ANXIETY-EMOTION PROFILES AS A FUNCTION OF PERSON-SITUATION INTERACTIONS

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A dissertation submitted to the Faculty of Graduate Studies of the University of Manitoba in partial fulfillment of the requirements of the degree of

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Abstract

Within the context of Izard's (1972b) fundamental emotion approach to anxiety, the Frequency Intensity Anxiety Scale (FIAScа; Janisse and Palys, 1976), and a methodology aimed at examining the nature of person-situation interactions (Magnusscn and Ekehammar, 1975), the following research was undertaken.

Subjects (303 males, 303 females) initially responded to the male and female versicns cf the FIAScа. On the basis cf their frequency and intensity scores, four groups of subjects, fcr each of males and females, were generated, following procedures detailed by Janisse and Palys.

After subjects had responded tc the FIAScа, they were asked to fill cut an empirically derived (from pilot research) instrument (the "Emctional Reaction Inventory" or ERI), consisting of 26 FIAScа situations and 12 modes cf response (the fundamental emoticns, fatigue, and depression). Subjects, in the inventory, were required to subjectively rate each situaticn for each emotion or feeling.

Factor analysis was used to reduce the ERI data to a limited number of situation and response (emotion) factors. Five situation factors resulted: (1) situations involving threat and/or uncertainty, (2) situations involving the evaluaticn of self by others, (3) situations involving

evaluation apprehension concerning school work and exams, (4) situations involving conflict, and (5) situations involving threat to self-esteem. The resultant situation factors were felt to show good correspondence to those expected on an *a priori* basis.

There were three response (emotion) factors, consistent with expectations based on pilot research and with Izard's approach to anxiety. One was labelled Anxiety and involved the emotion components of fear, distress, and shyness. A second factor was labelled Approach and involved interest and enjoyment. The final factor was labelled Hostility and involved disgust, contempt, anger, guilt, surprise, fatigue, and depression. The possible relationship between these factors and dimensions of subjective experience (arousal, hedonic tone, control-submissiveness-vulnerability) was discussed.

On the basis of these situation and response factors, unweighted factor scores were computed for each situation-response combination, for each subject. Using multivariate analysis of variance techniques (multiple profile analysis), the emotion profiles across differing anxiety situations were examined for the entire sample, for males versus females, and for FIASca groups. As well, groups of subjects homogeneous in the patterning of their fundamental emotion response were generated using latent profile analysis (LPA). There were three such LPA groups (High, Medium, Low) for

each of the male and female samples. The emotion profiles of the LPA groups were also examined using multiple profile analysis.

Analyses for the total sample suggested that emotion profiles differed as a function of the type of anxiety situation considered, in meaningful patterns. Male and female profiles, although consistent with patterns for the total sample, did not differ substantially. Males and females did, however, differ in level of response, females showing higher levels of Anxiety than males.

FIASca groups differed in predictable ways for level of Anxiety response. However, profile patterns across situations between FIASca groups did not differ. The results for the FIASca groups as well demonstrated a positive relationship between anxiety and transsituational inconsistency. Based on these and other considerations, the utility of the median-split procedure to generate groups and the appropriateness of pathological labels was questioned.

LPA groups differed in level of response and pattern across anxiety situations for both Anxiety and Hostility. Again, a positive relationship between anxiety and transsituational inconsistency was demonstrated. Considering the first-year university student population sampled here, it was suggested pattern differences between groups reflected, not only overall differences in anxiety level, but as well differences in response to test situations.

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I: Preface

The following is a report of research focused on a particular theory of anxiety (Izard, 1972a), which views complex emotions, such as anxiety and depression, as a variable combination of more fundamental emotions, and a particular anxiety inventory (Janisse and Palys, 1976), the Frequency Intensity Anxiety Scale (FIASca). Within this context, the present research also examines the general theoretical approach of interactionism (e.g., Endler and Magnusson, 1976). Izard's theory and research will be reviewed, the development and applicability of the FIASca will be outlined, and an overview of interactionism will be presented; as well, a summary of the author's pilot research will be discussed. Following a presentation of the rationale and the hypotheses generated for the present research, the results and a discussion of those results will be given.

II. Introduction

Izard's Approach

Izard (1972a) maintains that all complex emotions (e.g., love, hate, depression, anxiety) are a function of two or more of nine more fundamental emotions. Table 1 presents Izard's nine fundamental emotions and their *a priori* definitions. Anxiety, specifically, is conceived as involving "..... fear and two or more of the fundamental emotions of distress, shame (including shyness and guilt), anger and the positive emotion of interest-excitement" (p. 55). Reviewing the existing theoretical and operational definitions of anxiety, Izard concluded that all, implicitly at least, seem to view anxiety as involving other emotions, yet none include all of the five fundamental emotions he posits.

In proposing such a conceptualization of anxiety, Izard is going against the prevalent tendency in theory and research to treat anxiety as a unitary concept. He maintains that it is not unidimensional, and that the confusion in the literature results from treating it as such. More

Table 1. The fundamental emotions and their *a priori* definitions.*

Emotion	*A priori* Definition
1. Interest-excitement	Concentrating, attending, attracted, curious.
2. Enjoyment-joy	Glad, merry, delighted, joyful.
3. Surprise-startle	Sudden reaction to something unexpected, astonished.
4. Distress-anguish	Sad, unhappy, feels like crying.
5. Disgust-revulsion	Repugnance, aversion, distaste.
6. Anger-rage	Angry, hostile, furious, enraged
7. Shame-humiliation	Shy, embarrassed, ashamed,
a. Guilt	guilty.
b. Shyness	
8. Fear-terror	Scared, afraid, terrified.
9. Contempt-scorn	Disdainful, sneering, haughty.

* adapted from Izard (1972a, p. 76).

recently (e.g., Breen, Endler, Prociuk, and Okada, 1978; Endler, 1975a), as the theoretical position of interactionism has made an impact on the field of anxiety research (Endler and Magnusson, 1976), it appears that anxiety is being treated more and more as a multidimensional concept.

In more detail, Izard views anxiety as a variable combination of fundamental emotions and their interactions. This position derives from a more general theory of emotion and extensive research, both physiological and behavioral, relating to the perception of emotion from facial expressions (Ekman, Sorensen, and Friesen, 1969; Izard, 1968, 1971, 1972b, 1976; Izard and Tomkins, 1966; Snyder and Katahn, 1970; Tomkins, 1962, 1970; Tomkins and Izard, 1965). It was on the basis of this research and theory that Izard developed the list of fundamental emotions. To understand Izard's conception of anxiety, his general theory of emotion will be outlined.

Emotion is viewed as a complex concept having neurophysiological, motor-expressive, and phenomenological components:

> At the neurophysiological level emotion is defined primarily in terms of patterns of electrochemical activity in the nervous system, particularly in the hypothalamus, the limbic system, and in the facial and trigeminal nerves.....At

> the motor level emotion is primarily facial activity and facial patterning, and secondarily it is bodily (postural-gestural, visceral, and sometimes vocal) activity. At the phenomenological level emotion is essentially motivating experience that has immediate meaning and significance for the person (Izard, 1972a, p. 59).

The emotion system, then, involves the nine fundamental emotions, as detailed in Table 1, each of which is in itself a system consisting of the three basic components. It is conceived as a system of interacting and mutually influencing components: ".... each of the fundamental emotions can interact with and influence other fundamental emotions.... Further.... one or more of the components of a given emotion may interact with one or more of the component of another or several other fundamental emotions" (Izard, 1972a, p. 60).

Because the focus of the present research is on the experiential or phenomenological aspects of emotions and anxiety, a detailed discussion of the neurophysiological and behavioral-expressive aspects of emotion will not be presented. The reader is referred to Izard (1971) for a full presentation of such issues. However, the general principles will be mentioned without comment. Any particular

emotion, and emotion-patterning in person-environment interactions, is assumed to be elicited or activated as a function of:

1. Innate neurochemical releasers producing neuromuscular responses of the face and body.

2. Tomkin's (1962) principle relating to density of neural firing: there may be a hierarchial relationship among emotions as a function of gradients of neural stimulation (Tomkins, 1962, 1970).

3. The possibility of innate neural programs being selectively sensitive to certain stimuli or situational conditions. Such selective sensitivity may vary as a function of maturational and learning processes.

4. Cultural differences and differences of socialization processes are assumed to produce ".... different relationships among the emotions and between the antecedents, concomitants, and consequences of a given emotion" (Izard, 1972a, p.62).

5. Learning and idiosyncratic experience are, as well, important factors.

Any one, or all, of these factors, at one time or another, may contribute to the initiation of an emotion, emotions, or emotions-process or patterning, within the context of a person-environment interaction. As well, these processes may interact with other "personality systems", including perception, memory, imagination, etc. There is no

particular ordered sequencing of events or processes, nor a set number that must occur. The emotion process may begin anywhere within the personality system, either or both as a function of an outside environmental event or an "inside" or intrapsychic event. Thus, something remembered or something imagined may be the starting point for the emotion process.

Whether a discrete identifiable fundamental emotion is experienced is thought to be a function of the integration of emotion components via feedback or interaction mechanisms. Without such integration the character of the emotion experienced will be vague. The vague and undifferentiated character of the experience of such complex emotions as anxiety and depression is thought to result when the components of two or more discrete emotions make "... simultaneous or rapidly alternating demands on neurophysiological mechanisms and on consciousness" (Izard, 1972a, p. 63). The notion of the discrete fundamental emotions having characteristic neuromuscular facial patterning is of importance here. "State anxiety" is thought to reflect this. The experience is of "mixed emotions", with no fixed neurophysiological structure. "Trait anxiety" may result when emotion components mix frequently over time, becoming a relatively stable and defined emotional experience. Although Izard discusses state and trait anxiety, he is tentative in using such concepts. His position is that ultimately the analysis of anxiety should examine the

pattern of emotions or emotion profile of the individual in a particular situation: the profile or emotions interaction will vary as a function of the interaction between person and situation. Beyond this, Izard speculates that it may be possible to define groups of individuals in terms of their emotion profile in particular situations. Izard's conception of anxiety, and of emotion in general, is thus both multidimensional and interactionistic, points of view of increasing importance in personality research (Bowers, 1973; Ekehammar, 1974; Endler, 1975; Endler and Magnusson, 1976; Mischel, 1977).

Izard's research has centered on an inventory he developed, the Differential Emotion Scale (DES; Izard, 1968). The development of the DES was based on the following assumptions: separate and discrete fundamental emotions exist; they have measurable experiential and motivational properties; particular facial patterns or expressions parallel the subjective experience of each fundamental emotion. The goal in the development of the DES was to arrive at independent scales or factors representing each of the nine fundamental emotions: fear, distress, shame, anger, interest, enjoyment, surprise, disgust, and contempt.

On the basis of cross-culturally obtained free responses to facial expressions of each of the fundamental emotions, six or more adjectives, a total of 67 items, were selected for each emotion and put in inventory format. Subjects were

asked, for each adjective, to rate how they presently felt on a five point scale ranging from "very slightly or not at all" to "very strongly". A factor analysis (promax rotation) of the resulting data revealed eleven factors. Fear, distress, shame (with guilt and shyness as two separate factors), interest, enjoyment, surprise, disgust, and contempt were represented in separate factors. Anger, with disgust and contempt, appeared as a tenth factor. The eleventh factor appeared to represent "fatigue".

Two additional samples of subjects have been given the DES and the data factor analyzed. With some variations, factor structures between the three samples have remained consistent. Thus, the DES as a measuring instrument would appear to be reliable, although as Izard notes, our concept of reliabilty may have to be altered somewhat in the context of factor analytic research.

Validity study of the DES has been limited to one demonstration that factor scores (of emotion factors) for black college students vary as a function of differing race prejudice situations (Izard, Chappell, and Weaver, 1970). As hypothesized, subjects' first encounter with prejudice (imagined and remembered from childhood) produced higher factor scores on surprise, guilt, shyness, fear, and distress than did more recent encounters with prejudice. Recent encounters with racial prejudice elicited highest factor scores on the anger-disgust-contempt emotion factor.

Thus, the DES appears to have some reliability, while further, more exhaustive research needs to be done to determine more exactly its validity. Two other points are of importance. Fatigue, although not properly an emotion, but certainly a feeling, appeared to be part of the hypothesized emotion system. As well, anger did not appear to be an emotion which subjects could differentiate, phenomenologically, from disgust and contempt. Indeed, as Tomkins (1972) points out, these authors' research with the perception of emotion from facial expression (e.g., Ekman, Sorensen, and Friesen, 1969; Izard, 1971) has revealed that subjects can only differentiate between anger, disgust, and contempt if expressions are posed in extremely specific ways.

Having developed the DES, Izard then applied it to the study of anxiety. On the basis of high factor loadings, the scale was reduced to 33 items. Using the state form of the State Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, and Lushene, 1970), Izard reduced the 20 sentence-form items to one-word items, to match the form of the DES. Two STAI items seemed similar enough to be reduced to one item. A third STAI item was the same as a DES item, and was omitted. Thus 18 one-word STAI items were added to the 33-item DES to form a 51-item DES-A (anxiety) scale, representing ten fundamental emotions, fatigue, and anxiety.

A sample of subjects was asked to fill out the DES-A

while imaginirg an anxiety situation of their own choosing. Factor analysis revealed separate factors for interest, enjoyment, surprise, shyness, fear, and fatigue. Anger, disgust, and ccntempt items loaded on a single factcr. Items defining guilt and distress loaded together on a single distress-guilt factor. Most of the negative STAI items loaded on the fear factcr, ccnsonant with Spielberger's emphasis cn fear in the definition of anxiety. Several STAI items loaded as well on the distress-guilt factor. All cther STAI items loaded on the enjcyment factor. This result was considered consistent with Spielberger's view that the abscence cf enjoyment is an indication of anxiety. Thus, STAI anxiety items loaded on three cf five emctions thought to be components of anxiety - fear, distress, and guilt.

Going a step further, Izard had five groups of subjects, first of all, respond to the DES-A fcr an anxiety situatien of their own choosing. Then, each group was asked to re-do the DES-A for one of five fundamental emctions, all thought to be invclved in anxiety: fear, distress, guilt, shyness, and interest. Subjects responded to the DES-A while, fcr example, imagiring a fear situatien cf their own choosing.

DES-A anxiety scores (i.e., sccres on the STAI items) while imaginirg anxiety situaticns were compared to DES-A anxiety sccres while imagining other emction situations. Analysis demonstrated that anxiety levels in fear, distress,

and guilt situations were comparable to anxiety levels in anxiety situations. Anxiety levels in shyness and interest situations were significantly lower than those in anxiety situations. Interest and shyness situations were, however, not anxiety-free, and Izard interpreted these results as reflecting primarily the STAI's emphasis on a fear definition of anxiety. Thus, STAI items failed to differentiate between anxiety, fear, distress, and guilt situations.

Using factor scores generated from this data, Izard examined "emotion profiles" of fear, distress, guilt, shyness, and interest situations. For shyness situations, the highest mean factor score was on the shyness factor and, secondly, on the distress-guilt factor. For guilt situations, the highest mean factor scores were on the distress-guilt, shyness, and anger-disgust-contempt factors, in that order, while for the distress situations, the order was the distress-guilt factor, followed by the anger-disgust-contempt factor. The highest mean factor score for fear situations was on the surprise factor, and then on the fear factor, followed by the interest factor. For interest situations, the enjoyment factor had the highest mean, while the interest factor was second, and surprise third. These results demonstrated that particular emotion situations tended to elicit the highest factor scores on the emotion factor characterizing the situation, and that the involvement of other emotion factors appeared to be logically

related (i.e., emotion profiles).

It might be questioned at this point why Izard has not amended his definition of anxiety to include surprise. His data appear to demonstrate 1) interest situations have at least a certain degree of anxiety associated with them, as indicated by STAI item anxiety scores, 2) interest situations elicit high mean factor scores on the surprise factor, 3) fear and anxiety situations are indistinguishable in terms of STAI anxiety scores, and 4) fear situations elicit high mean factor scores on interest and surprise factors. The data may not be altogether clear, but seem to indicate a close relationship between anxiety and fear, interest, and surprise. A possible conceptualization here may be that interest and/or surprise may be the initial emotional experience in a given anxiety situation, a precursor to an experience of anxiety. Surprise, in the sense of a startle response, could certainly be considered a component of anxiety.

Izard's theory proposes that a particular person in a particular situation will demonstrate a particular "emotion profile", as a function of person and situation characteristics. Based on the above data, Izard examined whether the patterns or profiles of emotion factor scores varied among the imagined situations. This was accomplished through three-way analyses of variance: subjects X DES-A factor scores on eight factors X situations (anxiety versus emo-

tion). In all cases, the factors X situations interactions were significant, indicating that emotion profiles in anxiety, fear, distress, guilt, shyness, and interest situations differed.

Thus, Izard presents some support for his approach. However, it is felt that although he has provided some evidence in support of his general theory of emotion, the question of which emotions are involved in anxiety could be confronted more directly. The pilot research reported below attempted to demonstrate the fundamental emotion components of anxiety vis-a-vis a set of empirically defined anxiety situations, the FIASca (Janisse and Palys, 1976).

The Frequency Intensity Anxiety Scale

The Frequency Intensity Anxiety Scale (FIASca) was developed with the concept of anxiety

> .... as an unpleasant feeling state, labelled anxiety by the individual and evoked by a real situation, or a memory or an expectation of a situation. It may or may not be accompanied by physiological, somatic or behavioral changes usually considered to be indices of anxiety (Janisse and Palys, 1976, p. 502).

Further, the FIASca makes a distinction between the frequency and intensity of anxiety feelings, where the frequency of anxiety refers to the number of situations in which a person experiences anxiety, and the intensity of anxiety refers to how much anxiety is felt in a given situation by that person. Generally speaking, the frequency measure is thought to parallel the concept of trait anxiety (Spielberger, 1972), while the intensity measure corresponds to the concept of state anxiety. It was thought important to develop a scale which would reflect these measures for a given person across many potential anxiety situations.

The scale was constructed by asking a large number of male and female subjects (1097) to specify three situations they felt anxiety in, and then to indicate, on a ten point scale, how much anxiety they felt in each situation. Situations were collated and catalogued for males and females separately. Situations occurring more than once were selected for the scales. These procedures resulted in a 117 item version for males, and a 113 item version for females. Sixty-two items were common to each scale.

For both versions, the correlation between the frequency measure and intensity ratings of situations was near-zero and non-significant. For situations common to both versions, females rated these of significantly greater intensity than did males; there was no significant difference between males and females for the frequency measure.

The male and female situations were put into inventory format, to yield separate male and female versions of the FIASca. Here, the subject is asked to indicate in which situations he/she has experienced anxiety and how much anxiety was experienced. The subject does this by responding to a five-point scale for each situation. Category one on the scale represents "have never experienced the situation or have felt no anxiety in this situation". The remaining categories range from mild (anxiety) through some, substantial, and extreme (anxiety). The frequency measure is the percentage of situations rated on categories two to five - the percentage of the 117 (113) situations in which anxiety is experienced. The intensity measure is the mean of categories two to five - the degree of felt anxiety either for a particular situation or, averaged over items, for the scale as a whole. A third measure may also be obtained - the mean of scale categories one to five, a total score. This is interpreted as a general measure of anxiety level in the FIASca situations.

These three measures have shown low to moderate correlations with other established inventory measures of anxiety (Test Anxiety Questionnaire, state and trait forms of the STAI, and the Manifest Anxiety Scale). Although this may be suggestive of low validity, these results are likely due to differing conceptions of and approaches to the measurement of anxiety. Total scores showed high correlations with

frequency and intensity measures, while frequency and intensity scores showed moderate correlations.

The FIASca can be used to categorize subjects into four general groups, based on a median-split of the frequency and intensity dimensions. One group would consist of subjects high on both the measures (HH) - that is, subjects who experience high anxiety in a large number of situations. Such subjects, according to Janisse and Palys (1976), might be characterized as "anxiety neurotics". A second group, showing high anxiety (intensity) in only a few situations (low frequency) might be characterized as "phobic" (HL). "Normal" (LH) subjects might primarily fall into the low intensity - high frequency grouping - that is, subjects who show low to moderate levels of anxiety in most of the situations. The low intensity - low frequency (LL) grouping might

> .... consist of persons who may be psychopathic, in that they report little emotional feeling, in this case anxiety. In this group may also be persons who would score high on social desirability and need for approval scales, since this category is particularly susceptible to positively biased responses (Janisse and Palys, 1976, p. 514).

For ease in reading, the labels "anxiety neurotic", "phobic", "normal", and "psychopathic" will be used throughout this presentation. It must be noted, however, that these labels represent hypotheses made by Janisse and Palys about the possible nature of these FIAScа groups.

These groupings and the conceptual underpinnings in the development of the FIAScа imply an interactionistic approach. That is, anxiety is viewed as a function of person and situation variables.

Pilot Research

The FIAScа provides a framework in which to examine Izard's general notions. It is a collection of empirically defined anxiety situations. If subjects were asked to rate these situations for Izard's fundamental emotions, and the results factor analyzed, anxiety emotions (fear, distress, guilt, shyness, anger, and interest) should cluster with anxiety, while non-anxiety emotions (enjoyment, surprise, disgust, contempt, and fatigue) should not. As well, when anxiety ratings are excluded from the analysis, factor structures should remain consistent.

Ideally, factor analysis should reveal a factor involving all of the anxiety emotions. In the context of Izard's theory, and more realistically, this may be too much to expect. The component make-up of anxiety is construed as

variable, depending on person and situation. Here, data will be averaged across subjects and correlated across situations. A more reasonable expectation then may be an anxiety factor involving fear plus two or more of the anxiety emotions. As previously discussed, based on Izard's research, it was predicted that surprise would be a component of anxiety.

It should be noted that although the focus of this research was on anxiety, initial analyses suggested the presence of a depression factor (distress, shame, anger, disgust, contempt, and fatigue), as defined by Izard (1972b). To validate whether this emotion complex did in fact reflect depression, an additional group of subjects was asked to respond to the FIASca for depression. These data were included in subsequent analyses with the expectation that depression would load on this factor. Beyond this, the involvement of depression and anxiety was not investigated.

In this pilot research, female subjects were scheduled in 12 groups of approximately 50 subjects per group; a total of 591 subjects were used. All subjects in all 12 groups were initially administered the female version of the FIASca. For each of 113 situations, subjects were asked to indicate, on a five point scale, whether or not they had experienced the situation, and if so, how much anxiety they had experienced. Scale points were labelled "not at all or have never experienced the situation", "mild", "some", "substan-

tial", and "extreme". Subjects recorded their scale choices cn computer answer sheets.

After all subjects had finished the FIAScа, they were asked to retain the bocklet cf FIAScа situations while computer sheets and FIAScа instructions were collected. A second set of instructions and computer answer sheets were then distributed. Each of 11 grcups was given one of 11 instructicns tc respond to the FIAScа situations again in terms of cne of the 11 emoticns cr feelings, as specified by Izard (1972a) - viz., fear, distress, guilt, shyness, anger, interest, enjoyment, surprise, disgust, contempt, fatigue. A twelfth group was asked to re-dc the FIAScа situations fcr the emoticn depression. As ncted earlier, initial analyses suggested the presence of a depression factor, as defined by Izard (1972b), and this twelfth group was added with the expectation that depression would cluster with depression emcticns. Typical instructicns - headed "(Emoticn) Inventory" - read in part:

> The questionnaire ycu just completed was designed to measure how many situations made you anxious and to what extent they made ycu anxious. In constructing this questionnaire, each situation you answered had already been determined to be an "anxiety situation" to scme degree or cther fcr mcst people.

Of course, people differ, so that not all of the situations are "anxiety" situations for all people.

As well as our interest in anxiety, we are interested in the relationship of other feelings or emotions to anxiety. Specifically, here we are interested in the emotion of (emotion). Remembering that you just answered this questionnaire for the emotion anxiety, we would like you to re-do the questionnaire for the feeling (emotion). It may be that (emotion) is very closely related to anxiety; on the other hand, it may not be related at all. To answer this question, we are interested in your subjective experience of (emotion) in these "anxiety situations".

Headings and instructions for each of the 12 emotions or feelings were exactly similar except, of course, for appropriate substitution of words and slight modification of wording, for smoother reading. Subjects were encouraged to respond with their own subjective, first-impression feeling.

The focus of interest here was the FIASca inventory and the inter-relationships of anxiety, depression, and the Izard emotions with respect to these anxiety situations.

Thus, all data were collapsed across subjects. Means for anxiety (for each of the 12 groups), for depression, and for each of the 11 emotions were computed for each of the 113 FIAScа situations, generating a 24 X 113 data matrix. Two such data matrices were computed: one for frequency scores (the percentage of responses to scale categories two to five); and the second for intensity scores (the mean of scale categories two to five).

A 24 X 24 correlation matrix was then computed from each of these data matrices (correlating across situations). Since the variable anxiety was repeated twelve times here, these matrices were reduced to 13 X 13 matrices representing the intercorrelations between the twelve emotions plus the correlations between anxiety and each of the twelve emotions.

These matrices were then submitted to a factor analysis program (Dixon, 1975; BMDP4M). A principle components method was used, consisting of a varimax rotation, with eigenvalues greater than 1.00 as the factor rotation criterion.

In addition, for each of the measures (frequency and intensity), it was possible to divide the 113 FIAScа situations, via a median split procedure, into "high-anxiety" situations and "low-anxiety" situations. Using exactly the same procedures as outlined above, correlation matrices were generated and then factor analyzed for these

high- and low-anxiety situations, for frequency and intensity measures.

In total then, six factor analyses were undertaken: for frequency scores (for total, high- and low-anxiety situations) and for intensity scores (for total, high- and low-anxiety situations).

The results of these analyses are presented in Tables 1 through 7 of Appendix A. Although somewhat complex, the results of this pilot research were quite clear. The fundamental emotion components, at a phenomenological level, and for this set of empirically defined anxiety situations, consistently clustered in patterns prescribed by Izard (1972a). Considering the frequency and intensity results for all FIASca situations, anxiety clustered with fear plus two or more anxiety emotions and depression clustered with depression emotions, appearing to give support to Izard's approach.

Thus, for the frequency results, a first factor appeared to represent depression (anger, disgust, contempt, and guilt). Enjoyment had a negative loading here. It was noteworthy that the negative of enjoyment consistently loaded with the depression factors for the frequency results, while this was not so for the intensity results. Janisse and Palys (1976) draw a parallel between the frequency measure and trait anxiety (Spielberger, 1972, 1975), in the sense that both, conceptually and in measure-

ment, are concerned with the question, "How often?" rather than "How much?", as is the case for intensity or state anxiety. If this parallel is accepted, subjects are indicating that in these anxiety situations depression is likely to be experienced, and this feeling is not enjoyable.

