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WISCONSIN RESEARCH
AND DEVELOPMENT
CENTER FOR
COGNITIVE LEARNING

Technical Report No. 353

SELECTED INDIVIDUAL DIFFERENCE VARIABLES AND THEIR RELATIONSHIPS TO STUDENT PERCEPTIONS OF SOCIO-PSYCHOLOGICAL CLIMATES

by

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Report from the Project on
IGE-Secondary

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ABSTRACT

The relationship of Locus of Control and Sensation Seeking to 267 high school students' perceptions of their Actual and Ideal socio-psychological climates as measured by the Learning Environment Inventory (LEI) was investigated. A principal components analysis of the LEI responses yielded three substantive dimensions: pleasantness index, relationship index, personal development index. Separate analyses of variance of the scores on the three components yielded significant Instruction and Locus of Control effects on the pleasantness index. No other significant effects were found. Results were discussed in terms of the structure of the perceived environment and the relevance of individual difference measures for socio-psychological climates.

I. INTRODUCTION

Psychologists have for many years discussed the relative importance of the psychological situation in determining and predicting a person's behavior. The various theoretical positions have more or less coincided with the familiar Behaviorist-Mentalist division in psychology. Bowers (1973) has recently reviewed this split between the "situationists" and the "traitists" and has developed an interactionist position that "denies the primacy of either traits or situations in the determination of behavior;" (p. 327). Instead, behavior is seen as the result of an interaction between the person and a given situation. Of central importance in determining or predicting what behaviors will result from such an interaction is the way one characterizes or defines the situation. Different psychological theorists concerned with this interactionist point of view have developed their own definitions of the psychological situation. Kurt Lewin (1951), has defined it as a person's life-space. More specifically, it is the person's psychological environment--that part of a person's life-space which is separate from the person and which contains any and all facts which may interact with the person and affect the person's behavior. In a similar fashion, Rotter (1954) defined the psychological situation as the person's meaningful environment. Meaningful environment, for Rotter, equals the acquired significance or meaning of the situation to the individual. Rotter viewed the acquired significance of a situation in terms of the expectancies for reinforcement aroused in an individual; therefore one

way of defining a particular situation is in terms of the specific expectancies for particular reinforcements. In both definitions the importance of the individual's reactions or potential reactions is evident, although neither one has given a precise definition of the psychological situation. Henry Murray (1938) has provided a somewhat more concrete definition. He conceived of man as possessing a set of basic needs which provide the force for action. Corresponding to each need, Murray assumed the existence of an environmental press which interacts with the need. Thus, the psychological situation is defined in terms of the press which exist in a particular situation. Although Murray acknowledged so-called Alpha press as existing apart from the individual, the press which is most important in determining the final behavior is the press as interpreted or perceived by the individual, the Beta press.

For the present study, the psychological situation of interest was the high school classroom, operationally defined in terms of the students' perception of their classroom situation, referred to here as the socio-psychological climate. Many instruments have been developed in an attempt to describe socio-psychological climates in more detail. Each instrument typically has its own set of dimensions within which the socio-psychological climate is described. One conceptualization appears to stand out from the others in that it can encompass most of them within its framework. Developed by Moos (1973), it proposes three major categories of dimensions. Thus, socio-psychological climate is defined in terms of students' perception of their classroom with respect

to Relationship dimensions (Intimacy, Friction, Apathy, etc.), Personal Development dimensions (Difficulty, Speed, Competitiveness, etc.), and System Maintenance and System Change dimensions (Formality, Democratic, Diversity, etc.). A considerable amount of work has already been completed investigating various aspects of the relationships between these dimensions and behaviors in the classroom. Results with respect to cognitive behavior have been somewhat equivocal. With respect to affective behavior (defined in terms of student attitudes) however, some conclusions are possible (see Schultz, 1974).

It is fairly well documented that if one desires to promote the most positive affective development in students, one should arrange the socio-psychological climate such that there is a high level of cohesiveness and democracy in the class, a responsiveness to the student's emotional needs, and a teaching style which is basically non-directive. However, it should be noted that the description of the most beneficial socio-psychological climate on the basis of previous studies has only relied on the "average" perceived socio-psychological climate. This has no doubt enabled the development of a better understanding of the interaction of the person and the psychological situation; however, the "average" perception ignores individual perceptions and any individual differences that exist between students. Considering the growing evidence of the validity of individual differences, the continued use of "average" perceptions will be of limited usefulness. Therefore, the purpose of the present study was to investigate the relationship of two selected individual difference

variables (Locus of Control and Sensation Seeking) to students' perceptions of their socio-psychological climates. Rotter's I-E Scale (Rotter, 1966) and Zuckerman's Sensation Seeking Scale (SSS) (Zuckerman et al, 1964) were used to measure these individual difference variables. The Learning Environment Inventory (LEI) (Anderson, 1973) was employed to measure student perceptions of their socio-psychological climates. All subjects responded to the I-E Scale and the SSS. Half of the subjects responded to the LEI in terms of the class they were in at the time of the testing while the remaining half responded in terms of their "ideal" class.

It was hypothesized that differences would exist within and between the "actual" and "ideal" socio-psychological climates based on differences in Locus of Control and Sensation Seeking. More specifically, it was hypothesized that internals and externals as well as high and low sensation seekers would differentially perceive both the "actual" and the "ideal" socio-psychological climate.

SIGNIFICANCE OF THE STUDY

A fuller understanding of the relationship between psychological situations and behavior will be enhanced by a better understanding of how people perceive a given situation. The present study is an attempt to explore inter-individual differences in persons' perceptions of a specific environmental setting as a function of selected personality

characteristics. In particular, the study will attempt to determine the relationship between students' locus of control and sensation seeking needs and their perception of socio-psychological climates in the school. The results will hopefully make it possible to provide educators with additional aids for determining grouping patterns to be used in academic settings. That is, educators may be able to establish different types of socio-psychological climates based on certain individual difference constructs and match students to socio-psychological climates. Such a matching procedure may result in increases in student affective development and may also increase cognitive development.

II. REVIEW OF RELATED RESEARCH

A. THEORETICAL STATEMENTS

A number of psychological theorists have explicitly stated the need to take the psychological situation into account when studying behavioral phenomena. Finn (1972) stated: "Together with the teacher, the physical setting, and the curricular materials and activities, a network of expectations is established to which the child is continuously exposed. The network constitutes a significant part of the child's educational environment, i.e. the totality of all aspects of the milieu which set expectations for an individual's educational attainment, (emphasis original) whether cognitive or otherwise. These multiple aspects need to be considered in interpreting the reaction of the child to potentially influential environmental press." (p. 392).

Three psychologists have developed theoretical positions which emphasize the role of the psychological situation: Lewin, Murray, and Rotter. Lewin formulated a theoretical position termed Field Theory. Hall and Lindzey (1970, p. 210) described Field Theory as "not a new system of psychology limited to a specific content, it is a set of concepts by means of which one can represent psychological reality (Lewin, 1936, pp 6-7). These concepts should be broad enough to be applicable to all kinds of behavior, and at the same time specific enough to represent a definite person in a concrete situation. Lewin also characterized field theory as a ' method of analyzing causal

relations and of building scientific constructs' (Lewin, 1951, p. 45)." The central concept of field theory is what Lewin calls life-space. According to Lewin a person's life-space is composed of the person and his/her psychological environment and contains the totality of possible facts which are capable of determining the behavior of the individual. In other words, Lewin points out that an understanding of the internal state of the person alone is not sufficient to understand and predict his/her behavior. One must also consider the person's psychological environment. Thus, Lewin views the behavior of a person as a function of the person, whose major components are determined by needs, and the psychological environment represented by valences and forces or vectors. Lewin developed the formula B = f (PE) to express formally the interaction of the person and his/her psychological environment. This formula states simply that behavior (B) is a function of the interaction of the person (P) with the psychological environment (E). Levy (1970, pp. 312-313) quotes Lewin (1935, p. 79) as saying: "...to understand or predict the psychological behavior (B) one has to determine for every kind of psychological event (actions, emotions, expressions, etc.) the momentary whole situation, that is the momentary structure and state of the person (P) and of the psychological environment (E). B=f (PE). Every fact that exists psychobiologically must have a position in the field and only facts that have such position have dynamic effects (are causes of events). The environment is for all of its properties (directions, distances, etc.) to be defined not physically but psychobiologically, (emphasis original) that is according to its

quasi-physical, quasi-social, and quasi-mental structure."

Murray (1938) also discussed the importance of the psychological situation for understanding and predicting the behavior of an individual. Murray felt very strongly that a single segment of behavior cannot be understood in isolation from the rest of the functioning person and that the environmental context of the behavior must be thoroughly understood and analyzed before an adequate account of an individual's behavior is possible. In other words, to understand a person's behavior, one must understand the individual, the psychological situation, and their interaction. Murray conceived of a person as being represented by a number of needs. "Need is a construct ...which stands for a force...which organizes perception, apperception, intellection, cognition and action in such a way as to transform in a certain direction an existing, unsatisfying situation." (Murray, 1938, p. 213) It is the study of man's directional tendencies which hold the key to understanding human behavior (Hall & Lindzey, 1970, p. 174). Corresponding to each need in a person is a "press" in the environment which influences the person and his needs. Press is the term Murray uses to describe those aspects of the environment that an individual views and/or interprets as significant. Hall and Lindzey (1970, p. 180) describe press in the following fashion: "Just as the concept of 'need' represents the significant determinants of behavior within the person so the concept of 'press' represents the effective or significant determinants of behavior in the environment. In simplest terms a press is a property or attribute of an environmental object or person which

facilitates or impedes the efforts of the individual to reach a given goal. Press are linked to persons or objects that have direct implications for the efforts of the individual to satisfy his need strivings."

Thus, Murray, like Lewin acknowledges the importance of the psychological situation in determining the behavior of a person. Murray, however, developed a more detailed system of looking at the environment by using the concept of press in order to classify and analyze psychological situations. Murray, in addition, made a distinction between what he labels the "Alpha" press and "Beta" press. "Alpha" press are the properties of environmental objects as they exist in reality or as they can be objectively identified. "Beta" press refer to the significant environmental objects as they are perceived or interpreted by the individual. While "Alpha" press have an influence and cannot be discounted, Murray felt that "Beta" press are the major influences on behavior. Thus Murray not only emphasizes the importance of the psychological situation, but further states that it is the individual perception of the environmental influences which is the major determiner of the effect of the environment on behavior.

The third theoretical position to be mentioned was developed by Rotter (1954). He maintained that in order to understand behavior the basic unit of study should be the interaction of the individual with his meaningful environment. Behavior, in Rotter's view, cannot be understood or predicted apart from the situation in which it occurs (Levy, 1970, p. 411; Rotter, 1954). The basic premise of his theory

lies in the concept of expectancy, expectancy for reinforcement. A person's behavior is the result of the interaction of the expectancies the person holds for reinforcement(s) in a given situation(s) and the value of the reinforcement(s) for that person in the situation(s). Rotter developed the formula $B.P._{x,s_1,r_a} = f(E_{x,r_a,s_1} \& R.V._a)$ to describe this interaction. In words it states that the potential for a specific behavior (x) directed toward a reinforcement (r_a) to occur in a particular situation (s_1) is a function of the expectancy of the occurrence of that reinforcement following the behavior in that situation (E_{x,r_a,s_1}) and the value of the reinforcement in that situation ($R.V._a$). This formula contains the three central concepts of the theory: (a) Behavior Potential, probability of a given behavior occurring in a particular situation; (b) Expectancy, the person's expectation of the occurrence of a reinforcement which is dependent on the person's past history of reinforcement and upon the person's generalized expectancies from other situations perceived as similar to the present situation; and (c) Reinforcement Value, the value the person holds for a given reinforcement in a given situation at the present time. Rotter has used these three concepts and developed four ways of categorizing psychological situations (Rotter, 1955; Rotter, Chance, & Phares, 1972). One can determine similarity of situations by (1) sampling the expectancies the situation arouses, the greater the similarity among the expectations the more similar the situations; (2) sampling actual reinforcements present in situations, the greater the similarity among the reinforcements present the more similar are

the situations; (3) sampling the behaviors exhibited in situations, the greater the similarity among the behaviors the more similar the situations; and (4) determining the extent of generalization of behavior potential from one situation to another, the greater the generalization the more similar the situations.

One important point needs to be clarified concerning Rotter's three concepts. Rotter maintains that they take on functional significance only in the context of particular situations as they are defined by the individual (Rotter, 1954, p. 108). Thus, like Murray's concept of Beta press, Rotter feels strongly that it is the individual's perception of the situation which is important in determining the effect of a situation. Rotter (1954, p. 203) states that "The clinician does not assume that the individual classifies situations in the same way as the majority of the culture or that the situations the individual is likely to see as similar are the same ones likely to be seen as similar by the culture. Rather the clinician's problem is to find out what this specific situation means to the individual and what situations he is likely to see as similar." (emphasis original)

One final theoretical conception to be discussed is one originating from sociological research. Getzels and Thelen (1960) describe the development of the formula B=f(R x P) which explains the importance of the psychological situation from a sociological point of view. The formula states that behavior (B) is a function of the interaction of one's institutional role defined by role expectations (R), and one's individual personality defined by need-dispositions (P). In a larger

context the interaction between the individual and the institutional role is an interaction between two basic dimensions describing any given situation and the people within that situation. Those dimensions are the NOMOTHETIC dimension composed of norms, roles, and institutions and the IDIOGRAPHIC dimension composed of individuals, personalities, and need-dispositions. (See Figure 1)

Although only four conceptions have been mentioned above, it should be realized that a number of other researchers have discussed the importance of the psychological situation. In general they are in agreement with the formulations discussed here (Barker, 1963; Flanders, 1960; Jennings, 1947; Lichtman & Hunt, 1971; Moore & Anderson, 1969; Moos, 1973).

