ANXIETY-EMOTION PROFILES AS A FUNCTION

OF PERSON-SITUATION INTERACTIONS

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Abstract

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

Subjects (303 males, 303 females) initially responded to
the male and female versions of the FIASca. On the basis of
their frequency and intensity scores, four groups of sub-
jects, for each of males and females, were generated,
following procedures detailed by Janisse and Palys.

After subjects had responded to the FIASca, they were
asked to fill out an empirically derived (from pilot
research) instrument (the "Emotional Reaction Inventory" or
ERI), consisting of 26 FIASca situations and 12 modes of
response (the fundamental emotions, fatigue, and depres-
sion). Subjects, in the inventory, were required to subjec-
tively rate each situation 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
evaluation 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 defini-
tions. 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). Review-
ing 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 main-
tains 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.

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* 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 phencmenological 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 <u>scores</u> (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.

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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 imagining an anxiety situation of their own choosing. Factor analysis revealed separate factors for interest, enjoyment, surprise, shyness, fear, and fatigue. Anger, disgust, and contempt items loaded on a single factor. Items defining guilt and distress loaded together on a single distress-guilt factor. Most of the negative STAI items loaded on the fear factor, consonant with Spielberger's emphasis on fear in the definition of anxiety. Several STAI items loaded as well on the distress-guilt factor. All other STAI items loaded on the enjoyment factor. This result was considered consistent with Spielberger's view that the absence of enjoyment is an indication of anxiety. Thus, STAI anxiety items loaded on three of five emotions 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 for an anxiety situation of their own choosing. Then, each group was asked to re-do the DES-A for one of five fundamental emotions, all thought to be involved in anxiety: fear, distress, guilt, shyness, and interest. Subjects responded to the DES-A while, for example, imagining a fear situation of their own choosing.

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