Factor II appeared to represent anxiety (fear, shyness, interest, and surprise). As well, distress had a reasonably high loading with this factor, but a higher loading with the first depression factor. Distress is thought by Izard to be a potential component of both anxiety and depression. The high loading component on Factor III was the feeling of fatigue. Interest and anxiety had relatively low loadings on Factor III, and this may be meaningful vis-a-vis fatigue. The emotion interest is considered by Izard to involve attention and concentration, and in conjunction with anxiety, could be interpreted as vigilance. It makes sense that over 113 anxiety situations, this complex would resolve into the predominant feeling of fatigue. However, a second interpretation might hold that because this third factor accounts for such a small proportion of total variance, it is essentially meaningless and fatigue is not part of the picture at this frequency level of measurement. It should be noted as well that these basic results (an anxiety and a depression factor) for the frequency measure need not be viewed as a propensity (trait) to experience anxiety or depression.

The intensity measure is, however, clearly a state measure. For all situations, Factor I suggested that these anxiety situations produce the experience of depression (anger, disgust, contempt, distress, guilt, and fatigue). Anxiety had a secondary loading here reflecting perhaps the fact that these <u>were</u> anxiety situations, and even if depression was felt, anxiety was the predominant factor; and reflecting perhaps the traditionally close relationship between anxiety and depression. Factor II appeared to represent anxiety (fear, shyness, surprise, and, secondarily, distress). Factor III (enjoyment, interest) could represent an "approach" factor, considering anxiety and anxiety situations in the context of approach-avoidance conflicts.

These results appeared to suggest a close relationship between anxiety and surprise, although Izard does not include surprise as an anxiety emotion. However, in many anxiety situations, a first emotional response may be a startle response coupled with the processes of attention and concentration: this may result in a surprise-interest emotion complex, and be the starting point for the addition of other emotions which eventually resolve into the conscious experience of anxiety. Although not answerable through this research, this raises an important theoretical point relating to "cognitive" and "emotional" approaches to the understanding of anxiety. A reading of cognitive

theorists (e.g., Lazarus and Averill, 1972) suggests that emotion is an end-product of a cognitive process. Izard argues that the experience of emotion is the result of an interaction between emotion components within an emotion system, which interacts with and influences other personality systems, including cognition. It may be a moot theoretical point to argue about the temporal primacy of cognition and more appropriate to consider that both systems (cognitive and emotional) are activated upon the presentation of an "anxiety situation"; the resulting experienced emotion being a function of their interaction.

In a sense, the results for the high-anxiety (both frequency and intensity) situations provided greater support for Izard's position. The vast majority of these situations had mean intensity ratings greater than 3.5 (that is, most approached the "substantial" point on the scale). With anxiety included, the factor analysis could not be done, suggesting a linear relationship between anxiety and a subset of the fundamental emotions. A multiple regression analysis revealed that the emotions entering into the regression equation were fear, distress, shyness, and interest, with positive weightings, and enjoyment, depression, surprise, and contempt, with negative weightings. This analysis suggested then that each of the three factors from the factor analysis of the high-intensity data (with anxiety excluded) represented differing aspects of the experience of

anxiety in these high-intensity situations. Factor I may represent an "anxiety: distress-depression" factor (anger, disgust, contempt, distress, fatigue, and, secondarily, guilt). Factor II may represent an "anxiety: approach" factor - enjoyment and interest had the higher loadings here, with guilt and surprise somewhat lower. Factor III may represent an "anxiety: fear" factor - fear and shyness had about equally high loadings here.

Turning to the data for high-frequency situations, Factor I appeared to represent depression (anger, disgust, contempt, distress, guilt and the negative of enjoyment). Anxiety, with interest, loaded on Factor IV, and as such may reflect an "anxiety: vigilance" factor. Factor III consisted of fear, with distress as a secondary loading. While this might be considered a singlet with little meaning, it may be meaningful in the context of these high-anxiety situations. The predominant fundamental emotion involved in anxiety is thought to be fear. Under conditions of high anxiety, although anxiety may still be experienced, the predominant experience is one of fear - the experience of a more or less "pure" emotion in Izard's words. Factor II was more difficult to interpret. Fatigue had a high negative loading here, followed by shyness and surprise, with positive loadings. Perhaps this could be best interpreted as a fatigue factor completely orthogonal to both depression and anxiety-fear.

The results for the low-anxiety situations (both frequency and intensity) were inconsistent and mixed, but as such still tended to support Izard's position. For the low-frequency data, Factor I appeared to represent a depression factor (anger, disgust, contempt, distress, guilt, and the negative of enjoyment). Fear and anxiety had secondary loadings on this factor, again reflecting the close relationship between anxiety and depression. Factor II represented an anxiety factor (fear, shyness, interest, surprise, and, secondarily, distress). Enjoyment (a positive loading) and fatigue also had secondary loadings on this factor, perhaps reflecting, in these low-anxiety situations, a drift away from an absolute experience of anxiety.

Turning to the low-intensity results, the factor structures here would appear to reflect the notion that, in these low-intensity situations, anxiety was not enough of a prepotent force such that the fundamental emotions resolved into anything that could be easily labelled anxiety. The mean ratings for most of these items ranged between the "some" and "mild" categories. In the factor analyses with and without depression, two factors appeared to remain reasonably consistent. One could be called an approach factor (enjoyment-interest). Putting this in the context of anxiety situations as approach-avoidance conflicts, it is reasonable to think that these low-intensity situations would reflect a consistent approach component. The second

reasonably consistent factor involved fatigue, anger, disgust, and, secondarily, contempt (with depression when it was included in the analysis). Anxiety tended to cluster consistently with fear and distress, although other emotions (shyness, surprise, and contempt) were involved as well. Thus, although anxiety and depression may be represented here, the predominant aspect of these low-intensity situations may be that of "approach".

The results of this pilot research varied as a function of the type of anxiety situation considered - in a way basically consistent with Izard's formulations, where type of situation refers to high versus low anxiety, for both frequency and intensity of anxiety. Complex emotions (anxiety, depression) are viewed as a variable combination of fundamental emotions as a function of person and situation. The pilot research demonstrated this variableness under differing broad types of anxiety situations. Because of data collection procedures and analysis restrictions, the "person" aspect of the interaction could not be examined. The research to be presented seeks to examine the relationship and interaction between person variables (as measured by the FIASca) and situation variables (types of anxiety situations, as reflected in factor analytic results) in producing differing and variable emotion profiles (as reflected in patterning amongst Izard's fundamental emotions).

Interactionism and the Present Research

In discussing interactionism, Endler (1973, 1975b) and Endler and Hunt (1966) considered the issue of whether individual differences or situations are the prime source of behavioral variance to be a pseudo issue, comparing it to the nature-nurture issue vis-a-vis intelligence. The importance of person and situation as sources of behavioral variance is not denied, nor the issue. What is in question is the way in which the issue has been raised and examined. The tendency, in the resurgent theoretical position of interactionism (Ekehammar, 1974), has been to ask, in research, either: which is of greater importance - person, situation or their interaction?; or how much variation is attributable to persons and how much to situations?, with the aim of demonstrating that the interaction contributes the most (e.g., Bowers, 1973). At one level, this kind of approach may be meaningful. However, at another level, if research and understanding about person-situation interactions is to advance, the more appropriate research issue is the nature of such interactions. It is assumed here, of course, that interactions occur and are significant sources of behavioral variance. It is also assumed that, under differing conditions, the primacy of person or situation or

interaction effects, in explaining behavioral variance, may shift. So that perhaps a second important research question, for interactionism and personality research and theory in general, may be "Under what conditions do person variables or situation variables or their interaction become most important as sources of behavioral variance?".

The issue then becomes one of methodology. Several approaches are represented in Endler and Magnusson (1976). If the focus is on the "how much" question, methodology and analysis will focus on analysis of variance in conjunction with varying methods of partitioning variance components; there is some controversy surrounding the most appropriate method (e.g., Bolles and Messick, 1958; Endler, 1966; Endler and Hunt, 1966; Golding, 1975; Sells, 1963). If, however, the focus is on the "how" question or the nature of the interaction, the issue becomes one of finding a paradigm that can examine the interaction of situation and person variables within the same experimental design. Raush (1965) and Magnusson and Ekehammar (1975) represent two such approaches. Rauch's approach focused on the examination of interaction sequences over time among normal and disturbed children in differing situations. Magnusson and Ekehammar examined response patterns as a function of person-situation interactions using inventory data. The focus of the present research is on this methodology vis-a-vis inventory data, so that Magnusson and Ekehammar's approach will be reviewed in

detail.

Employing data generated from an S-R-type inventory of anxiety (Ekehammar, Magnusson, and Ricklander, 1974), the authors used factor analysis as a data reduction technique. The anxiety inventory employed 17 situations, thought to be "anxiety situations", as suggested by previous research. For each situation, subjects had to indicate the intensity of their response on 18 different modes of response, again thought to be indicative of anxiety, as reflected in previous research. Data were collapsed across situations to generate an Individual by Response data matrix. Applying factor analytic techniques reduced the response data to two factors: somatic anxiety and psychic anxiety.

The data were also collapsed across modes of response to generate an Individual by Situation data matrix. Factor analysis reduced the situation data to three factors: threat-of-punishment situations, anticipation-fear situations, and inanimate-threat situations. Using this factor analytic data, factor scores for each subject vis-a-vis each situation (factor) - response (factor) combination (6) were generated.

Using analysis of variance techniques, the anxiety response profile (somatic versus psychic) for the total sample of subjects was examined across the three situation categories. Results indicated that regardless of situation, subjects showed higher levels of psychic anxiety than

somatic anxiety. In addition, anticipation-fear situations provoked the least amount of anxiety, and threat-of-punishment the most. Inanimate-threat situations fell in between. The somatic anxiety response factor showed a higher level of transsituational consistency than the psychic anxiety factor.

Half the sample of subjects was female, and sex differences in response profiles across situations were demonstrated in the analysis. Females, across situations, reported higher degrees of both types of anxiety. In addition, females responded almost as strongly to threat-of-punishment and inanimate-threat situations, while males did not.

Finally, using latent profile analysis (LPA; Gibson, 1959; Lazarsfeld and Henry, 1968; Mardberg, 1973), groups of subjects were generated within each sex, whose anxiety responses across categories of situations were homogeneous. For each sex, three such groups were generated, and their anxiety response profiles were examined. One group of subjects, for each sex, showed low anxiety levels, high transsituational consistency (i.e., consistency of response across situations) and high response consistency (i.e., consistency of response within situations). This profile was the most frequent profile amongst the total sample of subjects.

A second group of subjects, for each sex, showed moderate

to high anxiety levels, high transsituational consistency, but low response consistency. This was the second most frequently occurring profile.

For females, a third group demonstrated moderate anxiety levels, low transsituational consistency, and low response consistency. For males, the third profile showed high anxiety, low transsituational consistency, and moderate response consistency. Thus, for both sexes, this profile was characterized by low transsituational consistency.

The importance of this study was, not so much the actual findings, but the demonstration that such a methodology was useful, descriptively and analytically, in an examination of response profiles among differing groups of subjects in differing situations.

The present research intends to examine emotion profiles (Izard, 1972a) of groups of subjects differing in responsivity to anxiety situations (the FIASca four group typology) with respect to a subset of FIASca anxiety situations. As such, males and females will be asked to fill out the FIASca. Mediam splits on frequency and intensity data, for both males and females, will be used to generate four groups of subjects: 1) high intensity - high frequency (HH), hypothesized by Janisse and Palys (1976) to be an "anxiety neurotic" group; 2) high intensity - low frequency (HL), hypothesized to be "phobic"; 3) low intensity - high frequency (LH), or "normals"; 4) low intensity - low

frequency (LL), "psychopathic" or persons who would score high on social desirability and need for approval scales.

Using operationally defined criteria (to be detailed below), 62 items common to the male and female forms of the FIASca will be reduced to a managable number of situations, each of which will be rated on the 11 fundamental emotions and depression by each subject. Thus, the subject will be responding to what is essentially an S-R-type inventory, consisting of a set of empirically defined anxiety situations and a set of emotional response categories. Factor analysis will be used to reduce the data to a few situation and response factors. As in Magnusson and Ekehammar (1975), factor scores for each situation (factor) - response (factor) combination will be generated, and this then will be the basic data for further analysis, using analysis of variance methods. The analysis will proceed two ways. Following Magnusson and Ekehammar, a latent profile analysis (LPA) will be applied to the data, and the resulting groups compared with respect to emotion profiles in varying anxiety situations. As well, however, emotion profiles of FIASca groups will be compared in a similar manner.

Hypotheses

This research is thought to be significant on several levels. First of all, it provides a further test of Izard's notions, from three points of view.

1. The pilot research examined the clustering of fundamental emotions with respect to anxiety situations, and found that the resultant factor structures were consonant with Izard's approach and his definition of anxiety. The present research extends this investigation to persons: how do the fundamental emotions cluster, when collapsed over a set of anxiety situations, with respect to individuals? It is expected that the response factors generated here will, in general, reflect Izard's notions. Several resultant factor structures, all of which would be interpretable in the context of Izard's approach, seem possible at this point:

(a) one "anxiety" factor comprising all of the "anxiety emotions" and one or more factors on which the other fundamental emotions load. In the context of the pilot research and Izard's definition of anxiety as fear plus two or more anxiety emotions, this particular result is felt to be unlikely.

(b) several factors representing anxiety and following Izard's definition of anxiety as fear plus two or more

anxiety emoticns, and one or more factors on which the other fundamental emoticns load. As discussed in the pilot research, these several anxiety factors could reflect approach, avoidance, or vigilance.

(c) the above possibilities assume that the "one or more factors on which the other fundamental emotions load" will essentially be meaningless. On the basis of the pilot results, however, these other factors could reflect depression. The presence of a factor or factors reflecting depression is felt to be likely. However, the pilot study factor analyses were done with respect to anxiety situations, whereas here it will be done with respect to subjects. Whether the fundamental emoticns will resolve into a depression component will be of interest.

2. A second aspect of Izard's approach examined here is, of course, the interactionistic nature of the theory. As well as expecting significant main effects, interactions are expected to be significant, particularly those invclving person and situation variables. It is expected that the average profile for all subjects will vary as a function of response factors and anxiety situations. This is expected to be the case as well when male versus female profiles and the profiles for the various groupings (LPA and FIASca) are examined. Not knowing the response factors that will be generated, it is difficult to speculate about the form these interactions will take.

3. The third aspect of Izard's theory that is examined is clearly more exploratory. This has to do with Izard's contention that it may be possible to delineate certain types or groups of individuals as characterized by an anxiety that is defined as a particular pattern of emotions and emotion interactions. The latent profile analysis is felt to be an attempt to explore this.

A second level of importance for this research is that it contributes to the interactionistic literature in general in applying a methodology aimed at examining the nature of interactions rather than attempting to divide up proportions of variance. The research attempts to demonstrate that interactions can be described in meaningful patterns.

On a third level, the research examines the relationship between FIASca groupings and emotion profiles with the exploratory question: Will the emotion profiles of FIASca groups reflect, in any way, the labels applied by Janisse and Palys? One might speculate, for example, that the "anxiety neurotic" (HH) grouping will show higher factor scores on response factors reflecting anxiety and depression, and in more types of anxiety situations, than would the "phobic" (HL) grouping. This is obviously highly speculative and is considered ancillary to the above hypotheses. However, the response profiles for these groups vis-a-vis differing anxiety situations will be of interest.

III: Method

Subjects

Subjects were 303 males and 303 females recruited from introductory psychology courses at the University of Manitoba. They were told they were signing up for a study of emotion in which ".... you will be asked to fill out questionnaires about your emotional reaction in several situations". Subjects received partial course credit for their participation.

Materials

The male and female versions of the FIASca, employing the standard instructions, were used. These are presented in Appendix B, as are all other materials.

In addition, an S-R-type inventory was employed, using Izard's (1972a) fundamental emotions plus fatigue and depression as modes of response, and a subset of the 62 items common to the two forms of the FIASca as anxiety situations.

The subset of items were selected by the following criteria. First of all, only those items were included which could be classed as high-frequency items. That is, since the interest was in relationships between the funda-

mental emoticons and anxiety, when anxiety is experienced in a situation, this criterion would raise the probability that the situation would both be one most subjects had experienced and had felt at least "some" anxiety.

Secondly, only those items were included which, in previous factor analyses of items with respect to anxiety, clustered together. The rationale was to have operationalized a priori groupings of items which could be labelled. It was also expected that a factor analysis of the Individual by Situation data matrix (with data collapsed across responses) would result in factors corresponding to these a priori groupings - although it was not essential that this occur.

Applying these criteria to the pilot study data resulted in a 26 item inventory, as detailed in Table 2. Items fell into seven different categories. Three items (38, 60, 71) loaded on two factors; one item (76) loaded on three factors. Of these, 16 were grouped as high-intensity items.

The inventory, titled the "Emotional Reaction Inventory" (ERI), was formated for use with computer answer sheets. The ordering of situations and emotions was randomized. The ERI is presented in Appendix B.

Table 2. Twenty-six items comprising the S-R-type inventory.

A priori Label*
Evaluation Apprehension/School
40. Before an exam.
43. Writing exams.
44. Studying for exams.
53. Waiting for grades.
64. Being unprepared for an exam.
82. Time pressure to get school work done.
Evaluation Apprehension/Job
41. Starting a new job.
45. During a job interview.
71. Dealing with superiors.
72. Applying or looking for a job.
73. Before a job interview.
Conflict
38. Conflicts with friends.
63. Conflicts with parents.
70. Observing quarrels.

* item numbers refer to original numbering in the FIASca.

.... (cont'd)

Table 2. (cont'd)

A priori Label*

Anxiety re: Self-esteem

27. Feeling inadequate, inferior, or incompetent.

38. Conflicts with friends.

58. Being criticized in public.

59. Having to impress someone.

60. Being singled out in a group.

76. Not knowing how to act in a new situation.

Uncertainty/Interpersonal

33. Meeting new people.

60. Being singled out in a group.

61. Being alone with strangers.

66. First day of school.

71. Dealing with superiors.

76. Not knowing how to act in a new situation.

Uncertainty/Non-interpersonal

26. The future.

75. Making a decision.

76. Not knowing how to act in a new situation.

Stage-fright

35. Being questioned in class.

55. Speaking in class or in public.

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* item numbers refer to origiral numbering in the FIASca.

Procedure

Subjects were scheduled in groups of approximately 30, males and females scheduled separately. All subjects were initially administered the appropriate version of the FIAScа. Subjects were asked to respond to each FIAScа situation indicating, on a five point scale, whether or not they had experienced the situation, and if so, how much anxiety they had experienced in the situation. The inventory, instructions and a pre-coded (for gender and subject number) computer answer sheet were handed out. Subjects were asked to read the instructions, and then await further verbal instructions. The instructions read in part:

> This questionnaire is a measure of two things. First, it is an attempt to find out <u>how many</u> situations that you have experienced made you anxious. Second, in those situations in which you have experienced anxiety, we would like to know <u>how</u> anxious they made you (for example, mild, some, substantial or extreme). On the computer form that accompanies this booklet you will find

answer spaces numbered one to five. For each situation named in the booklet, you are requested to mark one of the five spaces.....

For each situation you must fill in one space. If a given situation does not make you anxious, or you have never experienced that situation, you would fill in space number one; if you have experienced such a situation and you have felt only mild anxiety, fill in space number two; and so on with spaces three (some anxiety), four (substantial anxiety) and five (extreme anxiety).....

The five point scale was diagrammed in the instructions and at the top of each page of the booklet. Full instructions and the male and female versions of the FIASca may be found in Appendix B.

Before subjects were allowed to proceed to answer the questionnaire, they were given the following verbal instructions, read by the experimenter.

This survey consists of two questionnaires. One you have before you - the other I will hand out when all of you

have finished the first one. Each will take at the most thirty minutes to do.

I would ask you that rather than doing a lot of thinking about each item, it would be better if you answered from "gut-level" - your own subjective, first impression feeling for each situation.

After all subjects had answered the FIASca, they were asked to put these materials to one side. The Emotional Reaction Inventory (ERI), instructions, and computer answer sheets were handed out. Subjects were asked to read these instructions and then await further verbal instructions. Instructions for the ERI read in part:

The questionnaire you just completed was designed to measure how many situations made you anxious and to what extent they made you anxious. In constructing this questionnaire, each situation you answered had already been determined to be an "anxiety situation" to some degree or other for most people. Of course, people differ, so that not all of the situations are "anxiety situations" for all people.

As well as our interest in anxiety, we are interested in interrelationships between other feelings or emotions and anxiety. In this questionnaire, we want you to indicate, for a number of situations, to what extent you experience twelve different emotions.

Please examine the inventory now. It consists of 26 situations, four to a page. A rating scale is provided at the top of each page. Below each situation are a series of emotions; these are numbered consecutively to correspond to the numbering on the accompanying computer forms. Using the rating scale, you are to rate the extent to which you have experienced <u>each</u> emotion in <u>each</u> of the 26 situations. That is, for <u>each</u> emotion, you are to fill in one space on the computer sheet. For example, for the first situation, if you experienced no anger, you would fill in space number one for the first item on the computer

sheet; if on the other hand, you experienced mild anger, fill in space number two; and so on for the other rating categories.

All of the situations in this inventory were selected as having a high probability that all people have experienced them. However, there may be a situation you have not experienced. If so, leave the emotions blank for that situation. For example, if you have not experienced the first situation, you would leave items one through 12 on the computer form blank.

Before subjects were allowed to proceed to answer the questionnaire, they were asked to transfer the code number from the FIASca answer sheet to the ERI answer sheets. As well, the following verbal instructions, read by the experimenter, were given:

This may seem like an onerous task, and your inclination might be to simply say you've not experienced situations and leave them blank. I'll simply ask you to be as honest as you can and

consider your emotional reactions in <u>each</u> of the situations. Actually, we've found that people find this task interesting, despite its length. As well, we've found that filling out the entire inventory takes, at the most, about 25 minutes. Beyond this, I would again ask you to be subjective - I'm interested in your own subjective, first impression feeling for each situation.

Method of Data Analysis

Factor analytic procedures were used as a data reduction technique applied to the ERI data.

With the ERI data collapsed across situations, creating a Subjects by Emotions data matrix, emotions were intercorrelated across subjects. The resulting correlation matrix was then analyzed using a principle components extraction procedure, followed by a varimax rotation (Dixon, 1975), to reveal emotion factors.

With the ERI data collapsed across emotions, creating a Subjects by Situations data matrix, these same procedures were applied to reveal situation factors.

FIASca groupings were generated on the basis of median splits of the intensity and frequency measures for each

subject, as detailed by Janisse and Palys (1976).

A latent profile analysis program (Mardberg, 1973) was applied to the ERI Subjects by Emotions data matrix (with depression excluded) to reveal groups of subjects homogeneous in their profile on the Izard fundamental emotions. This procedure is detailed in the Results section.

For each situation (factor) - emotion (factor) combination, unweighted factor scores were computed and averaged across items and subjects of interest (total sample, males versus females, subject groupings). This procedure is detailed in the Results section.

Following Magnusson and Ekehammar (1975), it was then possible to apply a repeated measures analysis of variance to the factor score data. However, Harris (1975), considers such an application of a repeated measures ANOVA inappropriate due to restrictive assumptions which should be tested for and met (specifically, that the variance of the difference in response between pairs of treatment levels be the same for all possible pairs). Harris recommends the use of a multivariate analysis of variance technique - multiple profile analysis. Here, a subject's responses to the total number of treatment levels is treated as an outcome vector with as many elements as there are treatment levels. The main treatment effect is assessed by a flatness test on the grand mean outcome vector, the null hypothesis being that the response profile is perfectly flat (slope of curve equal

to zero), or that the combined means are all equal to the same value. The levels test, of multiple profile analysis, assesses the null hypothesis that groups do not differ on any response variable. Interactions are assessed through the parallelism test which tests the null hypothesis that the profiles for groups are parallel (have the same slope). These analyses were undertaken for both the FIASca and LPA groupings.

IV: Results

Factor Analyses: Emotions

The data base for these analyses was from the Emotional Reaction Inventory (ERI). For each subject, means across the 26 situations were computed for each emotion, creating a Subjects by Emotions data matrix. Mean intensity ratings for anxiety across the corresponding 26 FIASca situations were included in this data matrix.

Table 3 presents the intercorrelations among the fundamental emotions, anxiety and depression, for males and females together. Factor analyses involved a principle components extraction procedure, followed by a varimax rotation. Four analyses were undertaken: 1) the fundamental emotions only, 2) the fundamental emotions plus anxiety only, 3) the fundamental emotions plus depression only, and 4) the fundamental emotions plus both anxiety and depression. Analyses with and without anxiety were undertaken because, if the factor pattern of the fundamental emotions is considered an overall anxiety response to these anxiety situations, then the patterns of the two analyses should be consistent. Tables 4 and 5 present the results of these analyses.

Table 3. Correlation coefficients* among emotions for males and females (606) across ERI items (26).

Emotion	1	2	3	4	5	6	7	8	9	10	11	12
1. anger												
2. surprise	76											
3. distress	65	52										
4. enjoy	42	56	21									
5. guilt	72	71	61	47								
6. disgust	81	76	61	42	80							
7. interest	39	51	35	71	43	38						
8. fear	66	56	78	24	67	67	35					
9. depress	74	62	74	26	74	77	29	79				
10. contempt	74	72	57	45	73	80	39	64	73			
11. shyness	61	56	67	22	63	60	30	77	68	62		
12. fatigue	65	62	52	37	63	64	36	57	64	63	57	
13. anxiety	39	27	52	06	35	35	16	62	48	34	53	32

* Zeros and decimal points are omitted.

Table 4. Factcrs of fundamental emctions (with and without anxiety) for sample acrcss ERI items.

Emotion	Factcrs							
	Without Anxiety				With Anxiety			
	I	II	III	Ccmm.	I	II	III	Comm.
Disgust	83*	36	17	86	87*	26	18	85
Ccntempt	80*	35	20	79	82*	26	21	78
Anger	77*	41	19	80	81*	33	20	80
Surprise	76*	26	39	80	78*	17	40	79
Guilt	72*	42	26	77	78*	31	27	77
Fatigue	69*	34	17	62	72*	27	17	61
Fear	41	83*	12	87	52	75*	12	85
Distress	33	83*	13	82	49	69*	11	73
Shyness	41	78*	08	77	54	66*	08	73
Anxiety	--	--	--	--	08	88*	04	78
Interest	13	25	91*	90	18	19	90*	88
Enjoyment	37	-04	86*	87	33	-05	87*	86
Eigenv.	6.81	1.35	.70		7.05	1.53	.85	
% Var.	61.9	12.3	6.4		58.8	12.8	7.0	
Cum. Var.	61.9	74.2	80.6		58.8	71.6	78.6	

* indicates high loadings for each factor. Zeros and decimal points are omitted.

