

A COGNITIVE MODEL OF STRESS

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ABSTRACT: Freely structured interviews conducted to discern the cognitive model of "stress" shared by a group of American graduate students are described. Interview data concern the perceived causes, effects, coping strategies, and inherency of stress. These data are organized according to categories and discrepancies inherent to the sample. Sets of propositional models are developed that illuminate some aspects of the cognitive model. Processes of externalization characterized the subjects' responses at every level and the concept of the individual in opposition to the social environment has figured prominently in this analysis. Although the model is composed of many parts, it may be reduced to a single principle: stress is a response to the perceived threat embodied in the appropriation by others of control over the self-image of the individual.

INTRODUCTION

"Stress" is a word that echoes familiarly off the walls of corporate offices and resounds ominously down the corridors of academia near the semester's end. Corporate flunkies complain of being "placed under stress" by their bosses, who in turn discuss the "stressful working environment." Students are "getting completely stressed-out," while others claim to "feed on stress" to increase their productivity. Vitamins are marketed as "StressTabs". A television advertisement admonishes that "if you live with stress, you can't afford to live without our night cream."

In each of the above situations, a common idea is invoked. This idea is shared and transmitted among the individuals who use it. When questioned directly about the concept of stress, however, these individuals experience difficulty in defining the idea. Instead, they discuss concrete factors stated to cause stress, or physical symptoms associated with the experience. Feelings of high anxiety and frustration are frequently mentioned in relation to encroaching deadlines or employers' demands.

What is the modern American idea of stress? What is its cause? Is it physical or psychological, harmful or beneficial? What can be done about it? Webster's New Collegiate Dictionary (1981) defines stress in the following manner:

stress

1. constraining force or influence

- a. a force exerted when one body or body part presses on, pulls on, pushes against, or tends to compress or twist another body or body part; especially the intensity of this mutual force commonly expressed in pounds per square inch.
- b. the deformation caused in a body by such force.
- c. a physical, chemical, or emotional factor that causes bodily or mental tension and may be a factor in disease causation.
- d. a state resulting from stress, especially one of bodily or mental tension resulting from factors that tend to alter an existent equilibrium.
- e. strain, pressure.

2. emphasis, weight.
3. intense effort or exertion.
4. intensity of utterance given to a speech sound, word, or syllable producing relative loudness.
5. a. relative force or prominence of sound in verse.
b. a syllable having relative force or prominence.
6. accent.

The concepts noted by Webster involve ideas of constraint, tension, pressure, or force exerted by some external factor which may be physical, emotional, or chemical, and may contribute to disease. Although this provides some hints about the way the word may be used, delineation of this evasive cognitive model requires probing the minds of the individuals who use it.

A relationship exists between grammatical organization and meaning systems; the exact nature of this relationship, though the subject of a great deal of linguistic research over the past century, has yet to be resolved (Sapir 1921, 1931; Whorf 1956). Does the structure of the organization of language determine the thought of its speakers, as Whorf (1956) believed, or do the ideas of the speakers become manifest in the grammatical structure of their language, or do the two exist as a dialectic?

The subdiscipline of cognitive anthropology is concerned with exploring meaning systems that underlie cultural behavior. Because language and culture are interactive, the study of language is a valuable way to approach cultural abstractions. Individuals often seem to operate as if in reference to a model that they are unable to directly discuss. Statements about actions and beliefs often differ from observations. That is, what individuals say they do and say they think is not necessarily what they really do and think. Such discrepancies in action, statement, and belief may provide clues for discovering abstract meaning systems, or cognitive models.

Cognitive models are believed to be simple, although they underlie very complex behavior. Linguists analyze natural discourse, using similarities as well as discrepancies like those mentioned above to discern patterns (cf. Holland and Quinn 1987). Once established, a cognitive model should be able to explain discrepancies between statements, beliefs, and actions by showing how they relate to a simple, but elusive, shared idea.

METHODOLOGY

The quest for the shared idea, or cognitive model, of "stress" entails the analysis of the word as used in discourse, and concurrently an examination of individuals' stated ideas concerning the concept. To this end, ten University of Arizona graduate students from the Departments of Anthropology and English were interviewed by the author. The interviews were designed to encourage each subject to express himself or herself fully on the topic at hand. Although freely structured, each interview addressed the following questions:

1. What do you think causes stress?
2. What are the mental and physical effects of stress?

3. Is stress generally positive or negative? Why?
4. How do you deal with, or alleviate stress?
5. Is stress a phenomenon inherent in American society?

Subjects needed little encouragement to elaborately describe their "folk theories," often including vivid examples from personal experiences. The interviews lasted from ten to thirty minutes, depending on the loquacity of the subject. Tapes of each interview are supplemented on paper by notes and partial transcriptions.

DATA DISCUSSION

The accumulated data are organized below into four broad categories: the causes of stress, the effects of stress, dealing with stress, and the inherency of stress in American society.

The Causes of Stress

Informants stated stress to be caused by a wide variety of factors, ranging from the mundane to the momentous, from the concrete to the abstract. Some examples are provided below:¹

- LINDA: I think stress is caused by people, other people.
CAROL: For me, it's school. I hate it. I really do.
RAY: I suppose stress, in a very generic sense, is fear of failure, fear of not being up to your own standards, or those of others. For me, personally, I'd say it's fear of being inarticulate.
PEGGY: When I go into public places, like that, like supermarkets, and places where everybody's a stranger and I hate everybody, and they all look stupid and ugly to me.
EVE: It's this weird, thwarted desire to please people, this drive to entertain or to be perfect, this need for perfection.

