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ABSTRACT

Among the characteristics of communicative apprehensive individuals are fearful reactions to communication situations, perceptions of low personal competency, an inability to identify appropriate social behaviors, and an anticipation of negative outcomes to interaction. One proposed model for communication apprehension assumes that a state of apprehension arises as a result of an inability to identify communication behaviors expected to lead to a realization of the interaction goal (perceived outcome). The chance of arriving at an expectation of goal accomplishment is increased as the number of alternatives under consideration is increased. These expectations arise as a result of a cognitive evaluation process that may involve both personality and situational factors. The model assumes that the task of the individual is to identify some behavior or behavioral strategy which, when enacted in the presence of one's co-interactant, will result in the accomplishment of some end. An initial test of the model to determine its use to predict the occurrence of a state of communication apprehension showed that expected success in accomplishing an interaction goal and expected self-image maintenance were both significant predictors of anxiety. (HOD)

Towards a Reconceptualization of Communication Apprehension: A Cognitive Approach

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As communication theorists are caught up in the rising tide of cognitivism there is increasing concern with the nature of the mental processes which give rise to communicative behaviors (Craig, 1979; Miller, 1969; 1976; Planalp & Hewes, in press). Nowhere is this trend more welcome than in the area of anxious and fearful reactions to communicative interchanges. Recently theorists have come to address issues of communication anxiety in terms of learning processes (e.g., Daly & Friedrick, 1978; McCroskey 1977; 1981; see also Kelly, 1982), expectation formation (e.g., Glaser, 1981; McCroskey, 1981), and outcome evaluation (e.g., McCroskey & Richmond, 1977; Phillips, 1977; Phillips & Sokoloff, 1979). However, as of yet there is little indication of the specific nature of these cognitive processes or of their position in a general model of psychological functions. The present effort represents an attempt to further the development of cognitive approaches to communication apprehension by presenting an initial model of the relevant mental processes.

Characteristics of the Apprehensive Individual

In order to inform our theorizing about the nature of the cognitive processes which lead to a state of fear or anxiety in a communicative situation we need first to inquire after the characteristics of such apprehensive individuals. Perusal of the relevant literature reveals a number of characteristics which provide an invaluable clue to the nature of the cognitive processes which lead to a state of apprehension. The most obvious characteristics are, of course, the withdrawal, fearful, and anxious reactions to communication situations (McCroskey, 1970; Phillips, 1968). Thus, any model of communication apprehension must eventually account for these responses. Beyond these responses are other characteristics which have been suggested by a number of authors, among these are:

(1) perceptions of low personal competency, (2) an inability to identify appropriate social behaviors and (3) anticipation of negative outcomes to interaction.

Perceptions of Low Personal Competency. A number of authors have reported empirical or conceptual relationships between Communication Apprehension,[1] or related constructs, and a generalized perception of a lack of personal competency. Self-esteem has been found to be significantly correlated with Communication Apprehension in several cases (Lustig, 1974; McCroskey, Daly, Richmond & Falcione, 1977; Snavely, Merker, Becker & Book, 1976). In addition, Communication Apprehension has been linked to an external control orientation and a lack of confidence (McCroskey, Daly & Sorenson, 1976). Similarly, Phillips and Metzger (1973) report that Reticent individuals perceive others to be more skillful at communication than themselves. This point is supported by findings of significant empirical relationships between measures of Reticence and low self-evaluations (Rosenfeld & Plax, 1976).

Perceptions of low personal competency have also been linked to a number of other constructs which are conceptually and empirically related to communication apprehension. For example, Zimbardo (1977) has suggested that shyness is related to self-esteem. Predispositions Toward Verbal Behavior, which is in part an assessment of an individual's perceptions of his/her frequency and duration of communication, has been shown to be correlated with self-esteem and a sense of powerlessness (Mortensen & Arntson, 1974; Mortensen, Arntson & Lustig, 1977). Finally, Unwillingness to Communicate, which represents "a chronic tendency to avoid and/or devalue oral communication" (Burgoon, 1976, p. 60) is conceptually linked to low self-esteem and anomie and alienation (Burgoon & Burgoon, 1974; Burgoon, 1976).

Inability to Identify Appropriate Social Behavior. A number of authors have suggested that those individuals prone to experience anxious reactions in social situations are often unable to identify appropriate social behaviors. Indeed, Reticence is seen as primarily due to a lack of communication skills (Kelly, 1982). Phillips and Metzger (1973) emphasize that Reticent individuals often exhibit indecisiveness which appears to result from uncertainty concerning their social obligations:

> Indecisiveness appears to result, in most cases, either from not being aware of what the communication requirements are in a given situation, or from understanding the requirements but not knowing what behavior is needed at a given time and place (p. 225). . . . We suggest that there appears to be a problem of perception of self related to many situations, which, combined with lack of skill, makes a reticent person unaware of alternatives, or, if aware of them, unable to apply them (p. 227).

Similarly, a skills deficit has been proposed to account for anxious reactions to heterosexual-social anxiety (Curran, 1977) as well as Communication Apprehension (Daly & Friedrich, 1978; Glaser, 1981).