Table 5. Factors of fundamental emotions and depression (with-without anxiety) for sample across ERI items

Emotion	Factors							
	Without Anxiety				With Anxiety			
	I	II	III	Comm.	I	II	III	Comm.
Disgust	83*	38	18	86	87*	25	19	85
Contempt	79*	36	21	79	82*	24	22	78
Anger	76*	42	21	80	80*	32	22	79
Surprise	75*	26	41	79	76*	16	42	78
Guilt	71*	43	27	77	78*	30	28	77
Fatigue	68*	35	18	62	71*	25	19	61
Depression	63*	66*	04	83	75*	52	04	83
Fear	39	84*	13	87	54	75*	12	86
Distress	31	84*	14	82	50	68*	11	73
Shyness	39	77*	11	75	53	65*	10	72
Anxiety	--	--	--	--	09	88*	04	78
Interest	12	25	91*	90	17	20	90*	87
Enjoyment	36	-04	86*	87	31	-05	87*	86
Eigenv.	7.53	1.43	.70		7.78	1.59	.86	
% Var.	62.8	11.9	5.8		59.9	12.2	6.6	
Cum. Var.	62.8	74.7	80.5		59.9	72.1	78.7	

* indicates high loadings for each factor. Zeros and decimal points are omitted.

Note should be made of the criterion used to decide how many factors to extract and retain for rotation. A frequently used procedure is to retain those factors having eigenvalues equal to or greater than 1.00. This criterion establishes the minimum (lower bound) number of factors which will adequately reproduce the observed correlation matrix; for a component analysis, the maximum (upper bound) number of factors is equivalent to the number of variables analyzed, in this case - depending on the analysis - 11, 12, or 13 factors. In all cases, by this criterion, the lower bound for number of factors was two.

However, several authors (e.g., Comrey, 1973; Gorsuch, 1974) recommend that several criteria be used to determine how many factors to extract and rotate. These authors suggest that the "eigenvalue equal to or greater than one" criterion tends to underestimate the number of factors needed to adequately reproduce the correlation matrix, especially when the number of variables is small. If too few factors are extracted, the character and interpretability of the rotated factors may be distorted because important factors have been omitted and their variance affects the pattern of the retained factors.

A second procedure used to establish the appropriate number of factors is the "scree test". Eigenvalues are plotted against factor number. The point at which this plot

becomes essentially a straight line determines the number of factors to retain. This is equivalent to examining the drop-off in percent of variance extracted for successive factors; the point at which successive factors add little, and approximately equal, variance to that already extracted determines the cut-off for number of factors. Table 1 of Appendix C presents eigenvalues and cumulative percentage of total variance for the maximum (upper bound) number of factors for the principle component analyses of emotions. In all cases, the "scree" point was at three factors.

A third approach to determining the number of factors to extract is to examine the rotated solution for differing numbers of extracted factors. Additional factors are considered trivial (and dropped from the final analysis) if they do not display a unique set of defining variables. Four and five factor varimax solutions for the present analyses yielded "singlets" or specific factors after Factor III; that is, factors beyond the third had one variable loading high and all others loading low.

Based on these criteria, the extraction of three factors was considered appropriate. It should be noted as well that eigenvalues for the third factor approached unity (.70 to .86), and the three factors together accounted for some 80% of variance.

Note should as well be made of the criterion for accepting a variable as constituting a component of the factor. A common cut-off is loadings exceeding .30, meaning that the variable has nine percent of its variance in common with the factor. However, for interpretative purposes, Comrey (1973) considers factor loadings greater than .70 as excellent, greater than .62 as very good, greater than .54 as good, and greater than .44 as fair. It is clear that the interpretation of factor analytic results can be a very subjective process. Rather than erring on the side of over-inclusiveness, and based on the results of the pilot study where most loadings exceeded the "very good" level (.62), it was decided to generally consider only those variables with loadings on a factor greater than .62. For variables with loadings that do not meet this criterion across all factors, the variable will be considered to load with the factor for which it has the highest loading.

Referring to Tables 4 and 5, emotions loading high on Factor I, for all analyses, were disgust, contempt, anger, surprise, guilt, and fatigue. Depression loaded high on Factor I when included in the analysis.

Emotions loading high on Factor II were fear, distress, and shyness. Anxiety loaded high on Factor II when included

in the analysis.

Factor III , in all analyses, consisted of interest and enjoyment.

In addition to these analyses, exactly the same procedures as detailed above were used to analyze the male and female samples separately. The results are presented in Tables 2 through 9 of Appendix C. These results will not be detailed here except to note that factor patterns were consistent with the main analyses presented above.

Although by definition orthogonal (independent), several features of these patterns suggested an interrelatedness between factors. Guilt, anger and depression tended to show acceptable or near-acceptable loadings on Factor II (fear, distress, shyness, and anxiety), while fear, distress and shyness showed a similar tendency in loadings on Factor I. Surprise showed moderate loadings with Factor III (interest and enjoyment).

In order to examine the degree of relationship between these factors, the varimax solution for the fundamental emotions (excluding anxiety and depression) was made oblique using the promax procrustes procedure. The results of this analysis are presented in Table 6.

Table 6. Oblique (promax) solution of fundamental emotions for sample across ERI items.

Emotion	Factors			
	I	II	III	Comm.
Disgust	94*	03	-08	86
Contempt	88*	04	-04	79
Anger	82*	13	-04	80
Surprise	82*	-06	19	80
Guilt	72*	17	06	77
Fatigue	75*	08	-04	62
Fear	12	84*	01	87
Distress	01	89*	05	82
Shyness	16	77*	-03	77
Interest	-21	24	98*	90
Enjoyment	27	-25	84*	87
Eigenv.	6.81	1.35	.70	
% Var.	61.9	12.3	6.4	
Cum. Var.	61.9	74.2	80.6	

* indicates high loadings for each factor. Zeros and decimal points are omitted.

Although the magnitude of loadings shifted somewhat, the general pattern of loadings remained the same. The correlations between factors, however, suggested that Factors I and II (r = .67) and Factors I and III (r = .51) were interrelated; the correlation between Factors II and III was relatively low (r = .27).

A final analysis of interest here was a factor analysis of only those emotions hypothesized to be involved in anxiety (fear, distress, guilt, shyness, anger, interest, and surprise). This analysis was undertaken for the following reason: if the factor pattern of the fundamental emotions is construed as an overall anxiety response configuration to these anxiety situations, then the factor pattern for the hypothesized anxiety emotions should be consistent with the overall pattern. Table 7 presents three- and two-factor solutions (varimax rotation of principle components) for these emotions (including anxiety).

For the three factor solution, the pattern remained consistent with the pattern for all fundamental emotions. As might be expected, however, the third factor was essentially a singlet or specific factor: although surprise showed a near-acceptable loading here, interest was the only high-loading emotion on this factor. Given the results of the oblique promax solution, where Factors I and III

Table 7. Factors of "anxiety" emotions (with anxiety) for sample across ERI items.

Emotion	Factors						
	3-factor solution				2-factor solution		
	I	II	III	Comm.	I	II	Comm.
Surprise	84*	12	32	83	32	84*	80
Anger	84*	30	14	81	52	70*	75
Guilt	82*	28	20	78	48	72*	74
Anxiety	05	91*	08	84	85*	-04	73
Fear	55	73*	12	85	83*	41	85
Distress	55	64*	13	73	75*	42	73
Shyness	58	63*	05	74	76*	40	74
Interest	27	11	95*	99	01	78*	61
Eigenv.	4.87	1.08	.64		4.87	1.08	
% Var.	60.9	13.4	7.9		60.9	13.4	
Cum. Var.	60.9	74.3	82.2		60.9	74.3	

* indicates high loadings for each factor. Zeros and decimal points are omitted.

correlated moderately and Factors II and III correlated at a low level, one might expect that, in a two-factor solution, interest would load with Factor I emotions (anger, surprise, and guilt). As Table 7 indicates, this was what occurred, although the order of the factors was reversed.

Interpretation

Because subsequent analyses in this research depend to some extent on meaningful interpretation of these factor analyses, a short interpretative section will be presented at this point.

Based on the pilot research, one might conclude that Factors I, II, and III represent depression, anxiety, and approach, respectively. Clearly, Factor II could be considered an "Anxiety" factor: Anxiety consistently loaded on this factor with fear, distress, and shyness, and to a lesser degree with guilt and anger. All of these emotions are considered by Izard to be involved in anxiety. As well, the component make-up of this factor reflected Izard's definition of anxiety as involving fear plus two or more of the "anxiety emotions".

A second, not incompatible but less defensible, interpretation of Factor II could be to consider this factor as reflecting "somatic anxiety": the high-loading emotions - fear, distress, and shyness - are closely associated with

physiological and behavior indices commonly reflecting high levels of arousal and/or anxiety. Although this is one possible interpretation of this factor, it is given little weight here without corroborating physiological-behavioral data. The primary interpretation of Factor II is that it represents "Anxiety", and that it is basically consistent with Izard's formulations and the previous results of the pilot research. Factor II will be referred to as the Anxiety factor in the remainder of this presentation.

Factor III involved interest and enjoyment, and as such will be considered an "Approach" factor in these anxiety situations. This interpretation is consistent with the pilot study results and with the view considering anxiety situations as approach-avoidance conflicts. In this sense, Factor II - "Anxiety" - could be viewed as reflecting an avoidance aspect in these anxiety situations.

Factor I is somewhat more difficult to interpret. Although depression loaded high on this factor, it, along with fatigue, ranked lowest for the high-loading emotions. As well, distress did not load high on Factor I; distress is considered by Izard as the defining fundamental emotion for depression. Thus, although depression may be an aspect of Factor I, it would not appear to represent the factor, as a whole. This is inconsistent with pilot study results. There, depression and distress loaded together at high levels on factors labelled depression. However, the pilot

study data was analyzed by correlating across anxiety situations (with data collapsed across subjects), whereas here data was analyzed by correlating across subjects (with data collapsed across anxiety situations).

The highest loading emotions on Factor I were disgust, contempt and anger. Izard defines this complex as hostility. Although Izard (1972b) differentiates between inner- and outer-directed hostility, it is not possible to make that distinction here. Surprise and guilt were, as well, closely involved with Factor I. The approach taken here will be to label Factor I "Hostility", with the recognition that surprise, guilt and depression are involved as well. That is, Factor I should not be regarded as a "pure" hostility factor.

The moderately high correlation between Factors I and II ("Anxiety") and the moderate correlation between Factors I and III ("Approach") suggest other, not inconsistent, interpretations of the data and Factor I. If Factor II (fear, distress, shyness) was considered to represent a predominately somatic component of the total emotional reaction to these anxiety situations, then Factor I might be construed as a predominately "psychic" component. Further, if Factors II (Anxiety) and III were viewed as representing avoidance and approach factors in these anxiety situations, then Factor I might as well be construed as an avoidance factor involving inner- and/or outer-directed hostility, associated

guilt, and consequent depressive feelings. These interpretations are speculative. It remains, however, that Factor I appears to be closely related to "Anxiety" and "Approach".

Taken together, the results and interpretations of these analyses were felt to support the first hypothesis of this research, giving further support to Izard's approach.

For further analyses, in particular the computation of factor scores, Factor I will be labelled Hostility (involving disgust, contempt, anger, surprise, guilt, and fatigue), Factor II will be labelled Anxiety (involving fear, distress, and shyness), and Factor III will be labelled Approach (involving interest and enjoyment).

Factor Analyses: Situations

Again, the data base for these analyses was from the ERI. For each subject, means across the fundamental emotions were computed for each of the 26 situations, creating a Subjects by Situations data matrix.

Table 8 presents the intercorrelations among the 26 anxiety situations, for males and females together. As before, factor analysis involved a principle components extraction procedure, using the factor retention criteria as previously discussed, followed by a varimax rotation. The results of this analysis are presented in Table 9.

Table 8. Correlation coefficients* among ERI situations for sample (606) across fundamental emotions (11).

ERI Situation	1	2	3	4	5	6	7	8	9	10	11	12	13
1. q'ed in class													
2. impress someone	74												
3. write exam	73	72											
4. act-new-sit.	69	77	75										
5. meet new people	69	72	69	72									
6. during job int.	63	68	70	75	75								
7. time pressure	61	64	77	73	64	68							
8. speak in class	69	66	67	73	72	73	71						
9. superiors	65	71	70	73	73	74	68	72					
10. unprep. exam	57	57	69	64	57	61	77	65	58				
11. feel inferior	52	60	57	69	58	60	64	66	63	68			
12. before exam	61	59	78	69	63	66	78	70	67	75	68		
13. conflict friends	51	61	64	65	63	62	67	61	69	67	71	70	
14. apply job	60	64	65	71	69	77	70	69	74	62	68	69	69
15. decision	62	68	69	73	71	71	70	69	74	64	69	73	70
16. obs. quarrels	49	56	62	62	62	63	61	59	66	60	64	65	71
17. before job int.	59	64	63	69	65	79	66	71	71	63	69	71	65
18. 1st day school	56	62	64	63	70	70	65	64	70	61	63	69	67
19. conflict parents	48	56	62	62	60	60	64	62	67	65	68	68	74
20. start new job	59	65	63	70	69	77	68	71	73	62	66	69	67
21. wait grades	57	59	72	68	64	68	74	68	69	71	67	79	70
22. future	50	60	58	67	59	64	63	64	65	60	67	64	67
23. crit. in public	53	55	59	64	56	62	67	66	61	68	73	67	70
24. singled-grp.	61	62	64	68	66	67	66	72	69	63	68	69	67
25. study exam	57	59	75	68	62	65	78	68	68	74	70	84	73
26. alone-stranger	57	64	61	71	74	71	65	74	72	58	66	67	66

* Zeros and decimal points are omitted.

....(cont'd)

Table 8. (cont'd)

ERI Situation*	14	15	16	17	18	19	20	21	22	23	24	25
14. apply job												
15. decision	78											
16. obs. quarrels	68	72										
17. before job int.	80	76	64									
18. 1st day school	73	72	66	76								
19. conflict parents	63	67	74	65	67							
20. start new job	78	75	66	84	76	68						
21. wait grades	72	74	66	74	74	71	74					
22. future	69	72	62	67	66	65	71	73				
23. crit. in public	69	66	69	68	64	71	69	67	64			
24. singled-grp.	71	71	67	71	70	66	74	73	68	77		
25. study exam	70	74	66	74	72	71	73	82	70	72	74	
26. alone-stranger	73	76	68	78	72	65	79	72	70	70	77	73

* Zeros and decimal points are omitted.

Table 9. Factors of ERI situations for sample across fundamental emotions.

ERI Situation	Factors					
	I	II	III	IV	V	Comm.
17. before job int.	73*	31	32	19	29	85
20. start new job	72*	32	30	26	27	84
26. alone-stranger	66*	35	21	29	36	81
14. apply job	65*	36	29	30	26	79
18. 1st day school	64*	29	35	38	11	77
6. during job int.	63*	52	27	20	15	79
15. decision	54*	41	33	41	21	78
22. future	53*	24	31	35	35	68
1. q'ed in class	22	79*	31	07	21	82
2. impress someone	29	76*	19	29	20	81
5. meet new people	47	65*	19	32	10	79
4. act-new-sit.	35	64*	33	23	33	80
9. superiors	50	55*	25	40	14	78
8. speak in class	45	54*	34	11	41	78

* indicates high loadings for each factor. Zeros and decimal points are omitted.

....(cont'd)

Table 9. (cont'd)

ERI Situation	Factors					
	I	II	III	IV	V	Comm.
12. before exam	37	31	71*	28	21	85
10. unprep. exam	19	30	69*	25	38	81
7. time pressure	31	41	67*	22	24	82
25. study exam	44	23	67*	32	28	86
3. write exam	23	60	61*	29	05	88
21. wait grades	52	23	60*	32	21	83
16. obs. quarrels	36	27	25	71*	23	82
19. conflict parents	32	21	37	66*	31	81
13. conflict friends	30	28	37	63*	31	80
23. crit. in public	35	22	33	36	65*	83
11. feel inferior	31	28	32	36	62*	80
24. singled-grp.	50	33	30	28	50*	78
Eigenv.	17.89	1.11	.88	.59	.53	
% Var.	68.8	4.3	3.3	2.3	2.0	
Cum. Var.	68.8	73.1	76.4	78.7	80.7	

* indicates high loadings for each factor. Zeros and decimal points are omitted.

By these criteria, the analysis revealed five situation factors. The first two of these factors had eigenvalues greater than one, while the third factor had an eigenvalue which approached unity (.88); the remaining two factors had eigenvalues considerably less than unity (.59 and .53). The five factors together accounted for some 80% of variance. These five situation factors should be compared to the seven a priori situation clusters in Table 2.

Factor I appeared to involve two distinct but interrelated groups of situations. One consisted of job situations (before a job interview, starting a new job, during a job interview). One of these, "during a job interview", although it loaded highest on Factor I, had a "fair" (>.44) loading on Factor II, as well. The second group could be described as involving threat and/or uncertainty (being alone with strangers, first day of school, making a decision, the future). For further analysis (i.e., factor scores), these eight situations will be considered to comprise Factor I which might be described as involving situations having to do with threat and/or uncertainty. For the sake of brevity, Factor I will be labelled Threat.

Three additional situations had "fair" (>.44) loadings on Factor I, but higher loadings on other factors, and therefore not considered part of Factor I for the purpose of computing factor scores. However, all three of these

situations could be viewed as involving threat and/or uncertainty (dealing with superiors, waiting for grades, being singled out in a group). The situation "being singled out in a group" had equally high loadings on Factors I and V, but was included under Factor V as more appropriate to the apparent character of that factor (see below).

The situations loading high on Factor II (being questioned in class,, having to impress someone, meeting new people, not knowing how to act in a new situation, dealing with superiors, speaking in class or in public) all appeared to involve apprehension about the evaluation of self by others. Factor II will be labelled Self.

Two additional situations (during a job interview, writing exams) had "fair" or better (>.44) loadings on Factor II, but higher loadings on other factors. These two situations could, however, be viewed as reflecting apprehension about the evaluation of self by others.

All items loading high on Factor III involved exams and school work (before an exam, being unprepared for an exam, time pressure to get school work done, studying for exams, writing exams, waiting for grades). As such, Factor III was considered to represent evaluation apprehension about school, and will be labelled School.

The items loading high on Factor IV all involved conflict (observing quarrels, conflict with parents, conflict with friends). Factor IV will be labelled Conflict.

Factor V situations appeared to involve threat to self-esteem (being criticized in public, feeling inadequate, inferior, or incompetent, being singled out in a group). The situation "being singled out in a group" had an equally high loading on Factor I (threat and/or uncertainty situations) but was included under Factor V, for the purpose of computing factor scores, as more characteristic of that factor than of Factor I. Factor V will be labelled Esteem.

Additionally, exactly the same procedures as detailed above were used to analyze the male and female samples separately. The results are presented in Tables 10 through 16 of Appendix C. Six, as well as, five factor solutions are presented because it was unclear where the scree point was for these separate analyses (Table 16, Appendix C). Although the order of factors and the loadings changed somewhat, factor patterns were relatively consistent with the pattern for the overall analysis.

Finally, comparison between these factors and the a priori clusters (Table 2) suggests a relatively good correspondence, although there were two fewer factors. The a priori clusters of "Evaluation Apprehension/ School" and "Conflict" corresponded with Factors III and IV. Factor I (Threat) was composed of items from the a priori clusters of "Evaluation Apprehension/Job", "Uncertainty/Interpersonal", and "Uncertainty/Non-interpersonal". Factor II (Self) was composed primarily of items from the a priori clusters of

"Uncertainty/Interpersonal", "Stage Fright", and "Uncertainty/Non-interpersonal". Factor V (Esteem) was composed of items from the a priori cluster of "Anxiety re: Self-esteem". The correspondence was thought to be all the better given the fact that the a priori clusters were based on anxiety ratings while the resulting situation factors were based on ratings of a set of fundamental emotions, a subset of which are assumed to be involved in anxiety.

FIASca Groups

As detailed by Janisse and Palys (1976), frequency and intensity scores were computed for each subject on the basis of the FIASca data. Table 10 presents mean intensity and frequency scores for males and females.

The mean intensity for females ($M = 3.36$, $SD = .41$) was significantly greater than that for males ($M = 3.19$, $SD = .42$; $t = 5.04$, $p < .01$, 2-tailed test). The mean frequency for males ($M = .85$, $SD = .12$) was significantly greater than that for females ($M = .82$, $SD = .11$; $t = 3.60$, $p < .01$, 2-tailed test).

Table 10 presents as well the median values for the frequency and intensity scores, for males and females. Based on these medians, the male and female samples were each divided into the four-group typology as detailed by Janisse and Palys (1976). Table 11 presents the results of this grouping procedure.

Table 10. Frequency and intensity scores from the FIASca.

	Frequency				Intensity		
	M	SD	Median	N	M	SD	Median
Males	.85	.12	.87	303	3.19	.42	3.17
Females	.82	.11	.83	303	3.36	.41	3.36
Males/Females	.83	.11	-	606	3.28	.42	--

Table 11. Means for intensity and frequency for the male and female FIAScа groups.

	Males					Females				
	Inten.			Freq.		Inten.			Freq.	
	M	SD	N	M	SD	M	SD	N	M	SD
HH-"Anx. neur."	3.55	.28	106	.93	.03	3.70	.22	107	.90	.05
HL-"Phobic"	3.45	.22	48	.80	.06	3.68	.25	46	.75	.07
LH-"Normal"	2.93	.17	53	.92	.03	3.10	.19	50	.89	.04
LL-"Psychopath"	2.80	.24	96	.74	.12	2.99	.27	100	.72	.10

Latent Profile Analysis Groups

The data base for this analysis was the Subjects by Emotions data matrix, computed from the ERI as previously detailed. This data matrix was submitted to a latent profile analysis (LPA) program developed by Mardberg (1973).

LPA is a multivariate clustering technique for classifying objects (male and female subjects) to clusters from continuous variables (the fundamental emotions). The statistical problem is to classify p-dimensional score vectors to homogeneous clusters. That is, the analysis takes a set of manifest data (observed scores), examines the interrelationships between score vectors (observed profiles) and generates a set of latent classes (profiles) to which subjects are assigned.

The adequacy of the solution is judged by two measures. The discriminability measure for each variable is a lower bound for reliability. Discriminability is the proportion of the total variance of a variable accounted for by the between profile (latent or observed) variance. The mean discriminability is the proportion of the between profile variance of the total set of variables. Discriminabilities should be as high as possible while the absolute difference between the mean latent and observed discriminabilities should be small. As well, the variances of the latent and

observed discriminabilities should be small. A secondary index of the adequacy of a solution is the weighted mean distance between corresponding latent and observed profiles which should be as small as possible.

The strategy for using the LPA program, when there is no clear indication of how many latent profiles can be obtained, is to do multiple runs for differing expected numbers of profiles. Initial runs for four and five expected profiles consistently yielded "nonsense" profiles - that is, a theoretical or latent profile with no corresponding observed profile. Thus, further runs were restricted to three expected profiles. As well, initial runs consistently yielded low discriminabilities for the variables interest and enjoyment. For example, while the latent discriminabilities for the other nine fundamental emotions averaged around .70, those for interest and enjoyment were consistently less than .40. Likewise, while the observed discriminabilities for the other nine fundamental emotions averaged around .58, those for interest and enjoyment were consistently less than .30. Further, adequate solutions could not be obtained with these two variables included. That is, interest and enjoyment contributed little to the division of the data into latent profiles (subject clusters) and were excluded from the final analysis.

Tables 12 (males) and 13 (females) present the results of the latent profile analysis.

Table 12. LPA groups for males (303). Means and standard deviations (bracketed) of raw scores, and latent and observed discriminabilities.

Variable	Profile			Discrimin.	
	High	Low	Medium	Lat.	Obs.
Fear	3.51(.53)	1.92(.34)	2.87(.37)	.79	.68
Distress	3.37(.50)	2.04(.38)	2.73(.45)	.67	.57
Shyness	2.85(.52)	1.63(.35)	2.19(.35)	.68	.58
Disgust	2.80(.46)	1.54(.34)	1.94(.40)	.80	.62
Surprise	2.80(.53)	1.54(.39)	1.87(.40)	.73	.58
Anger	2.72(.53)	1.55(.30)	1.84(.29)	.77	.61
Contempt	2.60(.53)	1.32(.25)	1.72(.39)	.76	.62
Guilt	2.53(.53)	1.36(.26)	1.71(.34)	.72	.59
Fatigue	2.53(.58)	1.34(.33)	1.60(.44)	.61	.55
Estimated no. of Ss (latent)	110.80	79.70	112.60	-	-
No. of Ss (observed)	105	85	113	-	-
Mean	-	-	-	.72	.60

Table 13. LPA groups for females (303). Means and standard deviations (bracketed) of raw scores, and latent and observed discriminabilities.

Variable	Profile			Discrimin.	
	High	Low	Medium	Lat.	Obs.
Fear	3.79(.49)	2.28(.49)	3.18(.40)	.77	.64
Distress	3.55(.58)	2.25(.45)	3.16(.46)	.64	.56
Shyness	3.00(.61)	1.72(.37)	2.46(.43)	.64	.56
Disgust	2.72(.48)	1.56(.38)	1.79(.41)	.75	.56
Surprise	2.63(.51)	1.57(.45)	1.76(.40)	.61	.48
Anger	2.67(.57)	1.61(.31)	1.95(.33)	.70	.53
Contempt	2.53(.59)	1.36(.30)	1.69(.44)	.65	.53
Guilt	2.40(.42)	1.38(.22)	1.62(.30)	.72	.64
Fatigue	2.48(.68)	1.40(.37)	1.68(.54)	.47	.41
Estimated no. of Ss (latent)	99.40	147.00	56.60	-	-
No. of Ss (observed)	79	122	102	-	-
Mean	-	-	-	.66	.55

For the male sample, latent and observed discriminabilities were generally high, with means of .72 and .60, and a difference of .12. The variances of the latent (.004) and observed (.002) discriminabilities were likewise low. The mean distance between latent and observed profiles was .53, a low value. Thus, this solution was judged to be adequate.