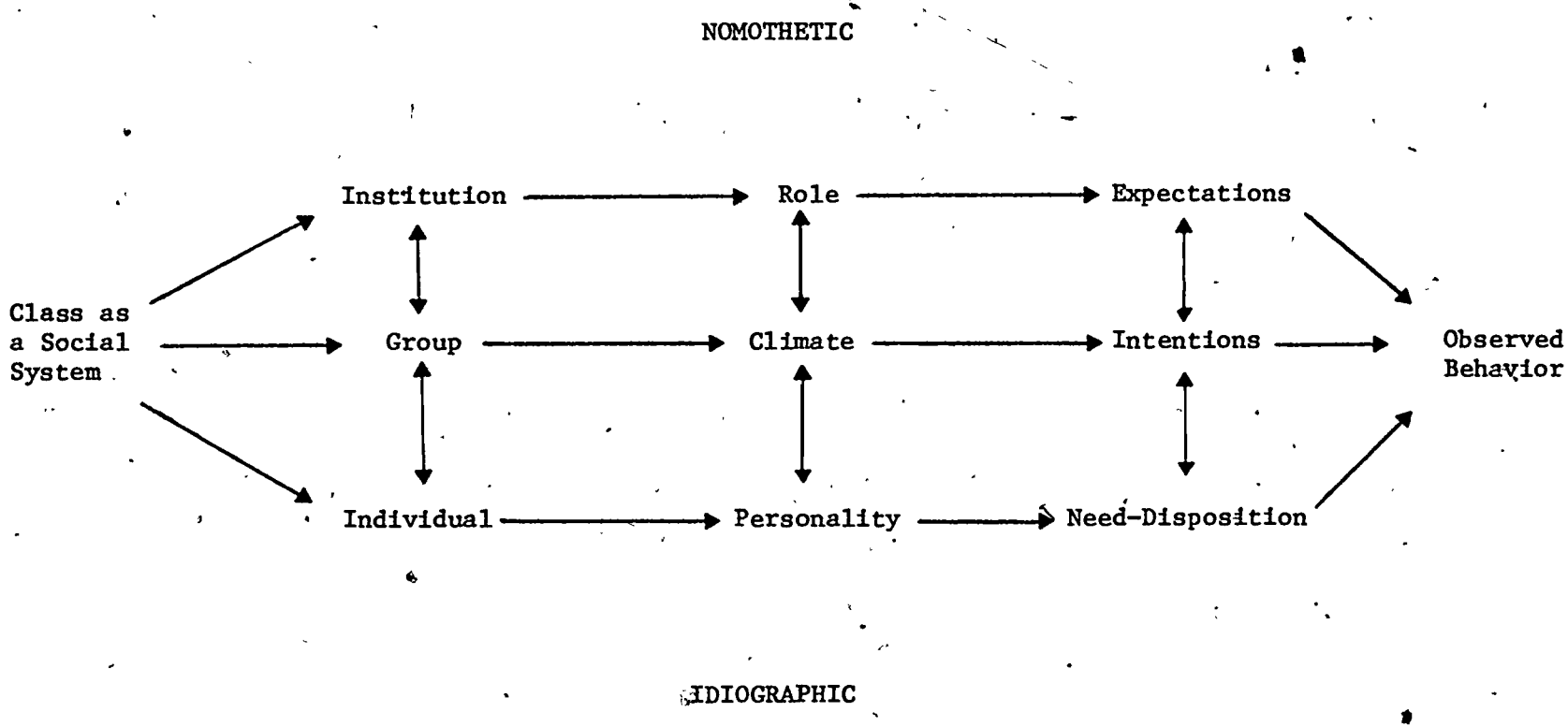

Figure 1. Getzels and Thelen's model of the classroom as a Social System. (Getzels, 1963; Getzels & Thelen, 1960).

B. ENVIRONMENTAL DESCRIPTORS

Many researchers have been engaged in the task of developing conceptual systems suited to describe many different environmental settings. One particular outcome of this effort that is relevant for this study relates to terms used to identify the psychological situations of the classroom environment: life-space (Lewin, 1935), environmental press (Murray, 1938), meaningful environment (Rotter, 1954), social system (Getzels & Thelen, 1960), social learning climate (Anderson, 1973), perceived climate (Pace & Stern, 1958), social ecology (Moos & Insel 1974), educational environment (Moore & Andersen, 1969), socio-psychological climate (Schultz, 1974). The last term, socio-psychological climate, will be used hereafter in lieu of psychological situation of the classroom. Associated with most of these terms are instruments designed to measure the socio-psychological climate. Since each instrument typically has its own set of dimensions, it is rather difficult to decide what constitutes an adequate operational definition of socio-psychological climates. However, it seems that one particular scheme developed recently cannot only encompass most of the socio-psychological climate dimensions, but also a host of other dimensions used to describe a variety of different environmental settings. Rudolf Moos and his colleagues at the Social Ecology Laboratory at Stanford University developed a system of three major categories of dimensions. (See Table 1) The three categories are: Relationship dimensions, Personal Development dimensions, and System Maintenance and System Change dimensions. Relationship dimensions assess the extent to which

individuals support and help each other and the extent to which they are involved in the environment; Personal Development dimensions assess the basic directions along which personal development and self-enhancement tend to occur as well as the potential and opportunity the environment provides for personal development and self-enhancement; System Maintenance and System Change dimensions assess the extent to which the environment is orderly and clear in its expectations, maintains control, and is responsive to change (Insel & Moos, 1974; Moos, 1973; Schultz, 1974).

A wealth of research has been conducted to investigate the effects of various dimensions of socio-psychological climates on behavior in the classroom. With respect to cognitive behavior the results are somewhat equivocal and at times contradictory (see Gage, 1963; Kahn & Weiss, 1973; Schultz, 1974; Stern, 1963; Travers, 1973; Withall & Lewis, 1963). However, with respect to affective behavior (defined in terms of student attitudes), some conclusions are possible (Schultz, 1974). For instance, within the category of Relationship dimensions, the more positive teachers' attitudes are toward their students, the more positive are students' attitudes toward school, themselves, and their peers and teachers (Getzels, 1969; Getzels & Jackson, 1969; Stern, 1963). Also, classes with a high level of cohesiveness and democracy and low levels of friction, apathy and cliqueness generally have a positive level of student affect and behavior (Sussman, 1972; Walberg, 1969b, 1969c; Walberg & Anderson, 1968b; Schultz, 1974). Within the category of Personal Development dimensions, the more the socio-psychological climate is

Table 1
Dimensions of Socio-Psychological Climate

Scale	Relationship	Personal development	System maintenance and system change
Organizational Climate Index (Stern, 1970)	Closeness, group life	Intellectual climate, personal dignity, achievement standards	Orderliness, impulse control (constraint)
College and University Environment Scale (Pace, 1969)	Community	Awareness, scholarship	Practicality, propriety
Institutional Functioning Inventory (Peterson, 1970)	Institutional esprit	Intellectual-aesthetic, extracurriculum, concern for improvement of society, concern for undergraduate learning, concern for advancing knowledge, meeting local needs	Freedom, democratic governance, self-study and planning, concern for innovation, human diversity
Learning Environment Inventory (Anderson, 1973)	Intimacy, friction cliqueness apathy favoritism	Difficulty, speed satisfaction competitiveness	Formality, goal direction democratic disorganization diversity environment
Organizational Climate Description Questionnaire (Halpin & Croft, 1963)	Esprit, intimacy consideration disengagement	Thrust, hindrance	Production emphasis, aloofness

Page two of Table 1
Dimensions of Socio-Psychological Climate

Scale	Relationship	Personal development	System maintenance and system change
Classroom Observation Schedule and Code Digest (Cornell, 1952)	Social organization variety	Differentiation Pupil initiative variety competency Climate - teacher Climate - pupil	Content Variety Competency Climate - teacher
Teacher Contact Record, Partial List (Anderson, Brener & Reed, 1946)	Integration (IT) Response (L)	Social Contribution (J) Integration (IN)	Domination (DC) Problem Solving (K)
Oscar (Medley & Mitzel, 1955)	Verbal Emphasis	Emotional Climate	Social Structure
Classroom Environment (Trickett & Moos, 1973)	Involvement Affiliation Teacher Support	Task orientation Competition	Order and organization Rule Clarity Teacher Control Innovation

arranged to meet the emotional needs of students, the greater are the benefits for students in terms of greater positive effects on student's attitudes, feelings, and behavior (Burrell, 1951; Ojeman & Wilburn, 1939; Ross, 1973); also, the more honest a class is and the more class members are positively appraised with emphasis placed on a high level of concern for each other the greater the positive effect on student affect (Cogan, 1956; Kahn & Weiss, 1973). Finally, with regard to the category of System Maintenance and System Change dimensions, the more non-directive or student-centered the socio-psychological climate of the classroom is the more positive is student affect, attitude and behavior (Flanders, 1960; Cornell, 1952; Anderson & Kell, 1954; Lichtman & Hunt, 1971). A democratic leadership style is more advantageous with respect to discipline, hostility, group morale, dependence and other social variables when compared to authoritarian and laissez-faire leadership styles (Lewin, Lippitt, & White, 1939). Schultz (1974) combined these various conclusions, and in doing so formed a description of the "most beneficial" or "ideal" socio-psychological climate for increasing the positive affective development of students.

C. NEED FOR INDIVIDUAL DIFFERENCES

The conceptualization of an "ideal" socio-psychological climate is a step forward in determining the effects of the psychological situation on behavior. Such a description not only delineates the dimensions of the psychological situation which are assumed to be of importance to individuals, but also indicates how the socio-psychological climate should be established to promote optimal affective development in the classroom situation. However, a few cautionary notes must be considered. First, in order to obtain such a description one must assume that the results of the various studies can be combined to form a meaningful and consistent picture. This is a tenuous assumption when considering the wide variety of investigations reported over a considerable time period. However, the second issue is, comparatively speaking, much more difficult to deal with. In previous empirical investigations the description of a socio-psychological climate was usually based on the "average" perception of the socio-psychological climate as reported by many different students. In other words, the reactions of individual students to the situation at hand (classrooms) have been largely ignored. On the other hand, many recent studies point to the important role of individual differences in behavioral phenomena (Cronbach, 1975; Mischel, 1973). Gagné (1967) edited a book which deals exclusively with learning and individual differences. The importance of individual differences has been further underlined by Underwood (1975) who believes that individual differences are so important that they should be used as crucibles in the construction of

new theories.

Not withstanding the above evidence from diverse fields of psychology, the importance of individual differences has been clearly explicated by the theorists concerned specifically with the interaction of the person and his/her psychological situation. Levy (1970, p. 312) quotes Lewin (1935, p. 41) "The dynamics of the processes is always to be derived from the relation of the concrete individual to the concrete situation." Thus, even if the situation remains the same across individuals, changes from one individual to another, individual differences, will have an effect on the dynamics of the processes involved. Rotter (1954) provides one of the clearest statements concerning the necessity of taking individual differences into account. He stated "it is presumed that the manner in which a person perceives a given situation will determine for him which behaviors are likely to have reasonable probability or the highest probabilities of leading to some satisfaction." (Rotter, 1954, p. 200) He continues to say that should one's perception of the situation change, the expectancy that given behaviors will lead to satisfaction will change markedly (p. 200). It is with respect to one's perception of the psychological situation that individual differences may have the greatest effect, especially within Rotter's framework of expectancy theory. Finally, even within the sociological framework of Getzels and Thelen (1960), the primary interaction is between the person as defined by need-dispositions and institutional roles. Any individual differences in these need-dispositions will therefore imply different interactions and behaviors exhibited.

In conclusion, it seems reasonable to take individual differences into account when measuring students' perceptions of both actual and ideal socio-psychological climates. Furthermore, it seems useful to relate such differences in perception to individual differences variables defined in other areas of research in order to better understand the underlying processes.

D. INDIVIDUAL DIFFERENCE MEASURES

1. Locus of Control

One individual difference measure which may prove quite useful in differentiating students' perceptions of socio-psychological climates is locus of control. Locus of control is derived from Rotter's Social Learning Theory (Rotter, 1954, 1966) and describes a person's expectancy with regard to the effectiveness of his/her own behavior in attaining reinforcements. If a person perceives a reinforcement as contingent upon a particular behavior or event, the reinforcement acts to strengthen an expectancy that the particular behavior or event will be followed by that reinforcement in the future. If, however, a reinforcement is not seen as contingent upon a particular behavior or event, then the reinforcement acts to strengthen an expectancy that the reinforcement is not contingent upon a particular behavior or event. A person's expectancies generalize from specific situations to classes of situations that are perceived as similar: the person develops a generalized expectancy for the occurrence or non occurrence of reinforcement and the dependency of reinforcement upon his or her own behavior. Rotter's theory suggests that it is this generalized expectancy, along with the specific expectancies and reinforcement value that interact with a particular situation and determine the behavior exhibited by the person. Differences in generalized expectancies have different effects on the behavior or choice of behavior exhibited by the person. Rotter (1966) developed an instrument, the I-E Scale, to measure this generalized expectancy or Locus of Control. The

instrument distributes people along a continuum from internal perceived control to external perceived control. Internals (I's) view the reinforcements they receive as being contingent upon their own behavior or their own relatively permanent characteristics. Externals (E's) on the other hand, view reinforcements as typically being the result of luck, chance, fate, or unpredictable, or as being under the control of powerful others (Rotter, 1966, p. 1). Thus a person who maintains a basically internal locus of control (I's) would expect that it is their behavior or their action which is effective in obtaining the reinforcements they receive in a given situation. People maintaining an external locus of control (E's) would not perceive the reinforcement they receive as being contingent upon their own behavior.

This difference between people (I's vs. E's) has proven a useful distinction and has been beneficial in predicting differences in behavior in a vast array of studies. Four major reviews of the locus of control construct have been reported (Rotter, 1966; Lefcourt, 1966, 1972; Joe, 1971) and Throop and MacDonald (1971) have amassed a bibliography of 339 studies which deal with the construct through 1969. MacDonald (a) has in addition compiled an annotated bibliography of 135 additional studies using the construct in 1970 alone. A number of conclusions relevant to perceptions of socio-psychological situations can be drawn from the vast amount of research conducted using the locus of control construct.

Skill Versus Chance Instructions

One of the earliest findings consistent with expectancy theory was that groups given skill instructions differed markedly from groups given chance instructions on identical tasks (James, 1957; Joe, 1971: Lefcourt, 1972; Liverant & Scodel, 1960; Phares, 1957; Rotter, 1966). The groups given skill instructions consistently outperform, have more consistent performance, and exhibit fewer unusual shifts or changes in behavior when compared with chance instruction groups. These results are important since these types of instruction were developed to create two types of expectations; an internal control expectation (skill instruction) and an external control expectation (chance instruction). Thus expectancy for control appears to be a moderator variable. Additional studies have shown more directly that locus of control does differentiate between subjects with I's performing similar to skill instruction groups and E's performing similar to chance instruction groups (Cromwell, Rosenthal, Shakow, & Zahn, 1961; Crowne & Liverant, 1963; Hiroto, 1974; Joe, 1971; Julian & Katz, 1968; Lefcourt, 1965; Rotter, 1966). In addition to performing better under skill tasks, Lefcourt, Lewis and Silverman (1968), Rotter and Mulry (1965), and Ryckman, Stone, and Elan (1971) found that I's apparently prefer or place more value on chance tasks. Lefcourt et al (1968) in addition pointed out that it was the subjects perception of the situation that was important in determining the difference in value and not necessarily the experimental instructions.

Given the above differences between I's and E's one may expect

that these differences will have a bearing on how they perceive both their actual and ideal socio-psychological climates. For instance, since I's apparently prefer and do better in skill situations one might expect them to prefer an ideal socio-psychological that has more formality, goal direction, diversity, and less disorganization as well as one being somewhat more difficult and having a greater element of speed (dimensions within the system maintenance and system change and the personal development categories), than will the E's. It may also be that I's view their actual socio-psychological climate as higher on these categories than will E's. I's may also be more satisfied with their actual climate since it contains elements of a skill situation.

Use of Situational Information

Locus of control has also proven useful in predicting subjects' use of information available in their given situation (see Joe, 1971; Rotter, 1966). Seeman (1963) and Seeman and Evans (1962) found that I's generally not only possessed more relevant information concerning their situation (reformatory and hospital ward respectively), but made greater use of that information than did E's. This finding, however, only held for situationally relevant information. There were no differences between I's and E's concerning general information. A series of studies (Davis & Phares, 1967; DuCette & Wolk, 1973; Gruin, Gruin, Lao, & Beattie, 1969; Libb & Serum, 1974; Phares, 1965, 1968; Phares, Ritchie, & Davis, 1968) all supported the above contention and in addition suggested that I's are more efficient and actively engaged

in obtaining information from their environmental situation. One study did find E's more responsive to situational cues than I's (Lefcourt, 1967); however, these results may be explained on the basis of I's greater resistance to experimenter manipulations, a topic covered next.

