | | ہ و | 00 | 5 D | 00 | |
| Rep | H | 42. | 44. | 48. | 44. | 37. | 29. 31. | 39. | 30. | 45. | 32. 30. | 29. 35. | 32. | 31. 33. | 38. |
| lf | ы | 0.0 | 0.6 | °.°. | <u>.</u> . | 0.0 | r.0. | 4 8 | <u>~</u> | 0.8 | -17 | ••• | o. s. | <u>.</u> . | ۰.6 |
| Se | - | 39 | 4 0 38 | 37 53 | 44 43 | 44 49 | 39 41 | 35 40 | 35 36 | 44 | 39 | 40 | 44 | 38 | 40 |
| | | 0.0 | 0.6 | | 0.0 | 0.0 | 0.4 | 7.7 | .5 | | 8.0 | 0.0 | 0.0 | 0.0 | 3.5 |
| | | | | ÷ | ÷ ~ | 44 | ~~~ ~~~ | ~ 4 | ňň | 74 | | * ~ | м м о | | 7 7 7 7 |
| | ŏ | | 6.) 6.] | з.б | с. С. | 6.C | | 5.0 | 5.5 1 | 9 | | 5.C | 5.6 | 6.C | 4.4 |
| | × s | 0.7 | <u>.</u> | 0.0 | 00 | 00 | v. ø | 7 0 | 5.2 | 0.5 | | ••• | 0.5 | 0.0 | |
| | 8 | | 00 -7 | 41 | 30 | -1 t- | 5.0 | 9 9 9 9 | - 9 F | - 1 2 2 | 9 ú Đứ | 5 6 6 | 5 6 | 99 99 | ~~~ |
| | I SC | 4.0 | 8 6 | 98 | é | ~ 33 | 7 77 | 91 | νυ | و ی | ŝ | 6 5 | 51 | 9 ~ | ە ت |
| | 0 | ~~ | თადი | 98 | ~ ~ | M co | ŝ | e e | 96 | 91 | ۍ وټ | 5 | 9 80 | 4 ~ | r 5 |
| | Code | 01 | 07 | 03 | 10 | 05 | 90 | 01 | 08 | 60 | 10 | 11 | 12 | 13 | 14 |

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TABLE B-2.--Con't.

| | | | Í | | | | | ļ | | | | | | Ì | ĺ | | | | | | | | | | | | | | | | | | | | | | | | |
|------|--------------|--------------|--------------|----------------|---------------------------|--------------|----------------------|--------------|---|----------------|-------|--------|---------|----|-----------------|--------|------------|----------------|---------------|----------------|-----------------|----------------|---------------|--------------|----------|------------------|--------------|--------------|-------------------|----------|----------------------|----------------------|---------------------|----------------------|-----------|-------------|-----------------|--------|--|
| | | | | | v | ielf | Repoi | ŗ | | | | | | | | | | | | Int | imate | - | | | | | | | | | | Coll | eague | e | | | | | |
| Code | 0 | รต | 2 | 0×3 | 0K0 | н | : | III | ICI | d IC | - 4 | A | 8 | 1 | 0 | S D | G OK | s CK | I C | 1 | 11 | 111 | ICL | d ICI | A L | с в | 0 | DS | bg | ok | °×° | - | H | | IC | p, s | A 1 4 | 5 8 | |
| 15 | 75 | 0.0 | 10 | 6.0 | 5.2 3 | 10.0 | 39.0 | 31.0 36.7 | -1- | 22 | و بن | 6 | 5 5 | | 5 5 | | 0.0 | 4 0 | 5 47 | 0 - 4 5 - 4 | 2.6 3 | 38.5 11.5 | 5.4 | 3.4 | - | | 4 80 | 98 | ~~ | 2.5 | 3.2 3 | 34.5 | 39.5 39.5 | 38.5 | -5. | - 6 | .1 1 | | |
| 17 | നരാ | חי פי | n, an | 5.0 5 | 4.0 1 5.6 4 | 13.6 | 48.0 | 45.0 43.7 | 10. | 2 8 1 | ø. ø. | 7.6 (| 6.57 | 80 | 9 9 9 | ωr | 44 | 0 5.0 | 0 28) 34 | . 0 | 9.6 4 1.0 3 | 11.5 | 12.8 14.0- | -7.4 | ۍ | 75 | ~ ~ | e 9 | 9 8 | 6.0 | 6.0 4 6.0 3 | 0.0 19.0 | 49.0 46.0 | 42.0 39.0 | 12. | 6 - 1 6 | | 7 7 | |
| 18 | - 7 m | وب | v) -7 | 5.8 | 5.6 3 | 80.9 4.4 | 36.0 38.7 | 31.5 33.1 | 4.8 | 4 - 1 5 - 6 | ÷ | 6.3 | 5.8.5 | 80 | 7 5 6 | г г | 5 6.t | 6 S . | 9 38 45. | 5 4 | 5.7 4 7.0 4 | 11.6 | 9.0 10.9 | -7.6 | m | 13 | 75 | co co | 80 80 | 4 C C | 5.23 | 39.5 19.0 | 44.0 51.0 | 37.1 37.5 | | 80 80 | 4 .8 | 3 T | |
| 19 | é 7 | -7 -7 | 5 | 4.5 4 6.0 6 | 6.0 3 | 88.5 17.5 | 39.5 35.5 | 31.5 34.5 | -12. | е - е | 4.1. | 4 | رد م | | 87 89 | 44 00 | 5.0 2 | 0 5.0 0 5.0 | 37 | 00 | . 0. 9 . 0 3 | 18.0- 15.0- | 15.6 | 14.4 5.6 | | 53 | | | | | | | | | | | | | |
| 70 | *~ | 10 -7 | 6 1 | 5.9.5 | 5.9 4 5.3 3 | 13.5 | 35.5 44.7 | 32.5 44.2 | -2. | 0 20 3 7 | ~ 60 | 7.1 | 7 5 | 5 | 6 4 L | 9 | 5.5 | 95.] [6.1 | 1 35 | .5 3(.1 4] | 5.5 3 1.6 4 | 19.3 | -5.5 | 21.1 15.3 | ~ | 7 3 | r 8 | و. 🕶 | 5 | 6.0 | 4.2 5 6.0 4 | 50.0 18.0 | 43.0 46.0 | 44.0 | 8.7 | 4 15 | 4 | | |
| 71 | r 1- | ¢ ¢ | 7.5 | 5. 5 F | | 15.5 | 39.2 40.5 | 40.4 | 11.8 | 5 -9 3 -11 | 6. O. | | 4 | | 5 4 | e 9 | 2.2 | 3.4.5 | 3 37 | 5 41 | 7.94 1.53 | 12.7 | -1.4 -5.2 | 10.6 6.2 | S. | 5 5 ^a | ٢ | 80 | 2 | 6.5 | 4.64 | 46.5 | 41.0 | 45.5 | 7. | 8 | 89. | | |
| 22 | 0.0 | in (1 | 10.10 | 7.0.7 6.0.6 | 5.0 5 | 3.0 | 47.0 46.0 | 32.0 36.0 | м. Т | 8 9 7 | | ۲ י | s S | | 9 8 2 2 | υo | 6.9 6 | 2 7.0 | 40 | 5 4 0 | 5.5 1 3.2 1 | 9.0 | 8.8 9.6 | 7.4 4 | - | 77 | ۶ م | 7 8 | 8 | e. e | 6.0 3 6.2 4 | 38.0 13.9 | 44.6 47.6 | 39. 4 37.7 | 10. | 9.6 17 | | 1 1 | |
| 73 | စစာ | ∽ - ₽ | 1- F | 0.0 | 1.0 J | 1.1 | 30. 4 33.5 | 39.7 41.5 | н. Нависка На | 0 -11 3 -5 | | و | 6 7 | | - C 6 M | ຜ່າ | و. ر و | 0 4.0 0 6.0 |) 38 . 44. | 4 0.0 | 1.0 3 | 1.0 | 1.1 7.2 | 1.1 | ~ | 79 | 8 1- | ഗരം | 41 | 5.5 | 5.03 | 34.0 36.5 | 41.1 42.7 | 44.4 36.8 | وت ت م | 080 | .0 7 | 75 | |
| 24 | 91~ | ാനം | ഗനം | 5.64 | 4.6 5.6 4 | 8.5 | 43.5 39.8 | 35.5 45.3 | 6.9 | 8 5 7 | . 5. | د | r r | | 28 28 | 51 | 9.9 9.9 | 5 6 | 3 39 | 4 0 | 5.5 3 .0 4 | 4.0 | 4.7 | 10.5 | ~ | 77 | 6 7 | 56 | v∩ - 1 | 7.0 | 6.0 5 4.0 5 | 51.0 18.0 | 51.0 53.0 | 37.0 35.0 | 44 | 0.8 | .05 | 75 | |
| 25 | 9 1 | 9 6 | 101 | 5.5 6.4 6 | 5.5 4 | 11.3 16.9 | 45.7 30.7 | 40.6 38.1 | 6.6 | 0.0 0.4 | e | 2 | 66 | | 7 6 | ¢ ¢ | 9.9 9.0 | 0 6.0 |) 46) 34 | .0 5, 0 3, | 4 0.1 | 13.0 | 6.2 7.4 | 3.6 | - | 57 | ~ ~ | ۲ b | ~ ~ | 5.5 | 5.24 | 17.5 13.3 | 48.5 43.6 | 35.5 45.5 | 80 00 | 0,4 0,4 | 5.9 | | |
| 70 | co no | 9 | | 6.7 (6.5 (| 6.0 4 6.0 4 | 2.0 | 41.4 43.0 | 40.2 36.0 | 11. | 9 7 7 10 | 5.0 | 7.3 (| 6.4 6 | ۲. | 8 m | ~ ~ | و.(و | 0.5.0 | 44 | • • | 1.03 | 16.0 19.0 | 13.3 9.2 | -1.5 | ~ | 9 e E | æ æ | r 8 | 8 | e.o 9 | 4.0.4 6.03 | 44. 5 39.0 | 47.5 | 44.5 | | جون | | 75 | |
| 27 | <i>د</i> ۲ | r 0 | ~ ~ | 5. Ú | | | 41.4 41.4 | 37.3 40.6 | | 12 | | و | 6.55 | | 88 8 9 | നത | 9.9 9 | 00 |) 29) 38. | 0.0 | 9.0 4 0.0 3 | 13.0 | 2.2 | -10.6 | | 3 2. | 8 1 | 4 M | ~~ | 2.0 | 3.0 2 | 28.0 29.5 | 43.0 36.5 | 45.C | | 8 -16 | .05 | 75 | |
| 28 | 80 80 | ഗങ | 8 8 5 - 5 | 6.U | 0.0 | 2.5 | 41.0 49.0 | 45.U | 4. | 5 -4 | -1.6. | 6 | r r | | 77 36 | 81 | 1.6 | | 34 | 0.0 10 | 5.03 | 8.0 | -1.4 -2.2- | -1.4 | | ġ 5 | ٢ | و | 6 | 5.6 | 4.5 | 39.5 | 36.5 | 40.5 | .11. | 1 | | | |
| 67 | 8 | m -+ | т .л | 5.0.6 | 4.03 | 17.0 | 32.0 40.0 | 37.0 41.0 | 15.(| 1 0 12 | ه به | ~ | 3 | | 48 40 | 40 | 9.6 | 0.5.6 | 9 47 | 50 | 2.03 | 14.0 | 8.2 9.6 | 3.5 | . | | co co | 88 54 | 86 | 7.0 | 6.0 4 7.0 5 | 49.0 | 49.0 52.0 | 42.0 | , F3. | و | .0 7 | 7 3 | |