Examination of Table 12 suggests that the profiles could be labelled High, Low and Medium. For all three profiles, fear, distress, and shyness generally had the highest mean scores. Disgust, surprise, and anger had somewhat lower mean scores. Contempt, guilt, and fatigue had the lowest mean scores. There were 105 subjects in the High profile, 85 in the Low and 113 in the Medium, and these numbers corresponded well with those estimated by the latent profile model.

For the female sample, latent and observed discriminabilities were, as well, generally high, with means of .66 and .55, and a difference of .11. The variances of the latent (.008) and observed (.005) discriminabilities were low. The mean distance between latent and observed profiles was .47.

As with the male sample, the female profiles could be labelled High, Low and Medium. Mean scores for emotions showed the same type of pattern as for males. There were 79 females in the High profile, 122 in the Low and 102 in the Medium. These numbers for females did not correspond as

well as for males with those estimated by the latent profile model. Thus, although this solution was judged to be adequate, the fit between the theoretical (latent) and observed data was felt to be better for the male sample.

Multiple Profile Analysis

Factor Scores

For each situation (factor) - emotion (factor) combination, unweighted factor scores were computed for each subject. Thus, per subject, a total of 15 factor scores were computed representing an intensity score for each of the three emotion factors (Hostility, Anxiety, Approach) in each of the five situation factors (Threat, Self, School, Conflict, Esteem). Factor scores were averaged across the total sample, males and females, and FIASca and LPA groupings. Based on mean factor scores, profiles were drawn for each emotion factor across each situation factor, and emotion profiles were compared by a multiple profile analysis.

Overall Analysis

Tables 14 and 15 present results of the multiple profile analyses for FIASca and LPA groups, respectively. As in ANOVA, in multiple profile analysis the interaction or

parallelism test takes precedence. A significant departure from parallelism implies that profile shapes are dissimilar (not parallel). The flatness test, on the other hand, assesses whether the total sample profile (grand mean) is perfectly flat, analogous to the main effect for outcome measures in ANOVA. A significant flatness test for emotions (for each emotion, a combination of scores across situations), for example, would imply that the profile for emotions is not flat, and that emotions differ in overall intensity. Finally, the equal levels test assesses whether the profiles for the groups compared are at the same mean level for all outcome measures combined (general mean).

In that the flatness and parallelism tests compare profile shapes, the program used (Finn, 1976) required that the original outcome measures be converted to slope measures, where the slope measure is simply the difference between "adjacent" dependent variables. For these analyses, slope measures for emotion factors, situation factors, and their interaction, were set up in order by factor number. That is, the slopes for emotions were Hostility minus Anxiety (Factor I - Factor II) and Anxiety minus Approach (Factor II - Factor III). Similarly, slopes for situations were Threat minus Self (Factor I - Factor II), Self minus School (Factor II - Factor III), School minus Conflict (Factor III - Factor IV), and Conflict minus Esteem (Factor IV - Factor V). These slope scores represent comparisons

between outcome measures; the Finn program computes univariate F tests for these comparisons. However, because it was unknown in advance what the nature of the emotion and situation factors would be, these comparisons must be considered after the fact, and evaluated on a stringent post hoc basis. When appropriate, these analyses will be noted in the following presentation. Clearly, slope scores and hence comparisons could have been set up in other ways, and post hoc multiple comparisons made. However, such a procedure would seriously inflate the Type I error rate. Because a stated aim of this research was to attempt to describe person-situation interactions in terms of meaningful patterns, it was felt that this could be accomplished by the overall, general analysis and that a detailed post hoc analysis, although of interest, was unnecessary.

Examination of Tables 14 and 15 reveals that all three-way interactions (parallelism) were significant. Because of the complexity involved in interpreting these important interactions, the overall analaysis was supplemented by a simple main effects analysis for emotions, in essence a multiple profile analysis for each emotion factor separately. The results of these analyses are presented in Tables 16 and 17 for FIASca and LPA groups, respectively. Relevant parts of Tables 14 through 17 will be noted in connection with the presentation of the following profiles.

Table 14. Multiple profile analysis: FIASca groups.

Source	MS	df	F
Univariates (levels)			
General Mean: grand mean	708347.69	1/598	16658.61*
sex	41.58	1/598	.98
groups/sex	1233.22	6/598	29.00*
Multivariates (flatness)			
Emotions(E): grand mean	-	2/597	810.65*
Situations(S): grand mean	-	4/595	85.42*
E X S: grand mean	-	8/591	552.26*
Multivariates (parallelism)			
E X sex	-	2/597	31.34*
S X sex	-	4/595	2.38
E X S X sex	-	8/591	6.91*
E X groups/sex	-	12/1194	8.66*
S X groups/sex	-	24/2072.92	1.58**
E X S X groups/sex	-	48/2912.03	2.24*

* $p < .0001$, ** $p < .05$.

Table 15. Multiple profile analysis: LPA groups.

Source	MS	df	F
Univariates (levels)			
General Mean: grand mean	708347.69	1/600	46437.74*
sex	41.58	1/600	2.73
groups/sex	5918.72	4/600	388.02*
Multivariates (flatness)			
Emotions(E): grand mean	-	2/599	983.01*
Situations(S): grand mean	-	4/597	87.70*
E X S: grand mean	-	8/593	554.86*
Multivariates (parallelism)			
E X sex	-	2/599	38.08*
S X sex	-	4/597	2.39
E X S X sex	-	8/593	6.72*
E X groups/sex	-	8/1198	48.74*
S X groups/sex	-	16/1824.50	4.88*
E X S X groups/sex	-	32/2188.47	7.07*

* $p < .0001$

Table 16. Simple main effects at emotions: FIASca groups.

Source		MS	df	F
Univariates (levels)				
Hostility				
General Mean:	grand mean	63707.65	1/598	9590.42*
	sex	53.24	1/598	8.01**
	groups/sex	159.81	6/598	24.06*
Anxiety				
General Mean:	grand mean	107633.31	1/598	13800.70*
	sex	57.70	1/598	7.40***
	groups/sex	298.30	6/598	38.25*
Approach				
General Mean:	grand mean	68201.88	1/598	11078.84*
	sex	45.53	1/598	7.40***
	groups/sex	32.19	6/598	5.23*
Multivariates (flatness)				
Hostility-Situations(S)				
	grand mean	-	4/595	679.71*
Anxiety-S	grand mean	-	4/595	160.66*
Approach-S	grand mean	-	4/595	659.15*

* $p < .005$; ** $p < .025$; *** $p < .05$.

....(cont'd)

Table 16. (cont'd)

Source	MS	df	F
Multivariates (parallelism)			
Hostility-S X sex	-	4/595	7.17*
S X groups/sex	-	24/2076.92	3.67*
Anxiety-S X sex	-	4/595	3.39***
S X groups/sex	-	24/2076.92	1.23
Approach-S X sex	-	4/595	11.74*
S X groups/sex	-	24/2076.92	2.02**

* $p < .005$, ** $p < .025$, *** $p < .05$.

Table 17. Simple main effects at emotions: LPA groups.

Source		MS	df	F
Univariates (levels)				
Hostility				
General Mean:	grand mean	63707.65	1/600	28235.74*
	sex	53.24	1/600	23.60*
	groups/sex	894.37	4/600	396.39*
Anxiety				
General Mean:	grand mean	107633.31	1/600	36130.57*
	sex	57.70	1/600	19.37*
	groups/sex	1166.57	4/600	391.60*
Approach				
General Mean:	grand mean	68201.88	1/600	13497.40*
	sex	45.53	1/600	9.01**
	groups/sex	210.67	4/600	41.69*
Multivariates (flatness)				
Hostility-Situations(S)				
	grand mean	-	4/597	693.17*
Anxiety-S	grand mean	-	4/597	168.49*
Approach-S	grand mean	-	4/597	640.49*

* $p < .005$; ** $p < .025$.

....(cont'd)

Table 17. (cont'd)

Source	MS	df	F
Multivariates (parallelism)			
Hostility-S X sex	-	4/597	7.30*
S X groups/sex	-	16/1824.50	10.54*
Anxiety-S X sex	-	4/597	3.48***
S X groups/sex	-	16/1824.50	6.17*
Approach-S X sex	-	4/597	11.50*
S X groups/sex	-	16/1824.50	1.52

* $p < .005$, ** $p < .025$, *** $p < .05$.

Profile for the Total Sample

Figure 1 presents the average profile for the total sample, with the emotion factors plotted against the situation factors (the emotions X situations interaction - flatness test).

At a descriptive level, Figure 1 suggests that, in these anxiety situations, subjects report higher Anxiety intensities than they do for Hostility and Approach. This effect is statistically significant, as shown in Tables 14 and 15 (Emotions: grand mean - flatness). Further, depending on the type of anxiety situation considered, subjects respond differentially in terms of Anxiety. Again, this effect is statistically significant, as shown in Tables 16 and 17 (Anxiety: Situations grand mean - flatness). In general, Esteem situations were reported as the most Anxiety-arousing, Conflict the least, with Threat, Self and School situations falling mid-way between. Post hoc analyses, summarized in Table 18, revealed that Self situations were more Anxiety-arousing than Threat situations, School more than Conflict, and Esteem more than Conflict; Self and School situations did not differ statistically.

Figure 1 also makes clear that subjects respond differentially, depending on the situation, for both Hostility and

Approach. In general, at a descriptive level, Conflict and Esteem situations elicited high levels of Hostility and low levels of Approach, while the opposite was true for Threat and Self situations. The post hoc analyses presented in Table 18 bear out these relationships, and as well indicate that Threat situations elicit significantly higher levels of Approach than do Self situations.

To summarize, there appear to be logical relationships between emotions and situations as described for the profile for the total sample. In other words, it makes sense that situations which involve a threat to self-esteem should be very anxiety-arousing, elicit anger and guilt (Hostility), and provide little interest or enjoyment (Approach). On the other hand, situations involving threat and/or uncertainty (before a job interview) should elicit anxiety and interest (Approach), but low levels of anger or guilt (Hostility). Thus, it is felt that these emotion profiles for the total sample are meaningful when compared between each other and across different anxiety situations.

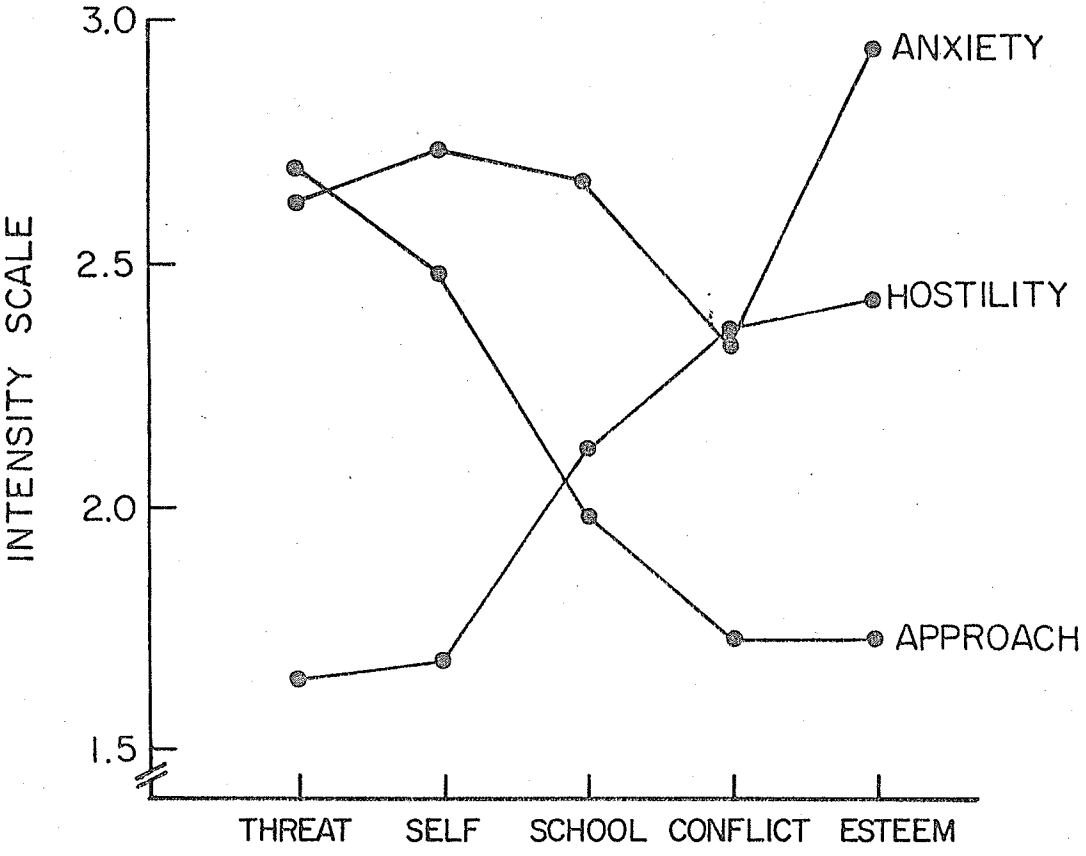

FIGURE 1. TOTAL SAMPLE EMOTION PROFILES

Table 18. *Post hoc* multiple comparisons between situations for three emotion factors: Total sample.

Comparison	MS	FIASca F	LPA F
Anxiety			
Threat-Self	6.86	55.84*	57.36*
Self-School	2.44	10.95	11.18
School-Conflict	63.24	206.63*	207.15*
Conflict-Esteem	229.35	530.42*	584.15*
Hostility			
Threat-Self	.12	1.94	2.01
Self-School	108.75	771.45*	856.03*
School-Conflict	39.82	201.80*	213.16*
Conflict-Esteem	.90	4.44	4.43
Approach			
Threat-Self	29.61	206.77*	207.45*
Self-School	151.67	621.57*	623.20*
School-Conflict	38.65	107.12*	107.40*
Conflict-Esteem	.07	.22	.22

Note: FIASca *df* = 1/598; LPA *df* = 1/600.

* $p < .005$

Profiles for each Sex

Figure 2 presents the average profile for each sex, with emotion factors plotted against situation factors (the emotions X situations X sex interaction - parallelism).

As shown in Tables 14 and 15, the emotions X sex interaction was significant while the situations X sex interaction was not. In other words, emotion profiles (across situations) for males and females differed in shape, while the situation profiles (across emotions) did not. However, the emotions X situations X sex interaction was significant, implying that emotion profiles differed between males and females depending on the anxiety situation considered. This is demonstrated by the significant situation X sex interactions for each emotion presented in Tables 16 and 17. However, post hoc analyses (Table 19) make it clear that emotion profiles over situations between males and females differ significantly in shape at only one point (Approach: Self versus School).

Figure 2 and Tables 16 and 17 demonstrate that females respond with higher levels of Anxiety and lower levels of Hostility and Approach than do males, and that the same types of relationships between emotions and situations obtain for males and females as for the total sample. That is, there were overall sex differences in emotion profile shapes, as well as in level of response.

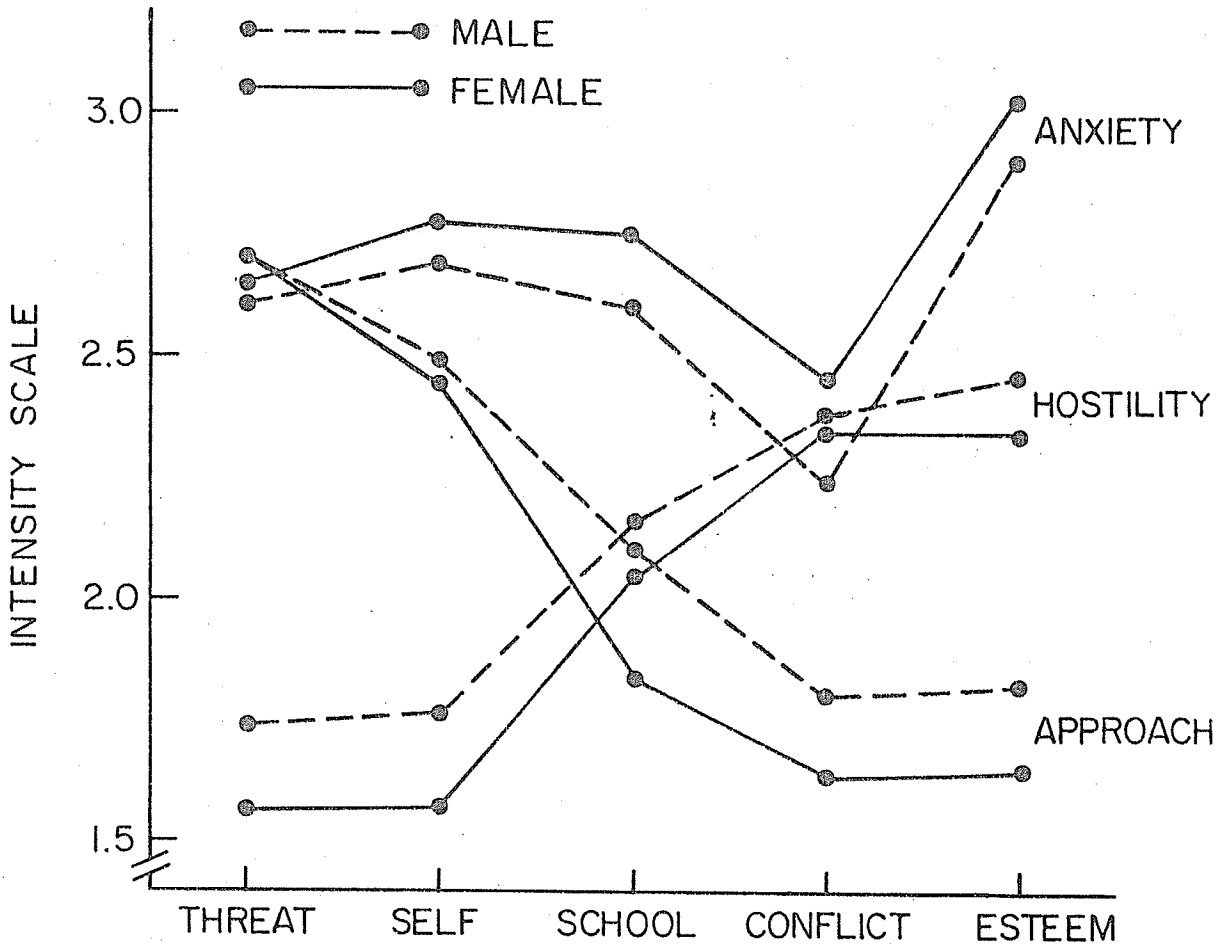

FIGURE 2. EMOTION PROFILES FOR MALES AND FEMALES

Table 19. Post hoc multiple comparisons between situations for three emotion factors: Males versus Females.

Comparison	MS	FIASca F	LPA F
Anxiety			
Threat-Self	.19	1.56	1.60
Self-School	.61	2.72	2.77
School-Conflict	.13	.43	.44
Conflict-Esteem	.49	1.13	1.24
Hostility			
Threat-Self	.01	.10	.10
Self-School	.94	6.68	7.41
School-Conflict	1.55	7.84	8.29
Conflict-Esteem	1.00	4.91	4.89
Approach			
Threat-Self	.20	1.36	1.37
Self-School	7.17	29.47*	29.47*
School-Conflict	1.61	4.45	4.47
Conflict-Esteem	.00	.00	.00

Note: FIASca *df* = 1/598; LPA *df* = 1/600.

* $p < .005$

FIASca Group Profiles

Figures 3, 4, and 5 present the average profiles for FIASca groups/sex, FIASca groups/males, and FIASca groups/females, with emotion factors plotted against situation factors (the emotions X situations X FIASca groups interactions - parallelism).

Table 14 indicates that the emotions X situations X FIASca groups interaction was significant. As well, the emotions X FIASca groups and situations X FIASca groups interactions were significant. The profile configurations portrayed in Figures 3, 4, and 5 suggest that the types of relationships between emotions and situations which held for the total profile held as well for the four FIASca groups. That is, for each FIASca group, subjects report higher Anxiety intensities than they do for Hostility and Approach.

However, the simple main effects parallelism test at Anxiety was not significant (Table 16). That is, the shapes of Anxiety profiles between FIASca groups did not differ statistically. Post hoc analyses, comparing situations at Anxiety, as summarized in Table 20, suggest that subjects within FIASca groups did not respond differentially across situations. As Table 16 and the Figures indicate, however,

groups did differ in overall level of response. Thus, "anxiety neurctics" (HH) had the highest Anxiety levels while "psychopaths" (LL) had the lowest. A post hoc analysis comparing "anxiety neurctics", "phobics" (HL), and "psychopaths" to the average for each of the male and female samples ("deviation contrasts") is summarized in Table 21 and indicates that "anxiety neurctics" showed higher levels of Anxiety than the sample, while "psychopaths" showed lower levels than the sample; "phobics" did not differ in overall level from the sample.

Figures 3, 4, and 5 also suggest that FIASca groups respond differentially, depending on the situation, for both Hostility and Approach. Table 16 indicates that the situations X groups/sex interactions at Hostility and Approach were significant. However, the post hoc analysis of Table 20, comparing situations, found no significant differences between situations for Approach, and only one for Hostility (Self versus School situations). The post hoc analysis of Table 21 suggests that, for both males and females, "anxiety neurotics" show higher levels of Hostility as compared to the sample, while "psychopaths" show lower levels; "phobics" do not differ from the sample. Only male "psychopaths" show lower levels of approach compared to the sample; all other group comparisons for Approach were non-significant.