The causes of stress cited by the informants are organized in figure 1 (p. 86) as a graded continuum. This spatially illustrates degrees of similarity and difference among the responses. The left extreme of the continuum is abstract, while the right extreme is concrete. The left end of the spectrum is personal; movement towards the right of the diagram corresponds to movement away from the self into the external environment. External factors involve other people as well as the physical environment.

Two out of ten, or twenty percent of the subjects felt that self-initiated causes were solely responsible for stress. Twenty percent cited only external factors as the causes of stress. Sixty percent believed that an interaction of both personal and external causes were necessary to induce stress. It seemed generally easier for the subjects to discuss the more concrete items towards the center and right side of the diagram. The dashed line represents the division between personal and external stress causes. The need for approval is a property of the self, but this approval must come from outside the self; there is a transition zone

¹ All informants' names have been changed.

between the two.

The need for the approval of parents and teachers, specifically, is cited as a cause of stress in the following passage:

EVE: My sisters and I generally all behave the same way. We're doing completely different things, but we have these same patterns, it's like nothing we can do can ever be good enough, It's life, I don't know, maybe we were never approved of enough as children, always striving to be better and better, to please people, and, you know, it may stem back to, you know, I remember in the sixth grade I brought home a report card that was all A's and one B and my father said, his only comment was, "So, why'd you get the B?"

Approval must be had not only from parents and teachers, but from prospective employers, or in the following case, prospective in-laws:

EVE: There's stress of meeting people, like meeting Joe's parents. His father is really stressful for me. He doesn't look at you when he talks to you and I feel like he's bored all the time, and I think it's still this weird, thwarted desire to please people, and whether it's somebody you're writing a term paper for, you know, a professor, somebody you'd like to be on your committee eventually and you want to do well on their test, or it's like this need, this drive to entertain or to be perfect, this real need for perfection, I picked up that his mother appreciated me and liked me from the start, so I don't have to do anything, I don't have to go crazy for her, but his father, I just, I have no idea how he feels and that makes me really stressed, because he's kind of important to Joe.

A concrete evaluation is provided by teachers in the form of grades, which consequently are frequently mentioned as a source of stress:

CAROL: What I'm stressed out about right now is, um, because I have all these papers to do and I know I can work my ass off and I'm going to get a B, because last semester I worked really hard and I had A's at midterm, and then I ended up with B's.

Time constraints were considered to contribute to stress by all the informants, even those who did not consider them a direct cause. This is correlated with a heightened sense of the passage of time, and is seen to foster irritation in a manner related to the aggravations of traffic, long lines in public places, and a hurried city life-style.

The Effects of Stress

The informants' characterization of the effects of stress was, with only two exceptions, stated to be psychological in nature. The two informants who discussed physical stress considered it to be something entirely different and largely unrelated to the author's interests. Physical "symptoms," such as nausea, were believed to be caused by psychological disturbance and, as a result, were considered psychological in nature.

The state of stress was commonly described as characterized by the presence of an unusual amount of nervous energy. This energy could never be applied to any constructive purpose; in fact, it was said to prevent the individual from engaging in productive activity. Thoughts as well as actions became disjointed and erratic. Concentration on the task at hand (usually exemplified by a paper with an encroaching deadline for completion) proved difficult if not impossible due to pervasive and overwhelming anxiety. Feelings of helplessness led to frustration, irritation, and sometimes angry resentment at the perceived stress causers.

Physical reactions to stress, which informants overwhelmingly considered as part of psychological effects, included nausea and "butterflies in the stomach." Individuals reported experiencing difficulty in sleeping, and eating either much more or much less than usual. Abrupt, purposeless motions associated with anxiety were frequently cited. Subjects reported feeling "jittery," "fidgety," or "unable to sit still." As Peggy vividly describes it:

"Not just irritable in my head, but like my whole body's irritable, like when there are too many flies buzzing around."

A list of the terms used by the informants to describe what they perceive to be the psychological effects of stress is shown in figure 2 (p. 87). The terms have been clustered on the basis of similarities in meaning or association.

Linda, one of the two informants who volunteered information about physical stress, considered there to be two categories of stress, "real, biological stress and neurological stress." Not only does this indirectly imply that one is real and one is imaginary, but Linda directly assured me that it was the neurological, not the biological stress that I was interested in. Biological stress, according to Linda, is caused by malnutrition and produces serious physical debilitation. Neurological stress however, is "all in your mind." In the following passage, Linda relates the belief that drugs have no "physical effect" on this mental problem but act as a sort of placebo:

LINDA: One time I took a tranquilizer because I had so much stress.

INTERVIEWER: Did that help?

LINDA: I think it did. Yeah, a little bit. I only did it once. I don't know, I don't think it had any kind of physical effect but I think because I knew I took a tranquilizer, I knew it would make me relax so it made me sort of forget about it and relax.

When questioned directly about physical effects of stress, informants were willing to speculate, but took pains to emphasize that their knowledge was inadequate in this area. Phrases such as "I've heard that...," "I think they think...," or, "I don't know if this is true, but..." were invoked exclusively in reference to this area. Following these disclaimers were mentions of stress as a cause of, or contributing to, heart attacks, high blood pressure, arterial sclerosis, and even cancer.

