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FOUNDATIONS FOR AN INTERPERSONAL UNCERTAINTY CONSTRUCT AND THE RELATIONSHIPS AMONG ATTITUDE SIMILARITY, UNCERTAINTY AND ATTRACTION

The University of Oklahoma PH.D. 1984

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THE UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

FOUNDATIONS FOR AN INTERPERSONAL UNCERTAINTY CONSTRUCT AND THE RELATIONSHIPS AMONG ATTITUDE SIMILARITY, UNCERTAINTY AND ATTRACTION

A DISSERTATION

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

By

DEBORAH ANN ROACH

Norman, Oklahoma

1984

FOUNDATIONS FOR AN INTERPERSONAL

UNCERTAINTY CONSTRUCT AND THE

RELATIONSHIPS AMONG ATTITUDE

SIMILARITY, UNCERTAINTY

AND ATTRACTION

A DISSERTATION

APPROVED FOR THE DEPARTMENT OF COMMUNICATION

By

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FOUNDATIONS FOR AN INTERPERSONAL UNCERTAINTY CONSTRUCT AND THE RELATIONSHIPS AMONG ATTITUDE SIMILARITY, UNCERTAINTY AND ATTRACTION

BY: DEBORAH ANN ROACH

MAJOR PROFESSOR: H. WAYLAND CUMMINGS, PH.D.

The focus of this investigation was on the construction and validation of an uncertainty instrument and on its subsequent ability to address the relationships among attitude similarity, uncertainty and attraction. In order to construct the Interpersonal Uncertainty Scale, 65 items were generated from current conceptualizations of uncertainty in the literature and were presented to subjects across four levels of attitude similarity. Attitude similarity was operationalized through the use of a bogus stranger questionnaire. The results of a principle components analysis revealed the existence of a single ten-item factor which tapped both the dimensions of perceived ability to predict and explain others' behaviors, values, attitudes, beliefs, etc.

The newly developed Interpersonal Uncertainty Scale then was employed in an experimental study in an effort to (1) provide support for the construct validity of the scale and (2) assess the potential of uncertainty as a candidate for mediation

in the attitude similarity - attraction relationship. Results of the study partially supported the reliability and validity of the scale, although problems inherent to the study made the findings difficult to interpret. The findings are discussed in light of four major validity issues and their pertinence to this study.

FOUNDATIONS FOR AN INTERPERSONAL UNCERTAINTY CONSTRUCT AND THE RELATIONSHIPS AMONG ATTITUDE SIMILARITY, UNCERTAINTY AND ATTRACTION

CHAPTER I

RATIONALE AND LITERATURE REVIEW

Over the past several years in the disciplines of Psychology and Communication, researchers have focused much attention on Berger and Calabrese's (1975) theory of initial interactions and on their intuitively appealing arguments concerning uncertainty, the theory's central construct. Out of the series of "axioms" and "theorems" which Berger and Calabrese (1975) articulated, a variety of research has emerged which seeks to explicate the relationships among attitude similarity, uncertainty and attraction. Although research in this area has provided some useful insights concerning the hypothesized relationships, one perplexing problem also has emerged. Like much of the research which has addressed the attitude similarity-attraction relationship, studies concerning attitude similarity, uncertainty and attraction have

been plagued with inconsistent and conflicting results. Consequently, the potential value of the uncertainty construct itself has been called into question.

Although the concept of "uncertainty" indeed may provide ultimately little information concerning the attitude similarity-attraction relationship, a critical review of the literature provides a compelling argument to the contrary and suggests two alternative reasons for the existence of conflicting results. First, many researchers who have addressed the relationships among attitude similarity, uncertainty and attraction have adopted, without question, many of the assumptions and the research paradigms of their predecessors. As a result, like many of the earlier studies focusing on attitude similarity and attraction, research in the area of uncertainty has been fraught with untested assumptions, with designs and procedures employing predominantly non-face-to-face interactions, and with the improper use of statistical procedures in those few studies which have attempted to utilize face-to-face interactions. In combination, these weaknesses have produced often ungeneralizable, unreliable and contradictory results.

Second, no significant comprehensive operationalization of the uncertainty construct has been developed to date. Consequently, no valid and reliable indexes of uncertainty have been established. As a result, scholars understandably have produced little valuable information concerning

uncertainty in initial interactions. Of greater importance to the thesis of this paper, however, they have produced few compelling explanations of the attitude similarity-attraction relationship.

Given the assumptive stance, the preponderance of methodological and statistical weaknesses, as well as the existence of no significant operationalization of the uncertainty construct, one overall research question emerged for this researcher: What relationship, if any, exists among attitude similarity, uncertainty and attraction.

In order to address this research question and each of the aforementioned areas of concern, the primary objective of this investigation was threefold: (1) to review and critique the literature which focuses on the relationships among attitude similarity, uncertainty and attraction as well as that literature which addresses uncertainty measures specifically; (2) based on this critique, to construct and validate a measure of interpersonal uncertainty based on the cumulative conceptualizations of uncertainty which have emerged to date; and (3) given the successful completion of the first two aims, to more clearly address the relationships among attitude similarity, uncertainty and attraction.

The first of these goals will be achieved in the pages immediately following and will divide Chapter I of this thesis into three major sections. Section One will provide an

historical overview and critique of the attitude similarity-attraction literature and will lay a foundation for discussions of the research which has emerged from this early work. Section Two will critically review the literature concerning attitude similarity, uncertainty and attraction, particularly those studies which have attempted to build theory in the area. Finally, Section Three of this chapter will address current conceptualizations of "uncertainty," and will provide a basis for the realization of this study's remaining two research aims. It was hoped that, through a clearer understanding of current problems in the literature and the use of a more comprehensive measure of uncertainty, a more definitive picture of the relationships among attitude similarity, uncertainty and attraction would emerge.

Attitude Similarity and Attraction: A Critical Overview

Since the dawning of man and his/her first interactions with other human creatures, a fascination has prevailed concerning the possible antecedents of interpersonal attraction. Indeed, one need look no further than the nearest library card catelogue to discover the scores of works which have addressed the prediction and explanation of this "mysterious" phenomenon. Although, as Berger, Weber, Munley and Dixon (1977) have noted, many scholars have proffered the existence of relationships among such concepts as communicator style

(Norton, 1978), communication apprehension (McCroskey, Daly, Richmond, and Cox, 1975), speech style (Giles and Powesland, 1975), reciprocity of self-disclosure (Erlich and Greaven, 1971) and interpersonal attraction, of particular interest has been the conjectured relationship between attitude similarity and attraction.

Perhaps the most celebrated account of the relationship between attitude similarity and attraction has been that of Donn Byrne and his associates. Basing their work on a reinforcement model of attraction, these researchers argued that "attraction toward any individual is a function of the relative proportions of positive and negative reinforcements" (Byrne, 1970, p. 108). Conceptualizing attitude similarity as one impetus of such reinforcements, Byrne and his colleagues produced scores of research findings documenting a strong positive relationship between attitude similarity and attraction (e.g., Byrne and Nelson, 1965; Byrne, Nelson, and Reeves, 1966; Byrne and Griffitt, 1966; Byrne and Clore, 1967; etc.). Byrne's common experimental designs involved having a subject complete an attitude questionnaire and, at a later date, exposing him or her to a copy of the same attitude questionnaire allegedly completed by another person. After reading this "bogus stranger's" questionnaire, which was marked by the experimenter in such a way as to be similar or dissimilar to the subject's responses on the questionnaire, the subject then rated the stranger on a measure of interpersonal

attraction, most commonly Byrne's (1971) Interpersonal Judgment Scale (IJS). As Nicholas and McGinley (1982, p. 93) note, "experiments of this design invariably yield[ed] the result that Ss are more attracted to strangers who hold attitudes similar to their own than to strangers who hold dissimilar attitudes."

Although such studies as this one and the creation of the Interpersonal Judgment Scale provided a critical foundation for research in the area of attraction, research by Byrne and his associates harbored two major weaknesses. First, their research was based on a theoretical model which remained untested, specifically a reinforcement model of attraction. Second, almost exclusive use of his "bogus stranger" techniques, a non-face-to-face procedure, limited Byrne's ability to directly test the attitude similarity-attraction relationship in "real life" interactions.

Aware of the limitations of the earlier Byrne research, Kaplan and Olczak (1970) attempted to examine more definitively the role of direct reinforcement in interpersonal attraction. Employing confederates, rather than the bogus stranger technique, and differing levels of attitude similarity, Kaplan and Olczak had subjects interact with a confederate in one of three conditions of direct reinforcement (0%, 50%, or 100% reinforcement) and one of three levels of attitude similarity (0%, 50%, or 100% similarity). Results of the study revealed that significant effects on attraction

existed for both variables ($F(2,126) = 5.20, 5.25$ respectively; $p < .01$), with no interaction effects reaching significance. "Combined in a proportion of weighted positive reinforcements model, the two models [i.e., variables] were found to be linearly related to attraction ($r = .92$)" (Kaplan and Olczak, 1970, p. 189).

Although Kaplan and Olczak extended the attraction literature by (1) more directly testing their theoretical framework and (2) utilizing procedures which allowed for greater external validity, one major inconsistency emerged from their research which calls into question the original interpretation of their data. When calculated by this researcher for the present study, the omega-squares for each independent variable-dependent variable combination in Kaplan and Olczak's research were found to be exceptionally low: $\omega^2 = .03, .03$, respectively (Note: no measures of this relationship were reported in their published report). This discrepancy between the significance of their F-ratios and the variance actually accounted for by their independent variables raises questions at three different levels of interpretation. First, the discrepancy calls into question the most basic interpretation of their findings: namely, that direct reinforcement and attitude similarity play both a significant and meaningful role in interpersonal attraction. Second, the discrepancy acts at an even more general level to question the validity of the reinforcement model, the theoretical

model on which the early attraction literature was based. Finally, the calculation of the omega-squares directly calls into question the meaningfulness of the linear relationship ($r = .92$) reported by the researchers as a function of "the combination of the two variables into a proportion of weighted positive reinforcements model" (Kaplan and Olczak, 1970, p. 189). In short, this inconsistency calls into question the validity of the reinforcement model of attraction.

Still other conflicting results also have emerged from the literature as scholars attempted to establish, with greater validity and reliability, the links among attitude similarity, reinforcement and attraction. For example, Aronson and Worchel (1966) found that, in face-to-face interaction rather than in anonymous interaction, positive personal evaluations by a stranger seem to be more potent in producing attraction than attitude similarity -- a result which indirectly supported the existence of a relationship between reinforcements and attraction, but which called into question a direct relationship between attitude similarity and attraction. Likewise, Ervin (1981) found that, while perceived probability of acceptance (PPA) exhibits a significant linear relationship with interpersonal attraction and while similarity is significantly correlated with perceived probability of acceptance, only PPA has a direct influence on interpersonal attraction ($p < .001$). Contrary to findings by Byrne and his colleagues, the correlation between similarity

and interpersonal attraction in Ervin's study was both weak and nonsignificant ($r = .34$, $p > .01$).

As a result of contradictory findings such as these, alternative approaches to the attitude similarity-attraction relationship began to emerge. One such approach was Anderson's (1971) information integration approach. This approach argued that attraction formation may be considered as an information integration process, with similarity and dissimilarity treated as information to be integrated into any unitary evaluative response -- e.g., attraction (Kaplan, 1972, p. 19). Such approaches as Anderson's called into question the reinforcement paradigm concerning human interaction, particularly as "corners of experience led to data which were less than easily fitted into the . . . physical-physiological model of man" (Bell, 1979, p. 6). As Bell noted, against a classical conditioning backdrop posed by theorists such as Hull . . . (and, in this instance, Byrne), "there was little chance of recognizing man as irrational, illogical, seeking, organizing, structuring, striving and self-regarding" (p. 6).

Based on this realization and the early uncertainty research which emerged in the literature, additional alternative conceptions of humans and human interaction began to evolve. For example, the work of cognitive psychologists and attribution theorists began to address the concepts of "cognition" and "cognitive processes." From emerging theory and research in these areas came conceptions of attitude similarity and

attraction based on the explication of internal, cognitive processes. Of primary importance to the present study was research in the area of uncertainty. It is to a review and critique of this specific area of research that the discussion now turns.

Attitude Similarity, Uncertainty and Attraction: A Critical Review

As stated in the introduction and as reflected in the previous section, studies concerning the relationship between attitude similarity and attraction have been plagued with contradictory results, primarily due to (1) the use of a variety of non-face-to-face research paradigms by researchers, without thought to the implications of their sole use for the theory building process, and (2) the adoption of an assumptive rather than an empirical stance by researchers concerning their respective theoretical frameworks. As a result, the attraction literature is beset with inconsistent results and provides little direction for those interested in the antecedents of attraction. However, much as this indictment holds for research reviewed in the previous section, so it has encumbered current research in the area of attitude similarity, uncertainty and attraction. As a result, this literature is also replete with inconsistencies.

Although this state of affairs indeed is representative of both sets of attraction literature, the uncertainty literature is plagued by two additional problems. First, few

researchers who have focused on the relationships among attitude similarity, uncertainty and attraction have done so by utilizing face-to-face interactions. Of those researchers who have, many have improperly utilized statistical procedures when attempting to analyze their data.

Second, no definitive operationalization of the uncertainty construct has been created to date. Consequently, no valid and reliable indexes of the concept exist. As a result, the potential value of the uncertainty construct has been obscured. Additionally, the literature concerning the attitude similarity-attraction relationship has been clouded even further.

In order to support these potentially controversial arguments and to substantiate each of the claims, the following critical review of the literature is offered. In this second major division of Chapter I, the literature concerning attitude similarity, uncertainty and attraction will be reviewed, in order to (1) establish the contradictory nature of the literature in this area, and (2) provide evidence that problems one through three may partially account for inconsistencies in the literature. Finally, section three of this paper will address previous research which has attempted to tap the uncertainty concept. Based on the critique of both literatures and the resulting arguments that are pursued, conclusions will be drawn concerning the value of and possible directions for research in the present study.