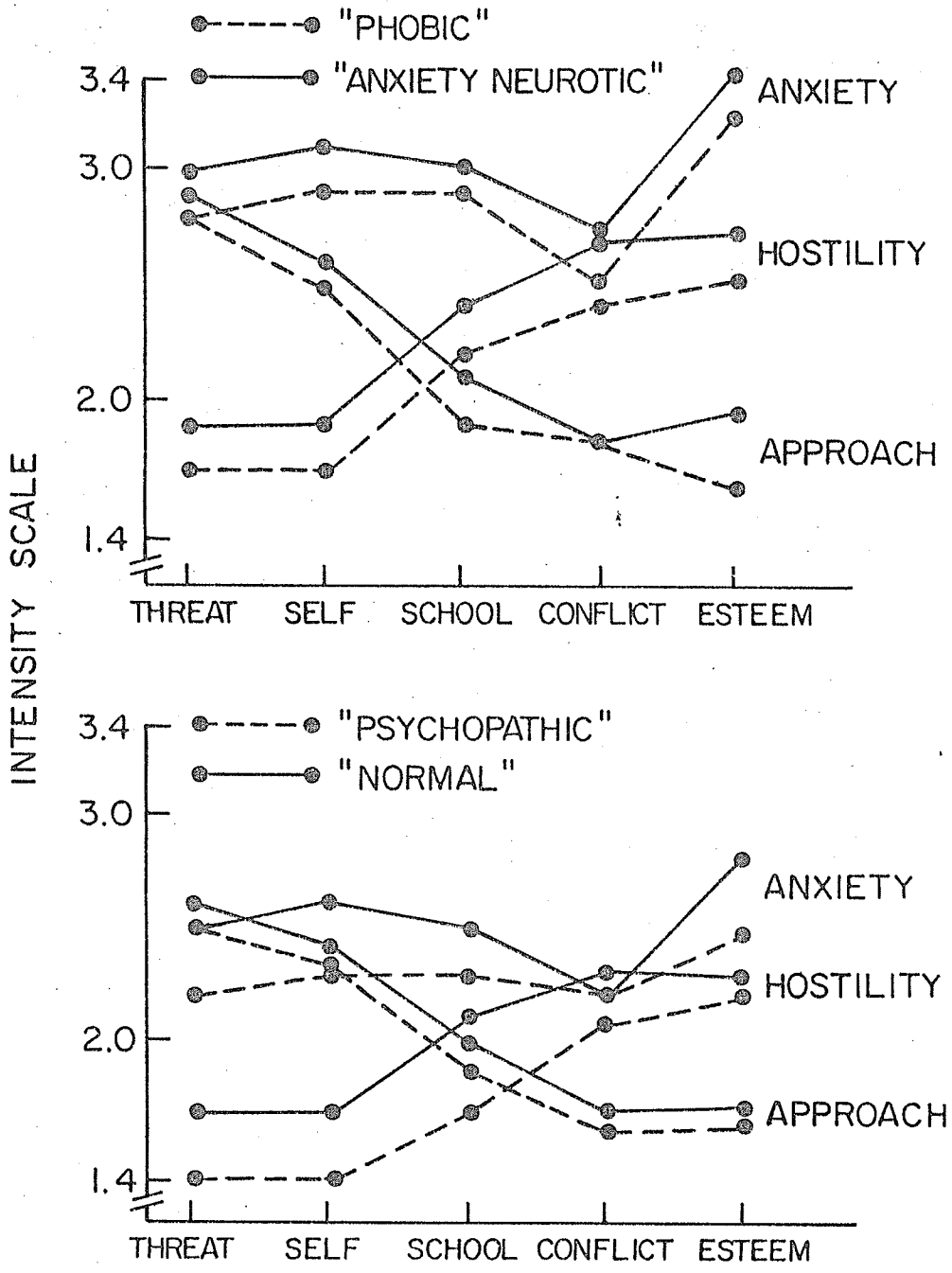

FIGURE 3. EMOTION PROFILES OF FIASca GROUPS/SEX

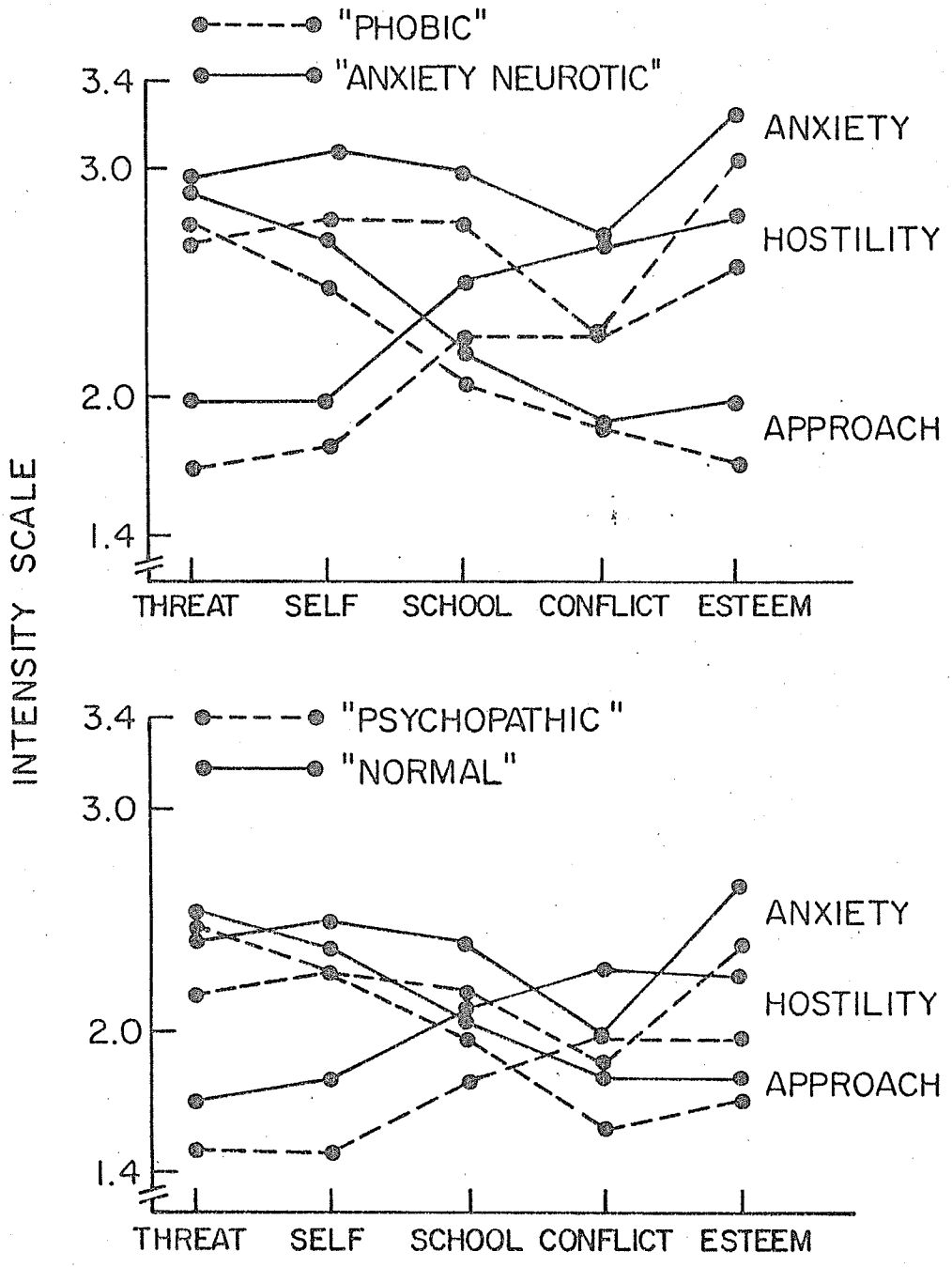

FIGURE 4. EMOTION PROFILES OF FIASca GROUPS/MALES

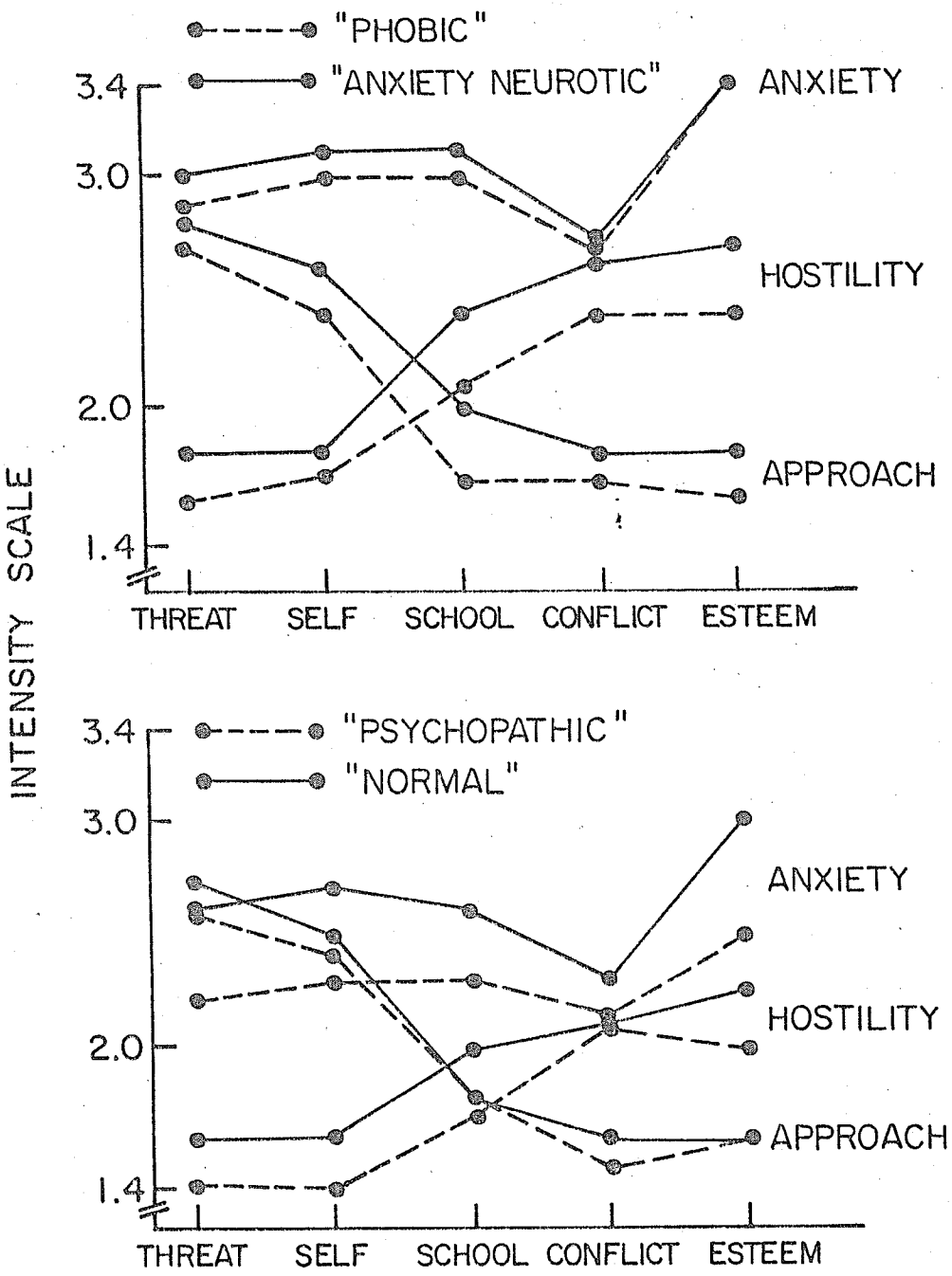

FIGURE 5. EMOTION PROFILES OF FIASca GROUPS/FEMALES

Table 20. Post hoc multiple comparisons between situations for three emotion factors: FIASca groups.

Comparison	FIASca/sex		FIASca/males		FIASca/females	
	MS	F	MS	F	MS	F
Anxiety						
Threat-Self	.05	.40	.01	.07	.09	.72
Self-School	.17	.76	.20	.89	.14	.62
School-Conflict	.26	.84	.38	1.25	.13	.42
Conflict-Esteem	1.16	2.68	.99	2.29	1.32	3.06
Hostility						
Threat-Self	.03	.50	.03	.54	.03	.47
Self-School	.99	7.01*	.97	6.88**	1.01	7.14**
School-Conflict	.40	2.03	.39	1.96	.42	2.11
Conflict-Esteem	.60	2.97	.84	4.12	.37	1.82
Approach						
Threat-Self	.17	1.16	.21	1.49	.12	.83
Self-School	.46	1.88	.57	2.33	.35	1.42
School-Conflict	.52	1.43	.13	.36	.91	2.51
Conflict-Esteem	.72	2.18	1.09	3.27	.36	1.09

Note: FIASca/sex *df* = 6/598, FIASca/males *df* = 3/598, FIASca/females *df* = 3/598.

* $p < .005$, ** $p < .01$.

Table 21. Post hoc multiple comparisons between FIAScale groups for each emotion factor: levels tests.

Comparison	Males		Females	
	MS	F	MS	F
Anxiety				
HH-"Anx. neur."- vs sample	474.89	60.89*	271.99	34.87*
HL-"Phobic"- vs sample	3.32	.43	1.02	.13
LL-"Psychopath"- vs sample	431.86	55.37*	606.73	77.80*
Hostility				
HH-"Anx. neur."- vs sample	231.51	34.85*	147.65	22.23*
HL-"Phobic"- vs sample	20.69	3.11	9.92	1.49
LL-"Psychopath"- vs sample	318.46	47.94*	230.60	34.71*
Approach				
HH-"Anx. neur."- vs sample	61.73	10.03	30.91	5.02
HL-"Phobic"- vs sample	3.78	.61	8.95	1.45
LL-"Psychopath"-vs sample	74.64	12.12*	13.13	2.13

Note: df = 1/598.

* $p < .005$

To summarize, FIASca groups differ in overall level of response for each of Anxiety, Hostility and Approach. Further, the shapes of emotion profiles, for Hostility and Approach, differ across different anxiety situations for these FIASca groups.

Finally, following Magnusson and Ekehammar (1975), a two-way analysis of variance was applied to the 3 (emotions) X 5 (situations) data matrix for each FIASca group, in order to generate indices of transsituational consistency (MS for situations) and response consistency (MS for emotions). Table 22 presents the results of these analyses and, coupled with the profiles portrayed in Figures 4 and 5, suggest the following characteristics for each FIASca group.

"Anxiety neurotics" show high levels of anxiety, low transsituational consistency, and low response consistency. That is, these subjects, as a group, show high variability of response across anxiety situations. They also show high variability of response within situations.

"Phobics" show moderate to high levels of anxiety, moderate to high transsituational consistency, and moderate response consistency. That is, compared to "anxiety neurotics", "phobics" show considerably higher consistency of response across anxiety situations, and more consistency of response within situations.

Table 22. Indices of response (MS emotions) and transsituational (MS situations) consistency for FIASca groups.

FIASca Group	Males			Females		
	MS Emot.	MS Sit.	N	MS Emot.	MS Sit.	N
HH ("Anx. neur.")	70.77	3.38	106	130.00	2.36	107
HL ("Phobic")	24.19	1.81	48	69.25	1.06	46
LH ("Normal")	9.57	.94	53	36.38	1.50	50
LL ("Psychopath")	22.45	2.41	96	41.88	1.34	100

"Normals" show moderate levels of anxiety, moderate to high transsituational consistency, and high response consistency. That is, like "phobics", "normals" show considerably higher consistency of response across situations. Unlike both "anxiety neurotics" and "phobics", however, "normals" show a high consistency of response within situations.

Finally, "psychopaths" show low levels of anxiety, moderate transsituational consistency, and moderate to high response consistency.

Thus, these characteristics suggest in general a positive relationship between anxiety and transsituational inconsistency, as suggested by Campus (1974).

LPA Group Profiles

Figures 6, 7, and 8 present the average profiles for LPA groups/sex, LPA groups/males, and LPA groups/females, with emotion factors plotted against situation factors (the emotions X situations X LPA groups interaction - parallelism).

Table 15 indicates that the emotions X situations X LPA groups interaction was significant. As well, the emotions X LPA groups and situation X LPA groups interactions were significant. The profile configurations portrayed in Figures 6, 7, and 8 suggest that the relationships between emotions and situations which held for the total profile hold as well for the three LPA groups. That is, for each LPA group, subjects report higher Anxiety intensities than they do for Hostility and Approach. Further, they respond differentially depending on the anxiety situation considered, as shown by the significant situation X LPA groups at Anxiety interaction (Table 17 - parallelism). The *post hoc* comparisons made between situations (Table 23) suggest that, for the total sample, Anxiety profile shape differences between LPA groups are accounted for by differences in scores at Conflict and Esteem situations. This is true as well for females considered separately. For males, profile shape differences are additionally accounted for by differences in scores at Threat and Self situations.

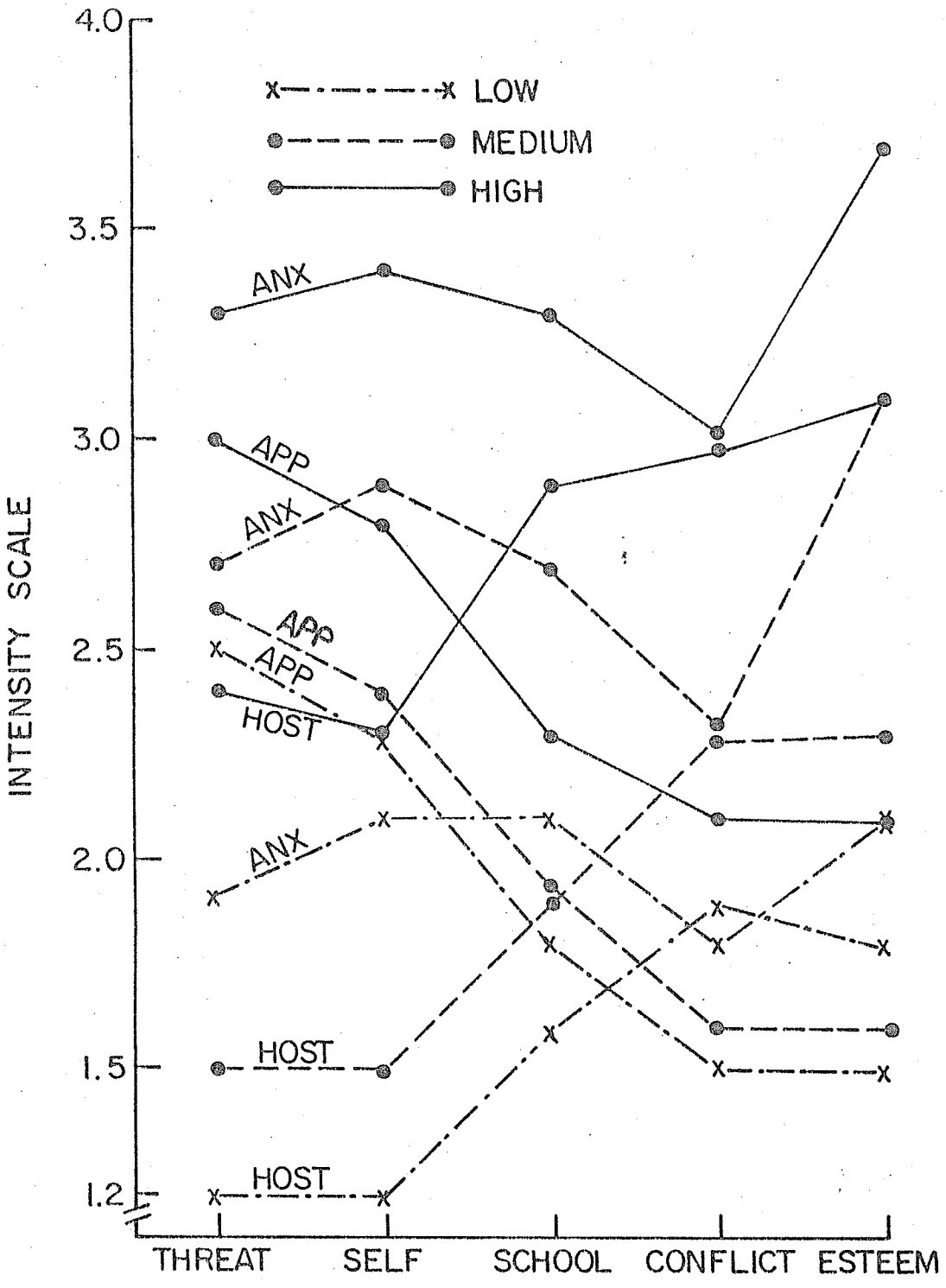

FIGURE 6. EMOTION PROFILES FOR LPA GROUPS/SEX

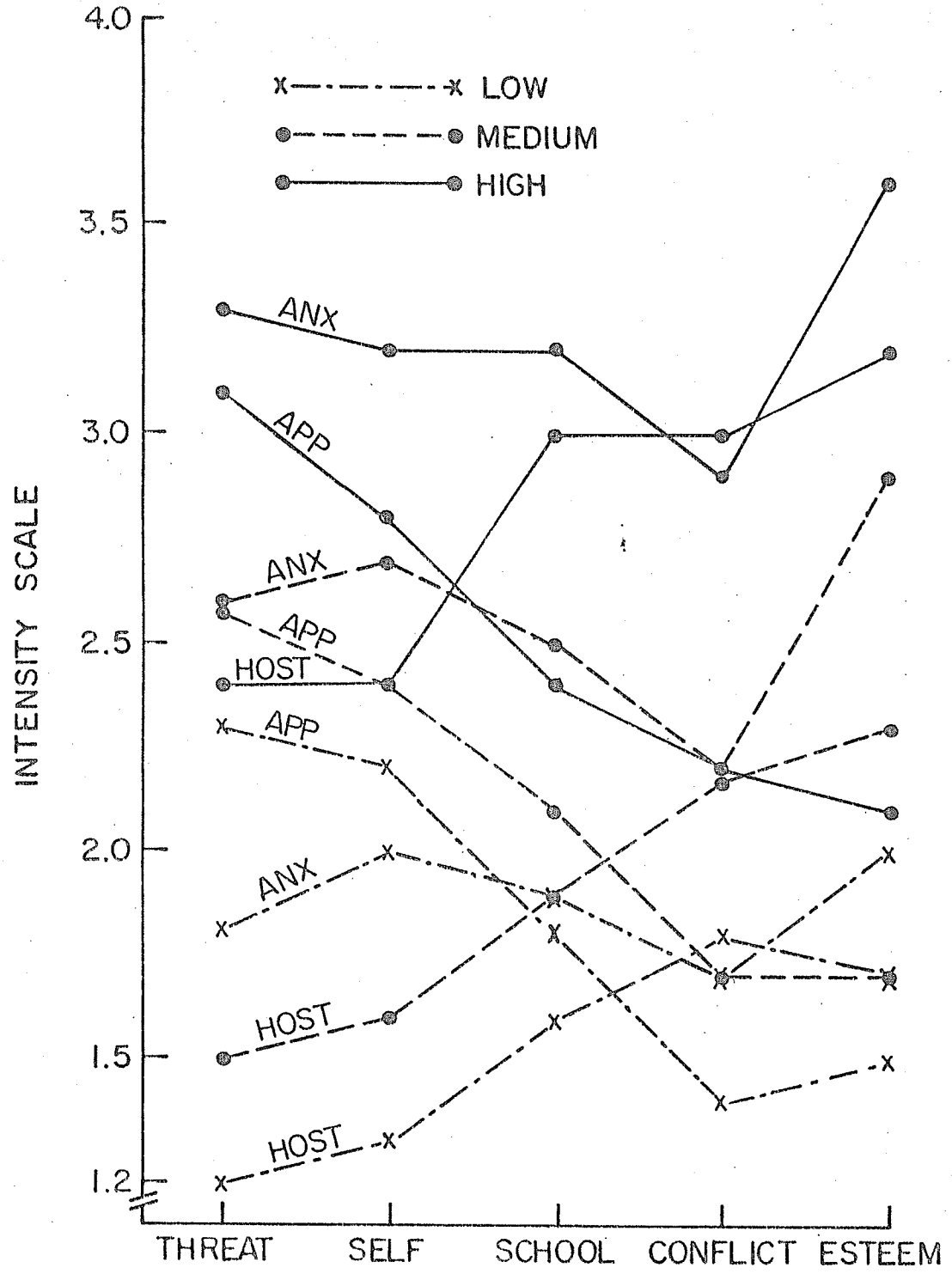

FIGURE 7. EMOTION PROFILES FOR LPA GROUPS / MALES

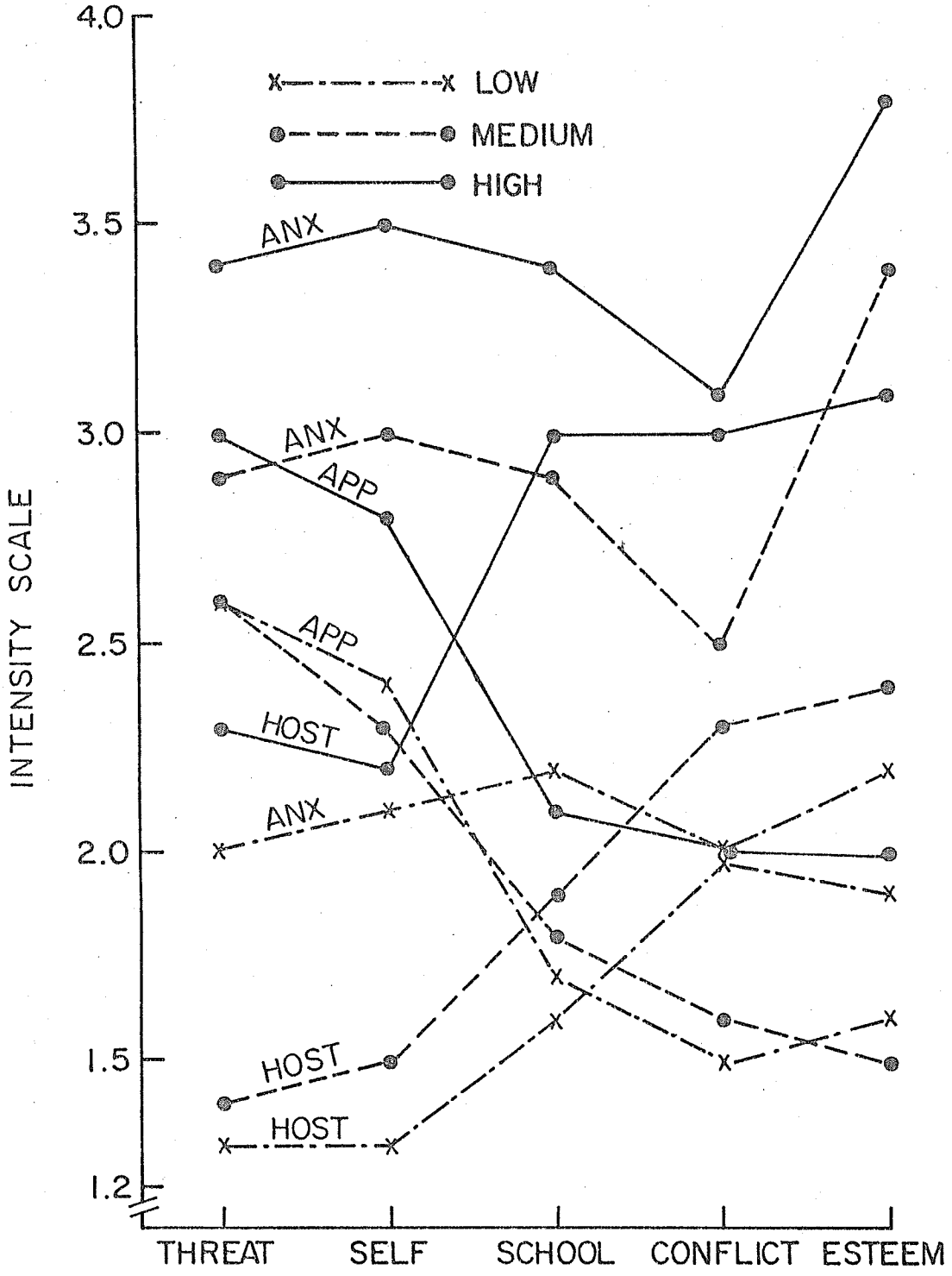

FIGURE 8. EMOTION PROFILES FOR LPA GROUPS / FEMALES

Table 23. Post hoc multiple comparisons between situations for three emotion factors: LPA groups.

Comparison	LPA/sex		LPA/males		LPA/females	
	MS	F	MS	F	MS	F
Anxiety						
Threat-Self	.50	4.16	.93	7.81***	.06	.52
Self-School	.83	3.81	.50	2.27	1.17	5.36
School-Conflict	.35	1.14	.28	.91	.42	1.36
Conflict-Esteem	7.49	19.07*	3.53	8.99**	11.44	29.15*
Hostility						
Threat-Self	.33	5.59***	.58	9.96*	.07	1.23
Self-School	3.50	27.56*	2.21	17.37*	4.80	37.75*
School-Conflict	2.08	11.14*	1.55	8.28***	2.62	14.00*
Conflict-Esteem	.69	3.37	.65	3.17	.73	3.57
Approach						
Threat-Self	.25	1.73	.30	2.07	.20	1.39
Self-School	.66	2.71	.52	2.14	.80	3.29
School-Conflict	.73	2.03	1.30	3.62	.16	.45
Conflict-Esteem	.33	.98	.29	.87	.36	1.08

Note: LPA/sex *df* = 4/600, LPA/males *df* = 2/600, LPA/females *df* = 2/600.

* $p < .005$, ** $p < .01$, *** $p < .05$.

As Table 17 and the Figures indicate, LPA groups differed in overall level of response for Anxiety. A post hoc analysis comparing the High LPA group and the Low LPA group with the average for each of the male and female samples ("deviation contrasts") is summarized in Table 24, and indicates that the High group showed higher levels of Anxiety than the sample and the Low group showed lower levels of Anxiety than the sample. Table 25 presents, for the sake of simplicity, only the significant post hoc comparisons between LPA groups and situations (parallelism tests). For males, only the comparison between the Low group and the sample reached significance, and these differences in profile shape between these two groups were due to differences in scores at Conflict and Esteem situations; profile shapes for the high group and the sample did not differ statistically. The preceeding results were true as well for females, as indicated in Table 25.

Figures 6, 7, and 8 also suggest that LPA groups respond differentially, depending on the situation, for Hostility. Table 17 indicates that the situations X groups/sex interaction at Hostility was significant. That is, Hostility profiles between LPA groups differed in shape across situations. Table 23 indicates that, for males, this was due to differences in scores at Threat and Self situations, at Self and School situations, and at School and Conflict situa-

tions. For females, Hostility profile differences were due to differences in scores at Self and School situations and at School and Conflict situations. Further, Table 24 indicates that the High LPA group had higher Hostility scores than the sample and the Low LPA group had lower Hostility scores than the sample.

Finally, Table 25 presents parallelism tests at Hostility between LPA groups and situations. For both males and females, the comparisons between the High group and the sample were significant, and these differences in profile shape were due to differences in scores at Self and School and at School and Conflict situations. The comparisons between the Low group and the sample, for both sexes, were significant as well, and these differences in profile shape were due to differences in scores at Self and School situations; in addition, for males, differences in scores were found at Threat and Self situations.

Although Figures 6, 7, and 8 suggest profile shape differences between groups for Approach, the data of Tables 17 and 23 do not bear this out. Groups do however differ in the level of response for Approach (Table 24).

To summarize, LPA groups differ in overall level of response for each of Anxiety, Hostility, and Approach. Further, the shapes of emotion profiles, for Anxiety and Hostility but not for Approach, differ across different anxiety situations for these LPA groups.