EVE: I think it can be correlated with all kinds of diseases, but I don't think it is, in itself, a disease, just because, well, there's certainly no pathogen, and it's not necessarily virulent. I mean, it can be very, very virulent, you know, when people

have heart attacks and arterial sclerosis and things, but it's not always that bad, and until they can really prove to me that it's actually a disease, then I won't believe it. On the other hand, it's hard to say, because there do seem to be actual chemical imbalances, and some of those imbalances seem to correlate with actual HLA sequences, things that are basically genetic, so that's, it gets weird. We basically just don't know enough to say.

To nine of the ten informants, the effects of stress were overwhelmingly negative. One of the ten, however, maintained that she was able to utilize the nervous energy characteristic of stress so as to heighten creativity and increase productivity. The other subjects all mentioned familiarity with this notion, claiming to have friends or acquaintances who possessed the ability to "feed off stress" in this manner. Four individuals used the metaphor of stress as providing food-energy. Ray's statement is typical in this regard:

RAY: My sister's that way, and I'm completely the other way, that is, she puts herself into situations that seem impossible, that she has to, uh, get things done, and assigns herself a thousand more things than she can normally do, and it sort of feeds her.

The consensus, however, was that any energy or motivation that accompanied stress was negated or canceled out by the anxiety and frustration. When pressed to come up with a positive effect of stress, Linda quipped, "Well, it might tell you that you're in the wrong line of work!"

Dealing with Stress

The overwhelmingly negative effects of stress are perceived as undesirable; as a result, two outlines for relieving these effects were presented by the informants. One can immediately begin to work towards the solution or completion of the problem or project in which stress is manifested in an attempt to shorten the stressful period, or, following the adage, "Out of sight, out of mind," one can use a wide variety of techniques to distance oneself from the problem or project on a temporary basis.

A graded continuum organizes spatially the methods used for dealing with stress. In figure 3 (p. 87) the techniques range from complete denial of the problem, left, to complete acceptance, right. Between these two extremes stretches a vast assortment of procrastinatory activities of varying usefulness.

Both the extreme positions were regarded by the informants as completely unrealistic. While quitting would remove the stress of the immediate problem, it is impossible as a long-term solution. Immediate commencement of work on a problem was seen as difficult due to "mental inertia," or anxiety-related concentration problems associated with stress. Some method of procrastination, then, was the strategy each individual claimed to employ.

In the continuum above, procrastination is depicted as encompassing everything from ignoring the existence of the problem to actually formulating a strategy for tackling it. The subjects claimed that some of these were more useful than others when work on the problem was finally begun.

Mundane activities comprise the realm of the habitual procrastinator, who, when faced with stress, develops a sudden acute predisposition for household chores such as scouring the bathtub, potting plants, or wallpapering the kitchen (cf. Becker 1986:2-3). While sometimes useful in and of themselves, these activities generally do not assist the individual in solving the stress-creating problem.

Exercise and drugs both act to alleviate the purposeless motion or "jitters." Some informants claimed that they could successfully rid themselves of "mental inertia" this way, enabling work on the project at hand to begin. Others expressed uncertainty as to the usefulness of these techniques. The informants persisted in their characterization of stress as a purely psychological phenomenon, however. As Linda implied above, any alleviating effects of such "calming" techniques result from mental, not physical changes.

Discussion of the project or problem with others was seen as a positive way to begin thinking about the work to be done. However, discussions generally took the form of airing resentment. Thinking about the problem eventually leads to the formulation of a strategy for beginning work that enables the individual to cross over from procrastination into action. Carol describes one such strategy:

CAROL: I try and just, and reduce the stressful thing into smaller things that I can handle, and then when I get the smaller things done then I can go out and have a good time.

Informants usually expressed a preference for particular varieties of procrastination that they found most effective. Eve listed a number of strategies she had employed at various times in her life.

EVE: I'll just start procrastinating and doing stupid like clean the dishes, you know, I do things that I don't normally want to do, ever.

INTERVIEWER: Why do you think you do that?

EVE: I'm not sure why I really do it, it just seems like a built-in, it really seems like a safety valve, but that's a big rationalization. What I used to do, you know, before I came back to school, what I used to do was go out running, you know, basically pretty healthy things, but now I tend to just sit and drink another cup of coffee and hang out bitching and whining with my roommates.

INTERVIEWER: Does it help?

EVE: Yeah, it helps quite a bit. It really helps me a lot, but the only thing that really helps is having whatever the deadline is pass, and as an undergraduate I actually only turned in one term paper on time, and that wasn't until my senior year. I always got an extension. I always went beyond, whatever. Because it was only after the deadline passed that it broke and I could actually write.

INTERVIEWER: That's interesting.

EVE: No! It's sick!

The technique of allowing deadlines to pass, a form of pretend-quitting, was also cited by Ray as being very effective:

RAY: Personally, for instance, if I have a paper that's due, you know, the next day, and, uh, I can get stressed out about it and get it done, but that's not normally what happens. I'll get stressed out about it just enough to say, "Well, fuck it. I'm not going to do it," and then, a week later, when I've calmed down, and managed somehow to forget about it, then I'll do it.

The Inherency of Stress

The final area of inquiry in the interviews involved the degree to which stress was seen as intrinsic to individuals, to American society, and to culture in general. One hundred percent of the informants (ten out of ten) felt stress to be inherent on an individual level. This predisposition was correlated with a high level of personal insecurity and a great need for others' approval. There also was an indication that those individuals for whom stress is inherent possess greater than average abilities that result in abnormally high expectations from themselves as well as others. Not everyone is considered to possess this "predisposition" for stress, but those who do would experience it in any society. However, some cultures or environments may stimulate the inherent capacity to experience stress more than others.