TABLE B-2.--Con't.

| , DS DG OK _s OK _o I | DS DG OK ₅ OK ₀ I | be ok ok I | G OK OK I | DK ₈ OK ₀ I | ok _o I | l Se | I Se | | 1 | Re | 0d | t I | I | <u>د</u> د ا | 1 2 | | | a l | U U | | DS | Å | o k | | | | | I I | T H | ^ב او ا | | CL ^d | ICL | < ⊣ ⊆ | | | | s | y X | ×0 | ь Х | μÜ | olle | ague I I | H | й н | 7 7 | | < | |
|---|---|---|---|---|---|---|---|---|---|---|---|-----------------------------------|-------------------------------|--------------------------|--------------------|-------------|---------|-----|-----|---------|------------------|------------|-------------------|----------|--------------------|--------------------------|----------|--------------------------|-----|-------------------|--------------|-----------------|------|--------------------|--------|-----------------------|----------|---|-------------|-------------|-------------|--------------|------------|-------------|-------------|-------------|----------------|--------------|----------|----------|
| 2 4 3 4.0 5.0 32.0 38.0 29.0 -16.8 6.2 1 3 3 2.0 3.0 32.0 28.0 30.0 -18.1 .1 2 3 | 4 3 4.0 5.0 32.0 38.0 29.0 -16.8 6.2 3 3 2.0 3.0 32.0 28.0 30.0 -18.1 .1 2 3 | 3 4.0 5.0 32.0 38.0 29.0 -16.8 6.2 3 2.0 3.0 32.0 28.0 30.0 -18.1 .1 2 3 | 1 4.0 5.0 32.0 38.0 29.0 -16.8 6.2 2.0 3.0 32.0 28.0 30.0 -18.1 2.1 2.3 2.0 30.0 28.0 30.0 -18.1 2.1 2.3 3 5.0 20.0 28.0 28 | 4.0 5.0 32.0 38.0 29.0 -16.8 6.2 2.0 3.0 32.0 28.0 30.0 -18.1 .1 2 3 | 15.0 32.0 38.0 29.0 -16.8 6.2 13.0 32.0 28.0 30.0 -18.1 .1 2 3 | 0 32:0 38.0 29.0 -16.8 6.2 0 32:0 28.0 30.0 -18.1 .1 2 3 | 12:0 38:0 29:0 -16:8 6:2 3 12:0 28:0 30:0 -18:1 .1 2 3 | 0 38.0 29.0 -16.8 6.2 2 28.0 30.0 -18.1 .1 2 3 | 8.0 29.0 -16.8 6.2 8.0 30.0 -18.1 .1 2 3 | 1 29.0 -16.8 6.2 1 30.0 -18.1 .1 2 3 | 9.0 -16.8 6.2 0.0 -18.1 .1 2 3 | -16.8 6.2 -18.1 .1 2 3 | .8 6.2 .1 .1 2 3 | 6.2 .1 2 3 | 3 | m | | | - | r | s l | 0 | <u>ہ</u> | 0 | 5.0 | 35 | 0.0 | 19 | • | 41. | 0. | 4.1 | 7 | - | | 00.00 | | | 8 ~ | 5.5 | 5.5 | 44. | ~ ~ ~ | 8.5 | 41. | 5 | | | 5 | 4 |
| 7 7 7 6.0 3.0 37.0 43.5 40.5 2.5 16.1 5 2 7 3.0 6.0 33.0 43.0 34.0 -4.1 13.5 5 2 4 | 7 7 6.0 3.0 37.0 43.5 40.5 2.5 16.1 2 7 3.0 6.0 33.0 43.0 34.0 -4.1 13.5 5 2 4 | 7 6.0 3.0 37.0 43.5 40.5 2.5 16.1 7 3.0 6.0 33.0 43.0 34.0 -4.1 13.5 5 2 4 | 7 6.0 3.0 37.0 43.5 40.5 2.5 16.1 3.0 6.0 33.0 43.0 34.0 -4.1 13.5 5 2 4 | 6.0 3.0 37.0 43.5 40.5 2.5 16.1 3.0 6.0 33.0 43.0 34.0 -4.1 13.5 5 2 4 | 0 3.0 37.0 43.5 40.5 2.5 16.1 0 6.0 33.0 43.0 34.0 -4.1 13.5 5 2 4 | 0 37.0 43.5 40.5 2.5 16.1 0 33.0 43.0 34.0 -4.1 13.5 5 2 4 | 37.0 43.5 40.5 2.5 16.1 13.0 43.0 34.0 -4.1 13.5 5 2 4 | 0 43.5 40.5 2.5 16.1 0 43.0 34.0 -4.1 13.5 5 2 4 | 3.5 40.5 2.5 16.1 3.0 34.0 -4.1 13.5 5 2 4 | : 40.5 2.5 16.1 : 34.0 -4.1 13.5 5 2 4 | 0.5 2.5 16.1 4.0 -4.1 13.5 5 2 4 | -2.5 16.1 -4.1 13.5 5 2 4 | 5 16.1 .1 13.5 5 2 4 | 16.1 13.5 5 2 4 | t 5 2 4 | 2 | 2 | 4 | | 4 | ~ | 4 | ۍ. | 5 0 | 5.0 | 40 | 0.0 | 40 | 0.0 | м. | • | -3.7 | 4 | 6 | | in r- | | | yo mi | 6.0 | 6 .0 | 1 0. | ~ ~ | 9.0 3.0 | 36. | - 7 0 0 | 8.9 1.6 | 16.4 | | |
| 7 6 6 5.5 5.5 43.0 39.0 27.0 9.5 4.1 1 6 7 2.0 2.0 36.0 41.0 37.0 11.5 7.5 6 6.1 6. | 6 6 5.5 5.5 43.0 39.0 27.0 9.5 4.1 6 7 2.0 2.0 36.0 41.0 37.0 11.5 7.5 6 6.1 6. | 6 5.5 5.5 43.0 39.0 27.0 9.5 4.1 7 2.0 2.0 36.0 41.0 37.0 11.5 7.5 6 6.1 6. | , 5.5 5.5 43.0 39.0 27.0 9.5 4.1 , 2.0 2.0 36.0 41.0 37.0 11.5 7.5 6 6.1 6. | 5.5 5.5 43.0 39.0 27.0 9.5 4.1 2.0 2.0 36.0 41.0 37.0 11.5 7.5 6 6.1 6. | : 5.5 43.0 39.0 27.0 9.5 4.1 - 2.0 36.0 41.0 37.0 11.5 7.5 6 6.1 6. | 5 43.0 39.0 27.0 9.5 4.1 0 36.0 41.0 37.0 11.5 7.5 6 6.1 6. | 13.0 39.0 27.0 9.5 4.1 16.0 41.0 37.0 11.5 7.5 6 6.1 6. | 0 39.0 27.0 9.5 4.1 0 41.0 37.0 11.5 7.5 6 6.1 6. | 9.0 27.0 9.5 4.1 1.0 37.0 11.5 7.5 6 6.1 6. | 27.0 9.5 4.1 37.0 11.5 7.5 6 6.1 6. | 7.0 9.5 4.1 7.0 11.5 7.5 6 6.1 6. | 9.5 4.1 11.5 7.5 6 6.1 6. | 5 4.1 5 7.5 6 6.1 6. | 4.1 7.5 6 6.1 6. | l 566.16. | 6.1 6. | 6.1 6. | 9 | 6 | ~~ | é û | 89 | 44 | 00 | 5.0 | 47 | 0.0 | 51 49 | ••• | 32. | ••• | 0.01 8.6 | 9.6 | و و | ۍ ۲ | | | | ~~ | 5.5 | 5.5 4.8 | \$ 5. | 4.5 | 9.5 | 45. | | s.s. | 13.7 | <u>ب</u> | 5 7 |
| ; 6 6 6 6.0 6.0 39.6 40.6 34.9 8.4 2.0 ; 6 7 6.0 5.0 42.0 46.0 42.0 9.8 4.8 8 8.4 7.5 | 6 6 6.0 6.0 39.6 40.6 34.9 8.4 2.0 6 7 6.0 5.0 42.0 46.0 42.0 9.8 4.8 8 8.4 7.5 | 6 6.0 6.0 39.6 40.6 34.9 8.4 2.0 7 6.0 5.0 42.0 46.0 42.0 9.8 4.8 8 8.4 7.5 | → 6.0 6.0 39.6 40.6 34.9 8.4 2.0 → 6.0 5.0 42.0 46.0 42.0 9.8 4.8 8 8.4 7.5 | 6.0 6.0 39.6 40.6 34.9 8.4 2.0 6.0 5.0 42.0 46.0 42.0 9.8 4.8 8 8.4 7.5 |) 6.0 39.6 40.6 34.9 8.4 2.0 5.0 42.0 46.0 42.0 9.8 4.8 8 8.4 7.5 | 0 39.6 40.6 34.9 8.4 2.0 0 42.0 46.0 42.0 9.8 4.8 8 8.4 7.5 | 89.6 40.6 34.9 8.4 2.0 12.0 46.0 42.0 9.8 4.8 8 8.4 7.5 | 6 40.6 34.9 8.4 2.0 0 46.0 42.0 9.8 4.8 8 8.4 7.5 | 0.6 34.9 8.4 2.0 6.0 42.0 9.8 4.8 8 8.4 7.5 | • 34.9 8.4 2.0 • 42.0 9.8 4.8 8 8.4 7.5 | 4.9 8.4 2.0 2.0 9.8 4.8 8 8.4 7.5 | 8.4 2.0 9.8 4.8 8 8.4 7.5 | .4 2.0 .8 4.8 8 8.4 7.5 | 2.0 4.8 8 8.4 7.5 | 3 8 8.4 7.5 | 8.4 7.5 | 8.4 7.5 | 7.5 | | -7 00 | ~~ | ~ ~ | و. و | 99 | 6.0 6.0 | 40 | 0.0 | 44 | 0.0 | 4 0. | 10. | 0.2 | \$ | 4 8 | r r | ~ e | | | <u>.</u> | 5.0 6.0 | 3.0 | 41. 44. | 44 | 9.0 8 | 39. | | 2.2 • | -4.1 | 5 | 5 5 |