Anticipation of Negative Outcomes to Communication. Finally, communication apprehension appears to be related to the anticipation of negative outcomes to communicative interchanges. McCroskey (1981) has recently proposed a learned helplessness approach to State Communication Apprehension. On this view the arousal of a state of fear or anxiety is seen to occur as the result of negative expectations concerning communicative outcomes. Such an approach is in keeping with McCroskey and Richmond's (1977) earlier hypothesis that high Communication Apprehensives perceive that they engage in less self-disclosure because they wish to prevent others from forming negative impressions of them. Further, a number of other authors have suggested that expectations of adverse consequences and perceptions of insufficient abilities will lead to anxious reactions (Curran, 1977; Giffin & Gilham, 1971; Glaser, 1981). Finally,

the expectation of negative outcomes is also implied by the gains/losses conceptualization of Reticence (Phillips, 1977; Phillips & Metzger, 1973; Phillips & Sokoloff, 1979; Sokoloff & Phillips, 1976).

Towards a Reconceptualization of Communication Apprehension

It is important to realize that an understanding of communication apprehension cannot come from a delineation of the characteristics of the apprehensive individual. This understanding can only come through the explication and test of models of the processes leading to communication apprehension.

The aim of the remainder of this paper is to present just such a model which purports to account for state communication apprehension. In so doing, we believe that the nature of trait communication apprehension, that is, individual differences in the tendency to experience communication anxiety, will also be clarified.

Given the characteristics of the reticent outlined above, we wish to propose that communication apprehension is a response to a situation in which the individual has a negative outcome expectation due to his/her inability to identify or engage in behaviors expected to lead to positive outcomes. "Positive outcomes," here, refers to the accomplishment of interaction goals. Perceptions of personal communication competency should be expected to be related to communication apprehension because they play a key role in the evaluation of potential outcome success. This apprehensive response is characterized by a state of anxiety and a sense of uncertainty concerning appropriate behaviors. For this reason individuals may demonstrate errors in speech production (Reynolds & Paivio, 1968; Siegman & Pope, 1965) or avoid or withdraw from interaction.

Support for this general proposition is to be found in a number of

cognitive approaches to anxiety and emotion. Particularly relevant in this respect is the theory of anxiety presented by Mandler (Mandler, 1972; 1975; Mandler and Watson, 1966). Mandler's position is representative of what Epstein (1972) has termed "response unavailability" approaches to anxiety. Despite important differences in underlying assumptions and theoretical constructs (see Lazarus and Averill, 1972; May, 1950), these approaches are similar in that they each hold that the inability to identify situationally-relevant behaviors is a characteristic of anxiety.

Mandler makes use of an extension of two-factor theory of emotion (Schachter, 1966; 1970, 1978; Schachter & Singer, 1962; Schachter & Wheeler; 1962) in specifying the nature of anxiety.[2] Basic to Mandler's position is the assumption of the existence of a hierarchy of cognitive structures which are responsible for both perceptual processing and execution of behavior. In the event that the cognitive system is unable to handle either input or action requirements, Mandler holds that an "interruption" of cognitive activity will occur. For example, unexpected or novel stimuli are interruptive because they cannot be easily accommodated or assimilated by existing cognitive structures. This interruption is characterized by a state of autonomic arousal and cognitive coping activities.

These cognitive coping activities include a search for alternative means of pursuing the interrupted activity. According to Mandler, a sense of "helplessness" will arise when the individual cannot identify any "task--or situationally--relevant plans or actions" (Mandler, 1975, p. 207). In other words, helplessness is the result of an inability to identify any appropriate behavior. Mandler holds that it is this sense of helplessness coupled with the heightened arousal due to interruption which leads to the phenomenal experience of anxiety. So important is

the availability of appropriate behavioral responses that Mandler claims "it should be possible to manipulate the degree of negative affect by varying the responses available to the organism immediately following the interruption" (Mandler, 1975, p. 164).

In addition to interruption and helplessness, a third construct employed by Mandler which is pertinent to the present inquiry is that of "hopelessness." While helplessness is the result of an inability to identify a relevant behavior in a particular situation, hopelessness refers to a generalized perception of personal inability to identify appropriate behaviors. Thus, hopelessness, which Mandler sees as related to self-esteem, may lead to anxiety because perceptions of a lack of competence or control will result in a reduced estimate of the likelihood of accomplishing the current goal.

In conclusion, and at the possible cost of over-redundancy, we wish to emphasize that the crucial point is that:

> Whenever a search of appropriate action systems indicates that because of past experiences or the generalized evaluation of personal competence, no actions are available that will achieve desirable ends, then helplessness or hopelessness will result. These means and ends need not be associated with the avoidance of aversive events; they may just as well relate to the unattainability of desirable states (Mandler, 1975, pp. 211-212) [emphasis added].

Additional support for the conceptualization of anxiety proposed here comes from the cybernetic model of emotions presented by Pribram and Melges (1969; see also Simonov, 1981). While Mandler's model is representative of traditional psychological approaches, that of Pribram and Melges is based upon neurophysiological foundations. Pribram and Melges

conceive of the mind as a hierarchy of servomechanisms which serve to detect incongruities between inputs and neural structures. These servomechanisms act to control discrepant inputs which disturb the equilibrium of the neural system. Pribram and Melges have identified two processes by which an individual may regain a homeostatic state after encountering incongruous inputs. Participatory processes are those in which the individual orients toward the disrupting inputs in order to facilitate restructuring of the neural structure, thereby restoring equilibrium. Preparatory processes, on the other hand, are those in which the individual acts to change or avoid the incongruous inputs.

The important point, given our present concerns, is how the individual chooses to deal with disrupting inputs. Pribram and Melges contend that this decision is made via an assessment process in which the individual considers past experiences in order to determine how best to deal with the discrepant inputs. Anxiety is seen to arise when this assessment process leads to the expectation that neither participatory nor preparatory processes will lead to a return to a homeostatic state.