The findings reported in this section, while not directly pertinent to Moos' three categories of socio-psychological climate dimensions, may nevertheless offer some insights into how I's and E's may differentiately perceive their actual and ideal socio-psychological climates. Since I's generally possess more information about their environmental situations than E's one would expect that I's would be more opinionated about their ideal climate than E's. One might also expect that I's would prefer more formal, goal directed, and diverse ideal climates than E's. In addition, one might expect that I's would differentiate their actual climate more finely than E's since they are aware of more facets of their environments than E's.

Resistance to Subtle Manipulation

A number of studies reported by Lefcourt (1972) and Rotter (1966) show that when subtle attempts are made to influence subjects in terms of conformity or direction of use of information I's are more resistant to influence than E's. Gore (1963) found I's more resistant to influence in TAT responses. Odell (1959) found that I's showed lower levels of conformity and Strickland (1970) observed that I's aware of her reinforcement contingency, were less conditionable than unaware I's as well as both aware and unaware E's. Lefcourt (1972) concludes

his review of the effects of resistance to influence by stating that "evidence is found to support the contention that persons holding an internal locus of control can withstand pressures directing them to behave in a certain circumscribed manner." (p. 7)

The findings in this section seem to suggest that I's and E's may differ in the type of relationship dimensions they perceive in their actual and ideal socio-psychological climates. Given the I's greater resistance to subtle manipulation one might expect them to prefer an ideal climate with relatively low levels of favoritism, cliqueness, apathy, and cohesiveness since these dimensions seem to imply the existence of greater subtle pressures on class members. The I's may also prefer more democratic, formal, and goal directed ideal climates than the E's. With respect to the actual socio-psychological climates, the I's may perceive greater levels of friction, cliqueness, apathy, and favoritism in their classes since a fair amount of manipulation - subtle or overt - frequently takes place in high school classrooms, or at least the I's may think so since they are more sensitive to it.

Willingness to Take Action

A number of investigations have shown that I's in general are more willing to take part in social action movements, or take action based on their beliefs, than are E's (Brown & Strickland, 1970; Franklin, 1963; Gore & Rotter, 1963; Lefcourt, Lewis, & Silverman, 1968; Rotter & Mulry, 1965; Strickland, 1965; Weiner & Kukla, 1970). Gore and Rotter (1963) and Strickland (1965) both found I's to be significantly more willing

to take social action (verbally and behaviorally) than E's. MacDonald (a) reported three studies (Brown & Strickland, 1970; Keasey, 1970; Weiner & Kukla, 1970) which found I's more willing to participate in college activities and exhibited greater social participation than E's. (See also Nowicki & Roundtree, 1971; Nowicki & Segal, 1974). Lefcourt, Lewis, and Silverman (1968) and Rotter and Mulry (1965), however suggest that I's are more willing to take action when they perceive the situation as skill determined or controlled. Both studies found that the I's greater activity level did not hold for chance determined situations. "It is possible to conclude that in tasks perceived as tests of one's skill, persons maintaining internal control expectancies will exhibit more involvement, attention and thought than they would if the task were perceived as less controllable by skill. On the other hand, persons maintaining external control expectancies reveal more involvement in what they perceive to be luck- or chance-determined tasks than in skill-demanding tasks." (Lefcourt et al, 1968, p. 679) This conclusion is not definite, however, and needs further research since Gold (1968) and Phares and Wilson (1971) failed to support it.

The results from this section suggest that locus of control may affect student's perceptions of their actual and ideal socio-psychological climates, particularly with regard to the system maintenance and system change dimensions. I's apparently exhibit a greater activity level than E's and thus may prefer an ideal climate that allows them more freedom for greater activity. I's also appear to be more committed socially

than E's and thus may exhibit more opinionated perceptions. I's may also perceive higher levels on the personal development dimensions of satisfaction, speed, and difficulty than E's since classes are frequently skill based and thus may allow the I's to have the greater involvement they seem to desire.

Interpersonal Relations

A number of studies have been conducted within the general topic area of interpersonal relations and locus of control. The results generally show I's to have greater self-esteem (Bryant, 1974; Epstein & Komorita, 1971; Fish & Karabenick, 1971), to be more satisfied and feel less anxiety (Nelson & Phares, 1971; Phares, 1971), and to have fewer disturbances in their interactions with others (Bryant, 1974) than E's. In addition Hannah (1973), Miller (1970), Phares and Wilson (1971) and Silverman and Shrauger (1971) all found locus of control to be important in people's perceptions of others. Miller (1970) found people rated as low in physical attractiveness were rated as more external than either moderately or highly attractive people. Phares and Wilson (1971) found raters who were internal were more attracted toward and empathetic with internal strangers than external strangers. They were also more attracted toward and empathetic with the internal stranger than were the raters classified as external. In comparison, the external raters showed very little differentiation in their responses. Hannah (1973) reported that both I's and E's rated their "ideal" self as internal and their "non-ideal" self as external.

Jones and Shrauger (1968) found that E's tend to reciprocate more than I's when in an interpersonal evaluation situation. E's react more positively to positive evaluations than to negative ones. Jones and Shrauger hypothesized that I's did not reciprocate as much since they were trying to modify the responses of negative evaluators. Holmes and Jackson (1968) found I's to be more attracted toward and less angry with experimenters who dispersed both rewards and punishments and to show the opposite reactions to experimenters who gave neither rewards nor punishments. E's, on the other hand, were attracted to and less angry with the non-rewarding, non-punishing experimenter and showed opposite reactions to the rewarding and punishing experimenter.

The findings in this section appear to have implications mainly for perceptions of actual socio-psychological climates. The findings of less interpersonal disturbance for I's suggests that they may perceive greater satisfaction, cohesiveness, and less friction in their actual climates than will the E's. The E's, on the other hand, may perceive greater levels of cliqueness, favoritism, and less satisfaction. The I's may also perceive more positive levels on the personal development dimensions in their actual climates than the E's. With respect to the ideal climates, predictions are more tenuous. I's may score higher on some of the system maintenance and system change dimensions, particularly the democratic, diversity, and environment dimensions. The E's may prefer an ideal climate with particularly low levels on the relationship and personal development dimensions and perhaps with lower levels on the system maintenance dimensions of goal direction, formality, and diversity.

Miscellaneous Psychological Characteristics

With respect to achievement motivation or need for achievement most studies report higher levels of Need Achievement for internals (Chance, 1972; Franklin, 1963; Rotter, 1966; Rotter, Chance, & Phares, 1972). The strength of the relationship however remains in question since both Gold (1968) and Wolk and DuCette (1971) failed to find a relationship and Crandall, Katkovsky, and Crandall (1965) reported mixed results with young children. A similar conclusion can be reached with respect to the relationship between anxiety and locus of control with I's exhibiting generally less anxiety (Butterfield, 1964; Feather, 1967; Gold, 1968; Joe, 1971).

Nowicki and Roundtree (1971) and Nowicki and Segal (1974) both reported that I's exhibited higher school achievement (males) and greater social involvement (females). Lefcourt (1973) reported a series of studies which generally found that a "feeling" of control (either actual or imagined) over aversive stimuli was an important factor in greatly reducing the debilitating effects of the aversive stimuli. Hiroto (1974) specifically looked at locus of control with a situation similar to those reported in Lefcourt's (1973) manuscript and found the E's were more debilitated than I's. Goodstadt and Hjelle (1973) in yet a different area found that when instructed to supervise fictitious "problem" workers E's tended to use much more "coercive" power than I's who in turn used greater amounts of personal persuasive power than E's.

The results in this section suggest that I's will probably prefer

higher levels of personal development dimensions and system maintenance dimensions in their ideal climates than the E's since I's probably have higher levels of achievement motivation than E's. I's may also perceive more positive relationship dimensions in their actual climate than the E's.

SUMMARY

While any specific conclusions concerning the relationship of locus of control to specific dimensions of socio-psychological climates may be somewhat tenuous at this time, some general conclusions within each of the three categories developed by Moos (1973) are in order. Overall, I's may be expected to score personal development dimensions higher in both their actual and their ideal socio-psychological climates than will the E's, with the mixed locus of control group somewhere in between the I's and the E's. With respect to the category of relationship dimensions the results may be somewhat less clear. With respect to ideal socio-psychological climates I's will probably prefer lower levels on most dimensions with the possible exception of cohesiveness. E's might be expected to perceive higher levels of the relationship dimensions in their actual climates than the I's will and may not differ from the I's in their ideal perceptions in this category. With respect to the system maintenance and system change category the I's may be expected to perceive generally higher levels of these dimensions except disorganization, and exhibit greater variance among perception for their actual

climates than the E's. The I's may also perceive higher levels of these dimensions in their ideal climates than will the E's. Overall, the I's will probably differentiate their perceptions more in both the actual and ideal climates than will the E's and may also exhibit greater differences between the actual and ideal perceptions than the E's.

2. Sensation Seeking

A second individual difference variable which may prove useful in differentiating student perceptions of socio-psychological climates is related to recent work in the area of motivation. Most early theories of motivation were derived in some form or another from drive theory or drive reduction theory. However, all forms of motivation were not easily explainable in terms of drive reduction. In the area of exploratory behavior, Dent and Simmel (1968) point out Berlyne's (1960) separation of exploration activities into two classes: Specific exploration and diversive exploration. The first of these classes fits easily into a drive reduction theory of motivation, but the second does not. Farley (1973) also reflects that of the various forms of varied experience behaviors (music, dress, drugs, interpersonal sensitivity) none seem capable of explanation within a traditional drive-reduction theory of motivation based on principles of homeostasis (p. 1). Farley continues to say that these varied forms of behavior exhibited by today's youth suggest a re-orientation of motivational theory to take into account the maintenance of varied stimulus input as an energizer and director of behavior (Farley, 1973, p. 1). Contained in such a re-orientation of motivational theory is the concept of optimal level of stimulation which has been proposed as an alternative to the traditional drive-reduction theory of motivation (Zuckerman, 1969, among others). The theory of optimal stimulation level is based on the belief that people differ in their optimal level and that the definition of the individual optimal stimulation level is the key to the understanding of

reactions to extreme environments which produce understimulation or overstimulation (Zuckerman, 1969, p. 428).

Zuckerman, Kolin, Price, and Zoob (1964) described the development of an instrument which purports to measure individual differences in optimal stimulation level, the Sensation Seeking Scale (SSS). Zuckerman has in addition, outlined the theory of optimal level of stimulation in terms of ten basic postulates (Zuckerman, 1969, pp. 428-431). The SSS distributes people along a continuum from low sensation seekers to high sensation seekers. Most of the studies conducted with the SSS have been attempts to describe the characteristics of a high sensation seeker and to determine the usefulness of the SSS in predicting various types of behavior. A sketchy description of the high sensation seeker has been developed by a number of different authors. Farley and Peterson (1974) report that "the high stimulation seeker not only seeks more stimulation, and more complex and varied stimuli relative to the low stimulation seeker, but he also generates more varied responses in a task allowing for degrees of repetition of variety of responding (p. 271). Kish and Busse (1968) characterize a high stimulation (sensation and stimulation will be used interchangeably) seeker as a young adult with average or above intelligence who has fairly good perceptual and spatial abilities and is likely to be extroverted (p. 637). Zuckerman and Link (1968) describe the high sensation seeker as a person who is independent, unconventional, and low in social values or conformity, needs variety, does not value order and routine, is somewhat anti-social and excitable, is a thrill-seeker,

and seems to have many of the traits of the creative personality (pp. 420-421). Descriptions put forth by Zuckerman, Bone, Neary, Mangelsdorff, and Brustman (1972) and by Zuckerman, Neary, and Brustman (1970) coincide with and further substantiate the above description. The low sensation seeker, while not specifically described in the above research, can basically be described as the opposite of the high sensation seeker (i.e. as a conformer, somewhat dependent and conventional, likes things quite orderly, etc.)

These initial descriptions of high and low sensation seekers appear to have clear implications for differential perceptions of socio-psychological climates, particularly the ideal climate. High sensation seekers might be expected to perceive ideal climates which have relatively low ratings in the relationship dimensions category, especially on the dimensions of cohesiveness, cliqueness, and favoritism. They may also prefer high levels on the dimensions of speed, difficulty, and competitiveness in the personal development category. With respect to the system maintenance and system change category, high sensation seekers may prefer high levels on the democratic, disorganization, and diversity dimensions with low levels on the dimensions of formality and goal direction. Given that the low sensation seeker is basically the opposite of the high sensation seeker, one might therefore expect them to prefer the opposite type of ideal climate. With respect to the actual socio-psychological climate any prediction of how high or low sensation seekers will perceive it is tenuous and will depend on the particulars of the actual situations.

A number of studies have investigated various correlates of sensation seeking. Sensation seeking has been found to be significantly correlated with extroversion (both the sociability component and the impulsive component) in a number of different studies (Farley & Farley, 1967, 1970). Farley and Farley (1970) reported significant SSS-extroversion correlations in four of five samples of subjects for the impulsiveness component and in three of five samples for the sociability component of extroversion. The sensation seeking-sociability relationship, however, remains questionable since Thorne (1968), Zuckerman et al (1972), and Zuckerman and Link (1968) all reported non-significant findings for the SSS and the MMPI Si Scale. The sensation seeking-impulsiveness relationship, however, has been supported by a number of studies using the MMPI Ma Scale (Thorne, 1971; Zuckerman & Link, 1968). Zuckerman and Link (1968) also reported significant correlations between the SSS and the Insolence Scale, another measure of impulsiveness (p. 421). Studies by Zuckerman et al (1964) and Zuckerman and Link (1968) tend to shed doubt on the sensation seeking-impulsiveness relationship by reporting significant correlations between sensation seeking and different measures of field independence. Farley (1974a) however, reports on the sensation seeking-field independence relationship and concludes, "It seems likely that this relationship is not a reliable one for females and may not be for males."

Two studies have attempted to develop a broader, more general description of sensation seekers by correlating the SSS with general

personality inventories (Zuckerman et al, 1972; Zuckerman & Link, 1968). Zuckerman and Link correlated the SSS with the Edwards Personal Preference Schedule (PPS) and the Adjective Check List (ACL), both of which are purported to be measures of fifteen of the need constructs developed by Murray (1938). Similar patterns of significant correlations were found between the SSS and both the PPS and ACL: positive correlations with Autonomy, Change, and Exhibitionism and negative correlations with Affiliation, Orderliness, Nurturance, and Deference. Zuckerman et al (1972) correlated the SSS with the Sixteen Personality Factor Questionnaire (16 P F) and reported significant positive correlation with the scales of Dominance, Surgency, Adventurous, Bohemian, and Radicalism. One negative correlation was found with the Super-Ego scale which, when viewed positively, establishes a relationship between the SSS and the lack of rigid internal standards. In addition, Zuckerman et al (1972) replicated the findings of Zuckerman et al (1970) who correlated the SSS with a number of activities thought to be indicative of high sensation seeking. They reported significant differences between high and low sensation seekers with regard to activities such as drug taking, smoking, alcohol use, sex relationships, and the Barron-Welch Art Scale.

In addition to all of the above studies which provide an amazingly consistent description of a high sensation seeker, the concept of optimal level of stimulation has also proven useful in predictions of differences in people with respect to creativity and delinquency. Davis, Peterson, and Farley (1974), Farley (1974b), and Zuckerman and Link (1968)

have all reported significant positive correlations of the SSS with a variety of tests of creativity (the Barron Independence of Judgment Scale (Barron, 1963), two of Torrance's short tests of creativity (Torrance, 1972), classroom creative products (Davis et al, 1974), Pearson and Maddi's (1966) Similes Preference Inventory (Farley, 1971), the Uses Test fluency score, etc.). With respect to delinquency, Farley (1973) and Farley and Farley (1972) reported that the SSS successfully differentiates delinquents from non-delinquents in a number of areas (number of escape attempts, frequency of punishment for disobedience, in "delinquent orientation" among institutionalized delinquents as rated by counsellors, in "delinquent orientation" among "normal" subjects, etc.).