INTERVIEWER: Do you think stress levels are different in different societies?

EVE: Well, that's interesting. If I'm going to try to just sit back and go from what I know about myself, I say that there are probably personality types that would do this to themselves no matter what culture they're born into. But I do think that society mediates it, because our society rewards people that produce, and are creative, and do well, and in a peasant society I don't think there would be as much stress because the people, you know, if there's sort of a notion of a limited good, where no individual's supposed to stick out like this, I don't think that there would be as much stress, that way. Do you see what I mean? Although I still think they'd want to please their in-laws, things like that.

PEGGY: The city environment is hectic, traffic and crowds. If we all lived on quiet, peaceful farms we'd probably have less stress, but there'd probably be other things, I guess, like fear of scorpions or something.

Ray also views stress as inherent on an individual level, transcending environment. However, aspects of American culture are seen to encourage stress in his perspective:

INTERVIEWER: Is stress something that's just inherent in society?

RAY: I think that's just about as succinctly as you could put it. If it's a disease, it's the disease that makes America run. I mean, that's the kind of thing that feeds, that feeds a market production system. Stress. Invisible hands sneaking up behind you and grabbing you by the throat and saying, "We're going to consume, so you better produce, buddy, or we're going to kick your ass."

INTERVIEWER: Is this intrinsic to American society more so than other societies, then? Can you envision a society without stress?

RAY: I'd say, it's impossible to live without stress, but it is possible to find a way of dealing with it constructively. No matter where you were, though, anytime that

you would be, that you would have an ideal that you were sort of shooting for, trying to live within, anytime you strayed or moved beyond the boundary of that, that would be stressful. It would be impossible to stay on it, I don't think I could, well, not even the culture as a whole.

THE COGNITIVE MODEL OF STRESS

These data are used here to develop a cognitive model. Discrepancies between statements made by the same individuals imply that cognitive models often exist below the surface of consciousness. Carol, for example, at several intervals states that at this point in her life she is not concerned about grades:

"I was taught to always be worried and concerned about grades and things that I don't, anymore, that I don't think are important."

Strangely, this same individual related the following tale of woe which places grades as the prime cause of her current state of stress:

"It's knowing that I can work really hard on it, but, the reason I wasn't stressed-out before, or that I enjoyed it was because I knew I could work really hard and I could get an A. Then, last year I had A's at midterm and then I worked really, really hard on finals, I got stressed, got those wonderful papers written and then, Professor X gave me a B, and Professor Y gave me a B, and you know, with no explanations! So, it's like, I worked so hard, and I, and it didn't, it got me the B's, and B's in graduate school, you know, suck! And I don't know what I did wrong, so I don't know what to do this time differently, so I've tried to resign myself to, well, I'll probably make more B's, but you still have to work hard, you still have to write the papers."

Unconscious disparities between the stated beliefs and the actions of an individual were blatantly illustrated by Peggy's statements:

"We eat shitty food, and that really makes a big difference. I mean, how can someone be relaxed if they eat Burger King, potato chips and pizza? You know they're going to feel like shit inside. It's going to have an influence on the way they feel and the way they see everything else."

That very week, the author encountered Peggy at McDonald's where Peggy admitted to frequenting the Place of the Golden Arches several times a week. Discrepancies such as these are evidence for the existence of intangible organizational principles.

The data were grouped on the basis of similarities and differences that could be related through an over-arching continuum. My analysis and subsequent cognitive model is based on standards illustrated in Quinn and Holland(1987). After an intuitive examination of the discourse data, I have formed propositional models for each of the data's subdivisions. Following Catherine Lutz's (1986) propositional models for emotion, I have devised chains of entailments that form logical linkages between seemingly disparate segments of the data.

Finally, I have integrated the submodels, demonstrating what I believe to be the framework behind the American graduate student's concept of "stress." The analyses and propositional submodels are organized below according to the four categories of data, which in turn correspond to my principal areas of inquiry.

The Causes of Stress

In review, informants cited the following causes of stress: inadequacy, fear of failure, need for approval of parents/teachers/others, tests, papers, grades, deadlines, the city environment, traffic, and supermarket lines. These factors lend themselves to organization along a gradient continuum extending between two extremes (figure 1, p. 86). At the former end, factors are abstract and self-oriented, while at the latter they are concrete and externally-oriented. The majority of the informants stated that they believed stress entailed the interaction of both personal and external elements.

I believe these seemingly disparate factors are linked not only along a continuum of similarity but as the logical links of the following chain of entailments.

ASSUMPTION

- A1. It is important for an individual to have a positive self-image.
- A2. The only lasting self-image is that created by the individual.
- A3. Ideally, the individual should control the creation of his/her self image.
- A4. Self-images are affected by the thought, speech, and acts of the individual.

HOWEVER,

- B1. The individual's thought, speech and acts are observed by others, who form opinions.
- B2. The contribution of others' opinions may affect the self-image.
- B3. The possibility exists that others' opinions may be negative and thus harmful to the individual's self-image.

THEREFORE,

- C1. It becomes important to elicit positive opinions from others.
- C2. This requires the individual to relinquish exclusive control of the creation of the self-image.

This is the basis of the "fear of failure" and the "need for approval" cited by the informants as causes of stress. Once the individual relinquishes complete control of the self-image s/he is at the mercy of others -- "the Approvers." The degree to which this process takes place varies from person to person, but no one is able to retain complete control (if indeed that state ever existed) because of human interdependence.