Research by Berger and Associates

Rather than viewing individuals as "objects at the mercy of reinforcement contingencies or socially prescribed rules and norms" (Berger, 1979, p. 123), Berger and his colleagues view man as "an inquirer -- attempting to understand himself/herself and those with whom he or she has relationships" (p. 123). Out of this perspective and the tradition of attribution theory, Berger's notion of uncertainty emerged with the assumption that persons seek to "make sense" out of their environments (Heider, 1958; Berger, 1979). As Clatterbuck (1979) noted, Berger and his associates make uncertainty reduction "a construct based primarily on the flow and interpretation of information" (p. 147). The implication of such a formulation is that "individuals can plan their behavior more appropriately and effectively when they have information which allows the best possible understanding of the situation. When information is less than optimal, control will be less than optimal, and the individual will face ambiguity or uncertainty about outcomes" (p. 147).

In defining, more specifically, the concept of uncertainty, Berger and Calabrese (1975) equated "uncertainty reduction" with a person's "increasing predictability about the behavior of both [himself or herself] and others in the interaction" (p. 100). However, Berger (1975) further reduced this interactive process into two major constructs: explanation, or "retroactive attribution," and prediction,

or "proactive attribution." According to Berger, retroactive attribution involves one's ability to interpret the meaning of past actions in a relationship and, hence, one's ability to gather information upon which future actions will be based. Conversely, proactive attribution is defined as the formulation or definition of behavioral options "in the face of the wide variety of possible responses available to interacting individuals" (Clatterbuck, 1979, p. 147). The reduction of uncertainty, for Berger, then involves both (1) the generating and confirming of predictions as well as (2) the processes by which individuals construct and verify explanations for their own and others' behaviors (Berger, 1979, p. 124). In terms of attitude similarity and attraction, uncertainty becomes a "mediating mechanism" between perceptions of rewards and the eventual development of interpersonal attraction" (Berger, 1979, p. 128).

Perhaps the earliest study conducted by Berger and his associates concerning the relationships among attitude similarity, uncertainty and attraction was that of Berger and Clatterbuck (1976). These researchers investigated "the independent and joint effects of attitude similarity and the amount of attributional information" on level of uncertainty and interpersonal attraction (p. 4). More specifically, they hypothesized (1) that perceived attitude similarity was positively related to interpersonal attraction and inversely related to uncertainty and (2) that amount of attributional

information also was positively related to interpersonal attraction and inversely related to uncertainty. Employing Byrne's "bogus stranger" technique, Ss were asked to complete an initial attitude survey and, one month later, to review a questionnaire allegedly completed by a stranger. The latter questionnaire varied with regard to level of attitude similarity between Ss and the "bogus" stranger (0, 50, and 100% similarity, respectively). Attributional information was manipulated by either the provision or non-provision of explanations by the "bogus stranger" for each of his/her responses on the attitude questionnaire. The dependent variables in the study were uncertainty level, as indexed by a seven-item scale tapping "attributional confidence" (Clatterbuck, 1979), and interpersonal attraction, assessed by Byrne's Interpersonal Judgment Scale and McCroskey and McCain's (1974) multidimensional attraction scale.

Results of the study revealed a significant relationship between attitude similarity and three of the four measures of interpersonal attraction (IJS: $F(2,126) = 31.59$, $p < .001$; social attractiveness: $F(2,126) = 20.47$, $p < .001$; physical attractiveness: $F(2,126) = 4.34$, $p < .015$; and task attractiveness: $F(2,126) = 14.00$, $p < .001$). In addition, an overall analysis of variance and pairwise comparisons lent support for the hypothesized inverse relationship between similarity and level of uncertainty ($F(2,126) = 3.92$, $p = .002$).[1] Because the "attributional information" manipulation did not

generate the desired effect on a measure of perceived adequacy of information, (i.e., the manipulation check), tests of the latter two hypotheses employed the manipulation check itself as an independent variable. Results of an analysis of variance and use of the Neuman-Keuls procedure revealed a significant inverse relationship between attributional information and uncertainty ($F(2,126) = 11.14$, $p < .001$), but no significant interactions for attraction between attitude similarity and perceived adequacy of information, nor any significant main effect differences for the attraction measures. The results were interpreted as "generally providing support for the four hypotheses derived from the Berger-Calabrese (1975) uncertainty theory" (Berger and Clatterbuck, 1976, p. 14).

Two related studies that emerged from this early research were those of Berger, Munley and Clatterbuck (1976) and of Berger, Gardner, Parks, Schulman and Miller (1976). Extending the earlier research of Berger and Clatterbuck (1976) and additional research by Berger and his associates concerning background similarity, these two studies focused on the relationships among background similarity, uncertainty and attraction.

Berger, Gardner, Parks, Schulman and Miller (1976), for example, investigated attractiveness and uncertainty as a function of number of compliments, background similarity and reciprocity of conversational exchange. In this study, Ss

were asked to read a transcript of an initial conversation between two strangers, with the transcripts varying in levels of reciprocity and number of compliments exchanged. The background similarity of the two "strangers" was manipulated via the insertion of a brief description of each of the participants before the transcript of the conversation; these descriptions varied in level of background similarity. In the no-information, or control, condition no information was provided. Results of the study revealed two main effects for attraction. Subjects viewed the compliment giver as most attractive in the "two compliment condition" and least attractive in the "eight compliment condition" ($F(1,145) = 33.92$, $p < .05$). In addition, Ss viewed the conversants as more attractive in the reciprocal conditions ($F(1,145) = 3.92$, $p < .05$). Third, uncertainty reduction was found to be facilitated by the giving of a smaller number of compliments; subjects felt more able to predict the behaviors, attitudes, and feelings of the conversants, with the most confidence displayed regarding the "two compliment" condition: ($F(1,128) = 5.24$, $p < .025$. Finally, female Ss were revealed to have more confidence in their predictive ability than males across all experimental conditions ($F(1,129) = 13.86$, $p < .05$) (p. 168).[2]

Related to this study was that of Berger, Munley and Clatterbuck (1976), which assessed the relationships among (1) similarity and uncertainty, (2) similarity and attraction,

and (3) uncertainty and attraction. In this study, however, the researchers were interested in the additive effects of background and attitude similarity on uncertainty and attraction. Hypothesizing that "persons provided with background information designed to explain why a given individual held the attitudes he held would be more attracted to that individual than persons not provided such background information," the researchers again utilized a "booklet format" to construct the manipulations and to provide the dependent measures. Eight different versions of the booklets were formed, with each booklet focusing on "an interview" between the experimenter and Person X. In four versions, both attitude and background similarity were included, with attitude similarity varying as a function of "liberal" versus "conservative" ratings on ten attitude statements. In two additional versions, only background information was provided. Background information was manipulated via actual exchanges between the experimenter and Person X and consisted of two different levels of information: "rural" versus "urban" background information concerning Person X. After randomizing booklets such that "students were randomly selected into one of the eight conditions" (p. 6), Ss were asked to read the booklets and to complete several scales.

Contrary to earlier findings, results of this investigation revealed only limited support for the hypotheses addressed

in the study. Although strong correlations were observed between attitude similarity and attraction and, within same conditions of the study, the predicted inverse relationship between uncertainty and attraction was observed, the researchers generally failed to find significant relationships between perceived similarity and uncertainty. In addition, the results failed to support the hypothesis that "negative affects generated by perceived dissimilarity can be deintensified by providing additional information." Finally, the factor analysis of the uncertainty instruments used, as well as the experimental findings, suggested for Berger that what is meant by the construct of "uncertainty" needed to be clarified (Berger et al., 1976, p. 17). This same deduction has provided one impetus for the research in the current study.

Two additional studies also emerged as a function of this work by Berger and his associates, those of Weber (1978) and Motl (1979). Interested primarily in nonverbal indices of uncertainty, Motl investigated the attitude similarity-uncertainty-attraction relationship via both nonverbal and paper-and-pencil indexes of uncertainty. Results of his study showed that two nonverbal indexes of uncertainty, speech rate and role exchange, increased ($t(2175) = 1.53$, $p < .10$) and decreased ($p < .05$), respectively, during the first few minutes of subject interactions. In addition, attitude similarity was found to be associated with lower exchange rates.

"Activity," which was comprised factorially of speech rate, statement rate and gestures, was found to be more positively related to perceived attitude similarity. Conversely, "attentiveness," whose factor structure consisted of eye contact and head nods, was more positively associated with perceived uncertainty and attraction.

Another related study that emerged from the Berger-Calabrese (1975) "uncertainty reduction theory" was that of Weber (1978). Weber investigated "the extent to which perceptual complexity in construing the social situation would enable an individual to become cognizant of the perspective of another person encountered in the same situation and to reduce the level of uncertainty felt about that person" (p. 5128). Deriving her hypotheses from four of the "axioms" in the Berger-Calabrese theory of uncertainty, Weber found that, while perceptual complexity was not related to cognizance of another person's environmental perspective, increased complexity was significantly related to reduced levels of uncertainty. In addition, perceived and actual similarities in attitudes toward the environment were associated with increased cognizance and decreased levels of uncertainty. Finally, decreased uncertainty was found to be significantly associated with increased conversational variety and intimacy, as well as with increased interpersonal attraction (Weber, 1978, p. 5128).

Although these five studies comprise the most direct assessments by Berger and his associates of the attitude

similarity-uncertainty-attraction relationship, a study by Clatterbuck (1979) also represents a major contribution to the uncertainty literature. In order to investigate several key axiomatic relationships as predicted by Berger and Calabrese (1975), Clatterbuck (1979) tested the following four hypotheses: (1) measures of retroactive and proactive attribution will correlate positively;[3] (2) attributional confidence will correlate positively with interpersonal attraction; (3) attributional confidence will positively correlate with the time that two individuals have known each other;[4] and (4) attributional confidence will correlate positively with similarity between two individuals (Clatterbuck, p. 149). To test these hypotheses, Clatterbuck reanalyzed or summarized data reported in 17 published and unpublished studies by Berger and his associates. With regard to Hypothesis 2, Clatterbuck found that a significant relationship existed between Byrne's (1971) Interpersonal Judgment Scale and the CL65 ($r = .337$, $n = 81$, $p < .05$), a sixty-five item instrument said to tap retroactive attributional confidence. In addition, five of nine studies that employed both the IJS and CL7 (a seven-item scale tapping proactive attributional confidence) reported significant correlations. However, the correlations ranged from -.01 to .78, with an average correlation of .36 (p. 153). The correlation between the McCroskey and McCain (1974) scales of attraction and the CL65 was tested in one study and was found to be significant ($r = .449$, $n = 80$,

$p < .05$). Conversely, the correlation between the CL7 and the McCroskey-McCain scale was assessed in four studies, of which three were found to be significant. Correlations between these two measures ranged from .146 to .476 (average correlation = .363).

In order to test the relationship between similarity and attributional confidence, demographic/biographical, attitudinal, and behavioral similarity were also assessed in the Clatterbuck study. Demographic similarity was found to exhibit a positive but nonsignificant correlation with the CL7 ($r = .179$, $n = 59$, ns). Studies of attitude similarity, on the other hand, which manipulated attitudes of 0, 50 and 100% agreement, reported significant correlations between similarity and attributional confidence. Finally, four studies were reported to have investigated behavioral similarity (via "normal" vs "nonnormal" conversational patterns in interactions), as reflected in transcripts of conversations between two strangers. Although, as Clatterbuck noted, Ss "recognized 'normal' patterns to be different from 'deviant' conversation patterns, and although Ss tended to say that their own conversations were similar to the 'normal' patterns, little influence was observed on the confidence levels of the Ss" (Clatterbuck, p. 155). Thus, of the operationalizations of similarity advanced by studies cited by Clatterbuck, most have produced negligible effects on attributional confidence.

Although the aforementioned studies provide useful insights into the relationships among attitude similarity,

uncertainty and attraction, the findings have been inconsistent and contradictory. While earlier studies which utilized the bogus stranger technique have produced general support for a significant relationship among attitude similarity, uncertainty and attraction, studies employing transcripted interactions have produced, at best, limited support. Additionally, correlations among the variables have ranged from weak and nonsignificant to statistically significant and strong.

One reason for the existence of such conflicting results, as I have argued, may have been an overemphasis on the use of non-face-to-face interactions and on the sole use of such research procedures in a research program designed to investigate developments in initial interactions. Indeed, one need look no further than the calculation of the omega-squares for each of the aforementioned studies (where appropriate) to see the actual strength of the relationships among attitude similarity, uncertainty and attraction. No such measures were reported in the Berger et al studies; thus, the decision was made to report the calculation of these measures at this time. These values are presented in Table 1 on the following page.

Although the calculation of the omega-squares for Berger's studies and the existing contradictions in the literature may call into question the validity and usefulness of "uncertainty" to the attraction literature, intuitively, one alternative

TABLE 1

OMEGA-SQUARES FOR STUDIES PREVIOUSLY CITED

IN THE AREA OF UNCERTAINTY

Study	Relationship	F-Value	$Omega^2$
Berger and Clatterbuck (1976)	attitude similarity and the IJS	31.59	.1676
	attitude similarity and social attraction	20.47	.1136
	attitude similarity and physical attraction	4.34	.0215
	attitude similarity and task attraction	14.00	.0788
	attitude similarity and uncertainty	3.92	.0189
	attributional information and uncertainty	11.14	.0626
Berger, Gardner, Parks, Schulman, and Miller (1976)	no. of compliments and attraction	33.92	.1340
	conversational reciprocity and attraction	3.92	.0135
	no. of compliments and uncertainty	5.24	.0195
	sex and uncertainty	3.86	.0133

argument may be made: namely, that the theory has not been tested in the most appropriate manner possible -- through the use of actual face-to-face interactions.

Two researchers who recently have been concerned with this issue and who have attempted to address attitude similarity and attraction in interpersonal settings are Sunnafrank and Miller. In the process of arguing for and utilizing face-to-face interactions, however, these authors have created two additional problems. First, they have overlooked consistently the statistical interdependency problem, a possibility whenever data are generated through the use of dyads. Second, they have left untested their assumption that "the need for a stable, predictable and controllable environment" (i.e., uncertainty) is the mediating variable between attitude similarity and attraction, an assumptive stance rather than an empirical question which could have been avoided had the researchers actually tested for the concept of uncertainty.