In conclusion, the sketchy description of sensation seekers reported earlier has remained amazingly consistent and has been validated by a wide variety of studies, including descriptions based on three well known personality inventories and descriptions based on actual behavior exhibited by sensation seekers.

SUMMARY

Once again it is probably too early to reach specific conclusions concerning the relationship between sensation seeking and specific dimensions of socio-psychological climates. Tentative conclusions are however possible within the three categories of socio-psychological climate dimensions. The high sensation seekers might be expected to perceive both their actual and ideal socio-psychological climates as having lower ratings in the category of relationship dimensions than will the low sensation seekers. The high sensation seekers may also perceive greater discrepancies between their actual and ideal relationship dimensions than will the low sensation seekers. With respect to the category of personal development dimensions the high sensation seeker may perceive higher levels in their ideal climate than will the low sensation seekers. The same difference may occur with respect to the perceptions of actual climates, but may not be as large as the ideal difference. Finally, with respect to the category of system maintenance and system change dimensions the high sensation seekers might be expected to ideally prefer high levels on the democratic, disorganization, and diversity dimensions and low levels on the formality and goal direction dimensions. The low sensation seeker might be expected to prefer almost the opposite type of ideal climate as the one just described for the high sensation seeker. With respect to their actual socio-psychological climate perceptions, the perceptions of high and low

sensation seekers will depend to a great extent on the particulars of the actual situations.

III. STATEMENT OF THE PROBLEM

The importance of the psychological situation in determining and predicting a person's behavior has been recognized by psychologists for many years. One factor that appears to be of central importance in determining the effect of a given situation is a person's perception of that situation. The present study focuses on the psychological situation of the high school classroom, termed here the socio-psychological climate, and is concerned with how it is perceived by students. A number of studies have been completed which, when taken together, suggest a fairly consistent picture of a socio-psychological climate that promotes positive affective development among students. Most of these studies, however, relied on the average perception of the socio-psychological climate of many students and ignored any individual differences that may have existed between students. The purpose of the present study is to investigate the relationship of two selected individual difference measures, Locus of Control and Sensation Seeking, to students' perceptions of their socio-psychological climates. Furthermore, differences are looked at within the context of students' perceptions of their "actual" socio-psychological climates (those existing in their every day classrooms) as well as their "ideal" socio-psychological climates (those the students would ideally like to experience).

MAJOR HYPOTHESES

Based upon the foregoing review of the locus of control and sensation seeking literature there appears to be sufficient evidence to predict that these individual difference measures will influence students' perceptions of socio-psychological climates. While it may be too early to make predictions concerning specific socio-psychological climate dimensions, the following general predictions seem reasonable:

A. Students classified as Internal, Mixed, or External on Locus of Control and as High, Medium, or Low on Sensation Seeking will differ in their perceptions of "actual" socio-psychological climates.

B. Students classified as Internal, Mixed, or External on Locus of Control and as High, Medium, or Low on Sensation Seeking will differ in their perceptions of "ideal" socio-psychological climates.

C. Differences will exist between the students' perceptions of their "actual" and their "ideal" socio-psychological climates.

IV. METHOD

Subjects

Subjects were 282 high school students in their junior and senior years from a rural school in Wisconsin. All seniors and juniors in the school filled out the questionnaires (except those absent on the testing days). All data was collected in a five day period. Fifteen subjects failed to complete all questionnaire items and were dropped from further analysis, leaving 267 (129 seniors, 64 female and 65 male; 138 juniors, 72 female and 66 male) subjects.

Measurement Variables

Three instruments were used: the Learning Environment Inventory (Anderson, 1973) to measure perceptions of the socio-psychological climate, the I-E Scale (Rotter, 1966) to measure Locus of Control, and the Sensation Seeking Scale (Zuckerman, 1971) to measure level of stimulation seeking.

Learning Environment Inventory (LEI) The LEI is composed of 105 4-point Likert-type scale items grouped into 15 scales. Scores on each scale range from 7 to 28. The 15 scales (climate dimensions) were developed by Anderson and Walberg (Walberg, 1968a, 1968b) in conjunction with the Harvard Project Physics and are revisions of an earlier instrument, the Classroom Climate Questionnaire (Walberg, 1968a, Anderson, 1973). The LEI

can be used to obtain scores either for individuals within classes or can be used to form group scores where the class means on the scales are used. Anderson (1968) determined that a 50% random sample of the students in a particular class is adequate for a reliable assessment of the class score (Anderson, 1973, p. 9). Alpha reliability coefficients for the individual scores range from .54 to .86 with most coefficients in the .70 - .80 range. Interclass correlation coefficients for the class scores range from .31 to .92 with most coefficients in the .70 - .80 range. Test-retest reliabilities for the scales range from .43 to .73.

Locus of Control - The I-E Scale consists of 23 items with six filler items, each in a forced choice format matching an internal and external response. The score is the number of external responses selected. The present I-E Scale is the result of a number of factor analyses and item analyses of earlier scales (see Rotter, 1966, for a full description). The I-E Scale has shown relatively good internal consistency estimates ranging from .65 to .76 with most estimates in the .70's (Rotter, 1966). Rotter defends these "moderately high" estimates by pointing out that the scale items are not arranged in a difficulty heirarchy, but rather are samples of attitudes in a wide variety of different situations and the test is an additive test so the items are not directly comparable (Rotter, 1966, p. 40). Test-retest reliability for periods ranging from 1 to 2 months ranged between .49 and .83 (Rotter, 1966) and Joe (1971) reported other test-retest reliability coefficients ranging between .48 and .84.

Sensation Seeking The Sensation Seeking Scale (SSS) Form IV contains

71 items, each in a forced choice format matching a high sensation seeking response with a low sensation seeking response. The SSS contains five subscales, scored separately. The score for each subscale is the number of high sensation responses on that subscale. The Form IV SSS is the result of two factor analyses of previous scales (see Zuckerman, 1971, for a full description). The general sensation seeking subscale is identical to 22 male-female items of an earlier scale (Form II). The other four subscales are the result of the factor analyses. The corrected odd-even reliabilities for four of the five subscales are mainly in the .70's and .80's. The reliabilities for the fifth subscale (Boredom Susceptibility) are questionable.

Procedure

All subjects were tested in groups within their regular English classes during regular classtime. The three instruments (LEI, I-E Scale, SSS) were administered in three different orders and handed out in one test booklet (see Appendix A). Full counterbalancing of instruments would require six different orders so the use of only three may add a bais to the results. However, order was not considered an important factor and thus three orders were deemed sufficient. Each booklet contained a cover page with general instructions. Students were told by the experimenter that the purpose of the three questionnaires was to gather information about how they felt about various things and that all responses would be kept confidential. They were encouraged to be open and honest. They were then informed that each questionnaire in the booklet had its own set of instructions and that they were to read each set of instructions

carefully before responding to the questionnaire. The instructions for the two individual difference measures (I-E Scale and SSS) were identical for all subjects. There were two sets of instructions for the LEI. One, called "actual condition," instructed the subjects to respond with respect to the particular class they were in at the present. The other, "ideal conditions," instructed subjects to respond with respect to how they would "ideally" like their class to be. One random half of the subjects received the "actual" instruction and the remaining half received the "ideal" instruction.

The LEI was scored according to the instructions in the LEI manual (Anderson, 1973). The I-E Scale contained only the 23 items directly concerned with Locus of Control and was scored in the external direction. The SSS contained only the 22 items which make up the general sensation seeking subscale of Zuckerman's (1971) Form IV. This subscale was used since most previous studies investigating sensation seeking have used the 22 item scale, as opposed to the full 71 item scale, and because the 22 item scale is valid for both sexes. The SSS was scored in the high sensation seeking direction.

Design

The analysis of the data consisted of three steps. First, the scores for all subjects on the 15 Learning Environment Inventory (LEI) Scales were used to compute a 15 x 15 covariance matrix. A principal components analysis of this matrix yielded three substantive components which were then rotated using the Varimax procedure. A covariance matrix was used for the principal components analysis for two reasons: (a) by using

deviation scores instead of standard scores differences between groups are maintained not only with regard to means but also variances, and (b) apparent differences between groups (differences in factor loading patterns) as a function of differences in observed variances are avoided (Bentler, 1973; Cattell, 1973). Scores for each subject on each of the three rotated principal components were obtained. The second step of the analysis consisted of forming three levels of Locus of Control (Internal, Mixed, External) and three levels of Sensation Seeking (Low, Medium, High). Based on the joint frequency distributions for both instruction conditions, the scores on Locus of Control or Sensation Seeking were divided into approximately equal thirds such that the range of scores within a given level of Locus of Control or Sensation Seeking was the same for both instruction conditions. The number of subjects in each of the resulting 18 cells (9 actual, 9 ideal) was noted and subjects were randomly dropped from each cell with more than eight subjects to equalize frequencies across all 18 cells. The final step of the analysis consisted of using the three principal component scores of the remaining 144 subjects as dependent variables in three 3(Locus of Control) x 3(Sensation Seeking) x 2(Instructions) analyses of variance.

V. RESULTS

Table 2 presents the distribution of subjects by grade, sex, and type of instruction. All available juniors and seniors were tested and an attempt was made only to control the distribution of subjects with respect to actual and ideal instruction conditions. As can be seen, the distributions with respect to instruction, sex, and grade are fairly well balanced. Sex and grade were not taken into account in any subsequent analyses. Table 3 presents the means and standard deviations for each of the 17 classes tested on Locus of Control and Sensation Seeking for both Instruction conditions. Comparisons were made within classes between the Actual and Ideal Locus of Control means and the Actual and Ideal Sensation Seeking means. No within class differences were significant at the .01 level. Comparisons were also made between classes comparing the largest differences between Locus of Control means and between Sensation Seeking means. Again, no significant differences were found at the .01 level. It was concluded that the classes were not different with respect to Locus of Control or Sensation Seeking. Therefore, they were combined for the remainder of the analyses.

The first main step of the analysis procedure was to perform a principal components analysis on the scores of all subjects on the 15 Learning Environment Inventory (LEI) dimensions. Principal components were derived from the covariance matrix (Table 1, Appendix B) of the 15 LEI dimensions. Based on the following criteria, the first three principal

TABLE 2

Distribution of Subjects by Sex, Grade, and Type of Instruction

Grade	Sex	
	Male	Female
Grade 12		
Actual	32	33
Ideal	33	31
Grade 11		
Actual	34	37
Ideal	32	35

components were selected for rotation and further analysis: a) Kaiser-Guttmann criterion: select those principal components of the covariance matrix whose eigen values are greater than the average eigen value of all principal component eigen values (Table 2, Appendix B); b) Scree Test (Cattell, 1966): select those principal components whose eigen values deviate markedly from the linear trend when all eigen values are plotted, including the last principal component in the linear trend; c) Kaiser-Guttman criterion: select those principal components of the correlation matrix (Table 3, Appendix B) whose eigen values are greater than 1.00 (Table 2, Appendix B). The first three principal components accounted for 51.6%, 9.6%, and 6.1% of the total variance respectively. The strength of the first principal component is quite high considering the usual amount of variance accounted for by principal components and points to a strong lack of independence of the various dimensions of the Learning Environment Inventory. A Varimax rotation procedure was used to rotate the first three principal components. After rotation the first rotated principal component still accounted for a large percent of the total variance, 40.2%. The remaining two rotated principal components accounted for 20.5% and 6.7% of the total variance, somewhat more than the unrotated second and third principal components, but still much less than the first rotated principal component. With regard to the interpretation of the components an LEI dimension was considered to have a significant loading on a particular rotated principal component if its loading was greater than the average absolute value of all the loadings (see Table 4, Appendix B). Table 4 presents the LEI dimensions

TABLE 3

Means and Standard Deviations of each Class on Locus of Control and Sensation Seeking

		Instruction			
		Actual		Ideal	
Class	n[a]	Locus of Control	Sensation Seeking	Locus of Control	Sensation Seeking
1	8/8	8.75/3.54[b]	14.00/2.93[b]	10.50/4.14[b]	12.63/3.74[b]
2	7/5	13.29/3.35	12.43/3.78	10.40/2.88	12.80/3.56
3	7/7	10.43/2.88	13.29/4.19	12.57/3.59	14.14/2.79
4	6/6	12.33/4.89	13.17/3.43	12.00/5.76	10.00/3.74
5	10/7	11.70/3.74	12.50/3.47	10.29/3.45	14.86/2.48
6	9/8	10.00/2.87	13.33/2.83	9.13/2.47	13.63/2.50
7	8/7	12.13/5.91	13.00/3.78	11.86/3.08	12.43/3.50
8	4/6	12.00/4.76	11.50/1.29	9.83/2.99	11.83/3.19
9	3/5	9.67/2.52	16.33/1.15	12.20/3.70	11.20/4.32
10	8/9	10.63/3.20	13.38/2.13	9.89/3.37	14.56/2.88
11	8/7	9.88/5.22	14.13/2.59	11.14/3.72	15.00/3.06
12	11/10	10.36/3.38	14.73/3.10	12.40/3.24	13.30/2.87
13	15/13	11.33/4.50	12.27/2.91	11.39/2.79	11.62/4.13
14	5/5	11.00/5.57	12.80/1.79	10.00/1.22	12.20/1.10
15	7/8	8.57/4.50	13.29/2.69	11.50/2.73	11.88/3.48
16	14/14	11.79/3.07	13.14/3.11	10.88/2.77	13.07/4.63
17	6/6	13.00/4.24	12.50/2.66	12.50/2.43	13.00/3.41
All Classes	138/131	11.01/4.01	13.21/2.99	11.08/3.24	12.89/3.49

[a] Actual Instruction to left, Ideal Instruction to right

[b] Means to left, standard deviations to right

with significant loadings on each of the three rotated principal components. The first rotated principal component loads 10 of the 15 LEI dimensions. Three of the four dimensions loading positively on this component are members of the System Maintenance and System Change category and four of the six dimensions loading negatively on this component are members of the Relationship category. Overall this component might be labeled as a pleasantness index of the socio-psychological climate. The LEI dimensions with positive loadings on the second rotated component correspond quite closely to the Relationship category. The fact that some of the same dimensions load both negatively on the first rotated component and positively on the second suggests multi-dimensionality of these scales, especially given that the Varimax rotation produces orthogonal principal components. The second rotated principal component might be labeled a relationship index. The third rotated component has three of the Personal Development dimensions as its only significant dimensions. Thus this component might be labeled a Personal Development index.

The second major step of the analysis procedure was to determine the three levels of Locus of Control and the three levels of Sensation Seeking and appropriately place the subjects into their respective level. Joint frequency distributions of the Locus of Control scores and the Sensation Seeking scores were obtained for the Actual instruction and the Ideal instruction groups and then divided into approximately equal thirds. Table 5 presents the range of scores for the categories of Locus of Control and Sensation Seeking and the number of subjects in each cell for each instruction group. Due to the unequal cell frequencies, subjects

TABLE 4

LEI Dimensions with Significant Loadings on Rotated Principal Components

Direction of Loading	Rotated Principal Component 1	2	3
positive	environment[a]	friction	speed
	goal direction	favoritism	difficulty
	satisfaction	cliqueness	competitiveness
	democratic	competitiveness	
negative	disorganization	democratic	
	apathy		
	cliqueness		
	speed		
	favoritism		
	friction		

[a] Dimensions listed in order of decreasing absolute value of loadings.