Parents are the original approvers to which control is relinquished. Within the graduate world, the opinions of professors become the standards for self-image appraisal. Professor's opinions are concretely manifested in grades, which are achieved through performances on papers and tests. The informants themselves noted that more concrete factors were easier to discuss than abstract causal ideas. I suggest that the attribution of stress to grades, papers, and exams is merely a more concrete way of attributing stress to the loss of control of the self-image and the attendant possibility of a decline in its positive value. Ray expressed this relationship rather well:

RAY: I suppose that, in a bureaucracy, which is what the graduate world is, stress is, uh, anything that can potentially expose your incompetency in general or your adequacy.

INTERVIEWER: So, inadequacy and incompetency are prerequisites for experiencing stress?

RAY: No, just the possibility of it. First you have to have the capacity or the, uh, predisposition to be stressed, and then you have to, sort of, be implanted into any environment that will make you stressed. That is, you have to be already fearful of your competency or your adequacy and then be confronted by somebody who suspects your competency or your adequacy, like, a test, or a paper, or like, a job review or a potential promotion, where they're weighing your adequacy against somebody else's.

Appropriation of the individual's control of his/her self-image is demonstrated to be a primary cause of stress. Below, the related appropriation of the individual's control of time use is shown to lie behind the attribution of stress to deadlines and to environmental factors.

ASSUMPTION

- D1. Human life is finite.
- D2. Each individual exists for a limited amount of time.
- D3. Each individual should have the freedom to use that time as s/he wishes. That is, each individual should be in control of his/her time use.

HOWEVER,

- E1. Time constraints are established by the Approvers.
- E2. Thus, from the point of view of the individual, control of use of time has been relinquished along with self-image.

THEREFORE

- F1. This results in a heightened sense of time use. That is, the individual is acutely aware of how his/her time is spent.

AND

- G1. The amount of time required for an activity is directly proportional to the number of other individuals interactively engaged in the activity.
- G2. Mundane activities such as grocery shopping and driving to work are engaged in by large numbers of people simultaneously.

THEREFORE

- F2. Mundane activities are prolonged for the individual as a direct result of the participation of others.
- F3. These "Others" possess some control of the individual's time use.

Deadlines are cited as sources of stress because they represent the appropriation of control of time use by the Approvers. Aspects of the environment are cited as contributing

to stress when time control appears to be relinquished to strangers. Peggy vehemently pinpointed mundane factors as major causes of stress. The reasons for this are discussed below as "the effects of stress."

The Effects of Stress

Although the informants downplayed the importance of the physical effects of stress, I believe they are the key to understanding the so-called psychological effects. I propose the following model based on assumptions, entailments, and conclusions from above.

ASSUMPTION

- B3. The possibility exists that the Approvers' opinions may be negative and thus harmful to the individual's self-image,
- C2. Exclusive control of self-image has been relinquished to the Approvers.
- E2 and F3. Exclusive control of time use has been relinquished to the Approvers and the Others.

THEREFORE,

- H1. The Others and the Approvers are perceived as threats to the individual.

ASSUMPTION

- J1. Human ancestors evolved a "fight or flight" mechanism as a response to physical threats.
- J2. This response involved the release of a large amount of adrenaline into the bloodstream, providing the threatened individual with a burst of energy enabling him/her to combat or to run away from the threat.
- J3. Because this response was adaptive, increasing the chances of survival of the human ancestors in whom it was found, the fight or flight mechanism was and continues to be retained in humans.

HOWEVER,

- K1. No distinction is made between threats that involve physical danger and those that involve psychological harm.
- K2. The fight or flight mechanism is an impractical response to the threats imposed by appropriation of self-control.
- K3. Nevertheless, large amounts of adrenaline are released into the bloodstream when such threats are perceived.
- K4. The adrenaline is not spent in the physical actions of fight or flight.

THEREFORE,

- L1. The adrenaline continues to circulate in the human system, causing the physical effects of fidgeting, nausea, difficulty in sleeping, and inability to concentrate.
- L2. The adrenaline causes the emotional or psychological effects of anxiety, nervousness, and their associated elements.

This accounts for all of the physical and some of the psychological effects of stress reported by informants. But what about the sense of confinement, the lack of control, and the anger and frustration also reported by informants as effects of stress? These are shown

to follow from assumptions and conclusions established above:

ASSUMPTION

C2, E2, AND F3. The individual's control of self-image and of time has been appropriated by others.

THEREFORE

- M1. The individual perceives himself/herself to be helpless.
- M2. Helplessness leads to frustration.
- M3. Frustration is expressed through anger.

Loss of control is seen to be the cause behind the anger and frustration reported. Although the individual does not necessarily go through the preceding chain of entailments consciously, s/he perceives the Approvers and the Others to be the sources of his/her anger and frustration. The individual expresses resentment directed specifically at the Approvers and the Others for the imposition of time constraints and the appropriation of control. Peggy's resentment is focused on the Others, probably because it is easier to be angry with strangers than with those on whom approval depends.

An interesting aspect of the terms informants used to characterize the state of stress (figure 4, p. 88) is that many of them are mechanical metaphors or similes. Informants described feeling "like a pressure cooker," "like a combustion engine," "like a bomb," "wound up," and needing a "safety valve," and an "outlet." In discussing whether stress could be positive, they repeatedly talked about people who "feed off stress." These images imply that stress is seen as fuel or energy for machines or the human body. This correlates with the production of adrenaline in the model above. Perhaps some underlying cognitive scheme exists which equates the body with machinery (cf. Kovecses 1986; Lakoff and Johnson 1980). Perhaps in a society as dependent as our own on technology, organisms are best understood as analogous to machines. Systems theory, as a major underlying trend in twentieth century thought, may pervade the cognitive schemata of individuals. These speculations need to be investigated more specifically than this study allowed.