Although these studies indeed are problematic as a function of these two oversights, they offer useful insights for the researcher who is interested in the attitude similarity-attraction question. For this reason, both studies are reviewed in the subsequent section, following a clearer explication of the interdependency problem in face-to-face interactions.

Studies of Sunnafrank and Miller

As the reader will note in the paragraphs to follow, researchers who have focused on the attitude similarity-

uncertainty-attraction relationship have often overlooked the interdependency of behavior when employing face-to-face interactions. This interdependency results whenever two or more persons interact during a given research task and invariably produces data which are statistically correlated (i.e., interdependent).

As a function of the existence of this potential interdependency, researchers traditionally have attempted to cope with the problem in one of two ways: (1) by ignoring the existence of the statistical interdependency or (2) attempting to eliminate it, since most statistical procedures do not allow for it (Kraemer and Jacklin, 1979, p. 217). Methods of eliminating the interdependency between a subject's and his/her partner's data have included the use of confederates, the use of dyadic scores, or the use of pair average scores. Techniques such as these allow the researcher to avoid the statistical dependency problem (p. 217). Conversely, other researchers have chosen to ignore the interdependency and have treated the scores of each partner as if they were independent. As a result, their statistical tests potentially have harbored three major problems: (1) a violation of the statistical independence assumption; (2) the subsequent over- or under-estimation of the variance of one's parameter estimates, depending on the true structure of the particular variance-covariance matrix or matrices, and (3) the possibility of incorrect statements regarding the significance of one's findings.

Although both approaches to the interdependency problem have been employed by researchers, several have chosen the latter technique and, as a result, have called into question the significance of their results. Two such researchers in the attraction literature are Michael Sunnafrank and Gerald Miller, although their research provides useful insights into the study of attitude similarity, uncertainty and attraction. For this reason, the goals and subsequent findings of these researchers are presented in the following paragraphs.

As Sunnafrank and Miller (1981) have noted, research using the bogus-stranger technique has produced a variety of information concerning variables that may influence preacquaintance attraction. This research has provided much information concerning research in the area of attraction as well as regarding the specific research question addressed in this thesis. However, for Sunnafrank and Miller, what was not clear from prior research was "how preinteraction knowledge concerning attitude similarity combines with the typically nonattitudinal information exchanged during initial interactions to influence interpersonal attraction" (p. 17). To address this concern, these researchers examined "the possible independent and conjoint effects of initial interaction and attitude similarity" on interpersonal attraction (p. 17). The explanatory frameworks on which the study was based were those of Altman and Taylor (1973), Heider (1958), Berger and Calabrese (1975) and Miller and Steinberg (1975).

In order to test the hypothesized relationship between preinteraction knowledge and information gained in a face-to-face interaction, Ss were made aware that they were paired with either an attitudinally similar or dissimilar stranger, and one half of the participants subsequently were asked to engage in "normal get-acquainted conversation." The remaining participants were not allowed to meet their partners, as is typical in most bogus stranger research. Results of the study indicated that initial interaction and attitude similarity combined "nonadditively" to influence attraction between relative strangers. While initial interaction was found to have a positive affect on attraction, this condition held true only for individuals paired with attitudinally dissimilar partners. In addition, individuals paired with attitudinally similar partners were more attracted to each other than were attitudinally dissimilar partners, but only in the no interaction condition. However, neither Hypothesis 2 which predicted a positive influence on attraction regardless of the state of attitude similarity, nor Hypothesis 3 which predicted the positive affect of attitude similarity on attraction regardless of interaction level, were supported. Sunnafrank and Miller concluded that the attitude similarity-attraction relationship may become "highly ephemeral" when observed within the framework of normal conversational interactions (Sunnafrank and Miller, 1981).

Sunnafrank and Miller (1981) did not directly assess the mediating effects of uncertainty in the attitude similarity-

attraction relationship, although they did argue that one possible explanation for their findings was the need for individuals to maintain a stable, predictable and controllable environment. For example, to explain the finding that the attraction scores of attitudinally dissimilar Ss after conversing were not significantly different from those of similar Ss, Sunnafrank and Miller argued that the conversations themselves should have led Ss to perceive that future interactions with the other individual would be stable, predictable and controllable. What these authors overlooked, however, was the statistical interdependency of their data, which resulted when they employed both sets of attraction scores from participants in each of their dyads. They also overlooked the possibility of directly testing the potential affects of uncertainty on attitude similarity and attraction. As a result of the first oversight, they called into question the actual significance of their findings as well as the strain of research they are attempting to develop. As a result of the latter decision, they left untested their explanatory framework.

Although their 1981 study violated the statistical independence assumption, in a subsequent study Sunnafrank (1983) repeated the identical statistical problems. This later study also left untested the primary relationship of interest -- namely, the potential mediating effects of interpersonal uncertainty.

Based on the "findings" of Sunnafrank and Miller (1981), Sunnafrank (1983) was interested in further determining whether procedural differences might account for the finding of other researchers (e.g., Byrne and Griffitt, 1968) that, "if individuals discuss the attitudinal topics constituting similarity or dissimilarity during initial conversations, the usual positive attitude similarity-attraction relationship [should] remain intact" (Sunnafrank and Miller, p. 277). As Sunnafrank noted, such findings were seemingly contradictory when considered in light of the findings in his earlier 1981 study. The research question which emerged was:

> If individuals who are aware that a relative stranger is attitudinally similar or dissimilar to them are equally attracted to one another after typical initial conversational stages, what will happen next to attraction levels during the next conversational stage when they begin to discuss the topics of this similarity or dissimilarity? (p. 278)

Based on his belief that individuals are unlikely to reintroduce threats to their communication goals once those goals have been achieved, Sunnafrank hypothesized the existence of three major relationships:

> Individuals who are aware they are paired with attitudinally dissimilar partners will be less attracted to their partner prior to conversing with them than after either a normal initial conversation with them or after this type of conversation followed by a discussion of the topics constituting the known dissimilarity. Moreover, attitudinally similar partners will be more attracted to one another than attitudinally dissimilar partners only prior to conversing with them. (p. 278)

Utilizing procedures similar to those in the initial study, results of this subsequent study revealed a significant

interaction effect for conversational stage (preconversation, initial conversation, and initial conversation followed by attitude discussion) and attitudinal similarity ($F(2,139 = 19.99$, $p < .05$), as well as significant main effects for conversational stage, attitude similarity, and sex ($F(2,139) = 7.48$, $p < .05$; $F(1,139) = 17.51$, $p < .05$; and $F(1,139) = 7.51$, $p < .05$ for each effect, respectively). In addition, Sunnafrank's analysis revealed "that partners who engaged in initial conversations were more attracted to one another than pre-conversation partners when partners were dissimilar but not when the partners were similar" (p. 282). Dissimilar partners who engaged in an initial conversation followed by an attitude discussion also were more attracted to one another than were their similar conversation counterparts. Only in the pre-conversation condition were attitudinally similar Ss more attracted to one another than attitudinally similar Ss. Sunnafrank concluded that the influence of attitude similarity on attraction is limited to the pre-conversational stage, "when somewhat normal communication processes are followed, at least in beginning communicative relationships" (p. 283). When individuals are allowed to go through normal initial interactions prior to discussing attitudinally salient topics, attitude similarity generally fails to exert a "significant influence" on attraction (p. 284).

Again, the reader should note that these findings are questionable in light of Sunnafrank's (1983) violation of the statistical independence assumption. Like his earlier study

with Miller, Sunnafrank analyzed data from both of the subjects in each of his dyads, treating each score as independent and employing all scores in his data analysis. As a result, the potential exists that his resulting F-ratios were highly inflated and, therefore, acted as either under-estimations of the population variance or over-estimations of the between group variance. Additionally, this inappropriate use of statistical procedures in both of the Sunnafrank and Miller studies calls into question the overall program of research. Finally, the omega-squares, calculated for each of the independent-dependent variable combinations in the latter study and reported in Table 2, reveal the problematic nature of this research.

The Uncertainty Construct

Although methodological and statistical weaknesses represent two problems which explain the existence of conflicting results in the uncertainty literature, another weakness which compounds the problem is the existence of no significant, comprehensive operationalization of the uncertainty construct. Although this conclusion by no means is an indictment of the research literature overall, it does call into question a current approach in Communication, whose foundation is based on the concept of uncertainty. For this reason the overall literature concerning measures of uncertainty were consulted. Out of this literature emerged four major areas of concern: (1) early studies in Psychology which focused on the concept

TABLE 2

OMEGA-SQUARES FOR SUNNAFRANK (1983)

Relationship	F-Value	$Omega^2$
Conversational stage, similarity and attraction	19.99	.1034
Conversational stage and attraction	7.48	.0378
Attitude similarity and attraction	17.51	.0911
Sex and attraction	7.51	.0380

of subjective probability; (2) the CLUES instruments constructed by Clatterbuck (1979), which focused primarily on attributional confidence; (3) linguistic indicators of uncertainty; and (4) measures of uncertainty designed to fulfill research needs in specific, independent research investigations. Each of these respective approaches to the measurement of uncertainty will be addressed in the following pages.

The Concept of Subjective Probability

The concept of subjective probability and its measurement came to fruition in the late 1960's and early seventies and focused on individuals' prediction of outcomes under varying conditions of complete or incomplete information. Primarily, the goal of this research was to establish

> whether judgments based on partial information follow their own psychological rules in a more or less consistent fashion and how these rules compare with rules of mathematical probability based on logical criteria (Cohen and Hansel, 1955a; in Bell, 1979, pp. 7-8).

As Bell (1979) noted, two fundamental conclusions were drawn from this body of research:

> The first is that in conditions of uncertainty people behave neither blindly nor randomly . . .; the second is that in many instances human behavior departs significantly from that which would be predicted by a model of man based on mathematical probability . . . (pp. 7-8).

To support these findings, researchers cited studies concerning subjects' treatment of equiprobable or independent events:

in short, these events were not treated as either independent or equiprobable. Instead, subject preferences often were expressed when there was no mathematical justification. In addition, concepts like hope, pessimism and fairness intruded into subjects' judgments.

Early studies concerning this conception of uncertainty included studies by Cohen and Hansel (1955a, 1955b), Cohen, Dearnaley and Hansel (1956, 1957, 1958a, 1958b), and Cohen and Cooper (1961a, 1961b). These studies focused on events such as children's predictions of equiprobable outcomes, which revealed a predominant choice by Ss of subjective psychological probabilities over statistical probabilities when placed in conditions reflecting uncertain outcomes (Cohen and Hansel, 1955a). These researchers also identified two major sources of uncertainty: estimates of skill at a task and estimates of chance affecting event outcomes (Cohen, Dearnaley and Hansel, 1958a, 1958b).

Of specific interest also to this group of researchers were Ss' perceptions of the operation of chance rules in lotteries. As summarized by Bell (1979), results of these and other studies revealed: (1) that when chances of drawing a winning ticket were low (0.1) Ss tended to operate on the basis of an inflated subjective probability of success; (2) that when the chances of drawing a winning ticket were high (0.9), the majority of Ss overestimated their subjective probability of losing; and (3) when the chances of winning

and losing are equiprobable, subjective probabilities clearly discriminated between two types of persons: Ss who desired to maximize the chances of success and Ss who desired to minimize the chances of failure (abstracted from Bell, 1979, pp. 10-11). Although these earlier studies did not address uncertainty in interpersonal interactions, they did provide a foundation for studies concerning the nature of interpersonal uncertainty.

Measures of Uncertainty in Human Interactions

The work of Clatterbuck (1979), which focused on proactive and retroactive attribution processes in uncertainty, represents the only major attempt in Communication to operationalize the uncertainty construct. Although individual measures have been constructed to fulfill specific research needs, the CLUES scales have emerged as the primary means of assessing "uncertainty" in human interactions.

Based on Berger and Calabrese's (1975) distinction between the predictive and explanatory processes comprising the uncertainty concept, Clatterbuck (1979) operationalized uncertainty as "attributional confidence," either in retroactive explanations or in proactive predictions of behavior. Arguing that uncertainty is primarily reduced by "the provision of information that is perceived as adequate for the making of necessary decisions," Clatterbuck further hypothesized that the absolute information which a person possesses becomes an insufficient predictor of uncertainty reduction.

For this reason, Clatterbuck conceptualized uncertainty as attributional confidence -- a conceptualization which emphasized the perceived adequacy of one's information to make retroactive and proactive attributions (p. 148).

In attempting to operationalize these two hypothetical constructs (i.e., retroactive and proactive attributional confidence), Clatterbuck (1979) treated retroactive confidence as the "summative confidence expressed in [one's] factual knowledge of [another]" (p. 149). Out of this operationalization emerged a 65-item instrument (CL65), which consisted of questions constructed from a ten percent (10%) stratified sample of the intimacy-scale items reported by Taylor and Altman (1966). To complete the instrument, Ss are asked to state their confidence levels regarding their perceived ability to give specific facts about a target person; however, they are not asked to produce these specific facts. Scoring is usually based on 0 - 100% confidence, with 0% defined as "a total guess" and 100% confidence as "total certainty." Reliability estimates for the CL65 have ranged from a Cronbach's alpha coefficient of .952 to .989 (Clatterbuck, 1979, p. 152).

Unlike retroactive attributional confidence, which assesses one's perceived ability to explain another's actions or behaviors, proactive attributional confidence is measured by the summative confidence that one has in his/her predictions concerning another individual. This construct is

operationalized via a seven-item instrument (CL7) and "is derived from topic areas or categories suggested by Berger and Calabrese" (p. 149). Like the CL65, items comprising the CL7 usually are scored on a scale from 0 - 100%; however, scales of four and nine units also have been utilized. Reliability estimates for the CL7 range from an alpha of .763 to .975, with only three of the 16 studies which Clatterbuck (1979) reports as having utilized the instrument reporting reliability coefficients less than .85. Factor analyses of both instruments, in addition, suggest that the indexes are internally consistent and unidimensional, with the principle component solution providing the most appropriate model for the data. The first factor of the solution accounted for at least 60% of the variance, and all items loaded at .50 or greater on the initial factor.