Table 24. *Post hoc* multiple comparisons between LPA groups for each emotion factor: levels tests.

Comparison	Males		Females	
	MS	F	MS	F
Anxiety				
High vs sample	552.77	185.56*	192.48	64.61*
Low vs sample	1675.53	562.45*	2245.50	753.77*
Hostility				
High vs sample	983.14	435.73*	629.83	279.15*
Low vs sample	1039.99	460.93*	924.53	409.76*
Approach				
High vs sample	227.85	45.09*	192.64	38.12*
Low vs sample	328.75	65.06*	93.44	18.49*

Note: *df* = 1/600.

* $p < .005$

Table 25. Significant post hoc multiple comparisons between LPA groups and situations for each emotion factor: parallelism tests.

Comparison	MS	F	df
Anxiety			
Male-Low vs sample(1)	-	6.77*	4/597
Conflict-Esteem	6.99	17.81*	1/600
Female-Low vs sample(1)	-	14.89*	4/597
Conflict-Esteem	21.16	53.89*	1/600
Hostility			
Male-High vs sample(1)	-	6.58*	4/597
Self-School	1.46	11.47***	1/600
School-Conflict	3.09	16.54*	1/600
Male-Low vs sample(1)	-	10.80*	4/597
Threat-Self	.87	14.93**	1/600
Self-School	2.96	23.27*	1/600
Female-High vs sample(1)	-	7.57*	4/597
Self-School	2.42	19.05*	1/600
School-Conflict	3.41	18.26*	1/600
Female-Low vs sample(1)	-	18.57*	4/597
Self-School	7.17	56.45*	1/600

1. Multivariate test.

* $p < .005$, ** $p < .01$, *** $p < .05$.

Finally, as with the FIASca groups, a two-way analysis of variance was applied to the 3 (emotions) X 5 (situations) data matrix for each LPA group, in order to generate indices of transsituational consistency (MS for situations) and response consistency (MS for emotions). Table 26 presents the results of these analyses and, coupled with the profiles portrayed in Figures 7 and 8, suggest the following characteristics for each LPA group.

The High LPA groups show high levels of anxiety, low to moderate transsituational consistency, and low to moderate response consistency.

The Medium LPA groups show moderate to high levels of anxiety, low transsituational consistency, and low response consistency.

The Low LPA groups show low levels of anxiety, high transsituational consistency, and high response consistency.

As with the FIASca groups, there would appear to a positive relationship between anxiety and transsituational inconsistency (Campus, 1974) for the LPA groups.

Table 26. Indices of response (MS emotions) and transsituational (MS situations) consistency for LPA groups.

LPA Group	Males			Females		
	MS Emot.	MS Sit.	N	MS Emot.	MS Sit.	N
High	68.41	3.57	105	117.84	2.19	79
Medium	65.01	3.91	113	171.66	3.67	102
Low	15.06	1.78	85	38.47	1.49	122

V: Discussion

Factor Analyses

The major focus of this research has been Izard's fundamental emotion approach to anxiety, and his definition of anxiety as involving a variable combination of fear plus two or more of distress, guilt, shyness, anger, and interest. The results of this research revealed three emotion factors consistent with expectations (Hypothesis 1) and Izard's approach. The interpretation of these factors has been presented in detail in the Results section and will only be summarized here.

The factor labelled Anxiety in this research consisted of fear, distress, and shyness; as well, anger and guilt consistently showed moderate loadings on this factor. All of these emotions are considered by Izard to be involved in anxiety, and the component make-up of the factor reflects Izard's definition of anxiety. Although labelled Anxiety here, in the context of anxiety situations as approach-

avoidance conflicts, this factor could as well be considered an avoidance component.

A second factor primarily involved interest and enjoyment; surprise had moderate loadings on this factor. As such, this factor was labelled Approach, and was considered consistent with pilot study data and the view considering anxiety situations as approach-avoidance conflicts.

A third factor involved disgust, contempt, anger, guilt, surprise, fatigue, and depression. Apart from surprise, these emotions are thought by Izard to be involved in depression. However, distress, which is held to be the defining emotion for depression, did not load high on this factor. As well, fatigue and depression ranked lowest for the high-loading emotions. Therefore, it was felt that, although depression may be involved here, it did not appear to represent the factor as a whole.

The disgust-contempt-anger triad is defined by Izard as hostility. These emotions were the highest loading components of this factor. Therefore, it was thought appropriate to label this factor Hostility, recognizing however that surprise, guilt and depression are involved as well. That is, the factor should not be regarded as a "pure" hostility factor.

Other interpretations of these factors are possible. First of all, in that the emotions loading on Hostility are primarily negative emotions, this factor could as well be

considered an avoidance component in these anxiety situations.

Further, Ekehammar, Magnusson, and Ricklander (1974) and Magnusson and Ekehammar (1975) identified two response factors in their research: psychic anxiety and somatic anxiety. Psychic anxiety involved the modes-of-response "Worried", "Feelings of insecurity", "Nervous", "Depressed", "Feelings of panic", and "Restless". Somatic anxiety involved the modes-of-response "Short of breath", "Difficulty in swallowing", "Hands shake", "Get in a sweat", "Heart beats faster", "Stomach trouble", "Mouth gets dry", "Tension when speaking", and "Hands get cold". Although by no means is it held that there is a one-to-one correspondence between these two factors and the Hostility and Anxiety factors of the present study, there may, however, be some relationship. That is, fear, distress, and shyness are emotions closely associated with physiological indices of arousal, and as such may represent a somatic component in these anxiety situations. Further, the response modes of Magnusson and associates' "psychic anxiety" show some correspondence to the hostility-guilt-depression components of the Hostility factor. That is, this factor may in a sense represent a psychic anxiety component in these anxiety situations, involving inner- and/or outer-directed hostility, associated guilt, and consequent depressive feelings. One might further think of this factor being closely related to cognition

and thus representing self-preoccupation, self-centering. Coupled with anxiety, this may convey a sense of anxious self-preoccupation, vulnerability, and inability to cope.

The final interpretation offered here is that these factors may represent emotional dimensions of anxiety in these anxiety situations. The dimensional approach to the understanding of the subjective experience of emotion should be contrasted with the typological or categorical approach. The categorical approach is exemplified by Izard's theory: there is some set of discrete or fundamental emotions which together constitute an emotion system. In other words, each emotion is a unique process with physiological, behavioral-expressive and phenomenological components.

The dimensional approach, on the other hand, does not regard emotion as a unique process. Rather, it is subsumed under the more general organismic process of arousal or activation, such that in essence subjective experience is conceptualized in nonemotional terms.

Among the dimensions proposed by researchers and theorists, the two primary ones appear to be an arousal (activation, intensity) dimension and a pleasantness/unpleasantness (hedonic tone) dimension. There would appear to be agreement among theorists that one or more dimensions are required beyond these two for an adequate conceptualization, but there appears to be little agreement in the literature on the nature of the further dimension or

dimensions.

Schlosberg's research (1954) has suggested an attention/rejection dimension, as well as arousal and pleasantness/unpleasantness dimensions, in the context of six emotion categories: love-mirth-happy, surprise, fear-suffering, contempt, disgust, anger-determination. The emotions most closely associated with attention are surprise and fear and, with rejection, disgust and contempt.

Frijda (1969; Frijda and Philipszoon, 1963), in factor analyses of ratings of photographs of emotional expressions, found four factors. Two of these factors corresponded to activation and pleasantness/unpleasantness dimensions. A third factor could be described as attention/disinterest (rather than rejection), while the fourth factor suggested a dimension of social evaluation. Frijda focused on the first three factors in particular, and felt that the social evaluation factor was important as regards the arousal of attention.

Osgood (1966), within the context of the semantic differential scale, proposed three dimensions: pleasantness/unpleasantness (corresponding to the semantic dimension of evaluation), intensity (similar to arousal and corresponding to the semantic dimension of activity), and control (corresponding to the semantic dimension of potency). The control dimension may be comparable to Frijda's social evaluation dimension. At one pole, the control dimension was thought

by Osgood to involve annoyance, disgust, contempt, scorn, and loathing, while at the other pole, dismay, bewilderment, surprise, and excitement.

Davitz (1969, 1970), in factor analyses of subjects' emotional ratings of remembered previous experiences, found four factors: activation, hedonic tone, relatedness, and competence. Davitz suggests that the relatedness dimension has an equivalence to the attention/rejection dimensions found by other researchers. The competence dimension ranges from a sense of sureness through a sense of weakness and/or dissatisfaction to a sense of vulnerability and helplessness. Perhaps another way to describe this dimension would be that it indicates the extent to which a person feels in control.

Russell and Mehrabian's work (1974, 1977; Mehrabian and Russell, 1974) suggests the importance of three dimensions: pleasure-displeasure, arousal-nonarousal, and dominance-submissiveness. The latter dimension refers to the degree to which a person feels powerful or in control of a situation and, according to the authors, is the inverse of Osgood's control or potency dimension. Russell and Mehrabian (1974) present evidence, in the form of regression analyses of ratings of imagined situations, to indicate that anxiety involves feelings of displeasure, arousal, and submissiveness, while anger involves feelings of displeasure, arousal, and dominance.

Izard (1972b) examined the relationships between eight possible dimensions and their adequacy in discriminating between fundamental emotion situations. The dimensions included pleasantness, activity, tension, control, deliberateness, impulsiveness, extraversion, and self-assurance. No one dimension alone was found to discriminate between all situations. The following dimension combinations adequately discriminated between situations: pleasantness - impulsiveness, pleasantness - tension - deliberateness, pleasantness - activity - deliberateness. However, the combination of pleasantness - tension - self-assurance discriminated best. The first two of these dimensions correspond to the hedonic tone and arousal dimensions of other researchers. The self-assurance dimension represents an attitude toward self related to feelings of competence and adequacy.

This rather foreshortened review of the dimensional literature suggests clearly that pleasantness/unpleasantness (hedonic tone) and arousal dimensions are important. The Anxiety (fear, distress, shyness) and Approach (interest, enjoyment) factors of the present research could conceivably represent arousal and hedonic tone dimensions.

The dimensions of social evaluation (Frijda), control or potency (Osgood), relatedness (Davitz), competence (Davitz), dominance-submissiveness (Russell and Mehrabian), and self-assurance (Izard) would appear to be related one to another. That is, all appear to convey, at one level or another, a

sense of being in control, with attendant feelings of competence, adequacy, and relatedness. The attention/rejection (Schlosberg, Frijda, Davitz) dimension may possibly be subsumed under relatedness. The question is whether the factor labelled Hostility (disgust, contempt, anger, guilt, surprise, fatigue, depression) may be subsumed under a dimension of control.

Russell and Mehrabian (1977) demonstrate that dominance is related to such emotion words as happiness, elation, enjoyment, anger, hostility, and contempt, while submissiveness is related to such emotion words as surprise, fear, anxiety, depression, guilt, shyness, fatigue, and sadness. The negative pole of Osgood's potency or control dimension (corresponding to dominance) is related to annoyance, disgust, contempt, scorn, and loathing, while the positive pole (submissiveness) is related to dismay, bewilderment, surprise, amazement, and excitement. Schlosberg's rejection is related to disgust and contempt, while attention is related to surprise and fear. The Hostility factor components of disgust-contempt-anger may represent dominance-rejection-control, while the surprise-guilt- fatigue-depression components may represent submissiveness-attention- controlled. Noteworthy is the fact that the Hostility factor showed a moderate to high correlation with the Anxiety factor where the Anxiety factor components (fear, distress, shyness) are associated with submissiveness (Russell and Mehrabian,

1977). The Hostility factor also showed a moderate correlation with the Approach factor where the Approach factor components (interest, enjoyment) are associated with dominance (Russell and Mehrabian, 1977). It would be incorrect, therefore, to make the assumption that high factor scores on Hostility imply dominance, while low scores imply submissiveness. Rather, the above relationships imply that the Hostility factor, if it is to be considered a control or dominance-submissiveness dimension, represents a dimension which is not independent of the Anxiety and Approach factors. Given Russell and Mehrabian's (1974) data suggesting a positive relationship between anxiety and submissiveness, it may be most appropriate to consider that the Hostility factor represents the submissive component of the dominance-submissiveness dimension. Thus, high factor-scores on Hostility would suggest submissiveness, vulnerability, and the absence of the feeling of being in control. Low factor scores would suggest neither dominance nor submissiveness, but perhaps a sense of weakness and/or dissatisfaction (Davitz).

On the basis of the above analysis, it is not felt that the emotion factors of the present research represent independent dimensions of subjective and emotional experience, as dimensional theorists would construe them. However, it is felt that there is some level of approximation between the Anxiety, Hostility, and Approach factors,

and arousal, control, and hedonic tone dimensions. The lack of independence between factors argues against a one-to-one correspondence. Izard's (1972b) contention is that dimensions may represent "....systems of the organism that function independently of the emotion process but interact with it" (p. 171) and "....(they) may primarily be a complex indicator of the type and intensity of the felt experience but may not directly represent the emotion process" (p. 173). The emotion factors of the present research may reflect this interaction between dimensions of subjective experience and the fundamental emotion system.

Finally, the situation factors revealed in the present research have been interpreted at length in the Results section, and will not be discussed further at this point. However, it should be iterated that the five situation factors, based on fundamental emotion ratings of anxiety situations, showed a good correspondence to the a priori situation clusters which were based on anxiety ratings. These results were felt to provide further support for Izard's fundamental emotion conception of anxiety.

Profile Analyses

Consideration and interpretation of the multiple profile analyses (Hypothesis 2) must be tempered by two considerations: redundancy and *post hoc* analyses. By redundancy is meant that the data, previously analyzed by factor analytic procedures, was reorganized on the basis of the results of those factor analyses and re-analyzed, using multivariate analysis of variance procedures. A better procedure would have used a second independent set of data which would have been reorganized and re-analyzed on the basis of factor analytic results of the first set of data. Magnusson and Ekehammar's (1975) work, on whose methodology the present study was based, is subject to the same criticism. However, their approach was to consider the factor analysis as a data reduction method, the results of which could be subjected to analysis of variance procedures; expected situation and response factors were based on previous research (Ekehammar, Magnusson, and Ricklander, 1974). Such is the case, as well, in the present research. Particular response (emotion) factors were expected on the basis of the pilot study data. As well, resultant situation factors were expected to correspond to *a priori* groupings of anxiety situations,

based on prior factor analyses. These expectations were born out. Thus, if the factor analyses are considered a preliminary data reduction method pursuant to the multivariate analysis of variance procedure, which has been the case from the outset in this research, then the redundancy problem becomes somewhat less of an issue. Nevertheless, a conservative stance is taken here. Although the findings of these analyses will be considered legitimate and meaningful, they will, however, because of the redundancy issue, be considered somewhat provisional, given further supportive research.

The second issue concerns post hoc analyses. Because the exact nature of the situation and response (emotion) factors was not known, specific relationships between these factors and subject groupings had to be examined on a post hoc basis. To avoid serious inflation of the Type I error rate, such analyses have been restricted to comparisons set up in order by factor number (as detailed in the Results section), and evaluated on a stringent post hoc basis. Because of this, meaningful interpretation of findings is somewhat curtailed, and more detailed analysis demands further research.

These multiple profile analyses were undertaken with the belief that they would provide and reveal meaningful patterns of interaction between responses, situations, and subject groupings. Thus, the analysis attempted to examine

the nature of the interactions rather than to determine the relative importance of interaction components.

Profile analysis for the total sample revealed that subjects reported higher Anxiety intensities than they did Hostility and Approach. The intensity of felt Anxiety depended further on the type of anxiety situation it was experienced in. In general, situations involving threat to self-esteem were the most Anxiety-arousing, while situations associated with conflict elicited significantly lower levels of Anxiety. Situations involving threat and/or uncertainty (e.g., during a job interview, making a decision), the possible evaluation of self by others (e.g., having to impress someone, dealing with superiors), and evaluation apprehension in school situations (e.g., before an exam, waiting for grades) elicited intermediate levels of Anxiety. These results for the Anxiety factor are felt to be meaningful whether that factor is interpreted as anxiety, somatic anxiety, avoidance, or high arousal.

Levels of Hostility and Approach varied as well in meaningful ways depending on the anxiety situation considered. In general, Conflict and Esteem situations elicited high levels of Hostility and low levels of Approach. In other words, such situations were not viewed as pleasant (low levels of interest and enjoyment). In conjuction with high Anxiety and low Approach, the high Hostility component suggested that, if the preceeding dimensional analysis is

credible, these are situations in which subjects experience self pre-occupation over feelings of submissiveness, vulnerability, and absence of control. They are clearly high avoidance situations, in general.

Threat and Self situations, on the other hand, elicited high levels of Approach and low levels of Hostility, in conjunction with high levels of Anxiety. These are more clearly approach-avoidance type situations. Being interviewed for a job, for example, would logically elicit high levels of Anxiety, but as well high Approach, given the interviewee's investment in presenting himself positively, obtaining a job, and so on. High levels of expressed anger, guilt, or depression would be self-defeating in such situations. The low levels of Hostility in these situations may reflect feelings of relatively less vulnerability and submissiveness, and more control; in other words, relatively less anxious self-preoccupation.

Compared to other situations, School situations elicited moderate levels of Hostility and Approach, coupled with high Anxiety. All but one of these concerned examination situations; the other dealt with time pressure concerning school work. While it is felt that such situations probably involve approach-avoidance, the avoidance component predominates, in the sense of high Anxiety and moderate levels of vulnerability, anxious self-preoccupation. In that the subjects are first year college students, this interpreta-

tion seems reasonable.

A comparison of male and female profiles revealed a pattern of response for each basically similar to that for the total sample. Further, the situation X sex interactions (parallelism tests) at each emotion factor were significant, implying that emotion profiles across different types of anxiety situations differ between males and females. However, because of stringent post hoc criteria, only the Approach profiles of males and females at a comparison of Self and School situations showed a significant departure from parallelism.

The results thus indicate that emotion profiles for males and females differ overall in shape. However, apart from the fact that females show higher levels of Anxiety than males, complementing findings by both Janisse and Palys (1976) and Magnusson and Ekehammar (1975), it is difficult to specify meaningful pattern differences between males and females.

A comparison of FIASca group profiles revealed that each group reported higher levels of Anxiety than either Hostility or Approach. Anxiety factor profiles, however, did not differ in shape between groups. That is, over situations, each group showed the same pattern of response for Anxiety. "Anxiety neurotics" (HH) showed the highest levels of Anxiety, while "psychopaths" (LL) showed the lowest. "Phobics" (HL) showed a level of Anxiety no different from the

total sample.

Overall response patterns between FIASca groups did however differ for both Hostility and Approach (situations X groups/sex interactions - parallelism). Even so, post hoc situation comparisons revealed only one significant departure from parallelism, for Hostility at Self and School situations. "Anxiety neurotics" showed the highest levels of Hostility, while "psychopaths" showed the lowest. "Phobics" showed a level of Hostility no different from the total sample. The only significant group comparison for Approach revealed that male "psychopaths" showed lower levels of Approach compared to the total sample.

Thus, apart from Anxiety and Hostility level differences between FIASca groups, which in general complement conceptions associated with the labels for these groups, it is difficult to specify meaningful pattern differences between FIASca groups based on the parallelism analyses and post hoc situation comparisons. The analysis of consistency indices adds some degree of meaningfulness, however. Findings by Campus (1974) and Magnusson and Ekehammar (1975) have suggested a positive relationship between anxiety and trans-situational inconsistency of response. "Anxiety neurotics", as well as showing high anxiety, showed high variability of response (inconsistency) both within and across anxiety situations. This FIASca group, in terms of the dimensions of the scale, is described as experiencing high anxiety in a

relatively large number of situations. The present analysis adds to this by suggesting that this group is emotionally volatile and reactive, showing no firm pattern of anxiety response in these situations.

The FIASca "phobic" group, on the other hand, show high transsituational consistency and moderate response consistency, with moderate to high anxiety levels. That is, compared to the "anxiety neurotic" group, this group might be described as reactive, but more consistently so, and somewhat less emotionally volatile. This may complement the FIASca description of high anxiety in relatively few situations, suggesting greater consistency of response.

Like "phobics", the "normal" group demonstrate considerably higher consistency of response across situations, with moderate levels of anxiety. Unlike both the "phobic" and "anxiety neurotic" groups, these subjects show high consistency of response within situations. That is, relatively speaking, these subjects could be described as more "stable", less emotionally volatile. Again, this may complement the FIASca description of moderate anxiety in a relatively large number of situations, implying greater consistency.

The "psychopathic" group show low levels of anxiety, moderate transsituational consistency, and moderate to high response consistency. Thus, the least anxious group did not show the greatest transsituational consistency, as Campus'

data would suggest.

Although this analysis of consistency indices suggests some correspondence between FIAScа groups and patterns of response in these anxiety situations, it is not felt that, overall, the multiple profile analyses yielded meaningful patterns which could differentiate between groups. To anticipate, it is felt that the analysis for the LPA groups did yield meaningful patterns. Two issues are raised here concerning the FIAScа groups. One has to do with the procedures used to generate groups, the other with the use of pathological labels. It is notable that more than one third of the present sample, presumed to come from a normal population, were categorized as "anxiety neurotic". A second third were categorized as "psychopathic", while only one sixth of the sample fell into the "normal" grouping. Although the utility of the frequency and intensity dimensions is not questioned here, nor the FIAScа itself, it is felt that the median split procedure may be inappropriate for making such grouping distinctions. Further, it may be more appropriate to use more neutral labels for these groupings.

Comparison of LPA group profiles (Hypothesis 3) revealed that each group (High, Medium, Low) reported higher levels of Anxiety than either Hostility or Approach. The High group, as might be expected, showed the highest levels of Anxiety, while the Low group showed the lowest. Also,

groups differed in Anxiety profile shapes, primarily at a comparison of Conflict and Esteem situations. For the Low group, but not for the High group, compared to the sample, this comparison was significant. Although not immediately apparent, examination of Figure 6 suggests the Low group shows greater transsituational consistency of Anxiety response.

LPA groups differ the most in Hostility. Profile shapes for males differed at comparisons of Threat and Self, Self and School, and School and Conflict situations. Profile shapes for females differed at comparisons of Self and School, and School and Conflict situations. The High group (for both males and females), compared to the sample, differed in profile shape at Self and School, and School and Conflict situation comparisons. The Low male group differed from the sample at Threat and Self, and Self and School situation comparisons; the Low female group differed at Self and School situation comparisons.

Apart from overall level of response, LPA groups did not differ in response pattern for Approach.

The analysis of consistency indices was basically consistent with the Campus findings (1974) of a positive relationship between transsituational inconsistency and anxiety.

Although complicated, the following provisional statements can be made concerning these results. The statements are considered provisional because they are based on post

hoc analysis, and should be followed up with supportive research.

In the discussion of the profile for the total sample, a clear distinction was made between Threat-Self situations and Conflict-Esteem situations. Threat-Self situations appeared to be more clearly approach-avoidance situations, involving high Anxiety, high Approach, and low Hostility (or anxious self-preoccupation, feelings of vulnerability, and so on). Conflict-Esteem situations appeared to be more clearly avoidance situations, involving significantly higher levels of Hostility or anxious self-preoccupation, coupled with high Anxiety and low Approach. School situations were felt to represent approach- avoidance but with an emphasis on avoidance, as reflected in the elevated Hostility component. Examination of Figures 6, 7, and 8, in conjunction with the profile analyses, suggests that, although the Medium LPA group may conform to this pattern, the High and Low groups do not. Profile differences appear to center around, in particular, the School situations. Levels of Hostility and Approach, for the High group, in the School situations, approximate Hostility and Approach levels in Conflict and Esteem situations. That is, for the High group, School situations are as aversive as Conflict and Esteem situations, involving high Anxiety, low Approach, and high Hostility. If previous interpretations of the Hostility factor are acceptable, this analysis suggests that these

High LPA subjects experience more vulnerability and submissiveness, lowered feelings of being in control, and greater anxious self-preoccupation in these School situations than do other subjects. A tentative suggestion is that the High LPA group is composed primarily of subjects who are high test anxious, as well as high anxious in general. Although some 30 percent of the sample fell into this grouping, this may not be unreasonable in that these subjects were first year university students.

In that the subject sample may be presumed to have come from a normal population, and in that profiles for the total sample and the Medium LPA group were comparable, then the Medium group probably represents a "normal" subject grouping. The Low LPA group may represent subjects who are low test anxious, as well as low anxious in general. Following Janisse and Palys (1976), it is conceivable as well that these subjects may be those who would score high on social desirability and need for approval scales.

However meaningful, the above analysis is felt to be tentative and speculative. One might retort that there are simpler procedures for differentiating between high and low test anxious subjects. But this was not the point. The aim in this research was to differentiate subject groups on the basis of fundamental emotions (LPA groups) and to demonstrate that the groups could be further differentiated in meaningful ways in terms of their emotion profiles across

different types of anxiety situations. In this sense, the attempt was made to examine the nature of the person-situation interaction vis-a-vis emotional response. By and large, it is felt that this attempt was successful.

Suggestions for Further Research

The results of the present research suggested that the Hostility factor represents an important element in the anxiety equation. It appeared to contribute significantly to a differentiation between subject groups, in response across anxiety situations. Further research should be directed toward specifying the nature of this factor. The present analysis has suggested the factor may represent inner- and/or outer-directed hostility, associated guilt, and consequent depressive feelings. It has also been suggested that the factor may represent a dimension of subjective experience characterized by submissiveness, vulnerability, feelings of not being in control and anxious self-preoccupation.

It was felt that the methodology used here was useful in illustrating the nature of anxiety response (profiles) by different groups of subjects in different anxiety situations. Further research should focus on other kinds of anxiety situations; in particular, those involving physical threat. Most of the situations used in the present research

were independently judged to be "ego-threat" situations (Janisse and Palys, 1976). It is felt that inclusion of physical threat situations would point out further differences between subject groupings in pattern of anxiety response. This might be especially true for the FIASca four-group typology.

The Anxiety factor had high loading emotion components of fear, distress, and shyness. It was suggested that, because each of these have clear physiological indices associated with them, the factor may represent "somatic anxiety" or an arousal dimension. Further research integrating the present approach, with its emphasis on subjective experience, with more objective physiological and behavioral measures would be of interest.

Finally, the present research identified a group of subjects who possibly represented a high test anxious sample. Further research must validate whether in fact this group can be characterized as such. Positive results in such research would give further weight to the interpretations made here of the fundamental emotion factors and the profile analyses.

Beyond these suggestions is the obvious need that the present research be replicated with two independent samples in order to avoid the redundancy issue and the reliance on post hoc analyses.