| ; 5 5 4.5 4.5 34.5 39.5 35.5 10.0 6.8 ; 7 6 5.4 3.5 35.6 38.9 36.0 8.2 5.2 8 8 | 5 5 4.5 4.5 34.5 39.5 35.5 10.0 6.8 7 6 5.4 3.5 35.6 38.9 36.0 8.2 5.2 8 8 | 5 4.5 4.5 34.5 39.5 35.5 10.0 6.8 6 5.4 3.5 35.6 38.9 36.0 8.2 5.2 8 8 | 5 4.5 4.5 34.5 39.5 35.5 10.0 6.8 5.4 3.5 35.6 38.9 36.0 8.2 5.2 8 8 | 4.5 4.5 34.5 39.5 35.5 10.0 6.8 5.4 3.5 35.6 38.9 36.0 8.2 5.2 8 8 | • 4.5 34.5 39.5 35.5 10.0 6.8 3.5 35.6 38.9 36.0 8.2 5.2 8 8 | 5 34.5 39.5 35.5 10.0 6.8 5 35.6 38.9 36.0 8.2 5.2 8 8 | 14.5 39.5 35.5 10.0 6.8 15.6 38.9 36.0 8.2 5.2 8 8 | 5 39.5 35.5 10.0 6.8 6 38.9 36.0 8.2 5.2 8 8 8 | 9.5 35.5 10.0 6.8 8.9 36.0 8.2 5.2 8 8 8 | 6 35.5 10.0 6.8 9 36.0 8.2 5.2 8 8 8 | 5.5 10.0 6.8 6.0 8.2 5.2 8 8 8 | 10.0 6.8 8.2 5.2 8 8 8 | .0 6.8 .2 5.2 8 8 8 | 6.8 5.2 8 8 8 | 8 8888 | 8 | 8 | 80 | | r 8 | 41 | 41 | 7. 6. | 6 0 | 7.0 | 4 8 4 8 | 0.0 | 4 8 4 9 | 0.0 | 45. | 10. | 1.3 | 4-~ | 5 19 | 6 6 | - Ce | | | 9 10 | 5.0 | 4 .5 | 39. 43. | •• | 4.0 | 40. | о и 1 | | 7.6 | ~ | 5 |
| ; 3 3 5.9 5.2 39.5 41.5 41.5 8.4 1.8 ; 6 7 5.7 5.7 38.3 42.9 42.4 10.4 4.8 4.5 6.5 7 | 3 3 5.9 5.2 39.5 41.5 41.5 8.4 1.8 6 7 5.7 38.3 42.9 42.4 10.4 4.8 4.5 6.5 7 | 3 5.9 5.2 39.5 41.5 41.5 8.4 1.8 7 5.7 5.7 38.3 42.9 42.4 10.4 4.8 4.5 6.5 7 | 1 5.9 5.2 39.5 41.5 41.5 8.4 1.8 5.7 5.7 38.3 42.9 42.4 10.4 4.8 4.5 6.5 7 | 5.9 5.2 39.5 41.5 41.5 8.4 1.8 5.7 5.7 38.3 42.9 42.4 10.4 4.8 4.5 6.5 7 | 0 5.2 39.5 41.5 41.5 8.4 1.8 5.7 38.3 42.9 42.4 10.4 4.8 4.5 6.5 7 | 2 39.5 41.5 41.5 8.4 1.8 7 38.3 42.9 42.4 10.4 4.8 4.5 6.5 7 | 19.5 41.5 41.5 8.4 1.8 18.3 42.9 42.4 10.4 4.8 4.5 6.5 7 | 5 41.5 41.5 8.4 1.8 3 42.9 42.4 10.4 4.8 4.5 6.5 7 | 1.5 41.5 8.4 1.8 2.9 42.4 10.4 4.8 4.5 6.5 7 | ; 41.5 8.4 1.8 • 42.4 10.4 4.8 4.5 6.5 7 | 1.5 8.4 1.8 2.4 10.4 4.8 4.5 6.5 7 | - 8.4 1.8 10.4 4.8 4.5 6.5 7 | 1.4 1.8 .4 4.8 4.5 6.5 7 | 1.8 4.8 4.5 6.5 7 | 8 3 4.5 6.5 7 | .5 6.5 7 | 6.5 7 | 1- | | ~ ~ | ~ 7 | r m | ۍ. ۲۰ | 6 4 6 | 4 .7 6.0 | 39 | .0.5 | 44 | 0.0 | 44. | | 10.2 6.1 | r 6 | 6 9 7 | 5 | · 9 · 1 | | | . | 6.0 | 7.0 | 31. | 0 | 5.0 | 1 3. | 22 | 3.7 | 16.5 10.8 | 5 | 75 |
| 3.0 5.0 35.4 40.5 27.4 4.8 3.6 / 5 4 5.0 5.0 38.3 40.6 33.7 .1 5.3 4 5 5 | 3.0 5.0 35.4 40.5 27.4 4.8 3.6 5 4 5.0 36.0 38.3 40.6 33.7 .1 5.3 4 5 5 | - 3.0 5.0 35.4 40.5 27.4 4.8 3.6 4 5.0 5.0 38.3 40.6 33.7 .1 5.3 4 5 5 | • 3.0 5.0 35.4 40.5 27.4 4.8 3.6 5.0 5.0 38.3 40.6 33.7 • 1 5.3 4 5 5 | 3.0 5.0 35.4 40.5 27.4 4.8 3.6 5.0 5.0 38.3 40.6 33.7 .1 5.3 4 5 5 | 0 5.0 35.4 40.5 27.4 4.8 3.6 0 5.0 38.3 40.6 33.7 .1 5.3 4 5 5 | 0 35.4 40.5 27.4 4.8 3.6 0 38.3 40.6 33.7 .1 5.3 4 5 5 | 15.4 40.5 27.4 4.8 3.6 18.3 40.6 33.7 .1 5.3 4 5 5 | 4 40.5 27.4 4.8 3.6 3 40.6 33.7 .1 5.3 4 5 5 | 0.5 27.4 4.8 3.6 0.6 33.7 .1 5.3 4 5 5 | 27.4 4.8 3.6 33.7 .1 5.3 4 5 5 | 7.4 4.8 3.6 3.7 .1 5.3 4 5 5 | 4.8 3.6 .1 5.3 4 5 5 | .8 3.6 .1 5.3 4 5 5 | 3.6 5.3 4 5 5 | 0 .0 .0 | ŝ | i č | 'n | | ŝ | -7 10 | v 4 | ۍ بې ۲۰ | 44 | 2.8 8.8 | 48 | | 41 | 0.0 | 23. 41. | • • | -3.4 | 13. | 2 7 | 8 | • | | ~ | ~ | 2.3 | 5.3 | 44. | 5.2 | 4.9 | 25. | 7-7 | r.1 | 13.3 | _ | |
| 1 4 6 6.0 6.0 30.0 39.0 36.0 4.0 0.0 8 8 6.0 6.0 42.1 40.7 38.4 4.4 4.2 7.6 6.9 7.1 | 4 6 6.0 6.0 30.0 39.0 36.0 4.0 0.0 3 5 6.0 6.0 4.2.1 40.7 38.4 4.4 4.2 7.6 6.9 7.1 | 6 6.0 6.0 30.0 39.0 36.0 4.0 0.0 5 6.0 6.0 4.1 40.7 38.4 4.4 4.2 7.6 6.9 7.1 | 0 6.0 6.0 30.0 39.0 36.0 4.0 0.0 0 6.0 6.0 42.1 40.7 38.4 4.4 4.2 7.6 6.9 7.1 | 6.0 6.0 30.0 39.0 36.0 4.0 0.0 b.0 6.0 4.1 40.7 38.4 4.4 4.2 7.6 6.9 7.1 | 1 6.0 30.0 39.0 36.0 4.0 0.0 | 0 30.0 39.0 36.0 4.0 0.0 0 42.1 40.7 38.4 4.4 4.2 7.6 6.9 7.1 | 10.0 39.0 36.0 4.0 0.0 12.1 40.7 38.4 4.4 4.2 7.6 6.9 7.1 | 0 39.0 36.0 4.0 0.0 1 40.7 38.4 4.4 4.2 7.6 6.9 7.1 | 9.0 36.0 4.0 0.0 0.7 38.4 4.4 4.2 7.6 6.9 7.1 | 3 36.0 4.0 0.0 38.4 4.4 4.2 7.6 6.9 7.1 | 6.0 4.0 0.0 8.4 4.4 4.2 7.6 6.9 7.1 | 4.0 0.0 4.4 4.2 7.6 6.9 7.1 | .0 0.0 .4 4.2 7.6 6.9 7.1 | 0.0 4.2 7.6 6.9 7.1 | 2 7.6 6.9 7.1 | 1.7 6.9 3.1 | 6.97.1 | 1.1 | | 91 | r 8 | وو | | 0.0 | 3.0 | 45 | 0.0 | 42 | 00 | 37. | <u>.</u> . | 2.4 | 1 | 0 7 | r r | 989 ~ | s | s | ۰. • | \$.9 •.0 | 5.4 6.0 | 4 3. | • • | 8.4 | 39. | N 0 | 6.9 | 11.7 | 5 | 5 |
| 8 8 7 5.73.634.543.538.523.21.213.8 1 7 8 6.34.638.743.440.224.27.4576 | 8 7 5.7 3.6 34.5 43.5 38.5 23.2 13.8 7 8 0.3 4.6 38.7 43.4 40.2 24.2 7.4 5 7 6 | 7 5.7 3.6 34.5 43.5 38.5 23.2 13.8 8 0.3 4.6 38.7 43.4 40.2 24.2 7.4 5 7 6 | <pre>> 5.7 3.6 34.5 43.5 38.5 23.2 13.8 >> 0.3 4.6 38.7 43.4 40.2 24.2 7.4 5 7 6</pre> | 5.7 3.6 34.5 43.5 38.5 23.2 13.8 6.3 4.6 38.7 43.4 40.2 24.2 7.4 5 7 6 | 13.634.543.538.523.21.13.8 14.638.743.440.224.27.45745 | 6 34.5 43.5 38.5 23.2 13.8 6 38.7 43.4 40.2 24.2 7.4 5 7 6 | 14.5 43.5 38.5 23.2 13.8 18.7 43.4 40.2 24.2 7.4 5 7 6 | 5 43.5 38.5 23.2 13.8 7 43.4 40.2 24.2 7.4 5 7 6 | 3.5 38.5 23.2 13.8 3.4 40.2 24.2 7.4 5 7 6 | 6 38.5 23.2 13.8 40.2 24.2 7.4 5 7 6 | 8.5 23.2 13.8 0.2 24.2 7.4 5 7 6 | 23.2 13.8 24.2 7.4 5 7 6 | .2 13.8 .2 7.4 5 7 6 | 13.8 7.4 5 7 6 | 3 7 6 | 9 | 7 6 | و | | 1. 0 | v 9 08 | 9 | ٦. 5. | 9.0 | 6.0 6.0 | 35 | 0.0 | 44 | ••• | 45. 45. | 10.1 | 5.0 | m | n ▼ 0 | s 1 | ~ . | | | | 3.3 | 3.3 | 37. | • | 8.0 | 40. | я 9 | 2.5 - | -10.9 | _ | |
| 7 b 6 5.5 4.5 40.5 44.5 45.54 10.6 5 6 6 5.5 2.6 41.4 42.2 42.5 7.2 9.4 6 7 6 | <pre>b 5.5 4.5 40.5 44.5 45.54 10.6 b 5.5 2.6 41.4 42.2 42.5 7.2 9.4 6 7 6</pre> | 6 5.5 4.5 40.5 44.5 45.54 10.6 5.5 2.6 41.4 42.2 42.5 7.2 9.4 6 7 6 | 5 5.5 4.5 40.5 44.5 45.54 10.6 5 5.5 2.6 41.4 42.2 42.5 7.2 9.4 6 7 6 | 5.5 4.5 40.5 44.5 45.54 10.6 5.5 2.6 41.4 42.2 42.5 7.2 9.4 6 7 6 | : 4.5 40.5 44.5 45.54 10.6 - 2.6 41.4 42.2 42.5 7.2 9.4 6 7 6 | 5 40.5 44.5 45.54 10.6 6 41.4 42.2 42.5 7.2 9.4 6 7 6 | 10.5 44.5 45.54 10.6 11.4 42.2 42.5 7.2 9.4 6 7 6 | 5 44.5 45.54 10.6 1 42.2 42.5 7.2 9.4 6 7 6 | 4.5 45.54 10.6 2.2 42.5 7.2 9.4 6 7 6 | 8 45.54 10.6 1 42.5 7.2 9.4 6 7 6 | 5.54 10.6 2.5 7.2 9.4 6 7 6 | 4 10.6 7.2 9.4 6 7 6 | .4 10.6 .2 9.4 6 7 6 | 10.6 9.4 6 7 6 | و ۱ و | وب ۱۰ | 9 1- | و | | é n | 8 5 | 49 | ν. . . | 8 6 5 | .5 | 42 24 | 2.5 | 25 41 | 5.0 | 38. 48. | .5 1 .6 1 | 2.7 | 7' | 0 1 9 | 1 3 | 88 | | ~ | æ ~ | 5.1 | 5.5 | ы. Т. | 4 4 4 4 | 2.5 | 48.4 | | 5. 0 | 12.9 12.9 | | - |