Although the CLUES instruments, as they also are labeled, represent "reliable" indexes of the uncertainty construct, several findings also reported by Clatterbuck call into question the construct validity of the scales in their current form. First, although the CL65 and the CL7 were found to be unidimensional and internally consistent when individually analyzed, correlations between the two instruments were found to range from .64 to .95. Although as Clatterbuck notes, this result is consistent with the Berger-Calabrese analysis that retroactive and proactive attributional processes are closely linked, the problem lies in his subsequent suggestion

that, "to the extent that attributional confidence is used as a surrogate for the unmeasurable construct of uncertainty reduction, either form of the CLUES instrument may be used to test hypotheses involving uncertainty" (p. 153). In light of the range of correlation coefficients that he reports, such a suggestion appears highly questionable. Perhaps a more valid solution might be the construction of a multidimensional scale which taps at least both dimensions of uncertainty.

Second, Clatterbuck's (1979) discussion of the validity of his scales is restricted to their concurrent validity, without the provision of adequate evidence justifying his claims and without an account of other types of validity concerning the scales. For example, the validation procedures that Clatterbuck reports consisted, first, in the identification of variables which might "counterfeit" or "intervene" in the effects of attributional confidence; these variables included empathy, extroversion, dogmatism, tolerance of ambiguity, self-esteem, neuroticism, and social desirability. Second, Clatterbuck calculated the correlations between the CL65 and CL7 and the scales representing these seven constructs. Although Clatterbuck's finding that none of the seven scales significantly correlated with the CLUES instruments is used as evidence to support the existence of concurrent validity, the validity of the scales remains in question. First, negative evidence is not evidence of an instrument's concurrent

validity; such data merely support what a particular instrument is not. Thus, a more appropriate indicator of the CLUES instruments' concurrent validity might be an analysis of their respective correlations with other related criterion measures. Second, the construct validity of the scales remain in question. For example, adequate testing has not been conducted to determine the potential discriminability of his measures. Perhaps an appropriate indicator of their construct validity might be their ability to discriminate varying levels of uncertainty in contexts hypothesized to create specific levels of uncertainty.

Although to this point much time and space have been allotted to a discussion and critique of these specific instruments, such a treatment indeed seems warranted. As I shall argue in the following pages, if the remaining instruments to be presented are equally insufficient, more comprehensive measures of the uncertainty concept must be constructed. Such operationalizations become even more essential if we are to substantiate the value of the uncertainty approach. Unless proponents of "uncertainty reduction theory" can support the value of their interpersonal communication model, the theoretical base from which they argue will crumble.

Linguistic Indexes of Uncertainty

Four studies concerning the uncertainty concept accent linguistic indices. These studies include research conducted by Siegman and Pope (1965, 1966), by Lalljie and Cook in 1973, and more recently by Motl (1979).

Hypothesizing that filled pauses and speech rate would vary as a function of levels of uncertainty, Siegman and Pope (1965, 1966) conceptualized uncertainty as the range of possible responses available to a communicator. High uncertainty situations were defined as those in which a subject had a wide range of possible responses, while low uncertainty situations were operationalized as those having a narrow range of responses. Manipulating question specificity in one study (1965) and Thematic Apperception Test ambiguity in the other (1966), these researchers reported that filled pause rate grew with increasing levels of uncertainty in both instances. Conversely, an inverse relationship was found between speech rate and uncertainty.

Basing their investigation on the work of Siegman and Pope, Lalljie and Cook (1973) likewise addressed linguistic indices of uncertainty. Unlike Siegman and Pope, however, these researchers treated uncertainty as a dependent variable and conceptualized uncertainty itself in terms of filled pause rate and speech rate. They hypothesized that as a face-to-face interaction progresses, increased feedback facilitates a communicator's linguistic choices. To test these hypotheses, Ss interacted with one of the experimenters for approximately nine minutes, and tapes of the interactions were transcribed. Results of the study confirmed their initial, overall hypothesis: Filled pause rate decreased and speech rate increased as a function of the progressing interaction.

Motl's (1979) study was designed to test hypotheses derived from the Berger-Calabrese uncertainty theory of interaction and focused on "nonverbal indicators" of uncertainty. Operationalizing uncertainty in terms of (1) speech rate, (2) statement rate, (3) speaker-listener role exchanges, (4) eye contact, (5) head nods, and (6) gestures (and measuring each variable at 30-second intervals of subject interactions), Motl found that speech rate increased ($t(2175) = 1.53$, $p < .10$) and role exchange decreased ($p < .05$) during the first few minutes, as expected. In addition, Motl discovered that attitude similarity, the independent variable in the study, was significantly correlated with lower role exchange rates, as predicted. Finally, analyses of the intercorrelations of the interaction behaviors revealed the existence of two independent factors: (1) "activity," which included speech rate, statement rate, and gestures, and (2) "attentiveness," primarily associated with eye contact and head nods. Concerning the correlations of the two factors to attitude similarity, Motl found that activity was more positively associated with perceived similarity. Conversely, attentiveness was found to correlate more highly with paper-and-pencil tests of uncertainty and attraction.

Although linguistic indexes provide a third means by which the concept of uncertainty may be operationalized, one may argue that they provide only a partial understanding of the uncertainty construct. For example, if an argument could

be made that uncertainty is best defined as a cognitive state of being, behavioral indices, by nature, would not provide the most comprehensive treatment. Because such an argument is currently made in the Communication literature, linguistic indexes necessarily should be accompanied by self-report measures, or paper-and-pencil tests.

That Motl (1979) violated the statistical independence assumption by using all of the data generated by his Ss confounds the "linguistic index" literature as well and calls into question both his results as well as the study's ability to contribute to the language literature. For these reasons, the contributions of linguistic indexes may best be accompanied by additional measures.

Uncertainty Measures Designed for Specific Research Needs

Although several studies have emerged which incorporate operationalizations of uncertainty that address specific investigative needs, two such studies are of primary interest to this study: Mascaro (1970) and Muse (1975). Both have offered operationalizations of uncertainty varying in content and scope, but each has contributed to a clearer understanding of the uncertainty concept. For this reason, their studies will be reviewed briefly in the following pages.

Much as the author is concerned with the possible procedural biases that have emerged in studies of uncertainty, so Mascaro (1970) believed that the variety and complexity of

similarity manipulations employed may account for possible inconsistencies in the current literature. Attempting to correct for these biases, Mascaro tested the hypothesis that judgmental similarity (i.e., the proportion of similar judgments between two individuals) increases interpersonal attraction and reduces interpersonal uncertainty. Upon entering the experimental session, Ss were given an answer sheet with two possible choices per item (A or B) and a series of five-point confidence rating scales after each item number (the combination of these two constituted Mascaro's "precertainty" measure). In addition, Ss were given two answer cards upon which the letters "A" and "B" were placed. Individual pairs of Ss and confederates (the latter, posed as Ss) were then instructed that a series of items would be projected on a screen. Their task would be to fill in the answer sheet and to give an answer card to the experimenter after each item was projected.

Subsequently, ten binary, multiple-choice items concerning different issues were projected. After each projected item, both the Ss and the confederates were required to fill in their responses on the answer sheets and to hand in the appropriate answer card. The experimenter then projected both the Ss' and confederates' respective answers for 15 seconds so that each would know what answer the other individual had selected.

Because the confederate turned in both answer cards, the actual degree of similarity was manipulated by the experimenter,

who projected the bogus answers according to a randomly determined schedule of similarity (20%, 50%, and 80% similarity, respectively). At the end of the experimental session, Ss were given the seven-item Interpersonal Judgment Scale (Byrne, 1971) and a six-item post-certainty questionnaire asking Ss to estimate the percentage of items on which they felt "very certain" to "very uncertain."

Results of the study revealed a significant difference in attraction scores across levels of judgmental similarity-dissimilarity ($F = 7.46$, $p < .01$). However, no significant differences were found with regard to the uncertainty measures ($F = .62$, $F = .69$ for the pre- and post-test uncertainty measures, respectively). Such low F-ratios in this instance and the calculation of omega-square = .1068 for attraction across levels of similarity suggest a measurement problem which Mascaro only indirectly acknowledged; he concluded that the lack of significant effects on uncertainty may have resulted from methodological factors. As he stated, "Since Ss answered the pre-certainty questionnaire by giving a certainty rating on each item, before their judgments on that item were revealed, increases in certainty on such items may [have reflected] only the effects of similarity-dissimilarity on previous items" (Mascaro, p. 74). In addition, administration of the pre-certainty questionnaire may have restricted the range of responses on the post-certainty index.

A second study which offers potential insights into the present study is that of Muse (1975), who focused on (1) the distinctions between evaluative and structural similarity and (2) their respective effects on interpersonal attraction. Although not directly interested in the concept of uncertainty, Muse was interested in what he labeled "communication effectiveness," or Ss' ability to predict their partner's responses on two attitude surveys which he incorporated into his study. To test his hypothesis that both types of similarity would be related to "communication effectiveness" and interpersonal attraction, Muse had Ss complete an attitude survey on the topic of education and a second survey designed to tap the relatedness of pairs of attitude items. Four groups of ten male-female dyads were then constructed, such that Ss were placed in groups either High-High, High-Low, Low-High, or Low-Low in evaluative and structural similarity, respectively. Ss then engaged in a twenty-minute conversation concerning the topic of education. Results of the study revealed that structural similarity facilitated prediction of attitude structures but did not facilitate prediction of evaluative positions on the attitude items. Evaluative similarity, on the other hand, facilitated prediction of evaluative positions, but did not facilitate prediction of attitude structures. The hypothesis that evaluative similarity would further enhance communicative effectiveness in structurally similar dyads also was not supported, nor were his hypotheses that both evaluative and

structural similarity significantly would affect interpersonal attraction. Instead, an interaction effect resulted such that Ss in the High-High and Low-Low groups were less attracted to one another relative to Ss in the High-Low and Low-High conditions.

Although the results of this study conflict with other studies concerning the effects of evaluative and structural similarity on attraction (e.g., Johnson and Tesser, 1972), Muse did find support for the hypothesis that perceived structural and evaluative similarity facilitated prediction of attitude structure and evaluative judgments, respectively. However, Muse's results overall become questionable in light of another violation of the statistical independence assumption, which requires that the data (i.e., scores) utilized in his analysis be independent. Because Muse used the "communication effectiveness" and attraction scores of both participants in his constructed dyads, the scores of dyadic members should have been treated as correlated. Instead, Muse violated the independence assumption when he treated the scores as independent, thereby either increasing the probability that his F-ratios were liberal in the event of positive correlations, or conservative in the event of negative correlations.

To this point in the discussion, I have documented an argument that no comprehensive and proven measures of uncertainty exist in the current literature. In addition, I have argued that the existence of such a measure is essential if

researchers are to attempt an understanding of the relationships among attitude similarity, uncertainty and attraction. Having completed this discussion, we now turn to a summary of the literature overall, including both the attitude similarity-uncertainty-attraction literature and those studies which have attempted to operationalize the uncertainty construct. Following this summary, four major research questions which emerged from the overall research question will be articulated.

Summary and Research Questions

In returning to the literature which has been reviewed thus far, perhaps the arguments made at the beginning of this chapter represent the most succinct and cogent statement concerning the "state of the art" in the uncertainty literature. First, research concerning the relationships among attitude similarity, uncertainty and attraction has produced a morass of inconsistent and contradictory findings. One potential contributor to this problem may have been an overemphasis on the use of non-face-to-face interactions as a research paradigm.

Second, of those studies which have employed face-to-face interactions, many have not accounted for the interdependency problem when using dyadic data. As a result, such studies include within them violations of the statistical independence assumption and have produced questionable results and tenuous programs of research. For example, of the two studies previously cited which insightfully employed the use

of "normal" face-to-face interactions, both may be accused of statistical violations.

Third, the explanatory framework of uncertainty often has remained assumed when it would have been more appropriate to recognize the hypothesized relationship between uncertainty and other variables as an empirical question. It is important for researchers to understand assumptions of a theory, but they should not assume that which could be successfully tested. As a result, uncertainty studies which take such a stance have provided an interesting explanation for the attitude similarity-attraction relationship. However, failure to test that which is testable handicaps the future usefulness of this line of research.

Finally, of the studies reviewed in this thesis, none have produced a viable and comprehensive measure of uncertainty. Although Clatterbuck's (1979) CL65 and CL7 have come the closest to clearly articulating the uncertainty construct, questions remain concerning the validity of the two scales.

As a function of the current "state of the art" in the uncertainty literature, particularly in the areas of attitude similarity and attraction, four specific research questions emerged for this researcher from the overall research question previously presented. First, regarding the concept of uncertainty, specifically:

1. By what vehicle may the construct of uncertainty best be understood (i.e., conceptualized)?

2. Can a valid and reliable "self report" measure of uncertainty be constructed as a function of its current conceptualization in the literature?

Second, regarding the relationships among attitude similarity, uncertainty and attraction:

3. Are key studies that have been conducted replicable, given the use of appropriate and correctly employed statistical procedures?

4. Given a positive response to these specific questions, can uncertainty be considered for candidacy as a mediating variable between attitude similarity and attraction?

It is to an address of each of these questions and the methods by which they were addressed that the author now turns.

CHAPTER II

METHODS AND PROCEDURES

In order to address the research questions advanced in Chapter I of this thesis, a two-phase investigation was undertaken. Phase I consisted of the construction of a measure of interpersonal uncertainty and partially addressed the first two research questions presented in Chapter I. Phase 2 focused on the execution of an experiment designed to partially address the construct validity of the newly developed uncertainty scale. In addition, the latter phase was designed to correct for statistical errors in previous pertinent research, while at the same time directly testing several key assumptions in the uncertainty literature. In this way, Phase 2 addressed Research Questions Two, Three and Four. The methods and procedures for each of these phases are presented in the following pages.

Phase I

Subjects

Participants who completed this phase of the study were 575 students enrolled in a multisectioned, basic Communication course at one major southern and one major midwestern university.