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VII: Appendix A. Pilot Research Analyses

Table 1. Correlation coefficients* among emotions based on frequency scores (above diagonal) and intensity scores (below diagonal) across all FIASca items.

Emotion	1	2	3	4	5	6	7	8	9	10	11	12	13
1.fear		77	33	47	35	53	-12	63	39	50	31	79	47
2.dist.	69		60	39	72	53	-31	62	70	77	54	85	76
3.guilt	30	51		17	77	19	-47	48	72	64	26	40	74
4.shy	39	29	18		01	50	34	47	01	22	04	50	08
5.anger	28	64	42	05		21	-57	44	92	80	55	50	79
6.int.	18	25	22	06	26		44	59	17	36	49	74	34
7.enjoy	-29	-45	-05	-05	-15	39		-01	-55	-37	-01	08	-46
8.surp.	53	55	46	35	41	30	01		44	53	24	71	48
9.disg.	42	64	44	14	66	09	-31	47		80	47	50	72
10.cont.	55	77	45	24	59	26	-31	59	64		48	67	71
11.fatg.	38	52	28	-02	46	23	-23	29	50	55		53	50
12.anx.	79	83	51	43	50	41	-31	59	50	69	46		57
13.depr.	52	82	55	15	64	37	-31	55	61	71	55	70	

* Zeros and decimal points are omitted.

Table 2. Factors of fundamental emotions based on frequency and intensity scores across all FIASca items.

Emotion	Factors							
	Frequency				Intensity			
	I	II	III	Comm.	I	II	III	Comm.
Guilt	81*	26	-01	72	54*	29	22	42
Anger	90*	11	31	92	81*	-03	10	67
Disgust	89*	13	24	86	78*	16	-13	66
Contempt	75*	36	30	78	77*	39	-02	74
Depression	79*	26	30	78	83*	31	07	79
Fatigue	30	08	89*	89	74*	-00	-02	54
Distress	65*	60*	33	88	78*	50*	-12	87
Enjoyment	-81*	29	31	84	-34	-15	84*	84
Fear	32	76*	12	70	40	73*	-11	71
Shyness	-13	83*	-08	72	-12	84*	00	72
Surprise	35	77*	08	71	46*	58*	28	62
Interest	-07	71*	59*	85	30	15	79*	74
Anxiety	33	77*	45*	90	60*	70*	05	85
Eigenv.	6.88	2.62	1.04		6.31	1.52	1.38	
% Var.	52.9	20.2	7.9		48.5	11.8	10.2	
Cum. Var.	52.9	73.1	81.0		48.5	60.3	70.5	

* indicates high loadings for each factor. Zeros and decimal points are omitted.

Table 3. Correlation coefficients* among emotions based on frequency scores (above diagonal) and intensity scores (below diagonal) across high-anxiety FIAScale items.

Emotion	1	2	3	4	5	6	7	8	9	10	11	12	13
1.fear		26	03	14	-14	-04	-18	27	-10	-21	-29	20	00
2.dist.	44		57	-37	71	-27	-72	27	68	51	33	47	67
3.guilt	16	46		-43	75	-18	-57	44	69	62	07	13	71
4.shy	32	11	02		-41	02	39	17	-33	-19	-57	-08	-29
5.anger	03	60	46	-04		-28	-72	32	93	82	43	17	68
6.int.	02	13	29	-17	14		48	05	-36	-26	08	16	-09
7.enjoy	07	-32	26	10	-09	44		-16	-70	-50	-17	12	-62
8.surp	40	37	52	22	31	28	26		26	23	-29	42	31
9.disg.	27	57	46	02	70	02	-09	39		81	42	16	59
10.cont.	34	70	42	09	64	09	-22	37	61		26	09	51
11.fatg.	33	51	23	-03	32	07	-19	17	45	52		06	31
12.anx.	73	73	47	28	30	40	-22	39	41	52	29		21
13.depr.	25	78	58	03	65	36	-06	49	53	66	42	55	

* Zeros and decimal points are omitted.

Table 4. Factors of fundamental emotions based on frequency and intensity scores (anxiety excluded) across high-anxiety FIAScale items.

Emotion	Factors								
	Frequency					Intensity			
	I	II	III	IV	Comm.	I	II	III	Comm.
Depression	76*	-20	14	13	65	82*	32	04	77
Anger	94*	-26	-02	-03	94	81*	15	-16	70
Disgust	90*	-23	-01	-11	88	78*	08	08	62
Contempt	85*	-05	-23	-07	78	84*	-00	17	74
Distress	70*	-35	52*	09	88	87*	-02	22	80
Guilt	87*	11	05	04	77	54*	58*	06	63
Enjoyment	-70*	23	-38	44*	88	-33	80*	15	77
Fatigue	22	-84*	-22	11	81	64*	-13	12	44
Shyness	-21	82*	-08	00	72	-07	-04	80*	64
Surprise	48*	51*	27	46	76	39	55*	44*	66
Fear	-10	19	88*	04	82	28	05	76*	67
Interest	-31	-06	-24	72*	67	11	76*	-20	63
Anxiety	20	-07	37	75*	73	--	--	--	--
Eigenv.	5.61	2.01	1.48	1.19		4.79	1.83	1.45	
% Var.	43.1	15.5	11.4	9.2		39.9	15.2	12.1	
Cum. Var.	43.1	58.6	70.0	79.2		39.9	55.1	67.2	

* indicates high loadings for each factor. Zeros and decimal points are omitted.

Table 5. Step-wise multiple regression analysis based on intensity scores across high-anxiety FIASca items.

Emotion*	Mult. R	R sq.	R sq. Change	Simple R	Beta
Distress	.73000	.53290	.53290	.730	.27304
Fear	.85883	.73759	.20469	.729	.57769
Interest	.91932	.84516	.10757	.399	.62283
Enjoyment	.97722	.95495	.10980	-.223	-.47130
Shyness	.99926	.99853	.04357	.280	.23172
Depression	.99984	.99968	.00115	.552	-.05010
Surprise	.99996	.99993	.00025	.338	-.02003
Contempt	.99997	.99995	.00002	.524	-.00682

* Not having meet default values of F = .01 and tolerance = .001, guilt, anger, disgust, and fatigue were not stepped into the equation.

Table 6. Correlation coefficients* among emotions based on frequency scores (above diagonal) and intensity scores (below diagonal) across low-anxiety FIAScale items.

Emotion	1	2	3	4	5	6	7	8	9	10	11	12	13
1.fear		79	38	44	43	53	-12	66	48	63	35	81	55
2.dist.	51		63	48	74	51	-27	60	70	78	48	81	78
3.guilt	-01	24		27	75	21	-42	45	70	59	26	43	72
4.shy	31	26	20		09	59	36	50	03	21	17	63	10
5.anger	-11	31	06	-14		23	-50	39	90	75	55	52	82
6.int.	-16	-11	-11	10	11		52	63	18	36	49	74	34
7.enjoy	-47	-53	-17	-05	-01	59		07	-49	-35	08	12	-40
8.surp	17	22	11	30	09	02	10		42	53	27	72	45
9.disg.	11	46	10	08	36	-20	-46	22		76	41	51	76
10.cont.	17	51	15	15	15	07	-22	46	43		45	70	74
11.fatg.	-15	06	02	-30	32	13	-11	-01	30	23		50	49
12.anx.	43	60	26	52	19	04	-19	31	13	42	15		59
13.depr.	34	60	18	-03	23	02	-46	18	47	44	44	41	

* Zeros and decimal points are omitted.

Table 7. Factors of fundamental emotions based on frequency and intensity scores across low-anxiety FIAScа items.

Emotion	Factors							
	Frequency			Intensity				
	I	II	Comm.	I	II	III	IV	Comm.
Guilt	78*	18	64	-13	06	66*	-34	57
Anger	93*	15	88	-05	66*	13	08	46
Disgust	91*	12	84	18	60*	23	-40	60
Contempt	80*	36	77	36	46*	47*	02	56
Depression	86*	26	81	54*	64*	05	-15	69
Enjoyment	-71*	55*	80	-47*	-18	08	79*	88
Distress	74*	56*	87	70*	35	29	-25	76
Fear	49*	65*	66	86*	-17	-04	-18	80
Interest	05	91*	83	01	14	01	87*	78
Shyness	-04	79*	63	44*	-38	59*	13	70
Surprise	36	71*	64	17	10	66*	15	50
Anxiety	45*	84*	90	66*	14	48*	12	72
Fatigue	40	44*	35	-03	79*	-14	09	64
Eigenv.	6.97	2.64		3.90	1.94	1.77	1.05	
% Var.	53.6	20.3		30.0	14.9	13.6	8.1	
Cum. Var.	53.6	73.9		30.0	44.9	58.5	66.6	

* indicates high loadings for each factor. Zeros and decimal points are omitted.

VIII: Appendix B. Materials

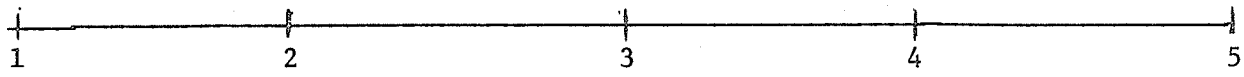
Anxiety Inventory

This questionnaire is a measure of two things. First, it is an attempt to find out how many situations that you have experienced made you anxious. Second, in those situations in which you have experienced anxiety, we would like to know how anxious they made you (for example, mild, some, substantial or extreme). On the computer form that accompanies this booklet you will find answer spaces numbered one to five. For each situation named in the booklet, you are requested to mark one of the five spaces. To help you, here and at the top of each page of the booklet is a scale as we would like you to imagine it:

1	2	3	4	5
at all ıave ɜr ɜrienced situation	mild	some	substantial	extreme

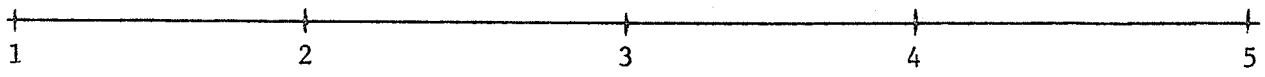
For each situation you must fill in one space. If a given situation does not make you anxious, or you have never experienced that situation, you would fill in space number one; if you have experienced such a situation and you have felt only mild anxiety, fill in space number two; and so on with spaces three (some anxiety), four (substantial anxiety) and five (extreme anxiety).

Please do not write on this booklet. Answer on the computer form with the pencils provided. For administrative purposes, you have been assigned a code number, written in on the computer form. Please fill in the spaces corresponding to the code number now. This code will be used to identify the test results.



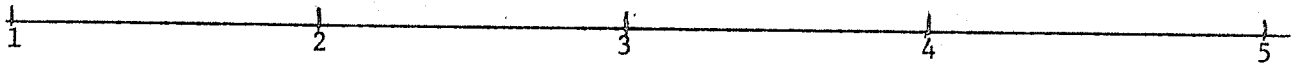
not at all or have never experienced the situation — mild — some — substantial — extreme

1. Asking a girl for a date
2. Not being in control of a situation
3. Self-disclosure
4. Before playing football
5. Before a hockey game
6. Championship competition
7. Watching a hockey game
8. Trying to live up to expectations
9. Doing something embarrassing on a date
10. About to have sexual intercourse with a new person for the first time
11. Receiving a physically hostile threat
12. Gambling
13. Sexual inadequacy
14. Worrying that your sexual inexperience will be found out
15. Worrying about others
16. Making a mistake during a sports activity
17. Curling
18. Blind dates
19. Before a date
20. Physical danger
21. Heights
22. First date with a new person
23. Being late
24. Illness in the family
25. Your job
26. The future
27. Feeling inadequate, inferior or incompetent
28. Driving with a poor driver
29. Failing in school
30. Before a track meet
31. Before a bseketball game
32. Worrying about money
33. Meeting new people
34. Waiting to see a dentist
35. Being questioned in class
36. Seeing a dentist
37. Seeing a doctor
38. Conflicts with friends
39. Meeting girlfriend's parents
40. Before taking an exam
41. Starting a new job



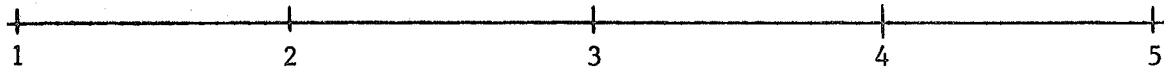
not at all or have never experienced the situation — mild — some — substantial — extreme

42. Talking to girls
43. Writing exams
44. Studying for exams
45. During a job interview
46. Being ill
47. Thinking about dying
48. Writing an essay
49. Conflict with girlfriend
50. Before a competition
51. Lack of sexual gratification
52. Doing something new
53. Waiting for grades
54. Driving in poor weather
55. Speaking in class or in public
56. Conflict with wife
57. Automobile accidents
58. Being criticized in public
59. Having to impress someone
60. Being singled out in a group
61. Being alone with strangers
62. Losing my girlfriend
63. Conflict with parents
64. Being unprepared for an exam
65. Meeting an old girlfriend
66. First day of school
67. School work
68. Driving in heavy traffic
69. Waiting to see a doctor
70. Observing quarrels
71. Dealing with superiors
72. Applying or looking for a job
73. Before a job interview
74. Seeing a snake
75. Making a decision
76. Not knowing how to act in a new situation
77. Poor professors
78. Thinking your girlfriend is pregnant
79. Flying in an airplane
80. Waiting for people
81. About to have sexual intercourse
82. Time pressure to get school work done
83. Receiving exam results
84. Examination settings



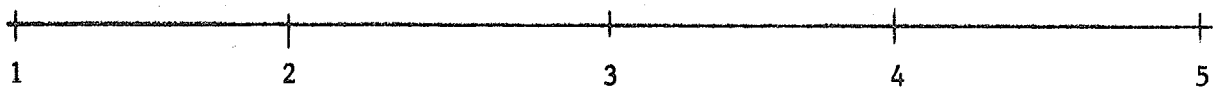
not at all or have never experienced the situation — mild — some — substantial — extreme

85. Writing an exam for which you are not prepared
86. Having your car break down
87. Making decisions having long term effects
88. Being uncertain of your ability
89. Before a public presentation
90. Non-conformity
91. Going to court
92. Encounters with police
93. Buying "dope" from a stranger
94. Observing violence
95. Being in a new situation and not knowing how to handle it
96. Being self-conscious about your appearance
97. Sex
98. Unemployment
99. Confronting the boss
100. Clumsiness
101. Racing
102. Being with bigoted people
103. Competition
104. Job problems and responsibilities
105. Initial encounters with females
106. Viewing sexual stimuli
107. Seeing attractive females
108. Unfamiliar environments
109. Making major expenditures
110. Hospitals
111. Failure
112. Getting caught doing something wrong
113. Near-miss car accidents
114. Funerals
115. Death of others
116. Driving dangerously
117. Working at a job you do not like



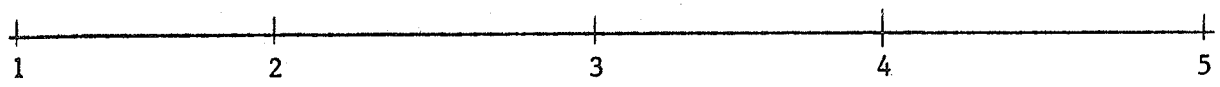
not at all or have never experienced the situation — mild — some — substantial — extreme

1. Going on a date
2. Having uncertain plans
3. Being unsure of how others feel about you
4. Gaining weight
5. Waiting for a phone call from a male
6. Walking down a dark street at night
7. Having you phone ring when you know a relative is ill
8. Being alone in a strange place
9. Your parents disliking your boyfriend
10. Being in large groups
11. Running out of money
12. Performing in public
13. Not knowing hwere someone is
14. Before boarding an airplane
15. Moving
16. Being pressed for time
17. Taking a piano exam
18. Being a stranger at a party
19. Being criticized by your boss
20. Doing a good job
21. Heights
22. First date with a new person
23. Being late
24. Illness in the family
25. Your job
26. The future
27. Feeling inadequate, inferior or incompetent
28. Driving with a poor driver
29. Failing in school
30. Before a track meet
31. Before a basketball game
32. Worrying about money
33. Meeting new people
34. Waiting to see a dentist
35. Being questioned in class
36. Seeing a dentist
37. Seeing a doctor
38. Conflicts with friends
39. Meeting boyfriend's parents
40. Before taking an exam



1	2	3	4	5
not at all or have never experienced the situation	mild	some	substantial	extreme

41. Starting a new job
42. Talking to boys
43. Writing exams
44. Studying for exams
45. During a job interview
46. Being ill
47. Thinking about dying
48. Writing an essay
49. Conflict with boyfriend
50. Before a competition
51. Lack of sexual gratification
52. Doing something new
53. Waiting for grades
54. Driving in poor weather
55. Speaking in class or in public
56. Conflict with husband
57. Automobile accidents
58. Being criticized in public
59. Having to impress someone
60. Being singled out in a group
61. Being alone with strangers
62. Losing my boyfriend
63. Conflict with parents
64. Being unprepared for an exam
65. Meeting an old boyfriend
66. First day of school
67. School work
68. Driving in heavy traffic
69. Waiting to see a doctor
70. Observing quarrels
71. Dealing with superiors
72. Applying or looking for a job
73. Before a job interview
74. Seeing a snake
75. Making a decision
76. Not knowing how to act in a new situation
77. Poor professors
78. Thinking you are pregnant
79. Flying in an airplane
80. Waiting for people
81. About to have sexual intercourse
82. Time pressure to get school work done
83. Driving in a car with mechanical problems



not at all or have never experienced the situation | mild | some | substantial | extreme

84. Seeing a spider
85. Being alone
86. Lying to your parents
87. Being forced to make a difficult decision
88. Seeing your friends in trouble
89. Waiting for an operation
90. Seeing insects
91. Meeting your new boss
92. Having as assignment overdue
93. Running into someone you haven't seen for a long time
94. Taking an oral exam
95. Time pressure when writing an exam
96. Seeing a dog
97. Waiting for a phone call
98. Waiting for medical test results
99. Driving a car
100. Family problems
101. Driving on icy roads
102. Worrying about your children
103. Family conflicts
104. Being alone at night
105. The death of a relative
106. Seeing someone hurt
107. Riding on a bus
108. Being the object of hostility
109. Going on a long trip
110. Marriage
111. A male you don't like, likes you
112. Others being late
113. Liking a male who doesn't like you

Emotional Reaction Inventory

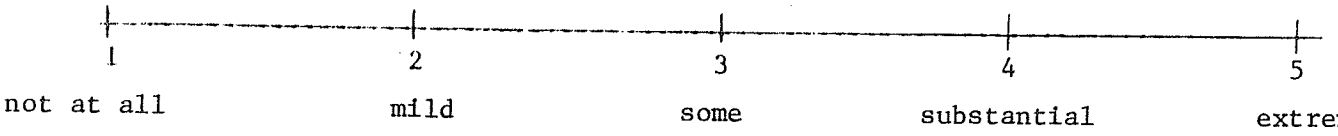
The questionnaire you just completed was designed to measure how many situations made you anxious and to what extent they made you anxious. In constructing this questionnaire, each situation you answered had already been determined to be an "anxiety situation" to some degree or other for most people. Of course, people differ, so that not all of the situations are "anxiety situations" for all people.

As well as our interest in anxiety, we are interested in interrelationships between other feelings or emotions and anxiety. In this questionnaire, we want you to indicate, for a number of situations, to what extent you experience twelve different emotions.

Please examine the inventory now. It consists of 26 situations. A rating scale is provided at the top of each page. Below each situation are a series of emotions; these are numbered consecutively to correspond to the numbering on the accompanying computer forms. Using the rating scale, you are to rate the extent to which you have experienced <u>each</u> emotion in <u>each</u> of the 26 situations. That is, for <u>each</u> emotion, you are to fill in one space on the computer form. For example, for the first situation, if you experienced no anger, you would fill in space number one for the first item on the computer form; if on the other hand, you experienced mild anger, fill in space number two; and so on for the other rating categories.

All of the situations in this inventory were selected as having a high probability that all people have experienced them. However, there may be a situation you have <u>not</u> experienced. If so, leave the emotions <u>blank</u> for that situation. For example, if you have not experienced the first situation, you would leave items one through 12 on the computer form blank.

Please do not write on this booklet. Answer on the computer forms with the pencils provided. Before starting, please await further instructions.



A. Being questioned in class

1. anger
2. surprise
3. distress
4. enjoyment
5. guilt
6. disgust
7. interest
8. fear
9. depression
10. contempt
11. shyness
12. fatigue

B. Having to impress someone

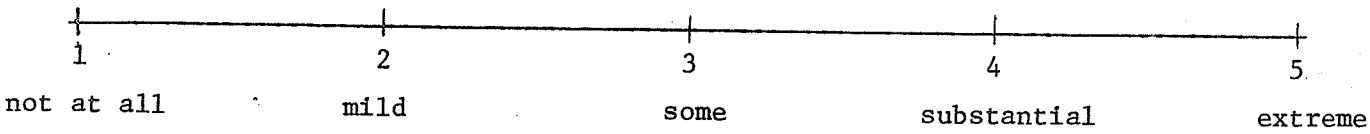
13. anger
14. surprise
15. distress
16. enjoyment
17. guilt
18. disgust
19. interest
20. fear
21. depression
22. contempt
23. shyness
24. fatigue

C. Writing exams

25. anger
26. surprise
27. distress
28. enjoyment
29. guilt
30. disgust
31. interest
32. fear
33. depression
34. contempt
35. shyness
36. fatigue

D. Not knowing how to act in a new situation

37. anger
38. surprise
39. distress
40. enjoyment
41. guilt
42. disgust
43. interest
44. fear
45. depression
46. contempt
47. shyness
48. fatigue



E. Meeting new people

49. anger
50. surprise
51. distress
52. enjoyment
53. guilt
54. disgust
55. interest
56. fear
57. depression
58. contempt
59. shyness
60. fatigue

F. During a job interview

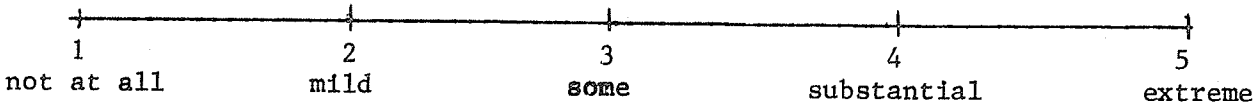
61. anger
62. surprise
63. distress
64. enjoyment
65. guilt
66. disgust
67. interest
68. fear
69. depression
70. contempt
71. shyness
72. fatigue

G. Time pressure to get school work done

73. anger
74. surprise
75. distress
76. enjoyment
77. guilt
78. disgust
79. interest
80. fear
81. depression
82. contempt
83. shyness
84. fatigue

H. Speaking in class or in public

85. anger
86. surprise
87. distress
88. enjoyment
89. guilt
90. disgust
91. interest
92. fear
93. depression
94. contempt
95. shyness
96. fatigue



I. Dealing with superiors

97. anger
98. surprise
99. distress
100. enjoyment
101. guilt
102. disgust
103. interest
104. fear
105. depression
106. contempt
107. shyness
108. fatigue

J. Being unprepared for an exam

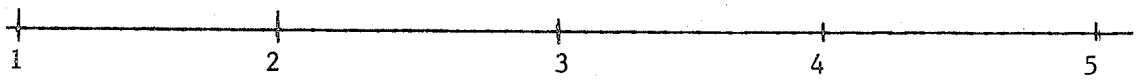
109. anger
110. surprise
111. distress
112. enjoyment
113. guilt
114. disgust
115. interest
116. fear
117. depression
118. contempt
119. shyness
120. fatigue

K. Feeling inadequate, inferior, or incompetent

121. anger
122. surprise
123. distress
124. enjoyment
125. guilt
126. disgust
127. interest
128. fear
129. depression
130. contempt
131. shyness
132. fatigue

L. Before an exam

133. anger
134. surprise
135. distress
136. enjoyment
137. guilt
138. disgust
139. interest
140. fear
141. depression
142. contempt
143. shyness
144. fatigue



not at all mild some substantial extreme

M. Conflicts with friends

145. anger
146. surprise
147. distress
148. enjoyment
149. guilt
150. disgust
151. interest
152. fear
153. depression
154. contempt
155. shyness
156. fatigue

N. Applying or looking for a job

1. anger
2. surprise
3. distress
4. enjoyment
5. guilt
6. disgust
7. interest
8. fear
9. depression
10. contempt
11. shyness
12. fatigue

0. Making a decision

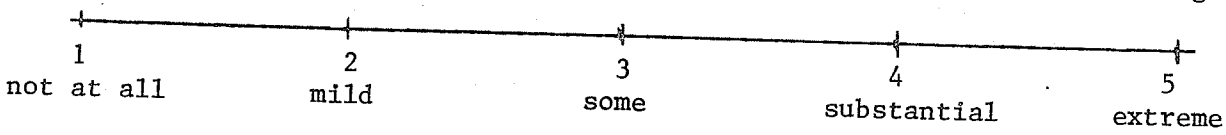
13. anger
14. surprise
15. distress
16. enjoyment
17. guilt
18. disgust
19. interest
20. fear
21. depression
22. contempt
23. shyness
24. fatigue

AT THIS POINT,

YOU SHOULD START

COMPUTER FORM

NUMBER 2



P. Observing quarrells

25. anger
26. surprise
27. distress
28. enjoyment
29. guilt
30. disgust
31. interest
32. fear
33. depression
34. contempt
35. shyness
36. fatigue

Q. Before a job interview

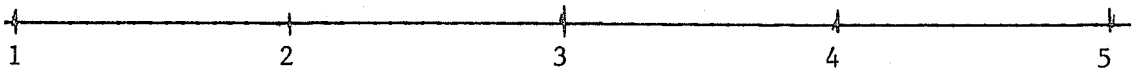
37. anger
38. surprise
39. distress
40. enjoyment
41. guilt
42. disgust
43. interest
44. fear
45. depression
46. contempt
47. shyness
48. fatigue

R. First day of school

49. anger
50. surprise
51. distress
52. enjoyment
53. guilt
54. disgust
55. interest
56. fear
57. depression
58. contempt
59. shyness
60. fatigue

S. Conflict with parents

61. anger
62. surprise
63. distress
64. enjoyment
65. guilt
66. disgust
67. interest
68. fear
69. depression
70. contempt
71. shyness
72. fatigue



T. Starting a new job

73. anger
74. surprise
75. distress
76. enjoyment
77. guilt
78. disgust
79. interest
80. fear
81. depression
82. contempt
83. shyness
84. fatigue

U. Waiting for grades

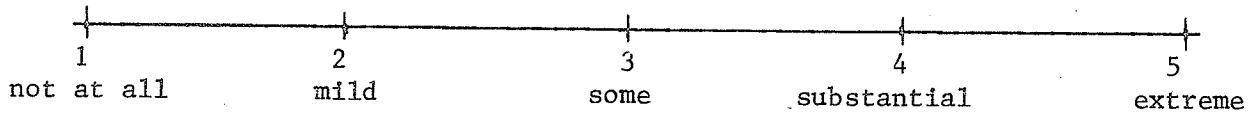
85. anger
86. surprise
87. distress
88. enjoyment
89. guilt
90. disgust
91. interest
92. fear
93. depression
94. contempt
95. shyness
96. fatigue

V. The future

97. anger
98. surprise
99. distress
100. enjoyment
101. guilt
102. disgust
103. interest
104. fear
105. depression
106. contempt
107. shyness
108. fatigue

W. Being criticized in public

109. anger
110. surprise
111. distress
112. enjoyment
113. guilt
114. disgust
115. interest
116. fear
117. depression
118. contempt
119. shyness
120. fatigue



X. Being singled out in a group

121. anger
122. surprise
123. distress
124. enjoyment
125. guilt
126. disgust
127. interest
128. fear
129. depression
130. contempt
131. shyness
132. fatigue

Y. Studying for exams

133. anger
134. surprise
135. distress
136. enjoyment
137. guilt
138. disgust
139. interest
140. fear
141. depression
142. contempt
143. shyness
144. fatigue

Z. Being alone with strangers

145. anger
146. surprise
147. distress
148. enjoyment
149. guilt
150. disgust
151. interest
152. fear
153. depression
154. contempt
155. shyness
156. fatigue

IX: Appendix C. Supplementary Tables

Table 1. Eigenvalues (E) and cumulative percentage of total variance (%CV) of emotion factors for males and females (606).