| 7 5 4 6.0 4.0 26.0 37.0 39.0 8.2-12.8 1 7 8 6.0 5.0 39.0 47.0 47.0 11.5-12.3 8 7.5 7 | 5 4 6.0 4.0 26.0 37.0 39.0 8.2-12.8 7 8 6.0 5.0 39.0 47.0 47.0 11.5-12.3 8 7.5 7 | 4 6.0 4.0 26.0 37.0 39.0 8.2-12.8 8 6.0 5.0 39.0 47.0 47.0 11.5-12.3 8 7.5 7 | 1 6.0 4.0 26.0 37.0 39.0 8.2-12.8 1 6.0 5.0 39.0 47.0 47.0 11.5-12.3 8 7.5 7 | 6.0 4.0 26.0 37.0 39.0 8.2-12.8 6.0 5.0 39.0 47.0 47.0 11.5-12.3 8 7.5 7 | 0 4.0 26.0 37.0 39.0 8.2-12.8 0 5.0 39.0 47.0 47.0 11.5-12.3 8 7.5 7 | 0 26.0 37.0 39.0 8.2-12.8 0 39.0 47.0 47.0 11.5-12.3 8 7.5 7 | 16.0 37.0 39.0 8.2-12.8 19.0 47.0 47.0 11.5-12.3 8 7.5 7 | 0 37.0 39.0 8.2-12.8 0 47.0 47.0 11.5-12.3 8 7.5 7 | 7.0 39.0 8.2-12.8 7.0 47.0 11.5-12.3 8 7.5 7 | 39.0 8.2-12.8 47.0 11.5-12.3 8 7.5 7 | 9.0 8.2-12.8 7.0 11.5-12.3 8 7.5 7 | 8.2-12.8 11.5-12.3 8 7.5 7 | 2-12.8 .5-12.3 8 7.5 7 | 12.8 12.3 8 7.5 7 | 8 8 7.57 | 7.5 7 | 7.5 7 | ٢ | | ۰. ۲ | 5 7 5 | 6.3 7 | | 4.2 | 5.0 | 34 | 2.5 | 14 | 50 | 39. | s.o. | 6.2 6.1 | -13. | 2 1 7 | 1 5 | .~ | 10 10 | | - | 5.5 | 4.5 | 30. | 44 | 5.8 | 32.1 | 22 | 5.6 - L.5 - | -11.6 | | |
| 2 4 7 4.0 6.0 39.0 43.0 34.0 8.7 -6.9 3 7 8 5.5 3.2 33.0 44.3 40.6 14.2 -3.2 6.3 5.6 4.7 | 4 7 4.0 6.0 39.0 43.0 34.0 8.7 -6.9 7 8 5.5 3.2 33.0 44.3 40.6 14.2 -3.2 6.3 5.6 4.7 | 7 4.0 6.0 39.0 43.0 34.0 8.7 -6.9 8 5.5 3.2 33.0 44.3 40.6 14.2 -3.2 6.3 5.6 4.7 | 7 4.0 6.0 39.0 43.0 34.0 8.7 -6.9 1 5.5 3.2 33.0 44.3 40.6 14.2 -3.2 6.3 5.6 4.7 | 4.0 6.0 39.0 43.0 34.0 8.7 -6.9 5.5 3.2 33.0 44.3 40.6 14.2 -3.2 6.3 5.6 4.7 |) 6.0 39.0 43.0 34.0 8.7 -6.9 • 3.2 33.0 44.3 40.6 14.2 -3.2 6.3 5.6 4.7 | 0 39.0 43.0 34.0 8.7 -6.9 2 33.0 44.3 40.6 14.2 -3.2 6.3 5.6 4.7 | 19.0 43.0 34.0 8.7 -6.9 13.0 44.3 40.6 14.2 -3.2 6.3 5.6 4.7 | 0 43.0 34.0 8.7 -6.9 0 44.3 40.6 14.2 -3.2 6.3 5.6 4.7 | 3.0 34.0 8.7 -6.9 4.3 40.6 14.2 -3.2 6.3 5.6 4.7 | 1 34.0 8.7 -6.9 1 40.6 14.2 -3.2 6.3 5.6 4.7 | 4.0 8.7 -6.9 0.6 14.2 -3.2 6.3 5.6 4.7 | 8.7 -6.9 14.2 -3.2 6.3 5.6 4.7 | 7 -6.9 .2 -3.2 6.3 5.6 4.7 | -6.9 -3.2 6.3 5.6 4.7 | 9 2 6.3 5.6 4.7 | | 5.6 4.7 | 4.7 | | 7 | 7 | ~ | ŗ. | 0 | 3.0 | 34 | ••• | 4 .3 | 0.1 | 28. | • | 2 | -13. | 80 | | 2 | | , | ~ | 6.3 | 5.1 | 34. | ٠ ۲ | 5.5 | 37.1 | | 2.3 | 14.9 | _ | |
| 1.54.565.05.541.043.032.5-2.48.0 7586.06.042.045.035.05.72.0555 | 5 4.5 6 5.0 5.5 41.0 43.0 32.5 -2.4 8.0 5 8 6.0 6.0 42.0 45.0 35.0 5.7 2.0 5 5 | -5 6 5.0 5.5 41.0 43.0 32.5 -2.4 8.0 8 6.0 6.0 42.0 45.0 35.0 5.7 2.0 5 5 | ; 5.0 5.5 41.0 43.0 32.5 -2.4 8.0] 6.0 6.0 42.0 45.0 35.0 5.7 2.0 5 5 | 5.0 5.5 41.0 43.0 32.5 -2.4 8.0 6.0 6.0 42.0 45.0 35.0 5.7 2.0 5 5 5 |) 5.5 41.0 43.0 32.5 -2.4 8.0) 6.0 42.0 45.0 35.0 5.7 2.0 5 5 | 5 41.0 43.0 32.5 -2.4 8.0 0 42.0 45.0 35.0 5.7 2.0 5 5 5 | 11.0 43.0 32.5 -2.4 8.0 12.0 45.0 35.0 5.7 2.0 5 5 5 | 0 43.0 32.5 -2.4 8.0 0 45.0 35.0 5.7 2.0 5 5 5 | 3.0 32.5 -2.4 8.0 5.0 35.0 5.7 2.0 5 5 5 |) 32.5 -2.4 8.0) 35.0 5.7 2.0 5 5 5 | 2.5 -2.4 8.0 5.0 5.7 2.0 5 5 5 | -2.4 8.0 5.7 2.0 5 5 5 | | 8.0 2.0 5 5 5 | 0 5 5 | .c. | .c | 10 | | ę | ٢ | 4 | 2. | 80 | 2.7 | 26 | 8.9 | 37 | 8. | 24. | s. | s. | -2. | 2 | | c 4 | - | | æ += | 9.0 3.0 | 6.0 4.0 | 39. 36. | 44 | 3.0 | 41. | | 2.3 | -2.7 | | 1 7 |
| 5 6 4 6.1 5.2 35.5 36.1 30.3 2.1 13.7 5 7 7 6.3 7.2 41.0 39.8 39.3 4.8 10.2 6.6 6 5 | 6 4 6.1 5.2 35.5 36.1 30.3 2.1 13.7 7 6.3 7.2 41.0 39.8 39.3 4.8 10.2 6.6 6 5 | 4 6.1 5.2 35.5 36.1 30.3 2.1 13.7 7 6.3 7.2 41.0 39.8 19.3 4.8 10.2 6.6 6 5 | 1 6.1 5.2 35.5 36.1 30.3 2.1 13.7 1 6.3 7.2 41.0 39.8 39.3 4.8 10.2 6.6 6 5 | 6.1 5.2 35.5 36.1 30.3 2.1 13.7 6.3 7.2 41.0 39.8 39.3 4.8 10.2 6.6 6 5 | : 5.2 35.5 36.1 30.3 2.1 13.7 1 7.2 41.0 39.8 39.3 4.8 10.2 6.6 6 5 | 2 35.5 36.1 30.3 2.1 13.7 2 41.0 39.8 39.3 4.8 10.2 6.6 6 5 | 35.5 36.1 30.3 2.1 13.7 11.0 39.8 39.3 4.8 10.2 6.6 6 5 | 5 36.1 30.3 2.1 13.7 0 39.8 39.3 4.8 10.2 6.6 6 5 | 6.1 30.3 2.1 13.7 9.8 39.3 4.8 10.2 6.6 6 5 | : 30.3 2.1 13.7 1 39.3 4.8 10.2 6.6 6 5 | 0.3 2.1 13.7 9.3 4.8 10.2 6.6 6 5 | 2.1 13.7 4.8 10.2 6.6 6 5 | .1 13.7 .8 10.2 6.6 6 5 | 13.7 10.2 6.6 6 5 | 7 2 6.6 6 5 | .665 | é D | 'n | | æ | 80 | 7 | 7. | 0. | 7.0 | 45 | 0.0 | 37 | 0. | 41. | • | 2.3 | 20. | - | | Ŷ | - | | - | 3.0 | 5.0 | 42. | 0. | 0.0 | 37. | ĩ | 5.6 | 16.8 | _ | |
| 1 5 5 3.2 3.2 33.1 29.5 35.9 -7.1 9.3 5 6 7 5.0 3.0 41.6 37.1 41.35 3.1 6.2 6 6.2 | 5 5 3.2 3.2 33.1 29.5 35.9 -7.1 9.3 6 7 5.0 3.0 41.6 37.1 41.35 3.1 6.2 6 6.2 | 5 3.2 3.2 33.1 29.5 35.9 -7.1 9.3 7 5.0 3.0 41.6 37.1 41.35 3.1 6.2 6 6.2 | 5 3.2 3.2 33.1 29.5 35.9 -7.1 9.3 7 5.0 3.0 41.6 37.1 41.35 3.1 6.2 6 6.2 | 3.2 3.2 33.1 29.5 35.9 -7.1 9.3 5.0 3.0 41.6 37.1 41.35 3.1 6.2 6 6.2 | 2 3.2 33.1 29.5 35.9 -7.1 9.3) 3.0 41.6 37.1 41.35 3.1 6.2 6 6.2 | 2 33.1 29.5 35.9 -7.1 9.3 0 41.6 37.1 41.35 3.1 6.2 6 6.2 | 33.1 29.5 35.9 -7.1 9.3 11.6 37.1 41.35 3.1 6.2 6 6.2 | 1 29.5 35.9 -7.1 9.3 6 37.1 41.35 3.1 6.2 6 6.2 | 9.5 35.9 -7.1 9.3 7.1 41.35 3.1 6.2 6 6.2 | ; 35.9 -7.1 9.3 . 41.35 3.1 6.2 6 6.2 | 5.9 -7.1 9.3 1.35 3.1 6.2 6 6.2 | -7.1 9.3 5 3.1 6.2 6 6.2 | 1 9.3 .5 3.1 6.2 6 6.2 | 9.3 3.1 6.2 6 6.2 | 3 1 6.2 6 6.2 | 2 6 6.2 | 6 6.2 | 6.2 | | ٦. | 5 | 6.9 | 53. | - | - | 38 | . | 36 | 4 | • | 6. | 4.6 | 15. | 80 | | 6 00 | | | 00 m | 7.0 | 5.0 6.0 | | 0.0 | 2.5 | 32. | 0 0 | 9.9 | 17.9 21.0 | ~ | 5 2 |