In summary, Pribram and Melges see anxiety as the outcome of a situation in which an individual perceives no means by which perceptual-control goals may be accomplished. Despite the fact that the theories of emotion presented by Mandler and by Pribram and Melges are representative of two different traditions of inquiry they exhibit several striking similarities. In both cases anxiety is seen to be the result of an appraisal process in which the individual is unable to identify behaviors expected to lead to accomplishment of his/her current goal. These theories are representative of a variety of formulations which view expectations of outcome success as the prime factor in determining affective or behavioral responses (Bandura, 1977; Bandura, Adams & Beyer,

1977; Carver, 1979).

As a prelude to the introduction of the model of communication apprehension developed here we wish to present a more general model of the cognitive processes assumed to underlie the production of all communicative behavior.[3] This general model of the cognitive output system provides a framework for the model of communication apprehension and allows us to cast our work within the mainstream of current cognitive theory.

At the heart of this model of production is a distinction between procedural and conceptual memory (Anderson, 1976). The procedural store is conceived as a repository of condition-action records upon which an individual may draw in order to act efficaciously in his/her social environment. These condition-action records are conceived as modular entities which impact upon some limited aspect of the stream of behavior (Hayes-Roth & Hayes-Roth, 1979; Rieger, 1976; Schmidt, 1975). Associated with a record at any given time is an activation level (Anderson, 1976; Collins & Loftus, 1975; Hayes-Roth, 1977). In order to play a role in output processing this activation level must exceed some threshold value (McClelland & Rumelhart, 1981; Norman, 1981). The activating conditions for any record of procedural knowledge are goal plus relevant initial conditions (Schmidt, 1975), thus, when a particular goal is encountered the activation level of all the records relevant to that goal will be increased.

This activation process is assumed to occur in parallel and automatically. That is to say that it does not require any conscious search of the memory store nor does it make significant demands upon central processing capacity (Kahneman, 1973; Schneider & Shiffrin, 1977; Shiffrin & Schneider, 1977). However, at any moment a large number of

procedural records will be active and the process of integrating these records does require processing capacity (Allport, 1979; Logan, 1978). The result of such integration processes is a representation of the action to be taken. We propose that this representation of action exists simultaneously at different levels of abstraction. Specifically, we assume that an individual may arrive at a very general image of an entire interaction even before the interaction begins and retain this representation for the duration of the interchange. During the interaction itself the individual will continually update the representation of his/her next utterance. Finally, in keeping with this general model we assume that people are capable of reflecting upon these representations of actions to be taken in order to evaluate them according to likelihood of success in accomplishing desired ends. Like the integration process, this editing process is conscious and is assumed to make considerable demands upon processing capacity.

Given this brief overview of the cognitive output system let us turn our attention to the issue of communication apprehension. The view of communication apprehension taken here is that it is a state of anxiety which arises when an individual is unable to identify behaviors which are expected to lead to the accomplishment of some interaction goal. Given that there appears to be considerable support for this general proposition, we wish to advance a speculative, yet suggestive, model of the cognitive processes and variables assumed to underlie the arousal of communication apprehension. Let us consider the significance of each of these factors in turn.

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insert Fig. 1 here

Interaction Goal(s). This construct refers to perceived ends which an individual wishes to accomplish through communication with one or more others. In other words, an individual is capable of giving a verbal report of these goals, although these goals may vary greatly in their degree of articulation. We do not wish to deny that there may be unconscious motivations for interaction, but these unconscious goals are not likely to lead to processes of evaluation of potential behaviors which the present model assumes.

A second point is that in the present context interaction goals are restricted only to those goals associated with the production of verbal messages. Our concern here is with developing a model of oral communication apprehension--a state of anxiety associated with the production of verbal messages. It is this notion of oral communication apprehension which has been captured by previous treatments of the Communication Apprehension construct (McCroskey, 1970, 1977, 1978). Thus, our conception of interaction goals should not include those goals which are not associated with the production of verbal messages. For example, goals such as wanting to achieve understanding are oriented toward reception rather than production. Wheeless (Scott & Wheeless, 1977; Wheeless, 1975) has distinguished receiver apprehension from Communication Apprehension in identifying receiver apprehension as "the degree to which individuals are fearful about misinterpreting, inadequately processing, and/or being unable to adjust psychologically to messages" (Scott & Wheeless, 1977, p. 248). We can speculate that because receiver apprehension is related to negative outcome expectations a model similar to that developed could be developed for receiver apprehension.

As currently defined, interaction goals may include such objectives as persuading someone to comply with our wishes, to inform another, to

make oneself understood, or to engender favorable interpersonal perceptions or affect on the part of the other. Notice that each of these goals is concerned with cognitive or behavioral responses by the co-interactant, however, any interaction goal about which there is some degree of uncertainty of fulfillment could lead to a state of communication apprehension.

This emphasis on perceived interaction goals allows us to make a conceptual distinction between withdrawal associated with communication apprehension and withdrawal from interaction due to other factors. We can distinguish communication apprehension from the case in which an individual is silent because s/he has no interaction goals, or the situation in which remaining silent aids in the accomplishment of some interaction goal.