Subjects ranged from 17 to 33 years in age, with an average age of 20.3 years. Approximately three to four weeks into the respective terms, participants were asked to complete a two-item attitude survey, to read and process information from the same attitude survey as it allegedly had been completed by a student at another major university, and to form an impression of that individual based on the bogus responses. The purpose of this procedure was to identify a factor structure which would generalize across four levels of attitude similarity. Once Ss had completed this task, they were asked to complete a third attitude survey, which constituted a validity check concerning the attitude similarity manipulation. In addition, they completed a 65-item measure of interpersonal uncertainty designed to be tested and validated in Phase 1 of the study.

Procedures

Interpersonal uncertainty was defined as the degree of confidence that an individual had concerning his/her ability to predict, explain and influence another individual's behavior, attitudes, values, beliefs, etc. This definition was grounded in the work of Berger and his associates and was operationalized via a 65-item Interpersonal Uncertainty Scale. This instrument was derived from an extensive review of the uncertainty literature and was operationalized through the use of seven-point, Likert-type rating scales. In the form of two booklets, the overall instrument consisted of two separate parts. Booklet I contained (1) an information sheet through

which Ss' background information was assessed, (2) a two-item dichotomous attitude survey to be completed by the respondent, and (3) a second, identical attitude survey which allowed the creation of four possible combinations of similarity via the use of bogus stranger-type responses. Booklet II contained a three-item manipulation check concerning perceived attitude similarity with the bogus stranger and the 65-item Interpersonal Uncertainty Scale. The scoring procedure for the latter was based on a summation across those items identified in the principle components analysis once the analyses were completed. Subjects were randomly assigned to one of four attitude similarity conditions via the randomization of four different versions of Attitude Survey 2 (the bogus questionnaire) in Booklet I. Booklet I is presented in Appendix A and includes the cover letter, the information sheet and Attitude Survey 1. The bogus stranger attitude questionnaire (i.e., the four different manipulations of attitude similarity/dissimilarity) is provided in Appendix B, and the perceived attitude similarity manipulation check is presented in Appendix C. To complete the presentation of the information contained in Booklets I and II, the 65-item Interpersonal Uncertainty Scale is provided in Appendix D.

Reliability and Validity of the Interpersonal Uncertainty Scale

In order to determine the dimensionality of the 65-item Interpersonal Uncertainty Scale, the instrument was subjected

to a principle components analysis with varimax rotation. Such a procedure allows the researcher to determine the potential existence of an underlying factor structure, i.e., to optimize his or her chances of determining the minimum number of hypothetical variables that can account for the observed covariation which exists among a group of items or variables. The selection of the items which loaded was made on the basis of the Scree Test, as well as the purity of the items loading on the factor structure. As suggested by McCroskey and Young (1979), a .60 - .40 purity index was used for the selection of factor items. More specifically, if an item had a loading of at least .60 on one factor and a loading of less than .40 on all other factors, the item was considered representative of that factor. Finally, at least five items were required to load before those items were considered as constituting a factor.

Although the principle components analysis and its corresponding statistics (e.g., communalities) provided one useful index of the validity of the overall factor structure, this analysis alone could not provide a complete assessment of the instrument's construct validity. For this reason, a second set of analyses were conducted in order to determine the potential "contribution" of additional variables to the amount of variance explained by the interpersonal uncertainty construct. These analyses included the use of univariate analyses of variance, multiple classification analyses, and/or

the calculation of Pearson product-moment correlation coefficients for interpersonal uncertainty and such variables as university, age, year, sex and level of attitude similarity (0, 50, and 100% agreement). As with all of the analyses employed in this study, the .05 level of significance was designated for all statistical tests. However, in order to be perceived as meaningful, all correlation coefficients were required to reach a level of .80 or greater. Should any of the aforementioned variables be found to have a significant and meaningful influence on interpersonal uncertainty, the validity of the Interpersonal Uncertainty Scale could be called into question.

Third and, perhaps, the optimal test of the construct validity of the Interpersonal Uncertainty Scale was the utilization of the newly developed scale in Phase 2, the experimental stage in this study. In order to directly assess the instrument's validity in this way, Phase 2 was designed to test several key assumptions in the literature concerning attitude similarity, uncertainty and attraction. It was reasoned that if significant differences could be found in Ss' perceived levels of interpersonal uncertainty across levels of attitude similarity and conversational stage, and if the cell means for interpersonal uncertainty were in the appropriate directions, one direct test of the instrument's construct validity might be said to have been conducted. The methods of analysis for Phase 2 are described below.

Finally, the internal reliability of the newly developed Interpersonal Uncertainty Scale was determined via the use of Cronbach's alpha coefficient. A reliability coefficient of .80 or greater was considered to be meaningful.

Manipulation Check

In order to determine the success of the attitude similarity manipulation, data generated via the use of both individual items and summated scores from Attitude Survey 3 were subjected to univariate analyses of variance, with .05 designated as the requisite probability level for significance. Attitude Survey 3 was a three-item instrument designed to tap the degree to which Ss perceived themselves and the bogus stranger to be attitudinally similar. Like both the original 65-item uncertainty scale and the resulting Interpersonal Uncertainty Scale which emerged from the factor analysis, this instrument took the form of seven-point, Likert-type rating scales. Perceived attitude similarity, overall, was defined as a composite similarity score, or the summation across all three of the similarity items for a given subject.

Phase 2

Phase 2 of this study was designed to address the final two research questions, as well as to provide further evidence concerning the validity and reliability of the newly developed Interpersonal Uncertainty Scale. To address question three, a partial replication of the work of Sunnafrank (1983) was

completed, with corrections for his violations of the statistical independence assumption. Finally, in addressing question four, this phase attempted to assess the potential relationships among attitude similarity, uncertainty and attraction -- a relationship often assumed but untested in both the Sunnafrank research and in much of the uncertainty literature, overall. To test for this potential relationship, interpersonal uncertainty was introduced into Sunnafrank's (1983) model. It was hoped that this inclusion would allow the experimenter to partially validate the Interpersonal Uncertainty Scale as well as to indirectly test Sunnafrank's implied explanation that "uncertainty" may intervene between attitude similarity and attraction. Although this study did not allow for a direct test of the hypothesis that "uncertainty" mediates the attitude similarity-attraction relationship, it was hoped that the study might determine whether uncertainty is a potential candidate as a mediator. Thus, it would make possible a much needed foundation on which later studies may be built.

Subjects

Subjects for Phase II of the current study were 148 students enrolled in the multisectioned beginning Communication course and the basic Human Development course at a major southwestern university. Of that number, 52 actually participated in the study. Because prior research has produced conflicting results concerning possible gender effects in the interpersonal attraction

literature, the decision was made to incorporate both male and female dyads in this phase of the study.[5] Two weeks into the summer term, participants were administered a two-item attitude survey and were given the choice of several experimental research times from which to choose for "a later meeting with the experimenter." Based on their initial responses to the attitude survey and the six or more times which they designated as times when they could meet, Ss were randomly paired with same-sexed partners and randomly assigned to experimental conditions, whenever possible.[6] In addition, only four individuals were assigned to a given experimental session. Upon arriving to the experimental session, all partners were asked whether they knew one another, before beginning. All Ss who were paired for the experiment responded in the negative. In addition, all Ss (with the exception of four students from one section) were given extra credit points in their classes for participating.

Hypotheses

In order to assess one form of construct validity concerning the Interpersonal Uncertainty Scale, while at the same time attempting to determine the replicability of Sunnafrank's (1983) study, the primary hypotheses of his 1983 study were tested. More specifically, two related hypotheses of both this and Sunnafrank's study were as follows:

Hypothesis 1A: Individuals who are aware that they are paired with an attitudinally

> dissimilar partner will be less attracted to their partners prior to conversing with them than after a normal initial conversation and after this type of conversation followed by a discussion of topics constituting a known dissimilarity. (Sunnafrank, 1983, p. 278)

Hypothesis 1B: Moreover, attitudinally similar partners will be more attracted to one another than attitudinally dissimilar partners only prior to conversing with them. (p. 278)

In order to address the fourth research question, or the potential of interpersonal uncertainty as a mediating variable, interpersonal uncertainty was included in the Sunnafrank (1983) model. More specifically, the second group of hypotheses read as follows:

Hypothesis 2A: Individuals who are aware that they are paired with an attitudinally dissimilar partner will feel less certain of their ability to predict, explain, and influence their partner's behavior (etc.) prior to conversing with them than after a normal initial conversation and after this type of conversation followed by an attitude discussion.

Hypothesis 2B: In addition, attitudinally similar partners will feel more certain than attitudinally dissimilar partners only prior to conversing with them.

If, as Sunnafrank intimates, Ss' perceived uncertainty explains the attitude similarity-attraction data patterns found in his 1983 study, the uncertainty data should reflect the same patterns as found in the attraction data. More important for the current study, support for Hypotheses 2A and 2B would support

the potential candidacy of uncertainty as a mediating variable between attitude similarity and attraction.

Variables and their Operationalization

Unlike Sunnafrank's (1983) study, which employed a 3 x 2 x 2 independent groups design, the design constructed for this study was a 3 x 3 x 2 mixed design, with repeated measures on the second factor, conversational stage. The independent variables for this study were attitude similarity, sex-type of dyad and conversational stage. "Attitude similarity" consisted of three different levels of similarity (0, 50, or 100% attitude similarity) and was operationalized via the level of agreement by Ss, prior to their interactions in dyads, on two current controversial topics, nuclear power and abortion. Although Sunnafrank (1983) employed only two levels of attitude similarity, three levels were employed in this study in order to utilize all possible combinations of attitude responses. To do so also allowed the experimenter to avoid the deceptions that were incorporated in the Sunnafrank study during conversation two. The third independent variable, conversational stage, consisted of three levels: pre-interaction, post-initial interaction, and post-attitude discussion.

The dependent variables employed in this study were interpersonal attraction and interpersonal uncertainty. The former was operationalized via Byrne's (1971) Interpersonal Judgment Scale; the latter was assessed via the newly developed

Interpersonal Uncertainty Scale, the measure of interpersonal uncertainty created as a function of Phase I.

Procedures

In order to address the hypothesized relationships among attitude similarity, uncertainty and attraction, as well as to partially replicate the Sunnafrank (1983) study, the procedures were as similar to those of Sunnafrank's as was possible and appropriate. Because two experimenters of different genders aided the author in this study, experimenters were randomly assigned to dyads across all experimental sessions conducted within a given day. This decision was made in order to minimize any potential systematic error effects due to sex of the experimenter.

Upon arrival to the experimental session, Ss were checked in at a central location and were taken in pairs to their respective "individual rooms," or the rooms that were designated for all tasks in which partners were asked to complete a task individually. In order to prevent interactions between partners during each individual task, partitions were constructed and placed at both ends of a seminar table where each of the partners was asked to sit. Once Ss were seated behind their respective partitions, they were informed that they were engaging in a project concerning friendship formation and were told that they would be completing several tasks based on varying amounts of information about their partners over time. This introduction and each of the remaining sets of instructions

were tape recorded messages, recorded by a professional newscaster in the local area. However, the experimenters were encouraged to answer any questions that might arise.

Following the initial introduction to the study, Ss were reminded of the attitude survey they had completed approximately one week earlier, were given a copy of that survey for verification purposes, and were told that they would be receiving a copy of the same attitude survey as it had been completed by another individual. Although Ss were not told that the attitude survey was that of the person behind the other partition, they were told that the first task involved reading the attitude survey of another individual, forming as complete a picture as possible of that individual based on his or her responses, and completing a questionnaire about that person based on the resulting impression. Subjects also were told that they would have the opportunity to meet and talk with that individual and, at a later point, would have the chance to exchange thoughts and ideas concerning the attitude items. Once all instructions for the first task were given, Ss were presented a copy of their own and a copy of another individual's attitude survey and were asked to verify their own respective attitude surveys. Upon completing this initial task, Ss were asked to study the responses of the other individual for approximately three minutes and to form as complete an impression about that person as possible. They were then asked to complete Booklet A, which included an

attitude similarity manipulation check (i.e., the 3-item perceived attitude similarity scale), the Interpersonal Uncertainty Scale created in Phase I, and Byrne's Interpersonal Judgment Scale. As stated earlier, the perceived attitude similarity scale is provided in Appendix C. The Interpersonal Uncertainty Scale and Byrne's Interpersonal Judgment Scale are provided respectively in Appendixes E and F. As stated earlier, all instructions were given on tape by a local radio newscaster, although the two experimenters who aided the author in all data collection procedures were encouraged to answer questions if necessary.

Once participants completed this initial experimental stage, they were escorted to a conference room to complete an initial conversation with their respective partners. Instructions, again, were given on tape for the second stage of the study, and asked that Ss take approximately five (5) minutes to get acquainted with one another. However, Ss were asked not to discuss their responses to the attitude survey and were reminded that they would have a chance to do so at a later point in time. All Ss' interactions were tape recorded in order to verify that instructions for the task were accurately followed. Following the provision of instructions on tape, the researcher removed the tape, replaced it with a blank cassette, turned on both that and an additional recorder, asked that Ss state their social security numbers for later verification of data, and left the room for five minutes so that Ss

could converse. Upon completion of this interaction, Ss were escorted once again to their respective "individual rooms" and were asked to complete the perceived attitude similarity scale, the Interpersonal Judgment Scale and the Interpersonal Uncertainty Scale (Booklet B). In addition, they were reminded that they would have the opportunity to discuss the attitude survey at a later point in time.

Upon completion of the second stage of the study, Ss again were escorted to a conference room, but this time were asked to discuss only their responses to the attitude survey. Again, each pair of Ss was given five minutes to converse, and audiotapes were made to ensure that all Ss followed the instructions. Once the five-minute attitude discussions were completed, Ss again were escorted to their "individual rooms" and were asked to complete Booklet C, which contained the identical scales used in stages one and two of the experiment. Subjects then were told that they would be debriefed once the experiment had been completed.