TABLE B-2.--Con't.

| | l | | | | | | Self | Re | port | | | | | | ļ | | | | | | Inti | mate | | | | | | | | | | υ | olle | ague | | | | | |
|------------|-------------|-------------|----------------|----------|--------------|------|-------|--------------|------|--------------|-------|------------------|-----|-----|-----|------|------------|--------------|-------------|----------------|-------|------|--------------|------|------|----------------|--------|-----|-----|----------------|----------------|----------------|------|-------|--------------|------------------|------|------------|---|
| Code | 0 | DS | s DG | C OK | S OF | ,0 | _ | 11 | 11 | I IC | ມູສ | ICL ¹ | ٨ | æ | υ | 0 | DS | 0 00 | 1K_ 01 | 20 | | 11 | III | ICL | DI S | r ^r | с в | 0 | ps | 8 | oks ol | , v | | 1 | H | ICL ^d | ICL. | A < | 0 |
| 3 | 8 | 1 | م | • | 05. | 0 42 | \$.5 | 16.5 | ÷1. | 5 10 | 7 | -5.0 | - | 6.5 | و | | | 1 | | | | | | | | | | | | | | | | | | | | | |
| 54 | 6 17 | ~ 5 | 6 2 | ۍ. ۲. | 85. 55. | 7 3t | | 35.7 10.5 | 34. | 5 - 7 -1 | 6. 7. | .12.7 1.0 | 5.1 | 4.3 | 5.3 | 2.5 | აი | 5 5 6 | 0.5 | .0.25 | 2.04 | 0.8 | 36.J 29.J | 7 - | 7 -2 | .9 .2 1 | 11 | m | 4 | 80 | 6.3 4 | .5 36 | .7 4 | 7.3 4 | 11.7 | 10.6 | -1- | - | |
| 55 | | | | | | | | | | | | | | | | ~ ~ | m m | 88 | 0.2. | .0 25 .0 26 | 0.0 | 5.0 | 27.0 27.0 | 90. | 3-15 | 9 | | m | æ | 2 | 7.0 1 | 16 0. | .03 | 9.04 | 12.0 | 11.3 | 7 | _ | |
| 56 | ٢ | ٢ | و | ۲. | 05. | 0 41 | .8. | 19.1 | 31. | 4 | | -1.1 | | | | ٦ | г | 5 3 | .14. | .4 36 | 3.5 4 | 1.0 | 37.5 | 1. | 4 | 7. | | 80 | 80 | 30 | 5.5.5 | .5 41 | .5 | 1.5 3 | 38.5 | 8.8 | 2.1 | - | |
| 57 | 96 | \$ 4 | 6 7 | 6. 5. | 23. 53. | 5 35 | 5.6 E | 36.9 19.4 | 42. | 9 13 9 16 | 6.8. | -1.8 -2.0 | ٢ | ٢ | 9 | 9 | e 9 | 9 9 9 | 0 4 4 | .0.4. | 10.0 | 0.0 | 49.0 44.0 | 19. | 47 | . 5 . 0 6 | 5 6 | νυ | 6.5 | ب ب | 6.4 4 5.0 5 | .7 37 | .1.3 | 9.4 3 | 39.2 32.8 | 6.2 9.9 | | 5 5 | s |
| <u>5</u> 8 | m m | м м | ~ 7 | | ь 4. 2 3. | 3 35 | 5.4 3 | 30.5 | 27. | 5-15 5-17 | | 5.9 10.0 | 4 | 'n | 4 | ς, μ | v. 4 | 4 S 0 1 S | 63. | .5 34 | 4.7 | 2.5 | 30.3 36.4 | -11- | . e | | | т v | e ب | e u | 3.0 6 5.0 6 | .0 48 .0 41 | 4 0 | 2.03 | 34.0 | .1 | | 3 7 5 3 | ŝ |
| X.X | 9 6 | و. و. | -7 30 | ς. | 0 5. 0 5. | 0 45 | 5.0 5 | 37.0 14.0 | 33. | 710 | °.0 | 16.6 13.2 | ٢ | 2 | 4 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | } | | 1 | | | | | | | | | | | | | | | | | ł |

Note: A, b, C refer to items 1, 2, 3 on the change scale. ^ALate re-identification placed these data as Intimate, not Colleague report.