Onset of Planful Activity The present model assumes that a state of communication apprehension arises as a result of an inability to identify communication behaviors expected to lead to realization of the interaction goal. We hold that this identification process is a conscious, planful activity involving generation and evaluation of potential communicative behaviors. Of course, communication often proceeds fairly automatically with little conscious planning (Langer, Blank & Chanowitz, 1978). Thus an adequate model must indicate when such planful activity will arise. We believe that the generation-evaluation process is invoked when there is doubt about the achievement of interaction goals such that scripted or automatic communicative behavior is not expected to lead to successful outcomes. We would expect that novel communicative situations, situations in which the interaction goal is seen as difficult to accomplish, or situations in which the individual recalls similar past experiences which resulted in failure as those which would give rise to planful activities of generation and evaluation (Norman & Shallice, 1980).

Generation of Potential Behaviors This particular stage of the assessment process involves the formulation of behaviors and behavioral strategies for accomplishing the interaction goal. In terms of the general model developed above this generation process involves the activation and integration of elements of the procedural store. Further, the representation of these potential behaviors may be quite vague as in the case of anticipating an interaction which has not yet begun. The number of potential behaviors generated at this stage may vary as a function of an individual's level of communicative comptence or range of past communication experience. That is, those individuals with limited communication skills or experience may be able to generate few potential behaviors. A related point, suggested by Mandler (1975, p. 210), is that the low self-esteem individual will search for fewer alternative behavioral strategies.

The ability to generate a range of potential behaviors is important because a large number of alternatives increases the chances of arriving at a behavior which is expected to lead to a successful outcome. In other words, the chance of arriving at an expectation of goal accomplishment is increased as the number of alternatives under consideration is increased. Conversely, communication apprehension should be related to the inability to identify a large number of potential behaviors.[4] Thus, Phillips and Metzger's (1973) report that reticent individuals are unaware of communication alternatives is to be expected. Finally, in the extreme case in which the individual identifies no potential behaviors, avoidance of communication must necessarily occur, and according to the present model, anxiety will also arise.

Evaluation of Potential Behaviors Once a potential behavior, or behavioral strategy, has been generated it must be evaluated with respect

to its efficacy and feasibility. This evaluation process corresponds to the editing function proposed in the general model of production. In this stage the individual attempts to determine whether a given behavior or strategy is possible in that situation and whether it would lead to accomplishment of the interaction goal. Such an assessment process is at the heart of the models of anxiety examined above.

In performing this assessment process the individual may consider a number of factors, the most important of which may be the person's own perceptions of his/her communication competency. These perceptions of communicative competency are assumed to result from past experiences and also to be situationally specific, although there are probably individual differences in the degree to which situations are distinguished (Mischel, 1973). Thus, some people may have only a very generalized perception of themselves as poor communicators while others see themselves as ineffective only in public speaking situations. This perception of personal communicative competence is assumed to be related to, but not isomorphic with, the more general notion of self-esteem. Perceptions of personal communicative competence may constitute elements of global self-esteem. However, the degree to which such perceptions are salient probably varies between individuals such that for some individuals perceptions of personal communicative competence are not relevant (Bem & Allen, 1974).

Above it was noted that perceptions of low personal competency might reduce the number of behaviors identified in the generation process; perceptions of low communicative competency will also influence the evaluation process in that individuals who see themselves as poor communicators are less likely to judge potential behaviors as feasible for them, and are also less likely to expect positive outcomes to their communicative efforts. Perceptions of low communication competence should

thus be related to negative outcome expectations and the resultant communication apprehension. In support of this point Clark and Arkowitz (1975) found that socially anxious individuals had no observable skill deficit yet they did have low perceptions of their own social abilities. Further, because perceptions of communication competence are assumed to be related to self-esteem, we are in a position to account for the previously noted relationship between self-esteem and communication apprehension by recourse to our outcome expectancy model.

In addition to perceptions of personal communication competence, there are a number of other factors which an individual may consider in determining the efficacy and feasibility of potential behaviors; these include: (1) perceived situational constraints on behavior, (2) the perceived nature of the other(s), and (3) the nature of the interaction goal itself.

Situational constraints play a role in the assessment process because they serve to limit the range of potential behaviors, and thereby to reduce the probability of arriving at an expectation of a successful outcome. In other words, I may be able to identify a behavior which I believe will be efficacious but the nature of the situation makes that particular behavior inappropriate.

The perceived nature of one's co-interactants is taken here to refer to their perceived propensity to demonstrate the cognitive or behavioral responses consistent with one's goals. For example, if my interaction goals are to persuade another and also to engender positive affect on the part of that other, then the perception of that other as non-compliant or as acrimonious will probably lead to negative outcome expectations.

Similarly, the nature of the interaction goal itself may be an important factor in the assessment process. Goals which are perceived

to be very difficult to achieve (e.g., persuading a stranger to lend money) will likely lead to negative outcome expectations more often than less difficult interaction goals (e.g., persuading another to pass the salt).

Before concluding this discussion of the generation-evaluation process a caveat is in order. It should be noted here that we have only specified a set of factors which logically might be considered in the assessment of potential behaviors; if the assumptions and reasoning here are correct, then experimental manipulation of these factors should produce significant effects for an aggregate of subjects. However, it is unlikely that any individual will consider each of these factors during the generation-evaluation process. Indeed, we suspect that the initial stages of the generation-evaluation process will involve recourse to episodic memory (Tulving, 1972) such that the individual will seek to determine whether s/he has had any similar past experiences and what the outcomes of those experiences were. Such a procedure is similar to the decision-making process suggested by Abelson (1976). Rather than considering one or more of the logical factors developed above, these factors may serve to define similar past experiences. Thus, two situations in which I have the same interaction goal with the same co-interactant would be highly similar, and recall of the first would be very useful in the generation-evaluation process associated with the second. If a search of episodic memory fails to produce a behavior expected to lead to a positive outcome then an individual may resort to a generation-evaluation process in which one or more of the factors listed above are explicitly considered.