TABLE 5

Number of Subjects in Each Level of
Locus of Control and Sensation Seeking for
Actual and Ideal Instruction Conditions

Locus of Control	Sensation Seeking		
	Low (5-11)[a]	Medium (12-14)[a]	High (15-21)[a]
Internal (1-10)[b]			
Actual	13	21	14
Ideal	8	17	15
Mixed (10-13)[b]			
Actual	14	21	18
Ideal	23	16	22
External (14-22)[b]			
Actual	11	11	13
Ideal	12	8	10

[a] Range of sensation seeking scores

[b] Range of locus of control scores

were randomly dropped from each cell with more than eight subjects to equalize n's across all cells. The remaining 144 subjects (8 per cell for 18 cells) were used in all subsequent analyses.

The final step of the main analysis procedure was to perform an analysis of variance with three levels of Locus of Control (Internal, Mixed, External), three levels of Sensation Seeking (Low, Medium, High), and two levels of Instructions (Actual, Ideal) for the scores on each of the rotated principal components. Table 6 presents the analysis of variance of scores on the first rotated principal component (see Table 5, Appendix B for means). Two significant F ratios were found, one for the main effect due to Instructions and one for the main effect due to Locus of Control. The Sensation Seeking main effect and all interactions were not significant at the ($p<.01$) level. The significant Locus of Control effect offers support for the first and second hypotheses of this study. Students who differ in Locus of Control also differ in their perceptions of socio-psychological climates. Figure 2 graphically displays the means of the three levels of Locus of Control for the Actual Instruction group, the Ideal Instruction group, and for both groups combined. In all cases Internals scored higher than did the Mixed group who scored higher than the Externals.

Table 7 presents the Post Hoc Analyses for the significant Locus of Control effect. Internals scores were significantly higher than those of the External group. The differences between the Internal and Mixed groups and the Mixed and External groups however failed to reach significance at the ($p<.01$) level. A significant linear trend was

TABLE 6

Analysis of Variance for First Rotated Principal Component

Source	df	MS	f
Instructions (A)	1	10.15	13.45*
Locus of Control (B)	2	5.44	7.21*
Sensation Seeking (C)	2	.55	.72
A x B	2	.24	.31
A x C	2	.19	.25
B x C	4	1.49	1.97
A x B x C	4	2.35	3.12
Error	126	.76	

* $p < .01$

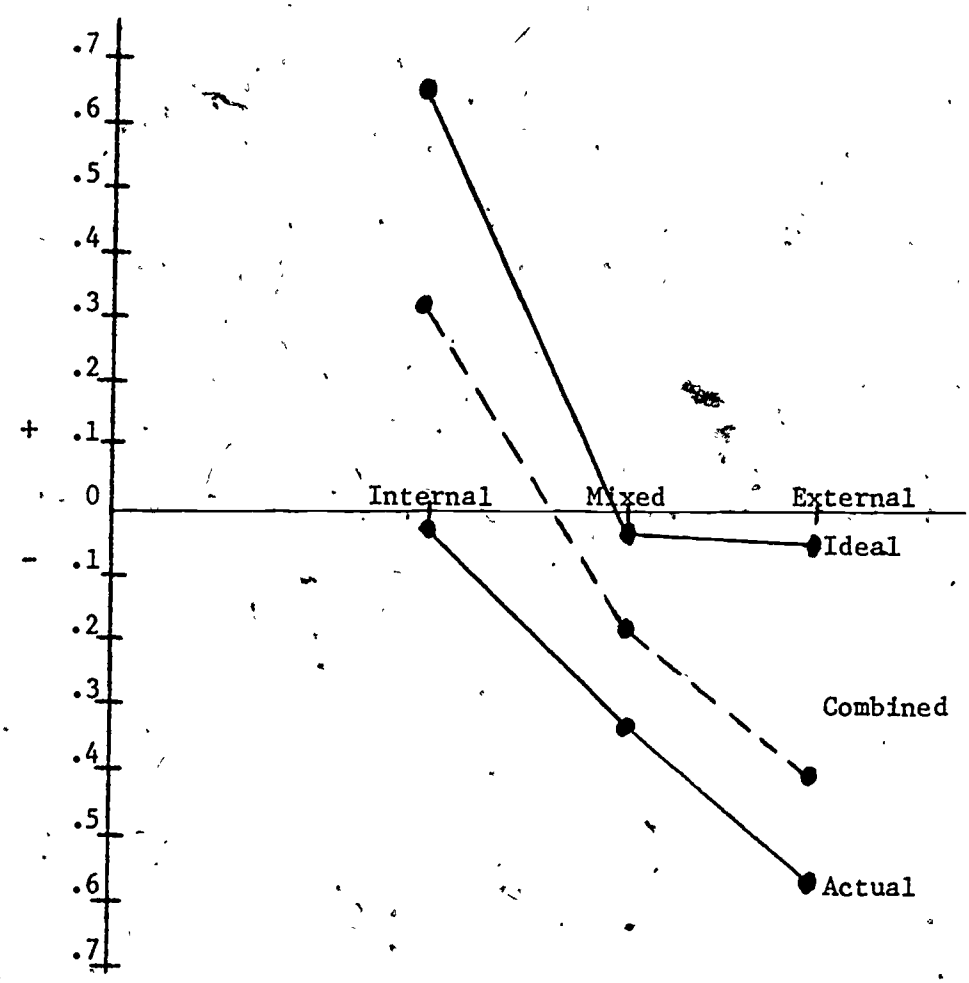

Figure 2. Locus of Control Means for Actual and Ideal Instruction Groups on First Rotated Principal Component.

TABLE 7

Post-Hoc Analysis for Locus of Control Main Effect on First Rotated Principal Component

Comparison	ψ	Significant[a]
Internal vs. Mixed	$\psi_1=(+1)(.325)+(-1)(-.197) = .522$	no
Internal vs. External	$\psi_2=(+1)(.325)+(-1)(-.304) = .629$	yes
Mixed vs. External	$\psi_3=(+1)(-.197)+(-1)(-.304) = .197$	no
Linear Trend	$\psi_4=(-1)(.325)+(0)(-.197)+(+1)(-.304) = -.629$	yes

[a] Scheffé critical value = $[S^2(\mathrm{Var}(\psi_i))]^{1/2} = .547$

detected implying that the Internal, Mixed, and External groups were ordered with the Internal group highest, the Mixed group in the middle, and the External group lowest.

Table 6 contained a non-significant main effect for Sensation Seeking, and non-significant interactions for all factors. These results are complemented by Figures 3, 4, and 5. Figure 3 graphically displays the Sensation Seeking means for the Ideal and Actual Instruction groups and the combined means. Although some differences exist between the levels of Sensation Seeking, the differences are not statistically significant. Figures 4 and 5 graphically display the interaction between Locus of Control and Sensation Seeking for the Actual Instruction group and Ideal Instruction group, respectively. In summary, the first and second hypotheses of the study are partially supported by the significant Locus of Control effect for the first rotated principal component. However, the results with respect to Sensation Seeking offer no support for these two hypotheses.

With respect to the third hypothesis concerning differences between perceptions of Actual and Ideal socio-psychological climates, it is again partially supported by the significant main effect for Instruction on the first rotated principal component (see Table 6). The overall means for the Actual and Ideal Instruction groups were -.32 and .21, respectively. The higher scores of the Ideal group are illustrated in Figures 2 and 3, and can also be seen when Figures 4 and 5 are compared.

Tables 8 and 9 present the analyses of variance for the second and third rotated principal components, respectively (see Tables 6 and 7, Appendix B for means). No significant *F* ratios were found for either

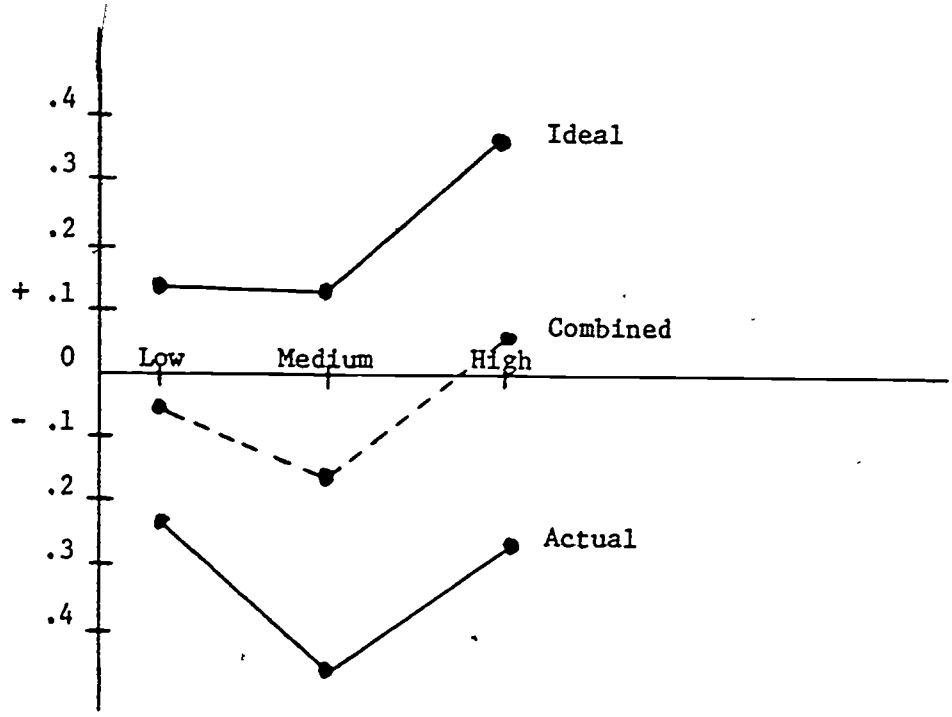

Figure 3. Sensation Seeking Means for Actual and Ideal Instruction Groups on First Rotated Principal Component.

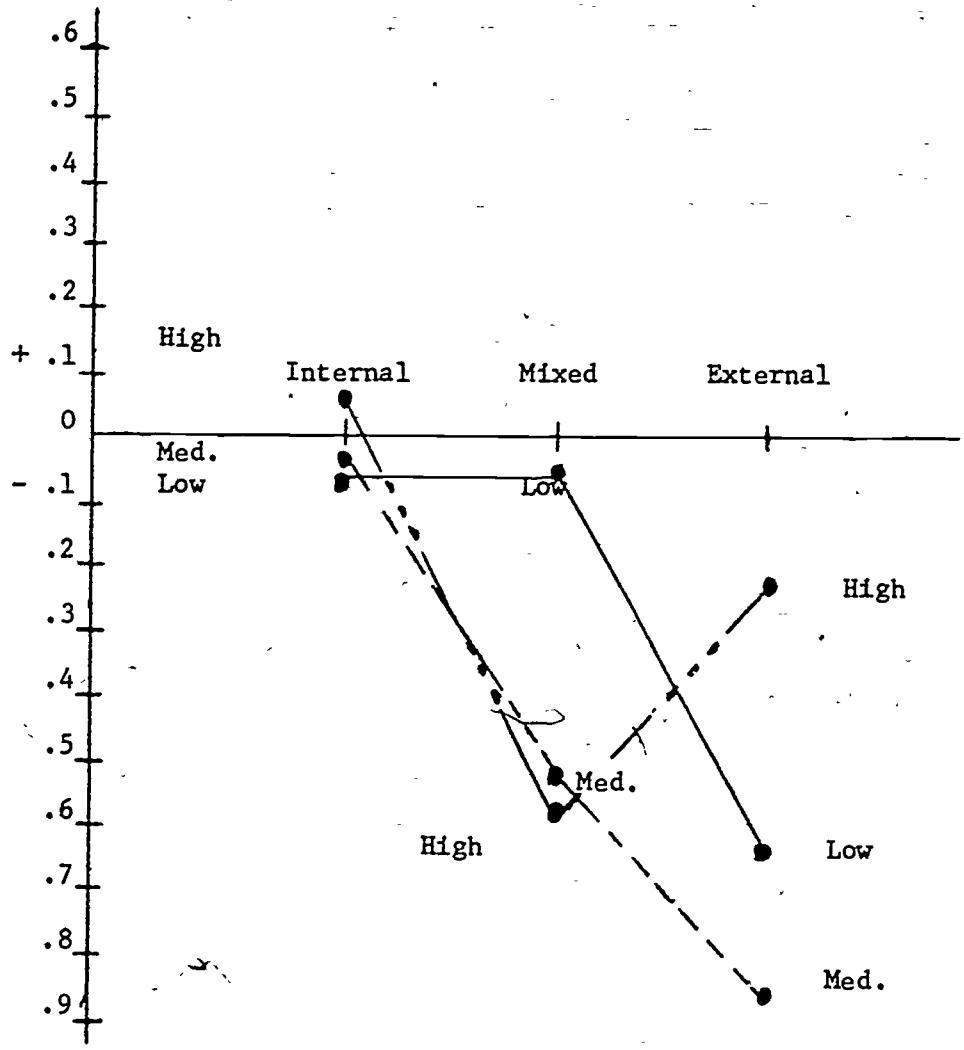

Figure 4. Means for Nine Locus of Control by Sensation Seeking Groups for Actual Instruction Group on First Rotated Principal Component.

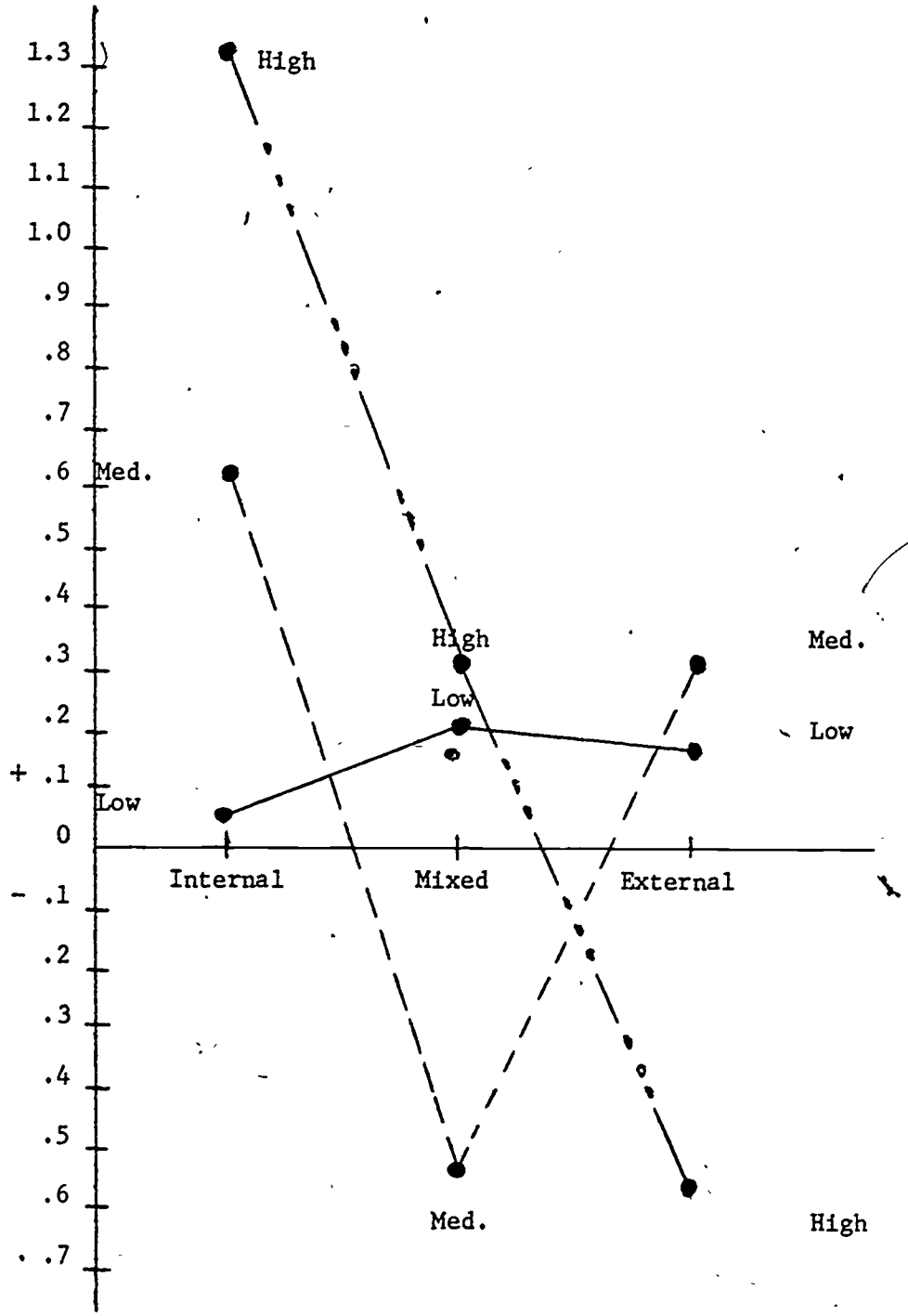

Figure 5. Means for Nine Locus of Control by Sensation Seeking Groups for Ideal Instruction Group on First Rotated Principal Component.

of these components. Thus these analyses offer no support for any of the major hypotheses of this study.