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| TABLE B-3Correlations |

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| | | | | | Day 2 | | | | | | D | 1y 2 | with | Day 7 | | | |
|-----|-----|----|-----------------|-----------------|------------------|-----|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|-------------------|-----------------|
| | l H | 0 | DS | Ŋ | oks | oko | SD | FB | 1,1 | F | 0 | DS | DG | ok | oK oK | SD | FВ |
| Ч | 39 | 08 | 36 | 28 | -12 | 27 | 63 ^c | 58 ^c | 56 | 23 | -18 | 90 | 00 | 34 | 07 | 10 | 20 |
| H | | 39 | 42 | 26 | -52 ^C | -21 | 26 | -10 | -23 | 60- | 03 | -31 | 10 | -32 | -51 ^d | -41 | 07 |
| 0 | | | 85 ^a | 82 ^a | -25 | -04 | 16 | 39 | -01 | 25 | 46 ^d | 16 | 65 ^c | -04 | -02 | 32 | 1 |
| DS | | | | 71 ^b | -37 | 04 | 35 | 54 | 08 | 26 | 34 | 26 | 49 ^d | 00- | 10 | 30 | 13 |
| DG | | | | | -10 | 39 | 57 ^c | 73 ^b | 08 | 11 | 13 | 90 | 51 ^d | 14 | 08 | 30 | 03 |
| ok | | | | | | 00 | -17 | 01 | و0 ⁰ | -13 | 04 | -05 | 44 | 79 ^a | 46 ^d | 47 ^d | 4 9d |
| ok, | | | | | | | 67 ^c | 76 ^a | 10 | -03 | 05 | 45 ^d | 04 | -03 | 36 | 24 | 05 |
| su | | | | | | | | 84 ^a | 60 | -04 | -25 | 12 | 04 | 07 | 15 | 17 | 60 |
| Fы | | | | | | | | | 34 | 10 | 06 | 37 | 34 | 24 | 39 | 48 ^d . | -07 |
| | | | | | | | | | | | | Da | 7 7 | | | | |
| ц | | | | | | | | | | 48 ^d | 27 | 29 | 55 ^C | 86 ^a | 63 ^c | 65 ^C | 11 ^b |
| ť | | | | | | | | | | | 59 ^C | 60 ⁰ | 45 ^d | 27 | 58 ^c | 54 ^C | 57 ^C |
| 0 | | | | | | | | | | | | 78 ^a | 76 a | 01 | 54 ^c | 63 ^C | 64 ⁰ |
| DS | | | | | | | | | | | | | 48 ^d | 00 | 76 ^a | 70 ^b | 29 ⁰ |
| DG | | | | | | | | | | | | | | 51 ^d | 60 ^C | 82 ^a | 407 |
| ok | | | | | | | | | | | | | | | 58 ^c | 55 ⁰ | 59 ⁰ |
| ok | | | | | | | | | | | | | | | | 83 ^a | 79 ^a |
| sp | | | | | | | | | | | | | | | | | 81 ^a |
| FB | | | | | | | | | | | | | | | | | |
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| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$ | | | | Ď | ay 2 | | | | | | Da | IY 2 4 | vith D | ay 7 | | | |
|--|-------------|--------|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|-----------------|-----------------|------------------|-----------------|-------------------------|-------------------------|-------------------------|
| $ \begin{bmatrix} -18\ 21\ 02\ 62^{\circ}\ 59^{\circ}\ 83^{a}\ 74^{a}\ 68^{\circ}\ 62^{\circ}\ 47^{d}\ 08\ 06\ 09\ 57\ 68^{\circ}\ 53^{\circ}\ 45^{d}\ 30\ -27\ -13\ -27\ -11\ 18\ -16\ -10\ 06\ -15\ -03\ -19\ -36\ -10\ 06\ -15\ -03\ -36\ -19\ -36\ -10\ 06\ -15\ -30\ -36\ -10\ 06\ -15\ -30\ -36\ -36\ -36\ -36\ -36\ -36\ -36\ -36$ | | 0 | DS | DG | oK s | oko | SD | FB | Ц | fi | 0 | DS | bg | oK s | ox ox | SD | FВ |
| 1 -27 -47° -13 -26 -11 18 -16 -09 19 17 26 -12 -40 -19 5 40 -28 11 30 55° -07 -32 -55° -12 -40 -19 6 40 -39 -15 02 55° 07 01 11 16 12 27 21 12 20 | | -18 21 | 02 | 62 ^c | 59 ^c | 83 ^a | 74 ^a | 68 ^c | 62 ^C | 47 ^d | 80 | 90 | 60 | 57 | 68 ^C | 53 ^c | 4 5 ^d |
| 87C 40 -28 11 30 65C -03 -36 09 -19 -46d -10 06 -15 -03 6 40 -39 -15 02 55C -19 -59C -21 -12 -40 -19 16 13 30 67C 07 00 11 16 12 27 21 12 20 17 63C 26 13 30 37 -16 08 47d 45d 45d 18 63C 36 55C 00 04 11 32 51d 45d 35 | 1 €- | -27 | -47 ^C | -13 | -26 | -11 | 18 | -16 | -09 | 19 | 17 | 26 | 12 | -44 | -21 | 00 | -13 |
| 10 $40 - 39 - 15 \ 02 \ 55^{\circ} -19 \ -59^{\circ} -07 \ -32 \ -55^{\circ} -21 \ -12 \ -20 \ 23 \ 47^{\circ} \ 45^{\circ}$ 11 15 12 27 21 12 20 11 12 27 21 12 20 20 14 45 12 63^{\circ} 26 13 30 37 -16 08 47 67 36 47 45 12 13 63^{\circ} 26 13 30 37 -16 08 47 45 37 36 37 36 37 36 36 37 37 36 37 37 37 36 37 <td>• 0</td> <td>i</td> <td>87^c</td> <td>40</td> <td>- 28</td> <td>11</td> <td>30</td> <td>65^c</td> <td>-03</td> <td>-36</td> <td>60</td> <td>-19</td> <td>-46^d</td> <td>-10</td> <td>06</td> <td>-15</td> <td>-03</td> | • 0 | i | 87 ^c | 40 | - 28 | 11 | 30 | 65 ^c | -03 | -36 | 60 | -19 | -46 ^d | -10 | 06 | -15 | -03 |
| Significance levels: $a = p < .005$ Significance levels: $a = p < .005$ Significan | s S | | | 40 | - 39 | -15 | 02 | 55 ^C | -19 | -59 ^c | -07 | -32 | -55 ^c | -21 | -12 | -40 | -19 |
| Significance levels: $a = p < .005$ Significance levels: $a = p < .005$ Significan | 9 | | | | 23 | 37 | 30 | 67 ^C | 07 | 00 | 11 | 16 | 12 | 27 | 21 | 12 | 20 |
| Significance levels: $a = p < 0.005$ Significance levels: $a = p < 0.055$ Significance levels: $a = p < 0.055$ Significan | с И И | | | | | 63 ^c | 26 | 13 | 30 | 37 | -16 | 08 | 47 ^d | 67 ^C | 36 | 4 7 ^d | 45 ^d |
| 75a 46d 37 -06 -19 -27 -01 43 29 14 13 14 12 -35 01 34 08 10 14 12 -35 01 34 08 10 1 1 14 14 16 90a 71b 1 1 14 14 16 72b 71b 1 1 14 14 16 72b 71b 1 1 14 14 14 76a 75a 1 1 14 14 14 76a 75a 1 14 14 14 14 76a 75a 1 14 14 14 76a 77a 71b 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | s X | | | | | | 81 ^a | 62 ^C | 36 | 55 ^c | 00 | 04 | 11 | 32 | 51 ^d | 55 ^c | 35 |
| 13 29 05 -04 -22 -35 01 34 08 10 10 $\frac{1}{2}$ $\frac{1}{64}$ $\frac{1}{66}$ $\frac{1}{65}$ $\frac{1}{69}$ $\frac{1}{64}$ $\frac{1}{69}$ $\frac{1}{64}$ $\frac{1}{69}$ $\frac{1}{7}$ | | | | | | | | 75 ^a | 46 ^d | 37 | -06 | -19 | -27 | -01 | 43 | 29 | 14 |
| $ \begin{array}{cccccccccccccccccccccccccccccccccccc$ | i ma | | | | | | | | 29 | 05 | -04 | -22 | -35 | 01 | 34 | 08 | 10 |
| L T T T C C C C C C C C C C C C C | | | | | | | | | | | | | Day | | | | |
| L C C C C C C C C C C C C C | | | | | | | | | | Ľ | | | | U I | 5.0 | U, | d c . |
| T $e_{4}c$ $e_{6}c$ $e_{5}c$ $e_{1}d$ $7e^{2}$ 90^{2} 71 ^D DS DS DS DG DG DG DG DG DG DG DG DG DG | ч | | | | | | | | | 60 ر | 36 | 23 | 14 | 61 | .06 | 64 | 69 |
| 0 89a 62c 39 60c 72b 71b 05 85a 44 48d 76a 75a 06 37 71b 77a 75a 05 62c 37 71b 77a 06 62c 37 71b 77a 05 05 62c 37 71b 77a 06 86a 86a 86a 86a 86a 07 55 73b 71b 77b 71b 77b 07 86a 86a 86a 86a 86a 86a 08 86a 86a 86a 86a 86a 86a 55 86a 86a 86a 86a 86a 86a 86a 86a 86a 86a 86a 86a 86a 86a 86a 86a 86a 86a 86a 86a 86a 91a 86a 86a 86a 86a 86a 91a 91a 86a 86a 86 | £- | | | | | | | | | | 64 ^C | 66 ^C | 65 ^c | 51 ^d | 76 ^a | 9 06 | 71 ⁰ |
| 05 44 48 ^d 76 ^a 75 ^a 06 06 37 71 ^b 68 ^c 05 05 73 ^b 71 ^b 77 ^a 05 06 73 ^b 71 ^b 77 ^a 06 06 86 ^a 86 ^a 86 ^a 07 81 ^a 71 ^b 71 ^b 71 ^b 73 71 ^b 71 ^b 71 ^b 71 ^b 08 86 ^a 86 ^a 86 ^a 86 ^a 81 81 ^b 81 ^b 81 ^b 91 ^a 81 81 ^b 8 ^b 8 ^b 91 ^a 81 8 ^b 8 ^b 8 ^b 91 ^a 81 8 ^b 8 ^b 8 ^b 91 ^a 81 8 ^b 8 ^b 8 ^b 91 ^a 81 8 ^b 8 ^b 8 ^b 9 ^b 81 8 ^b 8 ^b 8 ^b 9 ^b 81 8 ^b 8 ^b 8 ^b 9 ^b 81 8 ^b 8 ^b 8 ^b 9 ^b 9 ^b | • (| | | | | | | | | | | 89 ^a | 62 ^C | 39 | 60 ^c | 72 ^b | 71 ^b |
| Significance levels: $a = p < .005$ Significance levels: $a = p < .005$ Significance levels: $a = p < .005$ | 2 | | | | | | | | | | | | βςa | 44 | 4 8 ^d | 76 ^a | 75 ^a |
| DG OK_{S} OK_{S} OK_{S} OK_{S} OK_{S} OK_{S} SD | S | | | | | | | | | | | |) | 6, C | 17 | dlr | 680 |
| OK OK SD SD SD FB Significance levels: a = p < .0005 Significance levels: a = p < .0005 C = p < .05 C | ы | | | | | | | | | | | | | 1 | q | ם ר | 1 1 |
| OK SD SD SD SD SIGNIFICANCE levels: $a = p < .0005$ b = p < .005 c = p < .005 c = p < .005 | ok s | | | | | | | | | | | | | | 5 | 11 | a ca |
| SD 912 FB 5ignificance levels: a = p < .0005 | OK, | | | | | | | | | | | | | | | 202 | 200 |
| FB Significance levels: a = p < .0005 b = p < .005 c = p < .05 c = p < .05 | sp | | | | | | | | | | | | | | | | 916 |
| Significance levels: $a = p < .0005$ b = p < .005 c = p < .05 c = p < .05 | FB | | | | | | | | | | | | | | | | |
| Significance levels: a = P < .0005 b = P < .005 c = P < .05 | | | | | | | | | | | | | | | | | |
| C = P < .U5 | | Signíf | icanc | e lev | els: | 11 H rot_Ca | ע ע 2, גע | 0005 | | | | | | | | | |
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TABLE B-4.--Correlation among lab measures for Group 2.