When questioned about the positive effects of stress, all of the informants stated that they knew other individuals who were able to use the energy of stress to increase production. Ninety percent, however, claimed that they themselves were unable to accomplish this. This attribution of positive skills to other persons but not to the self follows directly from the above models.

ASSUMPTION

- B2. Others' opinions are valuable.
- C2, E2, AND F3. The individual's control of self-image and of time has been appropriated by the Approvers and the Others.
- N1. Others may also experience stress.

THEREFORE,

- 1. Others possess superior abilities that are lacking in the individual.
- 2. Others possess superior ways of dealing with stress.

This brings us to a third set of propositions based on the above assumptions and conclusions.

Dealing with Stress

The strategies employed for dealing with stress occupy a continuum between extremes of acceptance and denial (figure 3, p. 87). There may be an analogy here with "fight or flight." With the exception of the two extremes of quitting and working on the problem, all the strategies cited fall under the heading of procrastination. Below, it is demonstrated that dealing with stress involves the attempt to regain control of time use as part of a larger struggle for the control of self-image. This chain of propositions particularly applies to the matter of time constraints as deadlines imposed by professors or employers.

ASSUMPTION

- C1. Individuals require positive opinions, or approval from others.
- E1. Approvers appropriate control of the individual's time use through the imposition of constraints such as deadlines.

THEREFORE,

- 01. Refusal to accept time constraints established by others constitutes affirmation of control of time use by the individual, not the Approvers.
- 02. Refusal to accept time constraints established by others implies denial of the need for approval from others,
- 03. By defying time constraints and defying the need for approval, the individual reasserts control of his self-image.
- 04. A positive self-image is restored.

Procrastination is, then, a denial of the time constraints established by the Approvers that constitutes the means for reassertion of control by the individual over his/her self-image. Ray and Eve both demonstrate this in their enthusiastic recommendation to allow assignment deadlines to pass. With the removal of the perceived threat posed by the Approvers' control, the negative effects of stress disappear and the individual may proceed normally with the tasks at hand.

Inherency of Stress

According to the informants, the capacity for experiencing stress is an inherent characteristic of some, but not all, individuals that may be magnified by, but is not limited to, specific cultures. Recall Ray's statement:

"no matter where you were, though, anytime that you would be, that you would have an ideal that you were sort of shooting for, trying to live within, anytime you strayed or moved beyond the boundary of that, that would be stressful. It would be impossible to stay on it."

Ray's assertion is explained by the following model:

ASSUMPTION

- T1. Life is dynamic.
- T2. For some individuals, motion requires a purpose, a destination or goal.

HOWEVER,

- U1. The possibility exists that a goal will not be reached.
- U2. Failure to reach a goal is harmful to the self-image,

THEREFORE,

- V1. The existence of goals constitutes a threat to the self-image.

Above, the perceived threat to the self-image is considered as the ultimate cause of stress. Those individuals who find it necessary to provide themselves with a purpose in life, therefore, are inherently predisposed to experiencing stress. Not pursued here is the question of why the informants, who all claimed to be themselves predisposed to stress, asserted that others exist who lack such predisposition and therefore, by the chain of entailments above, lack the need to find purpose in life. Do such persons exist? Is the need for purpose in life a product of culture? Within the scope of this study there are no answers to these questions.

SUMMARY AND CONCLUSIONS

In an attempt to discern the cognitive model of "stress" shared by a group of American graduate students, interviews were conducted which centered around the perceived causes of, effects of, strategies for dealing with, and inherency of stress. These data were organized according to categories and discrepancies inherent to the sample. Sets of propositional models were developed that illuminate some aspects of the cognitive model. The propositions from each subset of data are integrated in figure 4 (p. 88), which illustrates the relationships between many of the points made above. Figure 4 also depicts concepts which seem to form a sort of cognitive model behind this analysis. For example, the concept of the individual in opposition with the social environment has figured prominently in this analysis. A process of externalization characterized the subjects' responses at every level. The material that remains to be discussed in relation to this small and simple study could fill several additional volumes.

According to the cognitive anthropological tradition, the model should be reducible to very simple terms while simultaneously explaining complex behavior. I submit that the above analyses are reducible to the single statement that stress is a response to the perceived threat embodied in the appropriation by others of control over the self-image of the individual. Successful experimentation has established the validity of the technique of procrastination for reclaiming from the Approvers control of his/her own self-image. Consequently, I conclude with the following quotation:

RAY: I would much rather be late with a paper that's well-done and well-argued and well-written than on time with a paper that's half-assed.