In addition to the above analysis which investigated the 67.4% of the total variance shared by the dimensions of the Learning Environment Inventory, an analysis of variance was performed for each dimension of the LEI separately, using the raw scale score as the dependent variable. Table 10 presents a summary of the significant findings of this analysis. Seven of the LEI dimensions contained significant F ratios. All seven of these dimensions had significant loadings on the first rotated principal component. The scale specific analyses thus augment the shared variance analysis. Table 11 contains the mean scores on each of the LEI dimensions which contained significant F ratios. With respect to the significant Instruction effects, the Ideal group scored higher on the Environment, Goal Direction, Satisfaction, and Democratic LEI dimensions, all of which had significant positive loadings on the first rotated principal component. The Actual group had higher scores on the Cliqueness and Disorganization dimensions, both of which had significant negative loadings on the first rotated principal component. With respect to the significant Locus of Control results, the Internals scored higher than the Mixed group who were higher than the Externals on the Environment, Satisfaction, and Democratic LEI dimensions, all of which loaded positively on the first rotated principal component. The Externals scored higher than the Mixed group who were higher than the Internals on the Favoritism and Disorganization LEI dimensions, both of which loaded negatively on the first rotated principal component.

TABLE 8

Analysis of Variance for Second Rotated Principal Component

Source	df	MS	f
Instructions (A)	1	.81	.72
Locus of Control (B)	2	1.89	1.68
Sensation Seeking (C)	2	2.52	2.24
A x B	2	2.25	2.00
A x C	2	.33	.29
B x C	4	.19	.17
A x B x C	4	1.04	.93
ERROR	126	1.12	

TABLE 9

Analysis of Variance for Third Rotated Principal Component

Source	df	MS	f
Instructions (A)	1	.00	.00
Locus of Control (B)	2	.12	.11
Sensation Seeking (C)	2	.24	.24
A x B	2	1.07	.92
A x C	2	.28	.25
B x C	4	.67	.60
A x B x C	4	.95	.85
ERROR	126	1.12	

TABLE 10

Significant Effects for Scale Specific Analysis of Variance of the LEI

LEI Dimensions	Source: Instructions (A)	Locus of Control (B)	A x B x SSS
1. Cohesiveness			
2. Diversity			
3. Formality			
4. Speed			
5. Environment	*	**	
6. Friction			
7. Goal Direction	*		
8. Favoritism		**	
9. Cliqueness	*		
10. Satisfaction	*	**	
11. Disorganization	*	**	
12. Difficulty			
13. Apathy			
14. Democratic	*	**	***
15. Competitiveness			

* $F > F_{1,126}\ .01 = 6.81$

** $F > F_{2,126}\ .01 = 4.76$

*** $F > F_{4,126}\ .01 = 3.45$

TABLE 11

Means for Significant Effects of Scale Specific Analysis

LEI Dimension	Significant Effect				
	Instructions		Locus of Control		
	Actual	Ideal	Internal	Mixed	External
1. Cohesiveness					
2. Diversity					
3. Formality					
4. Speed					
5. Environment	17.54	19.40	19.62	18.15	17.65
6. Friction					
7. Goal Direction	17.47	19.21			
8. Favoritism			14.85	14.92	17.23
9. Cliqueness	20.65	18.56			
10. Satisfaction	16.12	17.68	18.10	16.33	16.27
11. Disorganization	17.14	15.74	15.21	16.35	17.75
12. Difficulty					
13. Apathy					
14. Democratic	16.08	17.87	18.08	17.19	15.67
15. Competitiveness					

The scale specific results add clarity to the principal component analysis by providing more specific information concerning the source of the results and the effects of the Instructions and of Locus of Control on specific LEI dimensions.

VI. DISCUSSION

The major implications of this study with respect to socio-psychological climates are twofold. The first concerns the structure of the perceived environment; the second concerns the explication and role of individual differences for socio-psychological climates. Therefore, the following discussion will address itself primarily to these two issues. Considering the generalizability of the present findings with respect to Locus of Control and Sensation Seeking, the present group of subjects employed here was somewhat more external, with a mean Locus of Control score of 11.04 as compared to means of about 8.00 reported by Rotter (1966). This, however, was expected since high school students were chosen to avoid higher levels of internality and restricted ranges typical for studies using college populations. The overall Sensation Seeking mean of the present group of subjects was 13.05 which is comparable to means reported by Farley (1971), Farley and Dionne (1972), Farley and Haubrich (1974), and Farley, Peterson, and Whalen (1974). Therefore the present group of subjects may be considered representative of the general population of young people with respect to Locus of Control and Sensation Seeking.

Structure of the Perceived Environment

The general pattern of loadings of the Learning Environment Inventory (LEI) dimensions on the three rotated principal components essentially

supports Moos' (1973) theoretical categories. That is, the 15 dimensions cluster in a configuration which suggests a high degree of similarity between the obtained components and the three conceptual categories with the first rotated component best representing the System Maintenance and System Change category, the second component representing the Relationship category and the third component representing the Personal Development category (see Tables 1 and 4). However, the match between the obtained components and Moos' categories is not perfect in the sense that the present set of components suggests a more refined interpretation of the structure of the perceived environment, at least as operationalized by the LEI.

The first rotated principal component was termed earlier as a "pleasantness" index of the perceived socio-psychological climate. Table 4 presents the LEI dimensions with significant loadings on this "pleasantness" index and suggests two factors as important in the perception of overall "pleasantness". The first factor consisting of the cluster of positively loading scales, suggests that students perceive part of the "pleasantness" of their socio-psychological climates as being determined by the overall organization of their class environment. Students consider such things as the availability of resources (Environment scale), the clarity of class goals and objectives (Goal Direction scale), their overall satisfaction with the class (Satisfaction scale), the degree of shared decision making (Democratic scale), and the lack of confusion (Disorganization scale) as important facets or determiners of the overall "pleasantness" of their socio-

psychological climates. All of the scales except Satisfaction listed above are members of Moos' System Maintenance and System Change category according to Table 1. While they may measure the orderliness and structure of the socio-psychological climate as Moos' posits, here they appear to be primarily tapping individual evaluations of the effect of the class organization on the "pleasantness" of the climate. The second factor, consisting of the cluster of negatively loading scales, suggests that students also perceive the "pleasantness" of their socio-psychological climates as partially determined by the effects of the various types of interpersonal relationships they attribute to their classroom environment. Students in the present study consider such aspects as the level of involvement of students in the class (Apathy scale), the cliquishness of students (Cliqueness scale), the pace of the class (Speed scale), the amount of favoritism (Favoritism scale), and the level of tension between class members (Friction scale) as important aspects of the overall "pleasantness" of the class. Most of the dimensions listed here are members of Moos' Relationship category. However, the general pattern of the "Pleasantness" component just described indicates that the perceived nature of social relationships may be an intrinsic determinant of the level of overall pleasantness people ascribe to their environment.

Given the two clusters of the first component (pleasantness index), high scores on this index describe students who perceive their socio-psychological climate as more pleasant in terms of a more orderly environment and in terms of fewer difficulties in relating to other class members. On the other hand, low scores on the pleasantness index

suggest that a student perceives an environmental structure which is relatively low in terms of its orderliness and which is more aversive in terms of the interpersonal relationships among class members.

The second principal component has been termed here a relationship index because of its substantive loadings (Friction, Favoritism, Cliqueness, Competitiveness, Democratic). It is primarily oriented towards the nature of relationships that exist among class members. The LEI measures with substantive loadings on this relationship index suggest that students perceive the relationships existing in their socio-psychological climates as determined by the level of tension among students (Friction scale), by the amount of special attention paid to certain class members (Favoritism scale), the cliquishness of students (Cliqueness scale), by the amount of competing between students (Competitiveness scale), and by the level of shared decision making in the class (Democratic scale). The fact that some of the LEI scales load both on the "pleasantness" and the relationship index suggests multi-dimensionality of these scales (Friction, Favoritism, Cliqueness). In other words, they seem to combine characteristics of Moos' System Maintenance and System Change category with those of his Relationship category. Three of the five scales loading on this index are members of Moos' Relationship category according to Table 1. The present findings suggest essentially agreement with Moos' Relationship category and adds two scales originally classified in other categories (Democratic and Competitiveness).

Considering the pattern of loadings on the second component (relationship index) scores on this index may be interpreted as a measure of

the type of relationships which exists or may exist between class members. High scores suggest that class relationships are not close and are somewhat strained (more tension, favoritism, competing and few shared decisions). Low scores on the other hand suggest "better" relationships between class members in terms of less tension, less overt competition, and more cooperative decision making.

The third principal component has been termed a personal development index since the three LEI scales which load significantly on it are all members of Moos' category of Personal Development dimensions. The marker scales on this index suggest that students perceive the potential or opportunity provided by their school environment for personal development in terms of the pace of the class (Speed scale), the difficulty level of the work they must perform in the class (Difficulty scale), and in terms of the amount of competition between class members (Competitiveness scale). This component is the only dimension of the perceived environmental structure which was found to contain scales falling entirely in only one of Moos' categories. It must be noted, however, that two of the scales loading on this index (Speed and Competitiveness) also have significant loadings on other components, thus suggesting multi-dimensionality of these scales.

The interpretation of the third component, the personal development index would seem to depend upon one's point of view. High scores signify a fast paced, relatively difficult and competitive socio-psychological climate which some would say is conducive to greater personal development. Low scores on this index, on the other hand, reflect a medium to slow paced class with average difficulty and low

levels of competition among class members and some may say that this type of climate promotes greater personal development. I lean toward the latter interpretation.

In summary, the present group of students perceives the structure of their environment in terms of three indices, a pleasantness index, a relationship index, and a personal development index. These indices correspond closely to Moos' three categories of environmental dimensions.

One note of caution is necessary at this point. While all of Moos' categories are represented by the principal components of the LEI, the fact that the first component accounts for over 50% of the total variance raises serious doubts about the assumed multi-dimensionality of the LEI and therefore about the significance of the second and third principal components. Even after rotation, the first component (pleasantness index) still accounts for a considerable 40.2% of the total variance. It appears that at least 10 of the 15 LEI scales measure the same underlying socio-psychological climate construct. In terms of Moos' categories the LEI appears to overrepresent the System Maintenance and System Change category.

The significant Instruction effect for the pleasantness index not only supports the general prediction that students would differ in their perceptions of Actual and Ideal socio-psychological climates, but adds information concerning how students perceive the structure of their environment. The lack of any interactions combined with the significant pleasantness index Instruction effect confirm that students basically perceive their Actual and Ideal socio-psychological climates as having

similar structures, the only difference being that the Ideal climate is perceived as being more pleasant than the Actual climate. Generally the higher scores of the Ideal instruction group imply that students desire climates which make a number of resources available for their use, have clearly delineated class goals and objectives, are personally satisfying to the class members and exhibit a high degree of shared decision making. They also prefer a socio-psychological climate with low levels of confusion, with class members who are involved in their class, with few clique type groups of students, with a relatively slow pace of work, few instances of special attention being paid to a select group of students and with a low amount of tension between class members (see Table 4). More specifically, the results of the scale specific analyses (Tables 10 and 11) show the Ideal climate is one having more resources available to students, having clearer class goals and objectives, being more personally satisfying and equalitarian with less confusion and cliquishness than is the Actual climate. While the Instruction effect reached significance for the pleasantness index of the socio-psychological climate, it only accounted for approximately 8% of the variance of this index. One possible explanation for this relatively weak effect may be the lack of sensitivity of the LEI to actual-ideal differences in student perceptions. Another possible explanation concerns the fact that only 8 of 15 LEI dimensions exhibited significant Instruction effects while for 7 of the dimensions the Actual and Ideal climates were not perceived as being different. Thus the perceived Actual climates for these dimensions may be interpreted as being similar to the students ideal perceptions for these climate dimensions (see Table 8, Appendix B).

Relevance of Individual Difference Measures for Socio-Psychological Climates

The significant Locus of Control main effect for the pleasantness index offers partial support for the two general predictions stating that the individual difference measures would be related to students' perceptions of their Actual and Ideal socio-psychological climate (see Tables 6 and 7 and Figure 2). The lack of any interactions with Locus of Control implies generalizability of the Locus of Control effect across both types of Instructions as well as all Sensation Seeking levels (see Figures 2, 4 and 5). In general, Internals perceive their socio-psychological climates as being more pleasant than the Mixed group who perceived more pleasantness than the Externals. More concretely, Internals perceive their environment as having more resources, having clearer goals, being more satisfying and democratic, less confusing and slower paced with low amounts of favoritism, tension and apathy, than do either the Mixed or External groups. The significant Instruction effect implies that these differences between Internals, Mixed, and Externals hold for both Actual and Ideal environments. That is, all groups prefer higher levels of the Environment, Goal Direction, Satisfaction and Democratic dimensions and lower levels on the Disorganization, Apathy, Cliqueness, Speed, Favoritism and Friction dimensions. These Internal, Mixed, and External differences are consistent with Locus of Control literature from two perspectives. First, both actual and ideal socio-psychological climates in the present study are essentially referring to academic situations. Previous studies of Locus of Control differences in relation to Skill versus Chance situations, Willingness to Take Action, and Use of Situational Information

suggest that Internals perceive/prefer Actual/Ideal climates which have more resources available (Environment scale), are more organized (Disorganization scale) and more democratic (Democratic scale) as compared to more External persons. Table 11 presents the means for each of the above scales with respect to Locus of Control (each scale contained a significant Locus of Control effect) and shows consistently higher mean scores for Internals as compared to the Mixed and External subjects. Each of those scales also loads significantly on the pleasantness index signifying a greater perception of pleasantness on the part of the Internals (see Table 7). Second, as suggested by the literature dealing with Locus of Control differences and Interpersonal Relations, Internals should perceive/prefer Actual/Ideal climates which exhibit less cliquishness and more satisfaction. Both the Cliqueness and Satisfaction LEI dimensions exhibit significant Locus of Control effects in the expected direction (see Table 11). Both these scales in addition load negatively on the pleasantness index.