| $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$ | | | Q | ay 2 | | | | | | ц | ay 2 1 | with C | Jay 7 | | | |
|--|------|------------------------|-----------------|-----------------|----------------------|--------|-----------------|-----|------------------|-----------------|-----------------|-------------------|-----------------|-----------------|-------------------------|-----------------|
| L 18 53 ^c -11 25 42 37 70 ^b 61 ^c 35 -36 30 51 ^d 31 01 10 32 77 ^a 73 ^b 96 ^a -19 -61 ^c -11 -15 -41 -35 35 37 20 -21 -40 -20 - 53 ^a 73 ^b -28 -19 41 39 -37 -63 ^c 25 43 15 -19 -31 -18 - 55 77 ^a 61 ^c 93 -18 -19 61 ^c 13 -12 -12 13 - 56 01 -54 ^c 03 -07 -22 -19 51 ^d 54 ^c 38 02 -21 10 4 15 70 ^b 29 36 -06 -23 -16 61 ^c 39 77 ^a 61 ^c 39 70 ^b 29 36 -06 -23 -16 25 -11 04 15 71 ^b 29 -06 33 55 ^c 42 41 41 44 12 10 -06 33 55 ^c 42 41 41 44 14 44 12 10 -17 28 40 ^d 52 ^c 45 ^d 18 47 ^d 52 ^c 45 ^d 10 1 54 ^d 52 ^c 45 ^d 10 1 10 10 15 10 1 15 10 1 15 10 1 10 10 15 10 1 15 10 10 15 | | T O DS | DG | 0K _s | ok _o si | | FB | | н | 0 | DS | DG | oK _s | oko | sD | FВ |
| T 77^{3} 73^{3} 96^{4} -19 -61^{2} -11 -15 -41 -35 35 37 20 -21 -40 -20 -20 53^{3} 73^{3} -28 -19 41 39 -37 -63^{2} 25 43 15 -19 -31 -18 -16 13 -16 -23 -12 -10 20 -11 13 $-1610 -54^{6} 03 -07 -22 -19 51^{d} 54^{c} 38 02 -21 03 -162510 -54^{6} 03 02 23 51^{d} 29 26 39 77^{3} 61^{c} 3970^{5} 29 36 -06 -33 -16 -25 -11 04 1570^{5} 29 36 -06 33 55^{c} 42 41 41 4414$ 4414 14 1414 1414 1414 14 1414 1414 141212 12 14 14 1414 14 1414 14 1414 1414 1414 14 14 1414 14 1414 14 14 1414 14 14 1414 14 14 14 14 14 14 14 | ы | 18 53 ^c -11 | 25 | 42 | 37 70 | ٩ ٩ | 61 ^c | 35 | -36 | 30 | 51 ^d | 31 | 01 | 10 | 32 | 48 ^d |
| $ \begin{array}{cccccccccccccccccccccccccccccccccccc$ | H | 77ª 73 ^b | 96 ^a | -19 | -61 ^c -1] | ' | ·15 | -41 | -35 | 35 | 37 | 20 | -21 | -40 | -20 | -22 |
| DS 79^{a} 37 -48^{d} 06 -03 -39 12 54^{c} 53 34 19 -01 13 - 05 28^{c} 38 02 -21 03 - 05 28^{c} 38 -16^{c} 23 -11^{c} 24 -12^{c} 2 | 0 | 53 ^a | 73 ^b | -28 | -19 41 | | 39 | -37 | -63 ^c | 25 | 43 | 15 | -19 | -31 | -18 | -15 |
| DG 01 -54° 03 -07 -22 -19 51° 54 38 02 -21 03 00 OK OK OK OK OK OK OK DS OK DS OS DS DS DS DS DS DS DS DS DS D | DS | | 79 ^a | 37 | -48 ^d 06 | ا ب | •03 | -39 | 12 | 54 ^c | 53 ^c | 34 | 19 | -01 | 13 | -04 |
| $ \begin{array}{cccccccccccccccccccccccccccccccccccc$ | bg | | | 10 | -54 ^C 03 | ı س | -07 | -22 | -19 | 51 ^d | 54 ^C | 38 | 02 | -21 | 03 | -02 |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | oKs | | | | -06 05 | m | 02 | 23 | 51 ^d | 29 | 26 | 39 | 77 a | 61 ^C | 39 | 26 |
| EB 72^{b} 26 -17 28 47^{d} 27 21 25 40 -09 -06 33 55^{c} 42 41 41 44 1 44 1 44 1 44 1 1 1 44 1 1 1 1 1 1 1 1 1 1 | ok, | | | | 7(| q | 29 | 36 | - 90- | -23 | -16 | -25 | -11 | 4 | 15 | 13 |
| FB | | | | | | | 72 ^b | 26 | -17 | 28 | 47 ^d | 27 | 21 | 25 | 40 | 40 |
| L 1 1 1 1 1 1 1 1 1 1 1 1 1 | E B | | | | | | | 60- | -06 | 33 | 55 ^c | 42 | 41 | 41 | 44 | 45 ^d |
| L 31 07 13 18 46 ^d 52 ^c 45 ^d 70 T 26 14 25 54 ^c 44 56 ^c 94 ^a 91 ^a 57 ^b 53 ^c 82 ^a 91 ^a 61 ^c 57 ^c 79 ^a 79 ^a 77 ^b 55 ^c 79 ^a 77 ^b 55 ^c 79 ^a 77 ^b 55 ^c 77 ^b 55 ^c 79 ^a 77 ^b 55 ^c 55 ^c 77 ^b 55 ^c 77 ^b 55 ^c 55 ^c 77 ^b 55 ^c 55 ^c 55 ^c 77 ^b 55 ^c 77 ^b 55 ^c 55 ^c 55 ^c 77 ^b 55 ^c 77 ^b 55 ^c 55 ^c 55 ^c 55 ^c 77 ^b 55 ^c 77 ^b 55 ^c 55 ^c 55 ^c 77 ^b 55 ^c 77 ^b 55 ^c 55 ^c 55 ^c 77 ^b 55 ^c 77 ^b 55 ^c 55 ^c 55 ^c 55 ^c 77 ^b 55 ^c 77 ^b 55 ^c 55 ^c 55 ^c 55 ^c 77 ^b 55 ^c | | | | | | | | | | | ы | Jay 7 | | | | |
| T 26 14 25 54 ^C 44 56 ^C 94 ^A 91 ^A 57 ^D 53 ^C 82 ^A 91 ^A 57 ^D 53 ^C 82 ^A 91 ^A 61 ^C 57 ^C 79 ^A 00 ^K 91 ^A 61 ^C 57 ^C 79 ^A 73 ^D 05 ^K 75 ^A 55 ^C 76 ^A 66 ^A 81 ^A 73 ^D 66 ^K 76 ^A 76 ^A 66 ^A 81 ^A 73 ^A 67 ^A 66 ^K 76 ^A 76 ^A 66 ^K 76 ^A 76 ^A 66 ^K 76 ^A 76 ^A 76 ^K 76 ^A 76 ^K 76 ^A 76 ^K 76 ^A 76 ^K | ц | | | | | | | | 31 | 07 | 13 | 18 | 46 ^d | 52 ^C | 4 5 ^d | 58 ^C |
| 0 DS DS DG DG DG OK SD SD FB | FI | | | | | | | | | 26 | 14 | 25 | 54° | 44 | 56 ^c | 38 |
| DS 91 ^a 61 ^c 57 ^c 79 ^a 06 DG 74 ^a 69 ^b 83 ^a 73 ^b 0K 88 ^a 73 ^b 79 ^a 7 | 0 | | | | | | | | | | 94 ^a | 91 <mark>a</mark> | 57 ^b | 53 ^c | 82 ^a | 9 ⁶⁹ |
| DG 74 69 83 a 0K 88 a 73 b 0K 88 a 73 b 73 b 73 b 73 b 73 b 75 b 73 b 75 b 75 | DS | | | | | | | | | | | 91 <mark>a</mark> | 61 ^c | 57 ^c | 79 ^a | 73 ^b |
| 0K 88ª 73 ^b 0K 79 ^a SD FB | DG | | | | | | | | | | | | 74 ^a | 9 ⁶⁹ | 83 ^a | 99 ^a |
| OK SD FB | ok_ | | | | | | | | | | | | | 88 ^a | 73 ^b | 32 |
| SD FB | oK ° | | | | | | | | | | | | | | 79 ^a | 85 ^a |
| FB | sp | | | | | | | | | | | | | | | 91 ^a |
| | FB | | | | | | | | | | | | | | | |
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a = p < .0005 b = p < .005 c = p < .05 d = p < .10