Manipulation Check

Like the manipulation check employed in Phase I of this study, Phase II likewise incorporated the three-item perceived attitude similarity scale, provided in Appendix C. Use of these three seven-point, Likert-type rating scales allowed the researcher to verify the success of the attitude similarity manipulations. Unlike the previous method of scoring the attitude scales, however, the use of dyads in Phase II and a

potential violation of the statistical independence assumption required that a dyadic score be constructed for each pair of Ss. To construct this dyadic score, the sum of the individual composite scores was computed. Due to the unequal cell sizes and, hence, the unbalanced nature of the design, a univariate analysis of variance using harmonic (weighted) means and an .05 level of significance were then employed.

Statistical Analyses

Once all initial dyadic scores were computed, the data were subjected to a 3 x 3 x 2 multivariate analysis of variance (MANOVA) for unequal cell frequencies and repeated measures on one factor. Due to the extremely small and unequal cell frequencies (see Table 3 for specific cell sizes), the analysis and interpretation of these data were approached with caution. First, the overall MANOVA was conducted using harmonic (i.e., weighted) means, as were the univariate ANOVAs which followed. Use of harmonic means allows the researcher to take into account the potential consequences of an unbalanced design, particularly violations of the statistical independence assumption. Second, all interpretations were made from within the narrow framework which an unbalanced design imposes. For example, although no significant interactions were found in either the MANOVA or ANOVA results, the exploratory nature of this study led the experimenter to peruse cell means for possible patterns in the data. In

TABLE 3

CELL FREQUENCIES FOR THE SEX OF DYAD X ATTITUDE SIMILARITY INTERACTION

Sex of Dyad	Degree of Attitude Similarity		
	100% Agree	50% Agree	0% Agree
Male	4	6	1
Female	5	6	4

addition, selected comparisons were conducted on the data across levels of both attitude similarity and conversational stage, again in search of possible existing patterns.

Although multivariate analysis of variance was used as an initial screener, univariate analyses of variance were performed in order to test the four hypotheses, i.e., to assess the potential effects of the independent variables on each of the dependent variables: interpersonal uncertainty and attraction, respectively. As with all previous analyses, a significance level of .05 was required for a given ANOVA to reach significance.

Finally, should any significant interaction effects exist among the independent variables, the decision was made to test the four major hypotheses via the use of Tukey's studentized range test. This test allows for adequate protection against Type II error, while at the same time providing conservative tests of significance for each comparison. Again, the .05 level was established as the necessary level of significance. Should no interaction effects be found among the independent variables, the tests of the hypotheses would not be possible in this study. In this event, selected comparisons would be made in order to determine any patterns that might emerge in the data as a function of significant main effect differences. Again, Tukey's studentized range test and the .05 level of significance were selected.

Summary

To this point, I have presented a rationale and literature review which argued the value of the study conducted. In addition, I have described the means by which the research question and hypotheses were addressed. In Chapter III of this thesis, the discussion will turn to the results and discussion of the findings. Both Phase I and II results will be presented and explored.

CHAPTER III

RESULTS AND DISCUSSION

Previous chapters of this thesis have provided the rationale and methods for this investigation. The purpose of the current chapter is to present and interpret the results. First, information resulting from Phase I of the study will be presented in order to address Research Questions One and Two. Second, information provided by Phase II will be presented and discussed in an effort to address Research Questions Three and Four. Finally, data will be presented which further address the validity issue raised in Research Question Two in order to establish further support for Phase I results.

Phase I: Results

By What Vehicle May the Construct of Uncertainty Best Be Understood?

In order to address Research Question One, a sixty-five item Interpersonal Uncertainty Scale was constructed. This instrument was designed on the basis of a review of the uncertainty literature and focused on three dimensions of interpersonal uncertainty in initial interactions. These dimensions

included one's general ability to predict, explain and influence other's goals, values, attitudes, beliefs, behavior, etc.

Although the decision was made initially to utilize a principle components analysis with varimax rotation to analyze the data generated in Phase I, the varimax rotation became unnecessary because, as soon will be noted, only one factor was viable given the criteria for selection of the factors. Overall, twelve (12) factors initially emerged from an analysis of the sixty-five item Interpersonal Uncertainty Scale. Of those twelve factors, however, only one factor produced loadings pure enough to support its inclusion in a resulting uncertainty instrument. Support for a one-factor solution also can be seen in the results of the Scree Test (See Appendix G, Table 1 for these results), the use of a .60 - .40 purity index, and a five-item loading requirement on any factor generated. The items and their respective loadings on Factor 1 are presented in Table 4. Those items which did not load are presented in Table 2 of Appendix G, along with the distribution of their factor loadings. The ten items which loaded on Factor 1 accounted for 26.1% of the common variance.

Although the majority of the sixty-five items comprising the original uncertainty measure were generated through a review of the uncertainty literature, seven of the items were adapted from Clatterbuck's (1979) CL7, a seven-item measure of "proactive attributional confidence." This decision was

TABLE 4

FACTOR ONE OF THE INTERPERSONAL UNCERTAINTY SCALE-65

FACTOR 1: Interpersonal Uncertainty	F1	H^2
9. I am doubtful of my general ability to predict how _____ would behave.	.60	.54
20. I feel sure that I could predict the common goals that _____ and I would have in a personal relationship.	.60	.69
24. I feel uncertain about predicting how _____ would respond in most informal settings.	.60	.56
25. In most instances, I feel doubtful that I could explain ___'s personal values.	.60	.58
27. In most cases, I feel certain that I could explain ___'s personal attitudes.	.61	.53
29. In general, I am confident that I could predict the costs involved in a relationship with _____.	.61	.68
44. Generally, I feel confident that I could explain why _____ would say to me the things that s/he would say.	.63	.64
48. In general, I feel confident that I could explain the rewards that would exist in our relationship.	.64	.64
49. I feel sure that I could explain ___'s personal preferences.	.67	.63
59. In general, I feel sure that I could explain the costs that would exist in a personal relationship with _____.	.60	.68

Eigenvalue	16.94
% of Variance	26.1
Cum % of Variance	26.1

made on the basis of the frequency with which the latter scale has been used to tap "uncertainty" in the literature, and acted as one means of assessing the potential correlation existing between the scales. In addition, its inclusion could provide potential insights concerning the validity and reliability of both uncertainty scales (i.e., the CL7 and the Interpersonal Uncertainty Scale). Interestingly enough, the results revealed that only one of the Clatterbuck items loaded purely on any given factor. This item loaded on Factor 1 and therefore was adapted for inclusion in the resulting 10-item Interpersonal Uncertainty Scale, the uncertainty instrument which was utilized in Phase II of this study. The seven items of the CL7 and their respective factor loadings are presented in Table 5.

Can a Valid and Reliable "Self-Report" Measure of Uncertainty Be Constructed as a Function of its Current Conceptualization in the Literature?

In order to establish the validity and reliability of the ten-item Interpersonal Uncertainty Scale, several indexes of these concepts were employed. First, factor loadings were perused as an indicator of the reliability of the resulting scale (Guilford, 1954, p. 399), while communality estimates (i.e., h-squares) were used as an index of the validity of the principle components analysis (Harman, 1976). These

TABLE 5

FACTOR LOADINGS OF THE CL7-ATTRIBUTIONAL CONFIDENCE SCALE**

Items	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	H^2
9. I am doubtful of my general ability to predict how _____ would behave.*	.60	-.31	.16	.09	.07	.15	-.01	.11	-.05	.10	.02	-.04	.54
51. I feel certain that _____ would like me.	.43	.32	-.08	.21	.35	-.17	-.001	-.16	-.15	.07	-.06	.06	.54
1. Generally, I feel uncertain that I could predict the personal values that _____ holds.	.33	-.28	.22	.03	-.09	.27	-.19	-.04	-.17	.12	-.06	-.24	.46
15. I feel that I could accurately predict ___'s personal attitudes.	.60	.41	-.15	.14	-.02	.09	-.02	.05	.06	-.02	-.09	-.13	.61
16. I would feel uncertain about predicting ___'s feelings and emotions.	.52	-.35	.11	.22	.03	.03	-.23	.10	.09	-.04	.08	.07	.54
19. I could empathize with (share) the way _____ feels about himself/herself.	.37	.23	-.09	-.08	.44	.24	-.12	.14	.15	.16	-.15	-.14	.57
10. I feel that I know _____ well.	.40	-.32	-.27	.30	.09	-.01	.15	-.10	.03	.19	.11	-.11	.53

*Items Loading on Factor 1 of the Interpersonal Uncertainty Scale.
**Items are presented in the order in which they were delineated by Clatterbuck (1979).

indexes provided one estimate of the validity and reliability of the factor structure. Second, analyses of variance, multiple classification analyses, and/or Pearson product-moment correlation coefficients were calculated for interpersonal uncertainty (i.e., the ten-item instrument) and such variables as university, age, year, gender and level of attitude similarity (0, 50, and 100% agreement). This decision was made in order to assess the potential contribution of additional variables to the amount of variance explained by the interpersonal uncertainty construct. Third, an estimate of the internal reliability of the newly developed instrument was determined via the use of Cronbach's alpha coefficient. A coefficient of .80 or greater was required for the coefficient to be considered meaningful. Finally, the scale was utilized in an experimental setting to test several key assumptions in the uncertainty literature -- primarily, the hypothesized relationships among attitude similarity, uncertainty and attraction. It was reasoned that if significant differences could be found in Ss' perceived level of uncertainty and if the cell means were in the predicted direction, one direct test of the instrument's construct validity might be said to have been conducted. Results of indexes one, two and three will be reported at the present time. Results of the experimental study will be reported under "Phase II" of this study.

In perusing the factor loadings and communality estimates for Factor One, the only "pure" factor emerging from this study, results revealed the existence of a range of .60 to .67 for factor loadings and a range of .54 to .69 for communality estimates (See Table 4). These ranges suggest the existence of moderate validity and internal reliability for the scale, when all other items (i.e., the remaining 55) have been included in the analysis.

A second index of the validity of the ten-item scale which was utilized in this study was the calculation of several pertinent analyses of variance, multiple classification analyses and Pearson product-moment correlation coefficients. These calculations were made on the relationships among interpersonal uncertainty and such variables as university, sex, age, year in school and degree of attitude similarity. The latter variable was manipulated through the use of a bogus stranger technique. Results of these analyses revealed the existence of no significant relationships among these variables and interpersonal uncertainty. For example, the completion of a random sample of Ss from each university used in this study and the use of analysis of variance revealed the existence of no significant differences in uncertainty as a function of university ($F(2,116) = 2.29$, $p = .11$, $\omega^2 = .007$ for the 65-item scale; $F(2,112) = 2.38$, $p = .10$, $\omega^2 = .008$ for the 10-item scale, respectively). For this analysis, a random sample was used in order to achieve equal cell sizes.

Of even greater use, however, multiple classification analysis revealed that "university" accounted for only 3.8% of the total variance.

Additionally, analyses of variance revealed the existence of no significant difference for attitude similarity ($F(3,565) = .685$, $p = .56$), although a sex difference was found ($F(1,567) = 9.74$, $p = .01$). However, multiple classification analysis revealed that very little variance in uncertainty was accounted for by either variable ($R^2 = .004$, $R^2 = .017$, respectively).

Finally, in this second set of analyses, Pearson product-moment correlation coefficients were calculated in order to determine the amount of variance in uncertainty accounted for by age and year in school. Results of these calculations also revealed weak and nonsignificant results: for year, $r^2 = .002$; for age, $r^2 = .009$. Overall, this set of analyses revealed that, of those variables utilized, none contributed significantly to the amount of variance explained concerning the uncertainty construct.

Third, an estimate of the internal reliability of the newly developed uncertainty scale was made via the use of Cronbach's alpha coefficient. Results of this computation yielded an alpha of .863.

Manipulation Check. In order to determine the success of the attitude similarity manipulation in Phase I, data generated by Attitude Survey 3, the same measure of perceived

attitude similarity employed in Phase I, were analyzed in the forms of both individual and summated scores. Results of these analyses revealed that subjects perceived themselves to differ in attitude similarity both when perceived similarity scores were summed ($F(3,566) = 231.76$, $p = .01$, $R^2 = .55$) and when similarity items were treated individually (perceived attitude similarity: $F(3,566) = 273.34$, $p = .01$, $R^2 = .59$); perceived value similarity: $F(3,566) = 139.43$, $p = .001$, $R^2 = .425$; perceived overall similarity: $F(3,566) = 97.11$, $p = .001$, $R^2 = .34$, respectively). In addition, when cell means were examined, significant differences were found to exist for all comparisons, using Tukey's procedure for harmonic means; harmonic means were used due to the existence of unequal cell sizes. As a function of the very large cell-sizes, however, the decision was made to informally assess the means to determine the observed differences which existed in the sample between the two possible 50% agree levels of attitude similarity. As Table 6 on the following page reveals, very little difference seemed to exist. For this reason, the decision was made to collapse the two 50% levels when conducting Phase II of this study.

Phase I: Discussion

In reviewing the results which emerged from the completion of Phase I of this study, three major conclusions about this phase may be drawn. First, the Interpersonal Uncertainty Scale as the instrument presently is operationalized represents

TABLE 6

MEANS OF PERCEIVED ATTITUDE SIMILARITY

MANIPULATION CHECK

Degree and Direction of Attitude Responses			
(Agree-Agree)	(Agree-Disagree)	(Disagree-Agree)	(Disagree-Disagree)
16.10	12.06	11.17	7.49

a seemingly viable means of addressing the uncertainty concept. Second, the results provide some supporting evidence for the existence of both validity and reliability regarding the scale, properties of the measure which establish its viability. Finally, the data generated by the principle components analysis employed provide additional support for current conceptualizations of uncertainty in the literature. This conclusion is particularly salient for that literature which addresses the constructs of "prediction" and "explanation" as they relate to the concept of interpersonal uncertainty.