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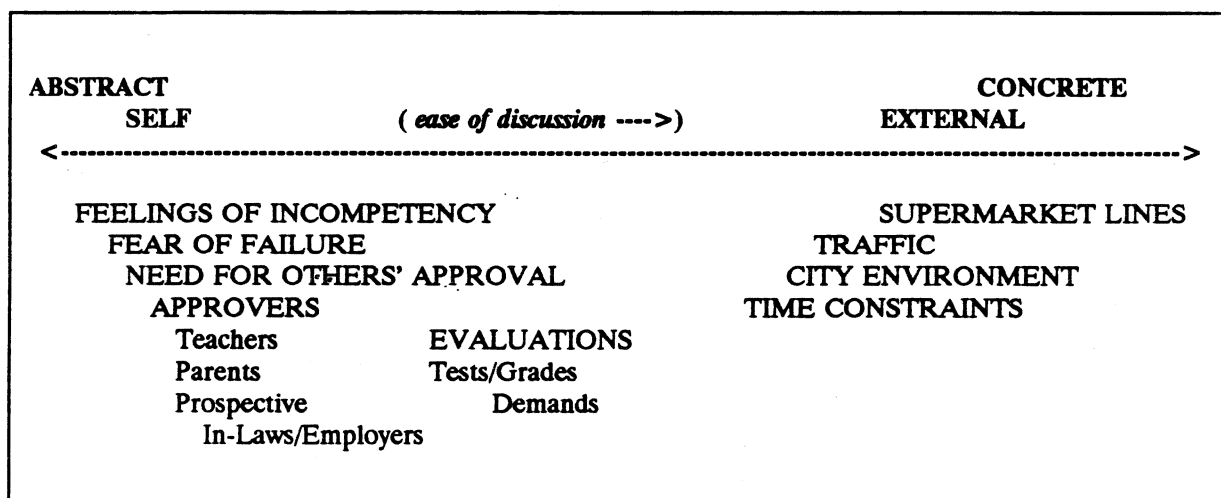