Significance levels:

TABLE B-5.--Correlation among lab measures for Group 3.

| | | | | рау | 2 | | | | | | Ď | IY 2 | with | Day 7 | | | |
|------|-----------------|-------|-------------|-----------------|-----------------|-----------------|-----------------|-------------------|------------------|------------------|-----------------|-----------------|-------------------------|-------------------------|------------------|-------------------|-------------------------|
| | ħ | 0 | DS | DG | 0K _s | oKo | SD | FB | ч | H | 0 | DS | ğ | oK s | oko | SD | FB |
| L | 72 ^b | -19 | 60- | -07 | 60 ^C | 66 ^C | 48 ^d | 32 | 36 | 56 ^C | -30 | 03 | 26 | -05 | 16 | -12 | 95 ^a |
| H | | -33 | -24 | -11 | 43 | 64 ^C | 14 | 05 | 58 ^c | 407 | -20 | -19 | 13 | 14 | 47 ^d | -19 | 05 |
| 0 | | | 97 a | 96 ^a | 60 | 90 | 53 ^c | 79 ^a | -49 ^d | -70 ^b | 52 ^C | 58 ⁰ | 4 5 ^d | 12 | -61 ^c | 38 | 17 |
| DS | | | | 93 ^a | 12 | 16 | 64 ^C | 87 ^a | -40 | -63 ^c | 48 ^d | 61 ^C | 4 5 ^d | 05 | -63 ^c | 32 | 29 |
| DG | | | | | 19 | 23 | 51 ^d | 80 <mark>a</mark> | -41 | -59 ^c | 57 ^C | 63 ⁰ | 50 ^d | 21 | -52 ^c | 39 | 17 |
| ok | | | | | | 61 ^C | 59 ^c | 53 ^c | 17 | 22 | 08 | 39 | 9 ⁶⁹ | 32 | 48 ^d | 61 ^C | 38 |
| ° XO | | | | | | | 59 ^c | 53 ^c | 62 ^C | 50 ^d | 42 | 68 ⁰ | 72 ^b | 52 ^c | . 28 | 39 | 60 ^C |
| sp | | | | | | | | 87 ^a | 05 | 04 | 35 | 59 ⁰ | 72 ^b | 11 | -23 | 40 | 53 ^c |
| FB | | | | | | | | | -15 | -35 | 42 | 71 ^b | 67 ^c | 13 | -36 | 47 ^d | 51 ^d |
| | | | | | | | | | | | | | Da | 7 7 | | | |
| ц | | | | | | | | | | 84 ^a | 59 ^C | 20 | 24 | 4 8 ^d | 60 ^C | 00 | 4 8 ^d |
| ٤ | | | | | | | | | | | -26 | -18 | 03 | 20 | 66 ^C | -24 | 00 |
| 0 | | | | | | | | | | | | 86 ^a | 73 ^b | 71 ^b | -14 | 9 ⁴ 69 | 53 ^c |
| DS | | | | | | | | | | | | | 88 ^a | 71 ^b | -08 | 77 ^a | 75 ^a |
| DG | | | | | | | | | | | | | | 73 ^b | 15 | 84 ^a | 99 |
| ok | | | | | | | | | | | | | | | 37 | 69 ^b | 52 ^c |
| ok, | | | | | | | | | | | | | | | | 26 | 13 |
| sD | | | | | | | | | | | | | | | | | 61 ^C |
| FВ | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | Sign | ifici | nce | level | | а н н | v v 0.0 | .0005 | | | | | | | | | |
| | | | | | | וו ייט י | י ע ער י | .05 | | | | | | | | | |
| | | | | | | וו ס | ~ д | .10 | | | | | | | | | |

TABLE B-6.--Correlation among lab measures for Group 4.

| | | | | Da | V 2 | | | | | | | av 2 | with | Dav | - | | |
|--|--------|-----------------------|---------------|---------------------|------------------------------------|--------------------------------|--------------------------|--------------------------------------|---|---|---|--|---|--|--|--|--|
| | н Н | 0 | DS | ß | 0Ks | oKo | SD | FB | Ц | F | 0 | SQ | DG | OK s | 0K 0 | SD | FB |
| н г рок sdo sdo sdo sdo sdo sdo sdo sdo sdo sdo | 0 m | 8 4 6 0 | - 26 - 4 3 | - 0 5 2 8 4 1 | -23 13 10 71 ^b | 89a 04 61c -10 -31 | 640 715 590 590 | 70 p 69 p 67 c 84 a 84 a | 5 4 5 6 6 9 6 6 9 6 6 9 6 6 9 6 6 9 6 6 9 6 6 9 6 6 9 6 6 9 6 6 9 6 6 9 7 7 7 7 | 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 | 20 20 20 20 20 20 20 20 20 20 20 20 20 2 | 117 117 117 117 117 117 117 117 117 117 | 13 37 57 57 57 55 53 7 23 87 87 87 87 87 87 87 87 87 87 87 87 | 119 119 119 112 112 112 112 112 112 112 | 80 80 80 80 80 80 80 80 80 80 | 229 239 24 25 29 29 29 29 29 29 29 29 29 29 29 29 29 | 221 221 221 221 222 222 222 222 222 222 |
| | Sig | nifi | cance | lev | els: | ווווו סיט בא לא | 0,0,0,0,0 | .0005 .005 .05 .10 | | | | | | | | | |

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TABLE B-7.--Correlation among lab measures for Group 5.

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QUANTITATIVE DATA^a г. PARTICIPANTS' PERCEPTIONS OF T-GROUP TRAINERS:

Michigan State University John R. Hurley

available guantitative data from the participants' ratings of their trainers is summarized concerning questions: ALL

- (How much did this trainer) act in ways which helped the T-group to be more effective? (How effectively did this trainer) help me to become more aware of my personal hang-ups
- and of ways in which I might change my behavior? (How effectively did this trainer) understand me as an individual? Å. сi

The trainer quantitative effectiveness ratings and their own written (qualitative) observations, corrections made. Borderline ratings, such as those falling between the VERY EFFECTIVE and QUITE EFFECTIVE categories, were placed in the lower (effectiveness) category. Five of the 50 lab participants gave no ratings. In the Table below, senior lab staff were assigned trainer designations one through five; "cotrainers" were assigned numbers six through ten. The trainer pairs were individuals 146, 247, 348, 449, and 5410. Constituting this staff were. Steve Asher, Bruce Bailey, Dave Bradford, Gale Graubart, John Hurley, Shirley Hurley, Dave Kopplin, Len Oseas, John Suehr, and Dozier Thorton. ratings made by the participants were carefully reviewed and, in instances of manifest incongruity between the ALL

information is given both separately by questions (A, B, & C) and OVERALL (A+B+C). All ratings were weighted as follows: VERY EFFECTIVE by 3, QUITE EFFECTIVE by 2, SOMEWHAT EFFECTIVE by 1, and NOT EFFECTIVE by 0; the resulting summed total was divided by the number of participants rating the trainer on that question.

| | | c | , | NI . | DIVIDU AL | TRAINER | s N | | 4 | • | WWNS | LARY OF | LAB |
|---|-------------------------|-----------------------|-------------------------|-------------------------|-------------------------|-------------------------|-----------------------|-------------------------|-------------------------|-------------------------|------|------------|-----|
| RATINGS | ABC | A B C | A B C | ABC | A B C | A B C | A B C | A B C | A B C | A B C | A | 8 | ۱° |
| VERY EFFECTIVE | 312 | 845 | 554 | 356 | 755 | 223 | 3 4 S | 236 | 122 | 543 | 39 | 35 | 41 |
| QUITE EFFECTIVE | 233 | 142 | 445 | 421 | 245 | 453 | 632 | 853 | 335 | 557 | 39 | 38 | 36 |
| SOMEWHAT EFFECTIVE | 221 | - 1 2 | 111 | .2 2 1 | 11- | 1 | - 2 - | - 2 1 | 521 | 1 6 1 | 12 | 13 | 7 |
| NOT EFFECTIVE | - | • • • | 1 1 1 | 1 1 1 | 1 1 1 | 1 1 1 | 2 | 1 1 1 | - 2 - | - 1 - | ı | • | 7 |
| (Omissions) | г | | | г | | T | | | г | | | | 4 |
| EFFECTIVENESS: By Questions OVERALL | 1 6 2 2.1.2. 5.9* | 933 2.2.2. 7.5* | 4 4 3 2.2.2. 7.1* | 1 3 6 2.2.2. 7.0* | 6 4 5 2.2.2. 7.5* | 1 3 5 2.2.2. 6.9+ | 321 2.2.2. 6.6+ | 2 1 5 2.2.2. 6.8+ | 6 6 1 1.1.2. 5.3+ | 5 2 3 2.2.2. 7.0+ | 2.3 | 2.2 6.8 | 2.3 |
| bs of T-Group | 1 70 | 7 06 | 100 | 7 06 | c 001 | 70 | 7 06 | r 001 | • 06 | 100 | 06 | 06 | 90 |
| | | | | | | | | | | | | | |

*Overall effectiveness ratings given to senior trainers in groups 1 through 5. +Overall effectiveness ratings given to junior trainers in groups 1 through 5. +Overall effectiveness ratings given to junior trainers in groups 1 through ^a1968 SMTL Summer Lab, High Scope, Michigan.

ALC: N