Termination of the Generation-Evaluation Process. As can be seen in Figure 1, an individual may continue to cycle through the "Generation of Potential Behaviors" and "Evaluation of Potential Behavior" stages of the model. This simply amounts to identifying a behavior, evaluating it with

respect to its expected outcome and then repeating the process for another behavior or behaviors.

This generation-evaluation loop may be terminated by any of several events. First, the identification of a behavior or behavioral strategy which is expected to lead to goal accomplishment will cause a cessation of the generation-evaluation process and subsequent engagement in that behavior. A second possibility is that an individual's interaction goals may be changed by situational factors or that other interaction goals become pre-eminent. As an example, consider the case in which an individual vacillates over whether to make a point for so long that the point is no longer relevant.

The final two terminating events are most interesting given our present concerns because either of these will result in a state of anxiety. First, it is possible that an individual will exhaust his/her potential behaviors before s/he has identified a behavior expected to lead to a positive outcome. A final possibility is that time constraints may necessitate cessation of the generation-evaluation loop; in other words, the individual may be forced to behave before s/he has identified an appropriate behavior.

Again, we wish to emphasize that the purpose of the assessment process is to identify efficacious and feasible goal-directed behaviors. If a behavior is expected to lead to accomplishment of the interaction goal, then the individual will engage in that behavior. Anxiety will arise in those situations in which the individual is unable to identify a behavior expected to lead to a successful outcome.

Necessity of Interaction Goals In those cases in which a state of communication apprehension has developed an individual may either withdraw or attempt to communicate despite his/her anxiety; thus, any model

which seeks to account for the behavior of the reticent individual must eventually deal with this issue. The position to be taken here is that the necessity, or urgency, of the interaction goal will determine whether avoidance occurs. In some situations the nature of the interaction goal is such that the individual is forced to communicate. For an example one need only consider the case of the person who must fulfill the requirements of his/her public speaking course. In such a case the individual is forced to engage in behavior which is not expected to be successful, a situation which may further heighten his/her anxiety.

Monitoring of Progress Toward the Interaction Goal A final element in the proposed model represents an attempt to capture the dynamic nature of human interaction and of the cognitive processes involved. The elements of the model reviewed to this point are pre-interactional in that they are assumed to occur primarily before the initiation of verbal output. However, it is also the case that as they act in pursuit of their interaction goals people will receive and process feedback about the effectiveness of their behavior. It is possible that a behavioral strategy initially expected to lead to goal attainment will be re-appraised as the interaction continues. Conversely, a behavior which is not expected to lead to a successful outcome may actually do so, resulting in a diminution of anxiety.

As can be seen in Figure 1, the "Monitoring of Progress Toward Goals" may feed back into any of three different stages of the model. An individual may monitor responses on the part of the co-interactant in order to determine whether the interaction goals have been reached and also to stimulate the generation and evaluation of subsequent behaviors.

An interesting point is that perceptions of progress toward the interaction goal are subject to distortion by outcome expectations.

Mandler (1975, p. 210) hypothesizes that low self-esteem individuals are most sensitive to any signal of failure. Thus, perceptions of low communicative competence or expectations of negative outcomes may bias the monitoring process toward an interpretation of failure.

An Initial Investigation

Predictions. In an initial test of the model presented here we attempted to ascertain whether the propositions of the model might be used to predict the occurrence of a state of communication apprehension. More specifically, we expected that a subject's rating of likelihood of success in accomplishing an interaction goal would be a significant predictor of anxiety experienced in pursuit of that goal. In addition, following a subjectively expected utility formulation (Edwards, 1954) we also hypothesized that the multiplicative product of expected success and goal importance, or necessity, would be a significant predictor of anxiety. Further, because we assume that goals of self-image management characterize all interactions (McCall and Simmons, 1978), people's expectations for engendering a positive perception of themselves in others should also be related to anxious reactions. Finally, the model presented here is taken to be a general representation of the processes leading to a state of anxiety. For this reason it was expected that the ability to predict anxious reactions would not differ between sexes or across experimental conditions.

Subjects. Thirty-five male and twenty-nine female undergraduates participated in the experiment and received extra credit in a group discussion class for their participation. Males and females separately were randomly assigned to the two experimental conditions.

Procedure. One week prior to the experiment, subjects were admin-

istered an "issue inventory" during their group discussion class which described existing or proposed legislation on four issues of importance to undergraduate students. For each issue, subjects were aksed to respond on a 7-point bi-polar scale, indicating their degree of agreement with the legislation. After completing the issue inventory, they signed up for the experimental session and were told to report to the designated location at the assigned time.

Upon arriving for the experimental session, an experimenter took the subject to a small room and obtained written consent to continue the experimental procedure. At this point, subjects were told that they had already earned the extra credit for participating and could withdraw their participation at any time without penalty. Subjects were then taken to another room and seated at a table. They were given instructions about the experiment from a tape recording. The initial instructions explained that during the experiment, the subject's heart rate would be monitored. A 2 1/2-minute base-level heart rate measure was taken at this time. The experimenter attached a finger clip to the middle finger of the subject's non-writing hand and proceeded to record the heart rate every 15 seconds throughout the last 1 1/2 minutes of the base-level period. The heart rate monitor was turned so that subjects could not view their measured pulse or receive other feedback of their physiological responses. The subject was told not to move the hand from which the heart rate measures were being taken.