Although these conclusions legitimately can be drawn from the results which emerged from Phase I, three interesting results also emerged for this researcher which address the present operationalization. First, a discrepancy exists concerning the degree of "fit" between the Interpersonal Uncertainty Scale and the literature which addresses the importance of "influence" or "control" in uncertainty reduction. Second, the inclusion of the CL7 and its "poor showing" in the factor analysis suggests the existence of problems regarding Clatterbuck's scale. In turn, its almost exclusive use in the uncertainty literature calls into question much of the research which focuses on uncertainty. Finally, limitations may have arisen from the use of the principle components analysis itself which have implications for the interpretation of results in the present study. Following an address of each

of the major conclusions which have been delineated, the discussion will turn to an address of these three concerns.

As stated in Chapter One of this study, one goal of the present research was to construct a viable measure of interpersonal uncertainty. This goal was established on the basis of the existence of no valid and reliable index in the present uncertainty literature and, as a result, provided the major impetus for the present research. In turning to the study which emerged from this goal, results of Phase I seem to indicate that the goal partially was achieved -- more specifically, that a viable measure of interpersonal uncertainty has been constructed. As stated earlier, results of the principle components analysis revealed the existence of moderate validity and reliability for the factor structure, particularly as indicated by the respective strength of the factor loadings and communality estimates. Additionally, alternative measures of the validity and reliability of the newly developed instrument support an argument for the viability of the scale.

Second, and related to the aforementioned conclusion, the ten-item uncertainty scale seems to represent a valid and reliable index of the uncertainty construct, particularly given the number and variety of validity/reliability indexes used. Supporting evidence for this statement includes not only the results of the factor analysis (i.e., factor loadings and communality estimates), but also the fact that so

little variance was accounted for by other potentially confounding variables used in the study (e.g., levels of university, age, year in school, degree, sex, attitude similarity, etc.). Additionally, the internal consistency of the instrument was exceptionally high (alpha = .86), a fact which suggests further evidence of the instrument's reliability.

Finally, a third conclusion which may be drawn from the previous results is that the content of those items which loaded on Factor 1 seem to support much of the literature concerning the nature of uncertainty. This conclusion especially holds for the proposed relationship between prediction and explanation, particularly as that relationship has been articulated by Berger (1975). In essence, that almost an equal number of both items loaded purely on the first principle component supports the strong correlation predicted to exist between the two constructs. Additionally, the measure of internal consistency computed for the Interpersonal Uncertainty Scale supports this conclusion.

Although the results reported in Phase I partially support the viability of the Interpersonal Uncertainty Scale, three questions also emerged from Phase I of this study regarding the scale and its relationship to current conceptualizations of uncertainty existing in the literature. First, if this index is indeed a viable representation of the interpersonal uncertainty concept, that literature is called into

question which currently addresses the importance of "influence" or "control" in the uncertainty reduction process. Indeed, as results of the current investigation revealed, no items generated to tap this alleged dimension loaded purely on any factor (Again, see Table 2 in Appendix G for a delineation of those items not loading). This finding conflicts with statements in the literature that "perceived influence" plays a role in initial interactions, and that "perceived control" must be increased in order to reduce interpersonal uncertainty (Berger and Bradac, 1982).

Second, if this index is a valid and reliable index which accurately assesses interpersonal uncertainty, failure of the items adapted from Clatterbuck's CL7 to purely load calls into question the "validity" and "reliability" of the CL7. Given almost an exclusive use of this instrument by Berger and his associates, in turn much of the research concerning uncertainty may be called into question. If, in fact, such questions may be raised concerning the CL7 and its construct validity, any research which solely has relied on the instrument to tap uncertainty may have hampered the overall theory building process. At the very least a positive response to this question could partially explain the existence of inconsistent and contradictory findings in the uncertainty literature.

Finally, the selection of a principle components analysis rather than an alternative method of factor selection may have

produced problematic results. As stated in the results section above, only 10 of 65 items loaded purely on the factor structure. In addition, Factor 1 of the Interpersonal Uncertainty Scale accounted for only 26.1% of the variance. Although principle components analyses provided a highly parsimonious solution (as the procedure is designed to do), it may have completed its task at the expense of possible systematic error in the reproduction of the intercorrelations. As Harris (1975) has noted, this problem is a possibility "since there may be one or two variables so much more highly related to the 'missing' principle components than to those included as to make our estimates of the intercorrelations of other variables with these one or two highly dependent on the omitted data" (p. 25). Given that so little variance was accounted for and that so few of the items loaded purely, such a problem in actuality may have occurred.

Phase II: Results

Phase II of this project was designed to address Research Questions Three and Four, as well as to provide additional supporting evidence for the construct validity of the Interpersonal Uncertainty Scale, constructed and partially validated during Phase I. The primary means of analyzing the data for Phase II included multivariate and univariate analyses and the use of selected individual comparisons. It is to the results of these analyses that the discussion now turns.

Are Key Studies that Have Been Conducted Replicable, Given the Use of Appropriate and Correctly Employed Statistical Procedures?

In order to address the third research question, a partial replication of Sunnafrank's (1983) study was completed. This replication was designed to correct for violations of the statistical independence assumption and to test Sunnafrank's (1983) hypotheses in a repeated measures framework. Specifically, Hypotheses 1A and 1B were delineated as follows:

> Hypothesis 1A: Individuals who are aware that they are paired with an attitudinally dissimilar partner will be less attracted to their partners prior to conversing with them than after a normal initial conversation and after this type of conversation followed by an attitude discussion (Sunnafrank, 1983, p. 278).
>
> Hypothesis 1B: . . . attitudinally similar partners will be more attracted to one another than attitudinally dissimilar partners only prior to conversing with them (p. 278).

Although an overall multivariate analysis of variance was used as an initial screener, results of the univariate analyses of variance were perused in order to determine the significance of the overall attitude similarity X conversational stage interaction. Such a significant interaction would have to exist before appropriate tests of the hypotheses could be completed through individual comparison procedures. Results of the overall univariate ANOVA for attraction revealed the existence

of no significant sex of dyad X attitude similarity X conversational stage interaction ($F(4,40) = 2.12$, $p = .10$) as well as no significant interaction between attitude similarity and conversational stage, ($F(4,40) = 0.68$, $p = .61$). Additionally, the sex of dyad X conversational stage interaction was found to be nonsignificant ($F(2,40) = 0.35$, $p = .71$). As a result of the overall nonsignificant interactions which were found to exist in these data, no further statistical tests or procedures were deemed appropriate. Consequently, no tests of the hypotheses could be completed.

Given a Positive Response to These Specific (Three) Questions, Can Uncertainty Be Considered for Candidacy as a Mediating Variable between Attitude Similarity and Attraction?

Much as the results produced by the univariate ANOVA for interpersonal attraction did not allow for tests of Hypotheses 1A and 1B, in the same way ANOVA results prevented the testing of Hypotheses 2A and 2B:

Hypothesis 2A: Individuals who are aware that they are paired with an attitudinally dissimilar partner will feel less certain of their ability to predict, explain and influence their partner's behavior (etc.) prior to conversing with them than after a normal initial conversation and after this type of conversation followed by an attitude discussion.

Hypothesis 2B: Attitudinally similar partners will feel more certain than attitudinally dissimilar partners only prior to conversing with them.

Like Hypotheses 1A and 1B, 2A and 2B were based on an assumed interaction between attitude similarity and conversational stage -- an interaction effect not found to exist by the analysis of variance for interpersonal uncertainty performed ($F(4,40) = 0.20$, $p = .93$). Given the impossibility of directly testing the hypothesized relationships in Hypotheses 2A and 2B, the decision was made to turn to additional data analyses. This decision was made in order to address the existence of possible patterns in the uncertainty and attraction data and, hence, to further assess the potential construct validity of the ten-item Interpersonal Uncertainty Scale.

Construct Validity and the Interpersonal Uncertainty Scale

Although the assumed interaction between attitude similarity and conversational stage was found to be nonsignificant for both uncertainty and attraction and, hence, prevented further tests of the proposed hypotheses, additional analyses performed on both sets of data revealed the existence of significant findings as well as several interesting patterns. Because these analyses provided further support for the construct validity of the uncertainty scale, the decision was made to report the results at this time.

In order to determine the existence of potential main effects by the independent variables on perceived attitude similarity, uncertainty and attraction, again multivariate analyses of variance were performed. Using the .05 level of

significance, results of these analyses revealed the existence of a significant main effect for conversational stage ($F(6,76) = 9.03$, $p = .0001$, $\omega^2 = .077$) as well as a significant main effect for attitude similarity which approached significance ($F(6,36) = 2.25$, $p = .06$). Based on these findings and due to the exploratory nature of this study, selected univariate analyses of variance were performed. Results of these analyses revealed the existence of a significant effect by conversational stage on interpersonal uncertainty ($F(2,40) = 32.66$, $p = .0001$, $\omega^2 = 0.33$), although no such effect was found for level of attitude similarity ($F(2,20) = 2.00$, $p = .16$). Additionally, a significant difference was found for interpersonal attraction as a function of conversational stage ($F(2,40) = 5.14$, $p = .01$, $\omega^2 = 0.06$). More specific results concerning the overall multivariate analyses are reported in Table 1 of Appendix H. Results of the univariate analyses are presented more completely in Tables 1 and 2 of Appendix I.

Given the existence of significant effects by conversational stage on interpersonal uncertainty, the decision was made to perform selected individual comparisons on uncertainty means, again collapsing across the three levels of attitude similarity. This decision was made in order to determine the directionality of the means and, hence, to further establish the validity of the uncertainty measure. Results of the Tukey's studentized range procedure revealed the existence of significant differences at the .05 level for all comparisons of

interpersonal uncertainty. Table 7 presents the results of all comparisons that were completed.

Finally, the cell means themselves were perused across levels of similarity and conversational stage in order to determine the nature of possible trends existing in the data. Results of this perusal revealed that interpersonal uncertainty decreased across all levels of conversational stage at each level of attitude similarity as well as across all levels of attitude similarity (moving from 0 to 100% similar) at each level of conversational stage. (Cell and marginal means for interpersonal uncertainty as a function of the degree of similarity X conversational stage analysis are presented in Table 8). However, very few perceptible changes took place in attraction scores across levels of attitude similarity and conversational stage, despite the existence of significant F-values. Cell and marginal means for interpersonal attraction are reported in Table 9.

Manipulation check. The final set of statistical analyses which were employed addressed the degree of success achieved in manipulating levels of attitude similarity. Again, the levels attempted were 0, 50 and 100% similarity. Although the manipulation check employed during Phase I of this study revealed a successful manipulation, the same manipulation check employed in Phase II revealed only partial success. This check was completed through the use of the three-item Perceived Attitude Similarity Scale constructed in Phase I, the use of summated scores for each of the dyads, univariate analysis of variance and selected individual comparisons (again, Tukey's studentized

TABLE 7

COMPARISONS MADE REGARDING INTERPERSONAL UNCERTAINTY AS A FUNCTION OF CONVERSATIONAL STAGE

Comparison across Conversation Stage	Mean Difference	Comparisons Significant at the .05 Level
1-2	7.692	***
1-3	14.808	***
2-3	7.115	***

TABLE 8

MEANS FOR THE DEGREE OF SIMILARITY X CONVERSATIONAL STAGE ANALYSIS -- INTERPERSONAL UNCERTAINTY

Degree of Similarity	Conversational Stage			Row Means
	Pre-Conversation	Initial Conversation	Conversation Re: Attitudes	
100% Similar	82.2 n=9	73.4 n=9	66.3 n=9	74.0
50% Similar	88.6 n=12	80.4 n=12	74.2 n=12	81.1
0% Similar	89.4 n=5	84.8 n=5	75.6 n=5	83.3
Column Means	86.5	78.8	71.7	79.1*

*Grand mean.

TABLE 9

MEANS FOR THE DEGREE OF SIMILARITY X CONVERSATIONAL STAGE ANALYSIS -- INTERPERSONAL ATTRACTION

Degree of Similarity	Conversational Stage			Row Means
	Pre-Conversation	Initial Conversation	Conversation Re: Attitudes	
100% Similar	22.7 n=9	23.1 n=9	23.9 n=9	23.2
50% Similar	21.1 n=12	22.7 n=12	22.8 n=12	22.2
0% Similar	21.6 n=5	21.8 n=5	23.2 n=5	22.2
Column Means	21.7	22.7	23.3	22.6*

*Grand Mean.

range test was employed). Despite the fact that an overall ANOVA revealed the existence of a significant main effect for level of attitude similarity ($F(2,20) = 4.86$, $p = .02$, $\omega^2 = 0.10$) as well as for conversational stage ($F(2,40) = 10.67$, $p = .0002$, $\omega^2 = 0.13$), results of the Tukey's studentized range procedure revealed that only the 0% and 100% levels of attitude similarity differed significantly ($p < .05$). No other levels of attitude similarity were found to be significantly different. Means for the perceived attitude similarity check are reported in Table 10. More complete results concerning the analysis of variance for perceived similarity are presented in Table 3 of Appendix I.

Phase II: Discussion

In turning to a discussion of the results which emerged from Phase II, one potential interpretation of these findings is that the results do not confirm previous attraction research. More specifically, they call into question the replicability of previous findings concerning attitude similarity, the primary issue addressed by Research Question Three. Such an interpretation would be particularly salient for studies produced by Sunnafrank (1983) and Sunnafrank and Miller (1981), if in fact such an explanation could be documented and supported.

Although this interpretation ultimately may act as the most plausible explanation, several problems that emerged during the course of the present study suggest the viability of an alternative interpretation: namely, the validity problem

TABLE 10

MEANS FOR THE DEGREE OF SIMILARITY X CONVERSATIONAL STAGE ANALYSIS -- PERCEIVED SIMILARITY

Degree of Similarity	Conversational Stage			Row Means
	Pre-Conversation	Initial Conversation	Conversation Re: Attitudes	
100% Similar	29.3 n=9	30.0 n=9	32.4 n=9	30.6
50% Similar	26.3 n=12	27.8 n=12	27.9 n=12	27.3
0% Similar	20.8 n=5	23.8 n=5	27.2 n=5	23.9
Column Means	26.3	27.8	29.3	27.8*

*Grand Mean.

inherent in the present study may have prevented the researcher from adequately addressing the research questions and consequently from supporting the viability of Interpretation One. For example, two particular threats to the validity of this study were low sample sizes and unequal cell frequencies. These problems potentially challenged the statistical conclusion validity of the study. Second, the mortality rate for the study was of particular significance and may have posed a threat to the internal validity of the study. Additionally, the study's internal validity may have been affected by a testing effect due to the nature of the repeated factor, conversational stage. Third, the partial failure of the attitude similarity manipulation reveals the existence of a potential problem concerning the study's construct validity. Finally, the time of year during which the study was conducted (i.e., Summer term) and the setting for the experiment may have challenged the study's external validity and, in fact, may have created the conditions from which the previous problems emerged. Indeed, supporting evidence seems to document their negative impact on the overall study.