Figure 1: Causes of Stress

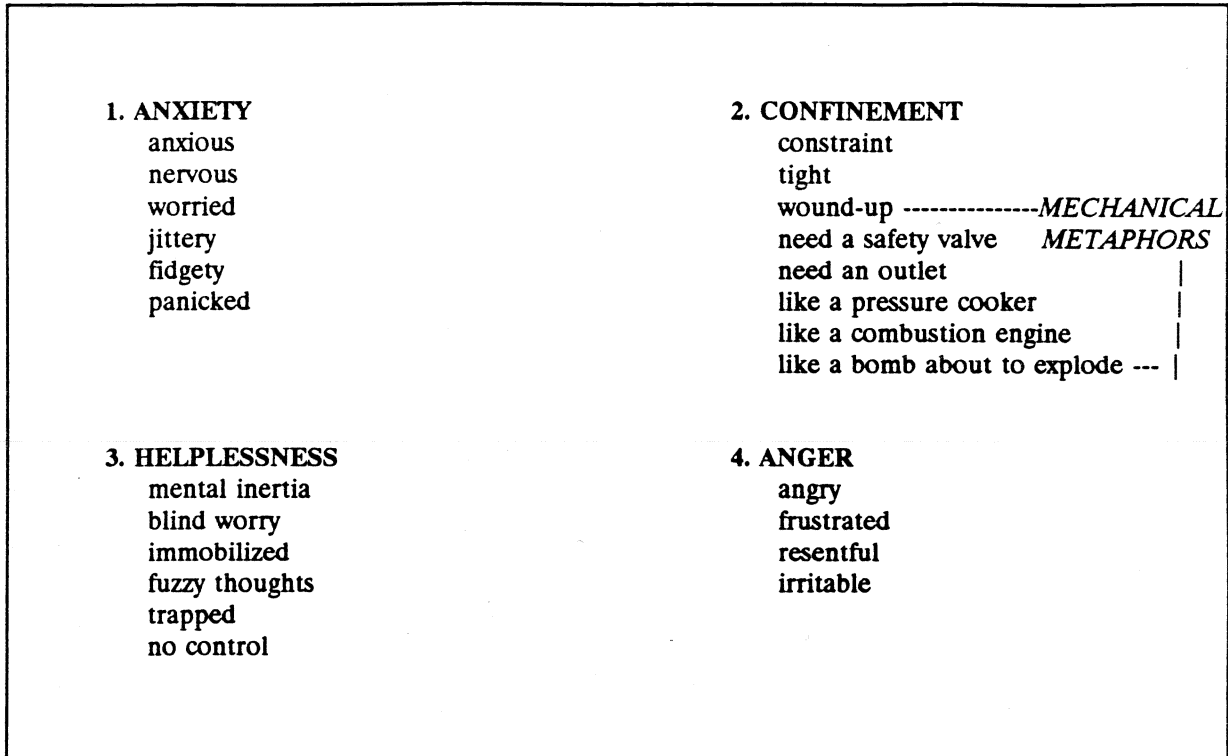


Figure 2: Terms Characterizing the State of Stress

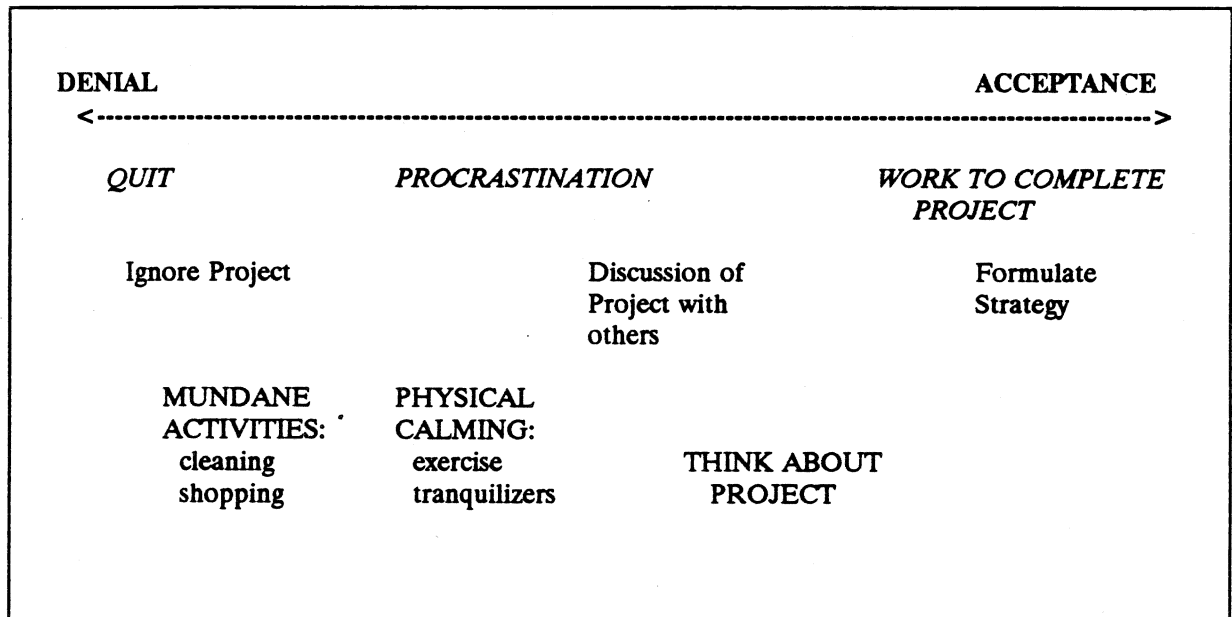


Figure 3: Dealing with Stress

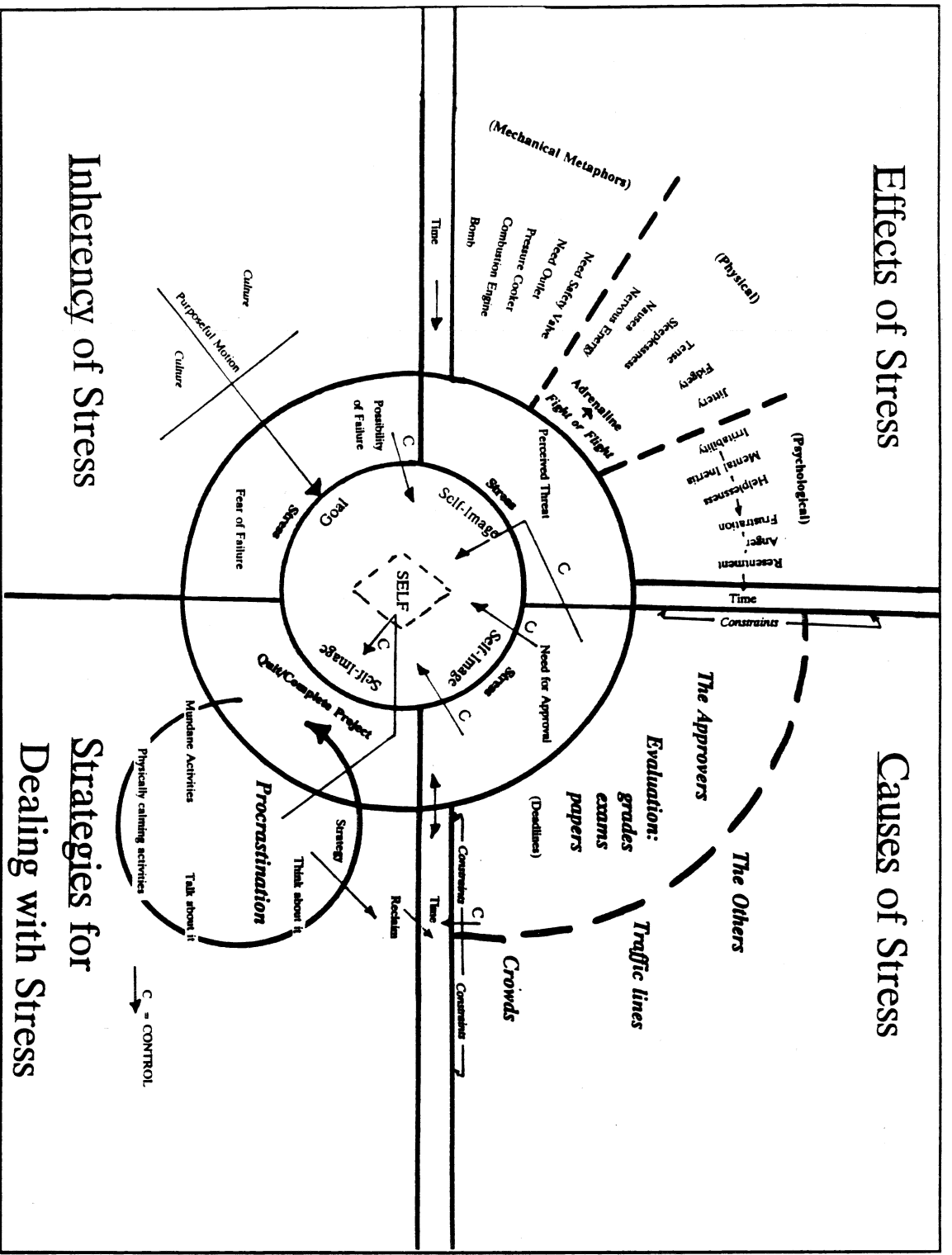


Figure 4: Schematic Diagram of Integrated Cognitive Model for Stress