After this period, the taped instructions reminded the subject of the issue inventory that had been filled out a week earlier. Subjects were correctly told which issue that they felt most strongly about. (This was the issue that the subject had rated most extreme with either direction on the 7-point scale.) At this point, subjects were told one

of two things depending upon their assignment to either the "agreement" condition or the "debate" condition.[5] In the "agreement" condition, they were told that the purpose of the experiment was to investigate verbal, non-verbal and physiological correlates of conversations of agreement. Subjects in this condition were told that the experimenters had selected another person from their group discussion class who had assumed, "the same position as yours," on the selected issue. In addition, they were told that this other person was waiting in another room and would be brought in to join them momentarily and that their task in the experiment was to simply discuss the selected issue.

Subjects were then given a copy of an issue inventory, ostensibly filled out by the other person, which confirmed what the subject had just been told about the other's position on the selected issue. They were told to study the inventory for three minutes and think about what they would say in their conversation. During this three-minute preparation period, the experimenter again recorded heart rate every 15 seconds. In both the "agreement" and "debate" conditions, the fictitious inventory was signed with a name of a person of the same sex as the subject. In order to enhance the subject's belief that someone would join them for a conversation, an empty chair was placed on the opposite side of the table and an identical heart rate finger clip was obtrusively placed on the table and appeared to be connected to the heart rate monitor.

Those subjects in the "debate" condition were told that "argumentative activity" was the focus of the study. In addition, these subjects were told that the other person had been selected from another campus group outside the group discussion class and had assumed the position opposite to their own on the selected issue. The task assigned to subjects in the "debate" condition was to "persuade the other person to adopt

your position" on the selected issue.

Following the three-minute preparation period, the taped instructions informed the subject that there were a few forms to be filled out while the experimenter was going to get the other person. The experimenter gave the subject these forms, disconnected the heart rate clip and left the room. Upon returning to the room after the forms had been completed, the experimenter told the subject that the experiment was over and obtained the subject's written pledge to refrain from discussing the experiment until the final data had been collected.

Apparatus. Heart rate was measured with a Whittaker P420 Pulse Watch via a finger clip. The machine has a meter which, at any instant, indicates the heart rate in beats per minute.

Dependent Measures. The "state" portion of the State-Trait Anxiety Inventory (STAI) (Spielberger, Gorusch & Lushene, 1970) was administered to assess how anxious subjects were just prior to their "conversation." Heart rate during the preparation period served as another dependent measure of anxiety and base-level heart rate was used as a covariate. The two heart rate measures were calculated by averaging over the heart rates during the two respective periods.

Independent Measures. Three separate measures were obtained on 7-point bi-polar scales indicating: (1) the subject's degree of expectation for successfully accomplishing the goal in the interaction, (2) how important the interaction goal was to the subject, and (3) the kind of self-image (high vs. low) that the subject expected to project during the upcoming "conversation."

Results

Because of the difficulty of the interaction goal, we expected subjects in the debate condition to experience more anxiety than subjects in the agreement condition. In order to determine if this was the case, mean ratings of state anxiety and mean heart rate change scores (the difference between baseline heart rate and preparation period heart rate) were compared using t-tests. State anxiety was higher in the debate condition ($\bar{X}$=42.5) than in the agreement condition ($\bar{X}$=39.2). Likewise, heart rate change was greater in the debate condition ($\bar{X}$=6.3) than in the agreement condition ($\bar{X}$=4.6). While these differences were in the direction of our expectations, they failed to achieve the conventional level of significance [state anxiety: t=-1.29, $p < .10$; heart rate change: t=-1.47; $p < .07$].

A step-up multiple-regression procedure was employed in which state-anxiety and preparation period heart rate were separately regressed upon the predictor variables in the following order: a) successful goal accomplishment, b) expected self-image projection, c) importance of interaction goal, and d) the multiplicative interaction between successful goal accomplishment and importance of the interaction goal. In the heart rate analysis, the base-level heart rate was entered as the first term in the regression analogue to analysis of covariance (Cohen & Cohen, 1975; pp. 345-348). Table 1 shows the correlations among the predictor variables.

TABLE 1 ABOUT HTERE

Before these analyses were undertaken on all subjects (N=64), separate analyses were conducted to determine if sex or experimental condition significantly improved prediction of the dependent variables. Sex and condition were dummy-coded and, in separate analyses, each term

was entered into the regression equation and followed by all of the interaction terms between the dummy variable and the predictor variables already in the equation. These analyses revealed that neither sex nor condition accounted for a significant proportion of variance in either of the two dependent variables. Hence, all subjects were included in the regressions of interest.

Table 2 shows the results of the regression analysis for state-anxiety. The entire model accounts for 31% of the variance in the dependent variable. Three of the four terms in the model are significant predictors at the .05 level. The "F" values associated with each term are as follows: (1) Success [$F(1,62)=11.36$, $p<.005$], (2) Self-image [$F(1,61)=4.89$, $p<.05$], (3) Importance [$F(1,60=4.12$, $p<.05$], and (4) Success X Importance [$F(1,59)=3.73$, $p<.06$].

TABLE 2 ABOUT HERE

A similar analysis using preparation period heart rate as a dependent measure and the baseline heart rate as a covariate, yielded one significant predictor. The "importance" term [$F(1,59)=4.18$, $p<.05$] accounted for 7% of the variance which remained after the baseline covariate and the success and self-image terms had been entered into the equation.

However, the entire model failed to account for a significant portion of the variance which remained after the covariate term had been entered [$F(4,58)=1.26$, n.s.].