In summary, the significant Locus of Control effect can basically be interpreted as signifying a higher perceived level of overall pleasantness of socio-psychological climates by Internals as compared to Mixed and External groups. With respect to specific LEI dimensions, Internals perceive their climates as having more resources available to them, as being more satisfying and as being more equalitarian than do the Mixed or External subjects. The Externals, on the other hand, perceive their socio-psychological climates as exhibiting more favoritism or special treatment of a few class members and as being more disorganized or confusing than do Internals. It must again be pointed out that while the Locus of Control effect is significant, it only accounts

for approximately 8% of the variance. As was put forth with respect to the weak Instruction effect, it may be a lack of sensitivity of the LEI scales which may account for the small effect obtained here. It may also be as was postulated earlier that Externals are less aware of environmental factors, especially in combination with a "weak climate" instrument.

The second individual difference construct utilized in this study was Sensation Seeking. The lack of any overall results for this construct is puzzling in light of previous findings. Figure 3 displays the means for the Actual and Ideal Instruction groups as well as the combined means for each level of Sensation Seeking. The only effect exhibited is the overall Instruction effect already discussed. Figures 4 and 5 display the means of the nine Locus of Control by Sensation Seeking groups for Actual and Ideal Instruction groups respectively. With respect to the Actual environment, there were no overall effects and the major differences can be attributed to the Locus of Control effect. The means for the Ideal environment, however, are much more disparate. The Internal-High Sensation Seekers prefer a much more pleasant climate, quite apart from any of the other groups. Also, the various levels of Locus of Control appear to have the most dramatic effect within the High Sensation group as far as overall pleasantness of their Ideal environment is concerned. A fairly strong Locus of Control effect is also evident for the Medium Sensation Seekers. Further studies should investigate more directly the interaction of Locus of Control and Sensation Seeking with respect to perceived pleasantness of the Ideal socio-psychological climate.

Overall, it must be concluded that Sensation Seeking as an individual difference measure does not discriminate among students' perceptions of their socio-psychological climates. One reason for this negative result may be that the Learning Environment Inventory does not include a scale of items concerned with preferences for different types of experiences or preferences for varied or complex stimuli in the environment. This explanation is suggested by the apparent unidimensionality of the LEI scales. Therefore new instruments developed to measure socio-psychological climate perceptions should perhaps be more sensitive to preferences for complex stimuli and varied experiences.

Conclusions and Implications

The major findings of this study concern the structure of the perceived socio-psychological climate and the influence of individual difference measures on students' perceptions. Overall, Moos' three categories appear to hold up fairly well. However, further investigations are needed to understand the importance of each category in a multi-dimensional description of perceived socio-psychological climates.

With respect to the significant effects of the study, the Instruction effect signifies that when one is interested in modifying socio-psychological climates special attention should be paid to the contribution of particular climate dimensions to the overall pleasantness of the climate. In particular, one should consider the positive influence of the Environmental, Goal Direction, Satisfaction, and

Democratic dimensions and attempt to insure high perceived levels on these dimensions. Attention should also be directed toward the negative influences of the Disorganization, Apathy, Cliqueness, Speed, Favoritism, and Friction dimensions and attempts should be made to insure low perceived levels on these dimensions.

With respect to the influence of individual difference measures on students' perceptions of socio-psychological climates, Locus of Control appears to have a significant effect. Specifically, this construct may be useful when describing and, perhaps more importantly, when developing socio-psychological climates. According to the scale specific analysis, particular attention should be paid to the Environment, Satisfaction, Democratic, and Favoritism dimensions when creating a positive socio-psychological climate for an internal group of students.

The present study underlines the necessity for investigations that can add further clarity and understanding to the interaction of individual differences and socio-psychological climate perceptions. The following list outlines a few avenues for further research:

A. Investigation of various socio-psychological climate instruments to better validate Moos' conceptual categorizations.

B. Have students both describe their actual and ideal socio-psychological climate perceptions and at the same time rate the importance of the various climate dimensions. This may help in the development of a more relevant and reliable socio-psychological climate instrument as well as help clarify any individual difference effects.

C. Use the differences between students' perceptions of Actual and Ideal socio-psychological climates as an indicator of the degree to which an actual climate meets students' expectancies and investigate these difference scores in relation to various types of behavioral data, both affective and cognitive.

D. Investigate the influence of other types of individual difference constructs on perceptions of socio-psychological climates. Of particular importance may be constructs such as learning styles or cognitive styles either in a global sense (Analytic vs. Global cognitive style) or in a more specific sense (preference for visual vs. auditory material presentation).

E. Investigate the presence or absence of developmental trends in perception of and differences between students' Actual and Ideal socio-psychological climates.

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APPENDIX A

GENERAL DIRECTIONS

There are three questionnaires in this booklet: The I-E Scale, The S-S Scale, and The Learning Environment Inventory. Please answer all the questions on each inventory. Do not be concerned if your neighbor is working on a questionnaire different than the one you are working on because the questionnaires are in different orders in each booklet.

Each questionnaire has its own set of instructions. Read each set of instructions carefully before starting to answer the items. Be sure to record your answers on the answer sheet under the column that has the same title as the questionnaire you are working on.

If you have any questions while you are answering the questionnaires, please raise your hand and I will answer your questions.

Learning Environment Inventory

Directions

The purpose of the questions in this questionnaire is to find out what your class is like. This is not a "test." You are asked to give your honest, frank opinions about the class you are in at this time.

Record your answer to each question on the answer sheet provided. Please make no marks on the questionnaire itself. Answer every question.

In answering each question go through the following steps:

1. Read the statement carefully.
2. Think about how well the statement describes the class you are in at this time.
3. Find the number on the answer sheet that corresponds to the statement you are considering.
4. Check only one number on the answer sheet according to the following instructions:

   If you strongly disagree with the statement, check number 1.
   If you disagree with the statement, check number 2.
   If you agree with the statement, check number 3.
   If you strongly agree with the statement, check number 4.

Learning Environment Inventory

Directions

The purpose of the questions in this questionnaire is to find out what you would ideally like your class to be. This is not a "test." You are asked to give your honest, frank opinions about the class you would ideally like to be in.

Record your answer to each question on the answer sheet provided. Please make no marks on the questionnaire itself. Answer every question.

In answering each question go through the following steps:

1. Read the statement carefully.
2. Think about how well the statement describes the class you would ideally like to be in.
3. Find the number on the answer sheet that corresponds to the statement you are considering.
4. Check only one number on the answer sheet according to the following instructions:

If you strongly disagree with the statement, check number 1.
If you disagree with the statement, check number 2.
If you agree with the statement, check number 3.
If you strongly agree with the statement, check number 4.

	Strongly disagree	Disagree	Agree	Strongly agree
1. Members of the class do favours for one another.	1	2	3	4
2. The books and equipment students need or want are easily available to them in the classroom.	1	2	3	4
3. There are long periods during which the class does nothing.	1	2	3	4
4. The class has students with many different interests.	1	2	3	4
5. Certain students work only with their close friends.	1	2	3	4
6. The students enjoy their class work.	1	2	3	4
7. Students who break the rules are penalized.	1	2	3	4
8. There is constant bickering among class members.	1	2	3	4
9. The better students' questions are more sympathetically answered than those of the average students.	1	2	3	4
10. The class knows exactly what it has to get done.	1	2	3	4
11. Interests vary greatly within the group.	1	2	3	4
12. A good collection of books and magazines is available in the classroom for students to use.	1	2	3	4
13. The work of the class is difficult.	1	2	3	4
14. Every member of the class enjoys the same privileges.	1	2	3	4
15. Most students want their work to be better than their friends' work.	1	2	3	4

	Strongly disagree	Disagree	Agree	Strongly agree
16. The class has rules to guide its activities.	1	2	3	4
17. Personal dissatisfaction with the class is too small to be a problem.	1	2	3	4
18. A student has the chance to get to know all other students in the class.	1	2	3	4
19. The work of the class is frequently interrupted when some students have nothing to do.	1	2	3	4
20. Students cooperate equally with all class members.	1	2	3	4
21. Many students are dissatisfied with much that the class does.	1	2	3	4
22. The better students are granted special privileges.	1	2	3	4
23. The objectives of the class are not clearly recognized.	1	2	3	4
24. Only the good students are given special projects.	1	2	3	4
25. Class decisions tend to be made by all the students.	1	2	3	4
26. The students would be proud to show the classroom to a visitor.	1	2	3	4
27. The pace of the class is rushed.	1	2	3	4
28. Some students refuse to mix with the rest of the class.	1	2	3	4
29. Decisions affecting the class tend to be made democratically.	1	2	3	4
30. Certain students have no respect for other students.	1	2	3	4

		Strongly disagree	Disagree	Agree	Strongly agree
31.	Some groups of students work together regardless of what the rest of the class is doing.	1	2	3	4
32.	Members of the class are personal friends.	1	2	3	4
33.	The class is well organized.	1	2	3	4
34.	Some students are interested in completely different things than other students.	1	2	3	4
35.	Certain students have more influence on the class than others.	1	2	3	4
36.	The room is bright and comfortable.	1	2	3	4
37.	Class members tend to pursue different kinds of problems.	1	2	3	4
38.	There is considerable dissatisfaction with the work of the class.	1	2	3	4
39.	Failure of the class would mean little to individual members.	1	2	3	4
40.	The class is disorganized.	1	2	3	4
41.	Students compete to see who can do the best work.	1	2	3	4
42.	Certain students impose their wishes on the whole class.	1	2	3	4
43.	A few of the class members always try to do better than the others.	1	2	3	4
44.	There are tensions among certain groups of students that tend to interfere with class activities.	1	2	3	4
45.	The class is well-organized and efficient.	1	2	3	4

		Strongly disagree	Disagree	Agree	Strongly agree
46.	Students are constantly challenged.	1	2	3	4
47.	Students feel left out unless they compete with their classmates.	1	2	3	4
48.	Students are asked to follow strict rules.	1	2	3	4
49.	The class is controlled by the actions of a few members who are favoured.	1	2	3	4
50.	Students don't care about the future of the class as a group.	1	2	3	4
51.	Each member of the class has as much influence as any other member.	1	2	3	4
52.	The members look forward to coming to class meetings.	1	2	3	4
53.	The subject studied requires no particular aptitude on the part of the students.	1	2	3	4
54.	Members of the class don't care what the class does.	1	2	3	4
55.	There are displays around the room.	1	2	3	4
56.	All students know each other very well.	1	2	3	4
57.	The classroom is too crowded.	1	2	3	4
58.	Students are not in close enough contact to develop likes or dislikes for one another.	1	2	3	4
59.	The class is rather informal and few rules are imposed.	1	2	3	4
60.	Students have little idea of what the class is attempting to accomplish.	1	2	3	4

		Strongly disagree	Disagree	Agree	Strongly agree
61.	There is a recognized right and wrong way of going about class activities.	1	2	3	4
62.	What the class does is determined by all the students.	1	2	3	4
63.	After the class, the students have a sense of satisfaction.	1	2	3	4
64.	Most students cooperate rather than compete with one another.	1	2	3	4
65.	The objectives of the class are specific.	1	2	3	4
66.	Students in the class tend to find the work hard to do.	1	2	3	4
67.	Each student knows the goals of the course.	1	2	3	4
68.	All classroom procedures are well-established.	1	2	3	4
69.	Certain students in the class are responsible for petty quarrels.	1	2	3	4
70.	Many class members are confused by what goes on in class.	1	2	3	4
71.	The class is made up of individuals who do not know each other well.	1	2	3	4
72.	The class divides its efforts among several purposes.	1	2	3	4
73.	The class has plenty of time to cover the prescribed amount of work.	1	2	3	4
74.	Students who have past histories of being discipline problems are discriminated against.	1	2	3	4
75.	Students do not have to hurry to finish their work.	1	2	3	4

		Strongly disagree	Disagree	Agree	Strongly agree
76.	Certain groups of [redacted]ds tend to sit together.	1	2	3	4
77.	There is much competition in the class.	1	2	3	4
78.	The subject presentation is too elementary for many students.	1	2	3	4
79.	Students are well-satisfied with the work of the class.	1	2	3	4
80.	A few members of the class have much greater influence than the other members.	1	2	3	4
81.	There is a set of rules for the students to follow.	1	2	3	4
82.	Certain students don't like other students.	1	2	3	4
83.	The class realizes exactly how much work it has to do.	1	2	3	4
84.	Students share a common concern for the success of the class.	1	2	3	4
85.	There is little time for day-dreaming.	1	2	3	4
86.	The class is working toward many different goals.	1	2	3	4
87.	The class members feel rushed to finish their work.	1	2	3	4
88.	Certain students are considered uncooperative.	1	2	3	4
89.	Most students sincerely want the class to be a success.	1	2	3	4
90.	There is enough room for both individual and group work.	1	2	3	4

		Strongly disagree	Disagree	Agree	Strongly agree
91.	Each student knows the other members of the class by their first names.	1	2	3	4
92.	Failure of the class would mean nothing to most members.	1	2	3	4
93.	The class has difficulty keeping up with its assigned work.	1	2	3	4
94.	There is a great deal of confusion during class meetings.	1	2	3	4
95.	Different students vary a great deal regarding which aspect of the class they are interested in.	1	2	3	4
96.	Each student in the class has a clear idea of the class goals.	1	2	3	4
97.	Most students cooperate equally with other class members.	1	2	3	4
98.	Certain students are favoured more than the rest.	1	2	3	4
99.	Students have a great concern for the progress of the class.	1	2	3	4
100.	Certain students stick together in small groups.	1	2	3	4
101.	Most students consider the subject-matter easy.	1	2	3	4
102.	The course material is covered quickly.	1	2	3	4
103.	There is an undercurrent of feeling among students that tends to pull the class apart.	1	2	3	4
104.	Many students in the school would have difficulty doing the advanced work of the class.	1	2	3	4
105.	Students seldom compete with one another.	1	2	3	4

I-E SCALE

The purpose of the questions in this questionnaire is to find out about some of your attitudes. This is not a "test." Please be honest and frank.

Record your choice to each pair of statements on the answer sheet provided. Please make no marks on the questionnaire. Choose an answer for every pair of statements.

In answering this questionnaire go through the following steps:

1. Read each pair of statements carefully.
2. Think about how much you agree with each choice.
3. Find the number on the answer sheet in the I-E Scale column that corresponds to the pair of statements you are considering.
4. Check either a or b on the answer sheet according to the following instruction:

   If you agree more with statement a, check letter a.
   If you agree more with statement b, check letter b.

1. a) Many of the unhappy things in people's lives are partly due to bad luck.
   b) People's misfortunes result from the mistakes they make.

2. a) One of the major reasons why we have wars is because people don't take enough interest in politics.
   b) There will always be wars, no matter how hard people try to prevent them.

3. a) In the long run people get the respect they deserve in this world.
   b) Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.

4. a) The idea that teachers are unfair to students is nonsense.
   b) Most students don't realize the extent to which their grades are influenced by accidental happenings.

5. a) Without the right breaks one cannot be an effective leader.
   b) Capable people who fail to become leaders have not taken advantage of their opportunities.