Factor	Without Depression				With Depression			
	Without anx.		With anx.		Without anx.		With anx.	
	E	%CV	E	%CV	E	%CV	E	%CV
1	6.81	61.9	7.05	58.8	7.53	62.8	7.78	59.9
2	1.35	74.2	1.53	71.6	1.43	74.7	1.59	72.1
3	.70	80.6	.85	78.6	.70	80.5	.86	78.7
4	.45	84.6	.45	82.4	.45	84.3	.46	82.3
5	.36	87.9	.44	86.1	.37	87.3	.44	85.6
6	.30	90.6	.36	89.1	.32	90.0	.36	88.4
7	.26	93.0	.30	91.6	.26	92.2	.32	90.9
8	.24	95.2	.26	93.7	.24	94.2	.26	92.9
9	.20	97.0	.24	95.7	.20	95.9	.24	94.7
10	.19	98.7	.20	97.3	.20	97.9	.20	96.2
11	.14	100.0	.18	98.8	.16	98.9	.19	97.7
12	-	-	.14	100.0	.14	100.0	.15	98.9
13	-	-	-	-	-	-	.14	100.0

Table 2. Correlation coefficients* among emotions for males (303) across ERI items (26).

Emotion	1	2	3	4	5	6	7	8	9	10	11	12
1. anger												
2. surprise	81											
3. distress	70	64										
4. enjoy	45	55	34									
5. guilt	73	74	67	52								
6. disgust	83	79	70	47	81							
7. interest	42	53	39	73	46	42						
8. fear	68	65	78	37	71	73	45					
9. depress	78	73	77	36	80	82	34	80				
10. contempt	79	77	64	50	77	83	44	67	79			
11. shyness	64	65	68	37	68	67	40	80	73	68		
12. fatigue	71	68	59	44	65	70	41	60	69	70	60	
13. anxiety	41	33	49	15	41	41	26	64	51	40	54	35

* Zeros and decimal points are omitted.

Table 3. Factors of fundamental emotions (with and without anxiety) for males across ERI items.

Emotion	Factors							
	Without Anxiety				With Anxiety			
	I	II	III	Comm.	I	II	III	Comm.
Disgust	80*	43	20	87	87*	27	20	86
Contempt	79*	38	24	83	84*	24	25	82
Anger	81*	38	19	84	85*	26	19	83
Surprise	75*	35	35	81	81*	18	35	81
Guilt	68*	48	28	77	77*	31	28	77
Fatigue	75*	30	21	70	77*	20	22	68
Fear	39	84*	20	90	57	71*	20	86
Distress	44	76*	14	79	64*	54	13	72
Shyness	40	79*	18	81	59	61*	18	75
Anxiety	--	--	--	--	14	90*	07	84
Interest	16	26	89*	89	21	22	89*	88
Enjoyment	34	07	87*	87	34	02	87*	87
Eigenv.	7.30	1.14	.63		7.58	1.24	.87	
% Var.	66.4	10.4	5.7		63.1	10.4	7.2	
Cum. Var.	66.4	76.8	82.5		63.1	73.5	80.7	

* indicates high loadings for each factor. Zeros and decimal points are omitted.

Table 4. Factors of fundamental emotions and depression (with-without anxiety) for males across ERI items.

Emotion	Factors							
	Without Anxiety				With Anxiety			
	I	II	III	Comm.	I	II	III	Comm.
Disgust	79*	44	21	86	87*	25	21	86
Contempt	79*	38	25	83	83*	23	26	82
Anger	81*	38	20	84	85*	24	21	82
Surprise	74*	35	37	81	80*	17	37	81
Guilt	68*	48	29	77	78*	30	29	78
Fatigue	75*	30	22	70	76*	18	24	67
Depression	68*	63*	08	86	82*	44	08	86
Fear	38	84*	21	90	58	70*	20	86
Distress	44	76*	15	79	65*	53	14	72
Shyness	39	78*	20	80	59	60*	19	74
Anxiety	--	--	--	--	16	90*	07	84
Interest	15	25	90*	89	20	22	89*	88
Enjoyment	33	07	87*	87	32	02	87*	86
Eigenv.	8.07	1.21	.63		8.35	1.29	.88	
% Var.	67.3	10.0	5.3		64.2	10.0	6.8	
Cum. Var.	67.3	77.3	82.6		64.2	74.2	81.0	

* indicates high loadings for each factor. Zeros and decimal points are omitted.

Table 5. Eigenvalues (E) and cumulative percentage of total variance (%CV) cf emction factors for males (303).

Factor	Without Depression				With Depression			
	Without anx.		With anx.		Without anx.		With anx.	
	E	%CV	E	%CV	E	%CV	E	%CV
1	7.30	66.4	7.58	63.1	8.07	67.3	8.35	64.2
2	1.14	76.8	1.25	73.5	1.21	77.3	1.29	74.2
3	.63	82.5	.87	80.7	.63	82.6	.88	81.0
4	.38	85.9	.42	84.2	.38	85.8	.42	84.2
5	.35	89.1	.37	87.3	.35	88.7	.37	87.0
6	.29	91.7	.35	90.2	.30	91.2	.35	89.7
7	.24	93.9	.29	92.6	.24	93.2	.30	92.0
8	.22	95.9	.24	94.5	.22	95.0	.24	93.8
9	.18	97.4	.21	96.3	.18	96.5	.21	95.5
10	.15	98.8	.17	97.7	.16	97.8	.17	96.8
11	.13	100.0	.15	99.0	.15	99.0	.16	98.0
12	-	-	.12	100.0	.12	100.0	.14	99.1
13	-	-	-	-	-	-	.12	100.0

Table 6. Correlation coefficients* among emotions for females (303) across ERI items (26).

Emotion	1	2	3	4	5	6	7	8	9	10	11	12
1. anger												
2. surprise	70											
3. distress	64	45										
4. enjoy	37	56	10									
5. guilt	71	66	60	38								
6. disgust	69	71	56	35	78							
7. interest	37	50	32	70	41	35						
8. fear	67	53	77	13	69	67	27					
9. depress	71	55	72	16	72	76	26	79				
10. contempt	68	66	53	37	68	76	33	64	69			
11. shyness	59	50	66	08	61	56	22	75	65	58		
12. fatigue	58	55	46	28	60	58	31	55	60	56	55	
13. anxiety	42	30	53	02	39	38	09	60	47	35	53	34

* Zeros and decimal points are omitted.

Table 7. Factors of fundamental emotions (with and without anxiety) for females across ERI items.

Emotion	Factors							
	Without Anxiety				With Anxiety			
	I	II	III	Comm.	I	II	III	Comm.
Disgust	84*	33	16	84	85*	27	17	83
Contempt	78*	32	16	75	81*	26	17	74
Anger	73*	43	21	77	76*	37	22	76
Surprise	74*	20	44	78	72*	17	46	76
Guilt	70*	45	25	75	75*	36	25	76
Fatigue	66*	33	13	56	68*	28	13	56
Fear	47	79*	05	85	55	73*	06	84
Distress	27	87*	13	85	39	76*	12	75
Shyness	43	75*	-00	75	51	68*	-00	72
Anxiety	--	--	--	--	12	84*	02	72
Interest	11	25	91*	91	16	17	90*	87
Enjoyment	34	-14	86*	88	29	-11	88*	86
Eigenv.	6.41	1.57	.69		6.69	1.72	.77	
% Var.	58.3	14.3	6.2		55.7	14.4	6.4	
Cum. Var.	58.3	72.6	78.8		55.7	70.1	76.5	

* indicates high loadings for each factor. Zeros and decimal points are omitted.

Table 8. Factors of fundamental emotions and depression (with-without anx.) for females across ERI items.

Emotion	Factors							
	Without Anxiety				With Anxiety			
	I	II	III	Comm.	I	II	III	Comm.
Disgust	83*	35	16	84	86*	25	19	84
Contempt	78*	34	17	74	80*	24	19	74
Anger	72*	44	23	76	76*	35	24	76
Surprise	72*	20	46	77	70*	16	49	75
Guilt	69*	46	26	75	75*	35	27	76
Fatigue	65*	34	14	55	67*	27	16	55
Depression	63*	65*	02	81	74*	50	01	80
Fear	46	80*	06	85	57	72*	06	84
Distress	26	88*	14	85	43	75*	11	75
Shyness	41	75*	02	72	52	66*	02	71
Anxiety	--	--	--	--	13	84*	03	72
Interest	09	25	91*	90	15	17	90*	85
Enjoyment	34	-14	86*	88	26	-11	89*	87
Eigenv.	7.11	1.64	.69		7.39	1.77	.78	
% Var.	59.3	13.7	5.7		56.9	13.6	6.0	
Cum. Var.	59.3	73.0	78.7		56.9	70.5	76.5	

* indicates high loadings for each factor. Zeros and decimal points are omitted.

Table 9. Eigenvalues (E) and cumulative percentage of total variance (%CV) of emotion factors for females (303).

Factor	Without Depression				With Depression			
	Without anx.		With anx.		Without anx.		With anx.	
	E	%CV	E	%CV	E	%CV	E	%CV
1	6.41	58.3	6.89	55.7	7.11	59.3	7.39	56.9
2	1.57	72.6	1.72	70.1	1.64	73.0	1.77	70.5
3	.69	78.8	.77	76.5	.69	78.7	.78	76.5
4	.53	83.6	.53	80.9	.53	83.1	.54	80.6
5	.37	86.9	.52	85.2	.40	86.4	.53	84.6
6	.33	89.9	.36	88.2	.34	89.4	.38	87.6
7	.30	92.7	.32	90.9	.31	91.8	.34	90.2
8	.24	94.8	.30	93.4	.24	93.7	.31	92.5
9	.23	96.9	.24	95.4	.23	95.7	.24	94.3
10	.19	98.6	.23	97.2	.21	97.4	.23	96.1
11	.15	100.0	.18	98.8	.17	98.8	.20	97.6
12	-	-	.15	100.0	.14	100.0	.17	98.9
13	-	-	-	-	-	-	.14	100.0

Table 10. Correlation coefficients*: ERI situations for males (303) across fundamental emotions (11).

ERI Situation	1	2	3	4	5	6	7	8	9	10	11	12	13
1. q'ed in class													
2. impress scmeone	76												
3. write exam	70	70											
4. act-new-sit.	68	76	73										
5. meet new people	74	76	67	73									
6. during job int.	66	73	69	77	77								
7. time pressure	60	66	76	71	64	68							
8. speak in class	70	69	65	74	73	75	71						
9. superiors	65	70	66	72	74	76	68	73					
10. unprep. exam	55	61	67	64	57	63	75	66	58				
11. feel inferior	52	62	52	69	57	61	59	66	65	64			
12. before exam	60	63	78	70	63	69	78	70	68	73	66		
13. conflict friends	52	66	61	66	62	64	66	59	72	64	70	69	
14. apply job	64	70	64	74	69	77	71	72	77	65	73	75	76
15. decision	68	73	70	77	74	77	70	73	78	65	70	76	71
16. obs. quarrels	52	62	64	64	66	68	62	63	70	59	62	67	76
17. before job int.	62	66	60	72	67	79	67	74	72	65	72	73	67
18. 1st day school	57	66	61	64	70	74	68	66	72	63	61	72	70
19. conflict parents	48	58	60	64	64	66	63	65	71	63	69	68	78
20. start new job	63	68	61	71	70	76	70	75	73	63	67	73	67
21. wait grades	56	62	69	69	65	70	72	69	67	70	66	78	69
22. future	49	63	53	69	60	67	61	65	65	60	68	63	71
23. crit. in public	56	59	60	66	60	67	67	69	66	69	69	70	71
24. singled-grp.	61	63	64	67	67	67	67	72	71	66	71	73	72
25. study exam	53	60	71	66	60	66	77	66	67	75	70	83	71
26. alone-stranger	59	67	60	71	74	72	66	77	73	61	68	69	67

* Zeros and decimal points are omitted.

....(cont'd)

Table 10. (cont'd)

ERI Situation*	14	15	16	17	18	19	20	21	22	23	24	25
14. apply job												
15. decision	83											
16. obs. quarrels	71	74										
17. before job int.	83	80	68									
18. 1st day school	76	74	69	76								
19. conflict parents	69	69	75	72	73							
20. start new job	79	77	71	85	78	73						
21. wait grades	76	74	66	76	74	71	78					
22. future	74	73	64	69	67	70	73	73				
23. crit. in public	75	71	71	73	68	72	75	68	68			
24. singled-grp.	76	74	72	75	74	73	77	76	70	81		
25. study exam	72	73	67	74	72	73	74	81	72	75	77	
26. alone-stranger	77	78	74	79	72	70	82	73	73	74	79	74

* Zeros and decimal points are omitted.

Table 11. Five factors of ERI situations for males across fundamental emotions.

ERI Situation	Factors					
	I	II	III	IV	V	Comm.
17. before job int.	37	69*	32	23	30	85
20. start new job	37	71*	32	29	22	87
26. alone-stranger	39	66*	25	34	26	83
14. apply job	43	53*	32	35	36	81
18. 1st day school	33	58*	36	46	07	80
6. during job int.	59*	51	29	30	15	80
15. decision	52*	47	33	36	29	81
22. future	27	47	26	37	50*	75
1. q'ed in class	81*	24	29	08	15	82
2. impress someone	75*	21	26	29	29	83
5. meet new people	71*	40	20	35	07	83
4. act-new-sit.	63*	29	34	25	39	81
9. superiors	55*	40	24	48	20	78
8. speak in class	56*	51	35	12	29	79

* indicates high loadings for each factor. Zeros and decimal points are omitted.

....(cont'd)

Table 11. (cont'd)

ERI Situation	Factors					
	I	II	III	IV	V	Comm.
12. before exam	33	38	69*	29	18	84
10. unprep. exam	28	24	71*	19	35	80
7. time pressure	42	30	69*	23	15	82
25. study exam	19	44	67*	33	28	87
3. write exam	59	12	66*	30	03	88
21. wait grades	27	53	56*	30	23	80
16. obs. quarrels	33	38	28	70*	14	83
19. conflict parents	21	40	34	64*	28	81
13. conflict friends	29	22	34	70*	39	88
23. crit. in public	23	49*	41	38	38	75
11. feel inferior	28	33	29	29	71*	86
24. singled-grp.	29	55*	40	38	31	78
Eigenv.	18.25	1.11	.85	.58	.52	
% Var.	70.2	4.3	3.2	2.2	2.0	
Cum. Var.	70.2	74.5	77.7	79.9	81.9	

* indicates high loadings for each factor. Zeros and decimal points are omitted.

Table 12. Six factors of ERI situations for males across fundamental emotions.

ERI Situation	Factors						
	I	II	III	IV	V	VI	Comm.
17. before job int.	35	32	65*	23	30	27	86
20. start new job	36	31	65*	29	20	30	87
26. alone-stranger	38	23	56*	36	22	39	84
14. apply job	41	32	52*	34	37	18	82
18. 1st day school	31	37	60*	45	10	10	81
6. during job int.	57*	30	55	27	19	05	83
15. decision	50*	34	47	35	31	14	82
22. future	23	28	51	34	55*	07	81
1. q'ed in class	81*	27	16	10	11	28	86
2. impress someone	73*	27	23	27	32	04	83
5. meet new people	71*	20	38	35	07	15	83
4. act-new-sit.	60*	36	31	23	42	07	82
9. superiors	54*	25	39	47	21	13	78
8. speak in class	56*	33	40	14	23	41	82

* indicates high loadings for each factor. Zeros and decimal points are omitted.

....(cont'd)

Table 12. (cont'd)

ERI Situation	Factors						
	I	II	III	IV	V	VI	Comm.
12. before exam	32	69*	37	29	18	16	85
10. unprep. exam	27	70*	18	20	31	25	80
7. time pressure	40	70*	29	23	15	13	82
25. study exam	18	66*	40	33	26	24	87
3. write exam	58	66*	13	29	04	04	88
21. wait grades	24	56*	55	28	25	13	83
16. obs. quarrels	33	27	32	71*	11	22	84
19. confl. parents	21	33	36	65*	27	21	82
13. confl. friends	28	34	21	69*	40	09	88
23. crit. in public	24	38	32	42	28	54*	85
11. feel inferior	27	29	25	30	67*	32	86
24. singled-grp.	29	38	39	41	23	50*	85
Eigenv.	18.25	1.11	.85	.58	.52	.45	
% Var.	70.2	4.3	3.2	2.2	2.0	1.8	
Cum. Var.	70.2	74.5	77.7	79.9	81.9	83.7	

* indicates high loadings for each factor. Zeros and decimal points are omitted.

Table 13. Correlation coefficients*: ERI situations for females (303) across fundamental emotions (11).

ERI Situation	1	2	3	4	5	6	7	8	9	10	11	12	13
1. q'ed in class													
2. impress someone	71												
3. write exam	75	74											
4. act-new-sit.	71	79	77										
5. meet new people	64	68	72	71									
6. during job int.	60	65	70	71	72								
7. time pressure	62	61	79	77	64	68							
8. speak in class	68	64	69	72	70	70	72						
9. superiors	66	74	74	72	71	72	67	70					
10. unprep. exam	60	54	72	65	58	61	79	65	58				
11. feel inferior	53	59	63	70	60	61	70	65	61	72			
12. before exam	63	55	79	69	64	65	79	70	67	77	70		
13. conflict friends	51	57	68	63	63	62	69	64	66	71	72	71	
14. apply job	53	59	65	67	68	76	68	64	70	59	63	63	61
15. decision	55	63	67	69	67	63	69	64	69	62	68	71	69
16. obs. quarrels	46	51	63	62	59	59	62	55	63	62	67	64	66
17. before job int.	56	54	66	66	63	77	65	66	70	62	67	71	64
18. 1st day school	56	59	67	61	70	65	62	62	67	60	66	66	63
19. conflict parents	49	54	67	61	57	56	66	61	63	68	68	69	71
20. start new job	54	63	65	68	67	78	66	65	74	62	65	67	69
21. wait grades	57	57	75	67	63	64	77	68	70	72	68	82	72
22. future	51	57	65	65	57	58	66	62	63	60	66	66	63
23. crit. in public	51	50	59	63	53	58	67	63	55	67	77	64	68
24. singled-grp.	60	61	64	69	66	67	64	71	66	60	65	66	62
25. study exam	61	60	80	69	64	64	80	70	69	74	71	85	76
26. alone-stranger	53	62	62	70	73	72	65	71	71	55	64	66	65

* Zeros and decimal points are omitted.

....(cont'd)

Table 13. (cont'd)

ERI Situation*	14	15	16	17	18	19	20	21	22	23	24	25
14. apply job												
15. decision	71											
16. obs. quarrels	65	73										
17. before job int.	76	72	61									
18. 1st day school	69	70	62	76								
19. conflict parents	59	66	73	61	62							
20. start new job	78	71	60	81	74	65						
21. wait grades	66	74	67	70	73	73	70					
22. future	62	70	62	62	65	63	66	74				
23. crit. in public	60	61	66	64	59	70	62	67	60			
24. singled-grp.	66	66	63	66	64	58	69	69	66	73		
25. study exam	66	74	67	74	71	70	71	84	69	68	70	
26. alone-stranger	68	73	62	77	71	62	75	72	67	67	74	70

* Zeros and decimal points are omitted.

Table 14. Five factors of ERI situations for females across fundamental emotions.

ERI Situation	Factors					
	I	II	III	IV	V	Comm.
17. before job int.	74*	35	25	23	23	84
20. start new job	74*	30	27	28	22	83
26. alone-stranger	65*	18	33	33	35	80
14. apply job	70*	26	29	28	22	77
18. 1st day school	63*	34	27	40	11	75
6. during job int.	68*	29	43	10	26	81
15. decision	48	31	32	58*	16	79
22. future	38	34	29	53*	22	67
1. q'ed in class	20	38	77*	08	17	81
2. impress someone	32	13	79*	29	15	84
5. meet new people	51	22	57*	28	17	74
4. act-new-sit.	33	30	67*	27	33	83
9. superiors	50	26	56*	38	10	79
8. speak in class	42	39	51*	12	39	76

* indicates high loadings for each factor. Zeros and decimal points are omitted.

....(cont'd)

Table 14. (cont'd)

ERI Situation	Factors					
	I	II	III	IV	V	Comm.
12. before exam	37	72*	30	29	20	87
10. unprep. exam	22	71*	28	24	36	82
7. time pressure	31	65*	40	24	29	82
25. study exam	41	66*	28	37	21	86
3. write exam	30	56	61*	31	08	88
21. wait grades	42	60*	25	45	18	83
16. obs. quarrels	30	25	22	71*	31	80
19. conflict parents	23	43	22	63*	31	77
13. conflict friends	34	48*	24	46	33	72
23. crit. in public	29	34	18	34	74*	89
11. feel inferior	30	39	26	40	57*	79
24. singled-grp.	47	23	39	26	53*	77
Eigenv.	17.55	1.16	.94	.62	.56	
% Var.	67.5	4.5	3.6	2.4	2.2	
Cum. Var.	67.5	72.0	75.6	78.0	80.2	

* indicates high loadings for each factor. Zeros and decimal points are omitted.

Table 15. Six factors of ERI situations for females across fundamental emotions.

ERI Situation	Factors						
	I	II	III	IV	V	VI	Comm.
17. before job int.	72*	25	33	20	22	24	83
20. start new job	72*	27	29	26	21	23	84
26. alone-stranger	56*	33	15	22	39	44	83
14. apply job	71*	29	26	31	19	13	80
18. 1st day school	56*	27	30	27	12	44	76
6. during job int.	71*	43	29	16	23	03	85
15. decision	43	33	29	48*	14	42	79
22. future	26	29	30	33	26	60*	78
1. q'ed in class	18	77*	37	04	18	14	82
2. impress someone	31	79*	13	27	14	16	85
5. meet new people	49	57*	20	24	16	22	74
4. act-new-sit.	32	67*	30	28	31	15	83
9. superiors	48	57*	24	33	09	27	79
8. speak in class	37	51*	38	08	42	23	77

* indicates high loadings for each factor. Zeros and decimal points are omitted.

....(cont'd)

Table 15. (cont'd)

ERI Situation	Factors						
	I	II	III	IV	V	VI	Comm.
12. before exam	32	29	71	22	19	31	87
10. unprep. exam	25	28	72*	31	29	03	84
7. time pressure	31	40	65*	25	26	15	83
25. study exam	35	28	64*	28	20	38	87
3. write exam	29	61*	55	28	05	21	88
21. wait grades	33	25	57*	30	19	50	88
16. obs. quarrels	31	23	24	72*	22	22	83
19. confl. parents	24	23	42	65*	23	20	80
13. confl. friends	35	24	48	49*	26	16	74
23. crit. in public	27	17	36	40	70*	13	89
11. feel inferior	29	26	40	45	51*	14	80
24. singled-grp.	37	38	21	16	58*	39	84
Eigenv.	17.55	1.16	.94	.62	.56	.51	
% Var.	67.5	4.5	3.6	2.4	2.2	1.9	
Cum. Var.	67.5	72.0	75.6	78.0	80.2	82.1	

* indicates high loadings for each factor. Zeros and decimal points are omitted.

Table 16. Eigenvalues (E) and cumulative percentage of total variance (%CV) of situation factors.

Factor	Males/Females		Males		Females	
	E	%CV	E	%CV	E	%CV
1	17.89	68.8	18.25	70.2	17.55	67.5
2	1.11	73.1	1.11	74.5	1.16	72.0
3	.88	76.4	.85	77.7	.94	75.6
4	.59	78.7	.58	79.9	.62	78.0
5	.53	80.7	.52	81.9	.56	80.2
6	.44	82.4	.45	83.7	.51	82.1
7	.41	84.0	.36	85.1	.43	83.7
8	.36	85.4	.36	86.4	.41	85.3
9	.34	86.7	.34	87.8	.38	86.8
10	.31	87.9	.32	89.0	.37	88.2
11	.30	89.0	.29	90.1	.33	89.2
12	.28	90.1	.27	91.1	.29	90.6
13	.28	91.2	.24	92.1	.28	91.6
14	.25	92.1	.24	93.0	.25	92.6
15	.24	93.0	.21	93.8	.24	93.5
16	.21	93.8	.20	94.5	.22	94.3

....(cont'd)

Table 16. (cont'd)

Factor	Males/Females		Males		Females	
	E	%CV	E	%CV	E	%CV
17	.20	94.6	.19	95.3	.20	95.1
18	.19	95.3	.18	96.0	.20	95.9
19	.18	96.0	.17	96.6	.18	96.6
20	.17	96.7	.16	97.3	.16	97.2
21	.17	97.4	.15	97.8	.16	97.8
22	.16	98.0	.14	98.4	.13	98.3
23	.15	98.5	.12	98.8	.13	98.8
24	.14	99.1	.12	99.3	.12	99.2
25	.13	99.6	.10	99.7	.10	99.6
26	.11	100.0	.09	100.0	.10	100.0