Discussion

The multiple regression analysis of the state anxiety scores revealed strong support for the model presented here. As the model led us to

predict, expected success in accomplishing an interaction goal and expected self-image maintenance were both significant predictors of anxiety. In addition, the multiplicative product of goal importance and likelihood of accomplishing the goal was also a marginally significant predictor. Finally, subject sex and experimental condition did not improve the predictive power of the model.

The results of the analysis of the heart rate data were not indicative of support for the model. This fact was probably the result of several factors. First, previous research indicates different physiological response patterns to stressful situations across individuals such that only some people might be expected to respond to such situations with increased heart rate (Engle, 1960; Lacey & Lacey, 1958). Further, while increased heart rate may serve as a physiological indicant of anxiety (Behnke & Carlile, 1971; Boyd, James & Lader, 1974, Elliott, 1966), it is also the case that a decrease in heart rate may accompany periods of anticipation like the preparation period in the current study (Deane, 1966; Epstein & Clark, 1970). Consistent with this phenomenon is the finding that self-reported anxiety scores are significantly correlated with heart rate measures taken during the act of speaking but are not significantly correlated with the same measures taken, as in the current study, just prior to the speech act (Behnke & Carlile, 1971).[6] Our conclusion, then, is that the failure to account for a significant portion of the variance in heart rate is not an indictment of the model presented here.

Implications

The focus of the model presented here has been upon those factors which lead to a state of communication apprehension, and there has been considerably less concern with the notion of "trait communication appre-

hension." However, previous treatments of Communication Apprehension have focused primarily upon a trait conceptualization (Beatty, Behnke & McCallum, 1978; Lamb, 1972; Lohr, Rea, Porter & Hamberger, 1980; McCroskey, 1977; 1978; but see McCroskey, 1981).

As a basis for the state-trait distinction with respect to Communication Apprehension, McCroskey (1977) has drawn upon the work of Spielberger (1966). Spielberger's (1972, p. 39) position is that:

> State anxiety (A-State) may be conceptualized as a transitory emotional state or condition of the human organism that varies in intensity and fluctuates over time. This condition is characterized by subjective, consciously perceived feelings of tension and apprehension, and activation of the autonomic nervous system. . . Trait anxiety (A-Trait) refers to relatively stable individual differences in anxiety proneness, that is, to differences in the disposition to perceive a wide range of stimulus situations as dangerous or threatening, and in the tendency to respond to such threats with A-State reactions.

To be consistent with Spielberger, Trait Communication Apprehension should be defined as an individual's tendency to experience State Communication Apprehension. Thus, it is inappropriate to conceive of a continuum bounded at one end by Trait Communication Apprehension and at the other by State Communication Apprehension (McCroskey, 1981; Richmond, 1978). Rather, the appropriate continuum would be bounded by the designations "high trait communication apprehension" and "low trait communication apprehension" and would represent relative tendencies to experience a state of communication apprehension.

Given the preceeding conceptual formulation we can conceptualize "trait communication apprehension" as the tendency to arrive at negative outcome expectations concerning the fulfillment of interaction goals. This term does appear to be useful in capturing the notion of individual differences in the typical results of the generation-evaluation process. That is, some individuals may consistently arrive at negative outcome

expectations while others do so infrequently or only in a particular type of communication situation. A number of factors might lead to the experience of anxiety in a range of situations. For example, an individual may have low perceptions of communicative ability for a number of different situations, or his/her perception of communicative ability may be relatively undifferentiated and low. Another example is the case in which a person's attributional processes lead him/her to see most others as unlikely to respond as desired.

While the use of the term "trait communication apprehension" may be useful with reference to individual differences in anxiety-proneness, we should not allow its use to obscure the nature of the cognitive processes underlying the arousal of a state of anxiety. As we have seen, it is a consideration of these processes which allows a move toward the construction of a theory of communication apprehension as opposed to a collection of empirical generalizations.

A second implication of the approach taken here concerns distinctions which have been proposed among various constructs such as Communication Apprehension, Reticence, unwillingness to communicate; and shyness (Kelly, 1982; McCroskey, 1980; 1981; Page, 1980; Phillips, 1980). These distinctions are typically predicated upon presumed differences in causes of dysfunctional reactions. However, there is very little evidence concerning the nature of these causal relations. The present view is that anxiety, lack of skills, perceptions of lack of skills and previous outcomes to communication experiences are all causally interrelated through expectations for communicative outcomes. Future empirical analysis is needed to further examine these relations and their implications for subsequent conceptualization.

A final point which merits our attention is the issue of the nature

of the situational factors which give rise to communication apprehension. Currently it is held that Communication Apprehension is evoked in a broad range of communicative situations and that arousal of Communication Apprehension is contengent upon a number of contextual variables (McCroskey, 1977; Richmond, 1978). Adequate prediction thus requires that we have some means of assessing and categorizing situational variables. However, while it is one thing to acknowledge the importance of situational variables, it is quite another to specify the relevant attributes of the situation or to show why those particular variables are important.

The view of communication apprehension presented here is that it is a state of anxiety which arises when an individual is unable to identify behaviors expected to lead to accomplishment of interaction goals. These expectations concerning outcomes are seen to arise as a result of a cognitive evaluation process which may involve both personality and situational factors. The current model thus falls within the realm of interactional approaches to human behavior which emphasize the role of both situational and individual factors in determining responses (Ekehammar, 1974; Endler, 1975; Magnusson & Endler, 1977; Pervin, 1978a). It follows, then, that the ability to predict behavior is increased by a consideration of relevant situational variables. Recognizing this, interactional psychologists have proposed a number of different approaches to the development of taxonomies of situations or situational dimensions (Frederiksen, 1972; Pervin, 1978b; Sells, 1963). The approach to be taken here is to generate a logical taxonomy of situational attributes (Frederiksen, 1972; Pervin, 1978b) which should play a significant role in the arousal of communication apprehension.