6. a) No matter how hard you try some people just don't like you.
   b) People who can't get others to like them don't understand how to get along with others.

7. a) I have often found that what is going to happen will happen.
   b) Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.

8. a) In the case of the well prepared student there is rarely if ever such a thing as an unfair test.
   b) Many times exam questions tend to be so unrelated to course work that studying is really useless.

9. a) Becoming a success is a matter of hard work, luck has little or nothing to do with it.
   b) Getting a good job depends mainly on being in the right place at the right time.

10. a) The average citizen can have an influence in government decisions.
    b) This world is run by the few people in power, and there is not much the little guy can do about it.

11. a) When I make plans, I am almost certain that I can make them work.
    b) It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.

12. a) In my case getting what I want has little or nothing to do with luck.
    b) Many times we might just as well decide what to do by flipping a coin.

13. a) Who gets to be the boss often depends on who was lucky enough to be in the right place first.
    b) Getting people to do the right thing depends upon ability, luck has little or nithing to do with it.

14. a) As far as world affairs are concerned, most of us are the victims of forces we can neither understand nor control.
    b) By taking an active part in political and social affairs, the people can control world events.

15. a) Most people don't realize the extent to which their lives are controlled by accidental happenings.
    b) There really is no such thing as "luck."

16. a) It is hard to know whether or not a person really likes you.
    b) How many friends you have depends upon how nice a person you are.

17. a) In the long run the bad things that happen to us are balanced by the good ones.
    b) Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.

18. a) With enough effort we can wipe out political corruption.
    b) It is difficult for people to have much control over the things politicians do in office.

19. a) Sometimes I can't understand how teachers arrive at the grades they give.
    b) There is a direct connection between how hard I study and the grades I get.

20. a) Many times I feel that I have little influence over the things that happen to me.
    b) It is impossible for me to believe that chance or luck plays an important role in my life.

21. a) People are lonely because they don't try to be friendly.
    b) There's not much use in trying too hard to please people, if they like you, they like you.

22. a) What happens to me is my own doing.
    b) Sometimes I feel that I don't have enough control over the direction my life is taking

23. a) Most of the time I can't understand why politicians behave the way they do.
    b) In the long run the people are responsible for bad government on a national as well as on a local level.

S-S SCALE

The purpose of the questions in this questionnaire is to find out about some of your likes and dislikes. This is not a "test." Please be honest and frank.

Record your choice to each pair of statements on the answer sheet provided. Please make no marks on the questionnaire itself. Choose an answer for every pair of statements.

In answering this questionnaire go through the following steps:

1. Read each pair of statements carefully.
2. Think about how much you agree with each choice.
3. Find the number on the answer sheet in the S-S Scale column that corresponds to the pair of statements you are considering.
4. Check either A or B on the answer sheet according to the following instructions:

   If you agree more with statement A, check letter A.
   If you agree more with statement B, check letter B.

1. A) I would like a job which would require a lot of traveling.
   B) I would prefer a job in one location.

2. A) I am invigorated by a brisk, cold day.
   B) I can't wait to get into the indoors in a cold day.

3. A) I often wish I could be a mountain climber.
   B) I can't understand people who risk their necks climbing mountains.

4. A) I dislike all body odors.
   B) I like some of the earthy body smells.

5. A) I get bored seeing the same old faces.
   B) I like the comfortable familiarity of everyday friends.

6. A) I like to explore a strange city or section of town by myself, even if it means getting lost.
   B) I prefer a guide when I am in a place I don't know well.

7. A) I would not like to try any drug which might produce strange and dangerous effects on me.
   B) I would like to try some of the new drugs that produce hallucinations.

8. A) I would prefer living in an ideal society where everyone is safe, secure, and happy.
   B) I would have preferred living in the unsettled days of our history.

9. A) I sometimes like to do things that are a little frightening.
   B) A sensible person avoids activities that are dangerous.

10. A) I would like to take up the sport of water skiing.
    B) I would not like to take up water skiing.

11. A) When I go on a trip, I like to plan my route and timetable fairly carefully.
    B) I would like to take off on a trip with no preplanned or definite routes or timetables.

12. A) I would like to learn to fly an airplane.
    B) I would not like to learn to fly an airplane.

13. A) I would not like to be hypnotized.
    B) I would like to have the experience of being hypnotized.

14. A) The most important goal of life is to live it to the fullest and experience as much of it as you can.
    B) The most important goal of life is to find peace and happiness.

15. A) I would like to try parachute jumping.
    B) I would never want to try jumping out of a plane, with or without a parachute.

16. A) I enter cold water gradually giving myself time to get used to it.
    B) I like to dive or jump right into the ocean or a cold pool.

17. A) I prefer friends who are excitingly unpredictable.
    B) I prefer friends who are reliable and predictable.

18. A) When I go on a vacation I prefer the comfort of a good room and bed.
    B) When I go on a vacation I would prefer the change of camping out.

19. A) The essence of good art is its clarity, symmetry of form, and harmony of colors.
    B) I often find beauty in the "clashing" colors and irregular forms of modern paintings.

20. A) I prefer people who are emotionally expressive even if they are a bit unstable.
    B) I prefer people who are calm and even tempered.

21. A) A good painting should shock or jolt the senses.
    B) A good painting should give one a feeling of peace and security.

22. A) People who ride motorcycles must have some kind of an unconscious need to hurt themselves.
    B) I would like to drive or ride a motorcycle.

APPENDIX B

TABLE 1.

Covariance Matrix of Learning Environment Inventory Dimensions[a]

	Dimension	Dimension 1	2	3	4	5	6	7	8	9
1.	Cohesiveness									
2.	Diversity	- .33								
3.	Formality	.46	.70							
4.	Speed	2.02	1.15	.83						
5.	Environment	4.19	- .64	1.13	-7.22					
6.	Friction	-3.36	2.09	1.19	6.39	-7.67				
7.	Goal Direction	2.66	- .64	2.66	-5.84	8.37	-6.30			
8.	Favoritism	-3.46	1.36	1.11	6.29	-7.67	10.34	-6.64		
9.	Cliqueness	-3.85	2.34	- .11	5.73	-2.54	10.23	-6.26	9.33	
10.	Satisfaction	2.96	- .90	.45	-7.45	8.96	-8.22	8.82	- 7.36	- 8.03
11.	Disorganization	-3.15	.79	.82	6.01	-9.00	8.53	-8.15	8.70	- 7.53
12.	Difficulty	- .29	.91	1.19	1.77	- .01	.54	- .51	.82	- .09
13.	Apathy	-3.66	.43	-1.45	5.27	-7.76	6.44	-6.77	6.44	6.25
14.	Democratic	3.50	-1.18	.19	-6.18	8.50	-10.40	6.97	-10.26	8.39
15.	Competitiveness	-1.19	1.16	-1.58	3.20	-2.25	6.03	-2.41	5.40	4.29

[a] based on ALL subjects

TABLE 1 (Continued)

Covariance Matrix of Learning Environment Inventory Dimensions[a]

Dimension	Dimension 10	11	12	13	14	15
1. Cohesiveness						
2. Diversity						
3. Formality						
4. Speed						
5. Environment						
6. Friction						
7. Goal Direction						
8. Favoritism						
9. Cliqueness						
10. Satisfaction						
11. Disorganization	-8.75					
12. Difficulty	- .90	.10				
13. Apathy	-7.72	7.12	- .52			
14. Democratic	8.39	-8.82	.23	-7.28		
15. Competitiveness	-2.63	3.04	.92	1.07	-4.09	

[a] based on ALL subjects

TABLE 2

EIGEN VALUES

Principal Component	Eigen Value	Percent of Total Variance
1	87.18[a]/6.62[b]	51.6[c]/39.4[d]
2	16.23 /1.72	9.6 /15.1
3	10.23 /1.09	6.1 / 8.4
4	7.53	4.5
5	6.86	4.1
6	5.88	3.5
7	5.57	3.3
8	4.90	2.9
9	4.80	2.8
10	4.35	2.6
11	3.84	2.3
12	3.33	2.0
13	2.92	1.7
14	2.80	1.7
15	2.31	1.4

[a] based on covariance matrix

[b] based on correlation matrix - first three factors only

[c] based on covariance matrix - total variance is 168.81

[d] based on correlation matrix - total variance is 15.00

TABLE 3

Correlation Matrix of Learning Environment Inventory Dimensions[a]

Dimension	Dimension 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Cohesiveness															
2. Diversity	-05														
3. Formality	08	12													
4. Speed	-23	13	10												
5. Environment	46	-07	13	-56											
6. Friction	-36	22	13	48	-56										
7. Goal Direction	29	-07	30	-45	62	-46									
8. Favoritism	-35	14	12	44	-53	69	-45								
9. Cliqueness	-41	25	-01	43	-55	73	-46	63							
10. Satisfaction	34	-10	05	-60	70	-63	68	-53	-61						
11. Disorganization	-36	09	-10	48	-70	64	63	62	57	-70					
12. Difficulty	-05	13	22	22	00	06	06	09	-01	-12	01				
13. Apathy	-43	05	-18	43	-62	50	54	47	49	-64	58	-07			
14. Democratic	36	-12	02	-45	60	-71	48	-70	-70	61	-64	03	-54		
15. Competitiveness	-15	15	21	28	-19	50	21	42	36	-24	27	13	10	-32	

[a] based on all subjects

[b] decimals omitted

TABLE 4

Weights for each of the 15 LEI Scales
on each Rotated Principal Component

LEI Dimension	Rotated Principal Component 1[a]	2[b]	3[c]
1. Cohesiveness	1.12	-.55	.35
2. Diversity	- .03	.71	.51
3. Formality	.78	.93	1.01
4. Speed	-2.11*	.58	2.31*
5. Environment	3.10*	-.54	-.29
6. Friction	-2.02*	2.68*	.37
7. Goal Direction	3.05*	.01	-.39
8. Favoritism	-2.03*	2.77*	.14
9. Cliqueness	-2.12*	2.38*	-.31
10. Satisfaction	2.95*	-.68	-.73
11. Disorganization	-2.79*	1.07	.07
12. Difficulty	.05	.12	1.26*
13. Apathy	-2.73*	.36	-.44
14. Democratic	2.46*	-2.38*	.57
15. Competitiveness	- .18	2.09*	1.21

* loading greater than average absolute value of all loadings (1.23)

[a] percent of total variance = 40.2

[b] percent of total variance = 20.5

[c] percent of total variance = 6.7

TABLE 5

Means for Actual and Ideal Instruction Condition Groups on First Rotated Principal Component

Group[a]	Sensation Seeking		
	Low	Medium	High
Internal			
Actual	-.04	-.02	.04
Ideal	.03	.62	1.31
Mixed			
Actual	-.07	-.51	-.59
Ideal	.22	-.56	.32
External			
Actual	-.63	-.86	-.24
Ideal	.17	.32	-.58

[a] $n = 8$ for each cell

TABLE 6

Means for Actual and Ideal Instruction Condition Groups on Second Rotated Principal Component

Group[a]	Sensation Seeking		
	Low	Medium	High
Internal			
Actual	.71	-.01	.25
Ideal	-.08	-.06	-.59
Mixed			
Actual	.24	-.21	-.19
Ideal	.02	-.03	-.66
External			
Actual	.42	.16	-.24
Ideal	.51	.05	.66

[a] $n = 8$ for each cell

TABLE 7

Means for Actual and Ideal Instruction Condition Groups on Third Rotated Principal Component

Group[a]	Sensation Seeking		
	Low	Medium	High
Internal			
Actual	.39	-.11	-.34
Ideal	.12	.34	-.16
Mixed			
Actual	-.45	.12	-.14
Ideal	-.00	.05	.11
External			
Actual	-.12	.16	.35
Ideal	.22	-.41	-.44

[a] $n = 8$ for each cell.

TABLE 8

Mean Scores for Ideal Subjects, Actual Subjects, and Norm Group on Each LEI Dimension

LEI Dimension	Group		
	Actual	Ideal	Norm[a]
Cohesiveness	19.26	19.56	17.68
Diversity	21.42	20.62	20.36
Formality	17.65	17.97	17.67
Speed	18.24	16.92	17.63
Environment*	17.54	19.40	16.51
Friction	18.51	17.11	17.16
Goal Direction*	17.47	19.21	17.92
Favoritism	16.29	15.04	14.48
Cliqueness*	20.65	18.56	19.56
Satisfaction*	16.12	17.68	16.44
Disorganization*	17.14	15.74	16.84
Difficulty	17.75	17.68	18.98
Apathy	17.50	16.19	17.96
Democratic*	16.08	17.87	17.35
Competitiveness	16.93	16.93	16.96

* Actual - Ideal difference significant at .01 level

[a] Norms reported by Anderson (1973, p. 14)

TABLE 9

Correlation Matrix of 15 LEI Scales, Locus of Control, and Sensation Seeking for Actual Instruction Group

Scale		Scale																
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1.	Locus of Control																	
2.	Sensation Seeking	-11[a]																
3.	Cohesiveness	-04	14															
4.	Diversity	01	-13	06														
5.	Formality	-18	04	17	25													
6.	Speed	12	-04	-04	00	19												
7.	Environment	-30	08	26	10	16	-37											
8.	Friction	10	-04	-17	20	29	24	-20										
9.	Goal Direction	-30	07	14	10	32	-27	49	-13									
10.	Favoritism	24	-06	-15	09	27	34	-26	55	-23								
11.	Cliqueness	07	-21	-27	30	09	14	-16	52	-09	37							
12.	Satisfaction	-21	01	07	07	07	-47	48	-28	54	-30	-24						
13.	Disorganization	34	00	-22	-07	-16	29	-56	42	-47	42	23	-58					
14.	Difficulty	13	-02	-04	20	25	32	-06	17	-17	21	15	-29	19				
15.	Apathy	14	07	-24	-11	-10	15	-32	12	-23	16	07	-37	40	-12			
16.	Democratic	-11	13	14	00	-08	-23	30	-44	18	-50	-42	32	-42	-12	-19		
17.	Competitiveness	-04	06	-04	10	30	27	-04	44	-08	39	22	-06	10	24	-18	-13	

[a] Decimals omitted

TABLE 10

Correlation Matrix of 15 LEI Scales, Locus of Control, and Sensation Seeking for Ideal Instruction Group

Scale	Scale																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Locus of Control																	
2. Sensation Seeking	-15[a]																
3. Cohesiveness	-15	00															
4. Diversity	16	-17	-14														
5. Formality	-01	-18	-04	-01													
6. Speed	14	-21	-37	22	04												
7. Friction	-24	08	57	-15	08	-66											
8. Environment	24	-15	-47	22	05	61	-70										
9. Goal Direction	-17	01	39	-18	27	-55	67	-63									
10. Favoritism	20	-05	-49	15	02	50	-66	76	-59								
11. Cliqueness	18	-15	-49	19	-04	58	-68	81	-63	76							
12. Satisfaction	-22	17	51	-19	01	-66	79	-78	75	-63	-76						
13. Disorganization	26	-21	-43	17	-02	58	-75	74	-70	72	71	-74					
14. Difficulty	-01	00	-07	13	19	14	05	-01	04	-01	-14	02	-13				
15. Apathy	20	-01	-54	13	-21	59	-74	66	-70	63	64	-75	65	-03			
16. Democratic	-28	13	48	-16	05	-54	68	-81	62	-78	-79	71	-71	14	-67		
17. Competitiveness	04	-06	-19	07	12	22	-23	42	-22	35	35	-26	29	-05	22	-36	

[a]Decimals omitted

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