The current emphasis on the accomplishment of interaction goals allows us to specify the relevant situational dimensions as those which

might possibly affect the attainment of such goals. The present model assumes that the task of the individual is to identify some behavior or behavioral strategy which, when enacted in the presence of one's co-interactant, will result in the accomplishment of some end. When viewed from this perspective it can be seen that there are only three situational factors which might affect goal attainment: (1) the nature of the goal itself (the relative ease with which the response may be elicited), (2) the perceived nature of the co-interactant(s) (their perceived tendency to respond as desired), and (3) perceived situational constraints on behavior. Our contention is that this taxonomy of situational attributes is exhaustive. It should be possible to articulate a taxonomy of situations by grouping situations along these dimensions.

Conclusions

Our purpose in this paper has been to argue the desirability of a cognitive approach to the study of communication apprehension. To this end we have relied upon psychological approaches to anxiety in positing an outcome-expectancy model of communication apprehension.

Clearly there is a wealth of empirical research suggested in this paper. In addition, there are a number of conceptual issues yet to be examined. For example, we have not addressed the crucial issue of the degree of anxiety which an individual experiences in a communication situation, although our thinking at this point is that the degree of anxiety varies as a function of the necessity of interaction goals. A second possibility is that degree of anxiety is related to the level of uncertainty of outcome success associated with a given potential behavior.

A second issue which merits attention is that of multiple interaction goals. The assumption here has been that multiple interaction

goals are the rule rather than the exception, yet we have not considered the nature of the assessment process for multiple goals. For example, what happens when we expect a behavioral strategy to accomplish one goal but not another? Does the relative or absolute necessity of such goals affect the process?

In conclusion, much of this paper is speculative and must await experimental test. In other parts, what may appear to the reader to be crucial issues or points may have been left out. Whether the central thesis of this paper is eventually accepted or found lacking, we can only benefit by critical review, debate, and exploration of these points.

Notes

[1]For purposes of referential clarity the terms "Communication Apprehension" and "Reticence" are capitalized when they are used to refer to the conceptualization offered by McCroskey and Phillips respectively.

[2]It is interesting to note that there are "response unavailability" approaches to anxiety which do not make use of the two-factor formulation upon which Mandler's theory relies. Lazarus and Averill's (1972) conception of anxiety is an extension of their more general theory of emotion which views emotions as "complex syndromes of loosely intertwined component reactions" (Lazarus and Averill, 1972, p. 244. See also: Averill, 1969; Averill & Opton, 1968; Averill, Opton & Lazarus, 1969; Lazarus, 1968; Lazarus, Averill & Opton, 1970).

More specifically, Lazarus and Averill distinguish between "primary" and "secondary" appraisal processes. Primary appraisal involves an evaluation of the relevance or threat which a situation holds for the individual. "Threat" here is conceived as a challenge to the integrity of cognitive structures responsible for perceptual processing. Primary appraisal is thus related to the ability of the individual to give meaning to perceptual inputs. Secondary appraisal involves "a judgement about the forms of coping available for mastering anticipated harm, or for facilitating potential benefits" (Lazarus & Averill, 1972, p. 242). For Lazarus and Averill anxiety is conceived as a response pattern characterized by an inability to identify appropriate coping behaviors due to the failure or inadequacy in the meaning analysis of perceptual inputs.

[3]This general model of the cognitive output system is developed in considerable detail in Greene, J.O., A cognitive theoretical approach to the study of interpersonal interaction. University of Wisconsin-Madison, Communication Research Center, unpublished manuscript. The reader should also see Bock (1982); Allport (1979), and Schmidt (1975).

[4]On the issue of the relationship between communication strategies and communication apprehension Lustig and King (1980) have recently reported no difference in strategy use by high- and low-communication apprehension groups. However, in this study subjects were provided with the alternative strategies and were not required to generate them themselves. Thus, these findings are of little consequence to the discussion at hand.

[5]These experimental conditions bear no specific relationship to the content of the model. They were chosen simply to test our expectation that the predictive power of the model was not situation specific.

[6]Behnke & Carlile's (1971) correlation between self-reported anxiety and heart rate was .24. This was nearly identical to the correlation we found (r=.22).

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TABLE 1

Correlations between Predictor Variables (N=64)

	Self-Image	Importance	Success X Importance
Success	.54	.45	- .61
Self-Image	--	.26	- .35
Importance	---	--	.35

TABLE 2

Summary of Regression Analysis for State-Anxiety (N=64)

(F=6.67, df=4/59, $p < .001$)

Variable	Mult. R	R^2	R^2 Change	Simple R	Beta
Success	.393	.155	.155	- .393	.193
Self-Image	.466	.218	.063	- .424	- .274
Importance	.517	.268	.050	.017	- .199
Success X Importance	.558	.311	.043	.480	.571

Note. The "b" term is not included because the multicollinearity evident from Table 1 renders this term uninterpretable.

FIGURE: 1

SCHEMATIC REPRESENTATION OF COGNITIVE PROCESSES UNDERLYING THE AROUSAL OF COMMUNICATION APPREHENSION