Given the potential contribution of each of these problems to the overall validity of the research and, hence, as supporting evidence for the viability of the second interpretation, the decision was made to employ validity issues as the framework through which a documentation of Interpretation

Two would proceed. The discussion begins with an address of potential threats to the study's statistical conclusion validity.

Statistical Conclusion Validity

According to Cook and Campbell (1979), statistical conclusion validity is concerned with sources of random error and the appropriate use of statistics and statistical tests. More specifically, this form of validity is associated with inferences about "whether it is reasonable to presume [the existence of] covariation between the independent and dependent variables" (pp. 40-41). The particular question that is asked regarding statistical conclusion validity is: are the presumed independent and dependent variables related?

In delineating potential threats to statistical conclusion validity, Cook and Campbell focus on the existence of at least seven major threats. Of particular salience to the present study are (1) lower statistical power due to low sample sizes and (2) violated assumptions of statistical tests. For the purposes of the present study, "power" is defined as the ability to reject a null hypothesis, given some true mean, or the ability to detect certain deviations from the null means if the deviations exist (Toothaker, 1974). The assumptions in question for this particular study are the normality and homoscedasticity (i.e., equal variance) assumptions.

As stated in Chapter II of this study, which reported the overall sample size of the investigation, 52 subjects

actually participated in the data collection procedures incorporated in Phase II. When translated into actual amount of dyadic data generated, only 26 scores were utilized in this study. Such a sample size is exceptionally low for a 3 x 3 x 2 design, despite the fact that one of the factors was operationalized as a repeated factor. As a result of utilizing such a low sample size, the statistical power of the study was lowered and the likelihood of making an incorrect no-difference conclusion was increased (i.e., the probability of a Type II error increased). The reason for such a decrease in power is that the variance of the mean inflates as N decreases and pushes more of the distribution outside the rejection region (given the mean score under the null) (Toothaker, 1974, p. 24). Thus, when N decreases, statistical power also decreases. In this instance, the result is a greater chance of falsely accepting a no-difference hypothesis.

A second problem which existed as a function of the sample size employed in the present study was an inability on the part of the researcher to test for possible violations of statistical assumptions. Of particular interest would have been the normality and homoscedasticity (i.e., equal variance) assumptions, given the low and unequal frequencies of participating Ss across levels of sex and attitude similarity (See Table 3 in Chapter II for the exact sex of dyad X attitude similarity cell frequencies). Because Ss were so unevenly distributed across cells and were distributed with such low frequencies

(as a function of Ss who actually participated in the experiment), a greater chance exists that the F-tests which were calculated were not robust to potential violations of assumptions. Should the latter result have occurred, the alpha level which was set for the experiment (i.e., alpha-set = .05) may have been inappropriate to the conditions of the experiment (i.e., alpha-set would not have been equal to alpha-true). As a result of potential violations of the homoscedasticity assumption, the F-test would have been liberal or conservative, depending on the pattern of relationships between the n's and the variances. Should the normality assumption be violated, the degree of conservatism or liberalism displayed by the F-test would have depended on the shape of the sampling distribution of $\bar{X}$.

Although the normality and homoscedasticity assumptions, in fact, may not have been violated in this study (again, the low sample size prevented the testing of these assumptions), one assumption which may have been violated is the sphericity assumption, which assumes that, "for all possible levels of the fixed variable [in this case attitude similarity], the variance of the difference between pairs of scores across all levels of the random effect [conversational stage] must be constant" (Toothaker, 1974, p. 80). Because both the general sphericity assumption and its more specific case, compound symmetry, are more than likely not met in practical settings such as the repeated measures design[7] (Toothaker, 1982) and

because the F-test is not robust to violations of the sphericity assumption, all F-tests generated in this study may have been too liberal (i.e., alpha-true would have been greater than alpha-set). As a result, the probability of Type I error may have increased in all cases where significant differences were declared.

Internal Validity

Related to statistical conclusion validity which addresses whether covariation between the independent and dependent variables actually exists, internal validity focuses on "the validity with which statements can be made about whether there is a causal relationship from one variable to another in the form in which the variables were manipulated or measured" (Cook and Campbell, 1979, pp. 40-41). Two variables which may have called into question the internal validity of the present study are the high mortality rate and a potential testing effect due to the number of times the dependent measures were completed across time. In turn, the former may have acted to cause a third threat to the internal validity of the study: more specifically, a "selection" effect, or an effect due to possible differences between the kinds of people who participated in each experimental group. Because the existence of the first and third threats became obvious to the researcher during data collection, and because the second was described as a "problem" by Ss in the debriefing, the decision was made to report them as potential threats

at this time. The form and implications of each will be documented in the following paragraphs.

As stated in the previous section, only 52 subjects participated in Phase II. As a result only 26 dyadic scores in total were employed. Although this sample size (N = 26), indeed, is quite low, it becomes even more problematic when placed in the context of the overall mortality rate. When the study began, 148 Ss had completed the initial attitude survey and had been assigned to different levels of the sex of dyad X attitude similarity conditions. Upon completion, however, the study had produced close to a 70% mortality rate for dyads. Again, this figure should be placed in the proper context; a dyad was counted as "lost" if one or both persons did not arrive at the experimental session. In this instance, Ss were given the option of either being rescheduled and paired with a partner at a later time, or completing an individual task, the 65-item Interpersonal Uncertainty Scale employed in Phase I. The resulting data were used to aid in assessing the reliability of the resulting 10-item measure of interpersonal uncertainty across universities.

As a result of the high mortality rate, random assignment to conditions was lost, as was the closely associated assurance that probabilistically equivalent groups received the treatments. More specifically, the possibility may have arisen that any significant F-tests which emerged in the previous results may have been due to differences between the

kinds of people in one experimental condition as opposed to another. The highly unequal cell frequencies suggest the existence of this possibility, given the paucity of males in the completely disagree condition. However, a second and related selection problem may have emerged as well: the possibility that the nonorthogonal design which "emerged" accurately depicted the distribution of attitude similarity responses to the two attitude items in the "real world." If this situation in fact occurred, orthogonality may have been forced on a design that should have been treated as nonorthogonal initially, particularly as a function of the decision to "force" equal cell sizes whenever possible. As a result, the F-ratios and their respective degrees of significance again may have become questionable.

A third possible threat to the internal validity of Phase II in this study may have been the existence of a testing effect, or an effect due to the number of times that interpersonal uncertainty and attraction were measured. Because Ss were asked to complete the same booklet at three different intervals during the experiment, and because they were asked to do so within seven to ten minutes of their last completion, Ss may have attempted a form of "hypothesis guessing" or may have felt the need to be consistent in responding to the respective booklet items. Although the researcher considered this effect as a possible effect initially, the nature of the repeated measures design rendered very few alternatives.

However, upon completion of the data collection stage, Ss confirmed the existence of a "testing" effect during the course of the debriefing. For example, one subject specifically stated that he deliberately refrained from using extreme scores when completing the scales across conversational stages. The reason he gave for his behavior was that he was unsure about whether both partners would exchange responses at some point during the experiment. As a result of this fear, he made the decision to limit the extremity of his responses. This admission alone may shed some light on the few differences existing across conversational stage for interpersonal attraction. At the very least, it suggests the possibility of a testing effect.

Construct Validity

Much as statistical conclusion validity and internal validity are related as a function of the questions which they ask, so construct validity and external validity concerning a given piece of research are inextricably bound. While construct validity refers to "the approximate validity with which we can make generalizations about higher order constructs from research," external validity addresses the researcher's ability to generalize to particular target persons, settings and times (Cook and Campbell, 1979, p. 38; p. 71). Thus, questions of construct validity ask, "Can I generalize from this one operation or set of operations to a referent construct?" External validity asks whether I can generalize to and across populations, settings and times.

In turning to the construct validity of the current study and specific threats which may have affected the results, at least one major problem emerged during the course of the study which may have produced nonsignificant findings. The manipulation of attitude similarity was not completely successful, as indicated by the use of the three-item perceived attitude similarity check. Although the overall analysis of variance revealed the existence of a significant effect for attitude similarity ($F(2,20) = 4.86$, $p = .02$, $\omega^2 = 0.10$), results of the studentized range procedures revealed that only the 0% and 100% levels of attitude similarity differed significantly. Consequently, the fit between the operations and conceptual definition of "attitude similarity" was less than optimal and, as a result, may have prevented the possibility of detecting the hypothesized attitude similarity X conversational stage interaction.

In turning to possible reasons for the partial failure of the similarity manipulation, perhaps the most compelling arguments emerged during the debriefing session with Ss. First Ss stated that the items themselves were "vaguely worded" and, as a result, caused insecurity regarding how Ss responded on the dichotomous scale (See Appendix A for a review of the attitude survey employed). Consequently, upon conversing with their partners, several of the subjects found that they were much more similar to their partners than they initially had believed. Second, Ss stated that generally they knew very

little about nuclear energy, although they believed the abortion item to be highly salient. Such a difference in the salience of the items also may have caused the attitude manipulation to fail, particularly when coupled with Ss' perceptions that the items were "vaguely worded." Finally, Ss stated that two items alone provided too little information to allow a determination concerning similarity between themselves and their partners -- again, a potential reason for only partial success in manipulating attitude similarity. Although this latter statement has some validity in light of current attitudinal research (e.g., Kaplan, 1981), the decision was made to employ only two items in order to replicate the Sunnafrank research as closely as possible. Indeed, any one of these problems could have caused the attitude similarity manipulation to fail, and hence, may have contributed to the creation of a nonsignificant attitude similarity X conversational stage interaction.

External Validity

Although it is generally appropriate to reserve a discussion of external validity for the conclusions or "final chapter" of a respective paper (more will be said about the external validity of the study in Chapter IV), two specific threats to the external validity of the current study may have impacted on the results themselves and, consequently, may have contributed to the nonsignificance of the findings. It is for this reason that a decision was made to address these

potential threats at this time. The problems in question are the time of year during which the study was conducted and the experimental setting which was selected. Each of these problems will be explicated in the following paragraphs.

Perhaps the most threatening problem which existed for this study and which may have affected the validity of Phase II was the fact that the collection of data was conducted during the Summer term. Although this situation ideally should have produced little negative impact when considered alone, two different sets of evidence argue to the contrary. First, Ss themselves admitted during the debriefing that time of year was a factor in their decision to avoid participation even though they initially had agreed to take part in the study. This factor, when combined with the fact that the study was conducted at the beginning of the term (a time when extra points were less important), was cited as a number one reason for non-participation. The overall result of this timing factor was a serious loss of dyads, a loss of strict randomization and the subsequent loss of equality of cell frequencies in the design. Consequently, the chance that the author's data became serially correlated possibly increased. As previously acknowledged, the mortality rate also directly contributed to the unequal cell frequencies and, thus, may have created F-ratios which were not robust to violations of the normality and equal variance assumptions. The results of

a potential violation of the homoscedasticity and normality assumptions previously have been discussed. Violation of the independence assumption may have produced F-ratios that were either very liberal, in the case of a positive correlation, or very conservative, in the case of a negative correlation. In either event, the F-tests would not have been robust to a violation of this assumption. As a result, the alpha-set (.05) may not have been equivalent to alpha-true.

The second problem which may have impacted on the external validity of this study and which may affect all other forms of validity addressed was the issue raised by the research setting that was selected. Because six rooms had to be secured within a close proximity to one another to complete the study, the data collection setting had to be moved from the most ideal setting (the building in which Communication classes were held) to a setting less ideal and less easily accessed by Ss (the campus library). Two specific sets of evidence support the salience of this problem to the degree of success in completing Phase II of this study. First, Ss themselves identified this problem as a major reason for non-participation during the course of the debriefing. Second, and perhaps as equally compelling, all Ss who initially were not assigned to dyads and who aided in assessing the reliability of the interpersonal uncertainty instrument arrived and participated in the completion of this individual task. The only difference between these Ss and Ss who were assigned to dyads was the location

where the Ss were to meet. The former met in the building in which their Communication classes were held.

To this point, I have offered two possible interpretations of the results which emerged in this study. In addition, I have argued that the second interpretation (i.e., potential validity problems) is the most plausible at the present time, given the problems and events which surrounded the completion of Phase II. Although these problems indeed call into question the overall validity of the study, the exploratory nature of the project as well as the patterns which emerged in the data suggested that interesting and pertinent information might be gleaned from additional analyses of the data, especially given the nature of Phase I in this study. For these reasons, the decision was made to include the following additional information, which is pertinent in addressing more completely Research Question Two.

Phase II: Contributions to Research Question Two

Although the study completed in Phase II did not allow for the testing of the proposed hypotheses, several interesting results pertinent to Phase I did emerge. As stated earlier, significant main effect differences were found in the MANOVA due to conversational stage ($F(6,76) = 9.03$, $p = .0001$, $\omega^2 = .077$). Additionally, MANOVA revealed that an effect for attitude similarity approached the level of significance ($F(6,36) = 2.25$, $p = .06$). As a result, univariate analyses of variance for each of the dependent variables were conducted

in order to determine the existence of possible univariate effects. Again, results of this analysis revealed that conversational stage produced a significant effect for both attraction and interpersonal uncertainty (attraction: $F(2,40) = 5.14$, $p = .01$, $\omega^2 = 0.06$; interpersonal uncertainty: $F(2, 40) = 32.66$, $p = .0001$, $\omega^2 = 0.33$). However, no significant effects were found for either dependent variable across level of attitude similarity (attraction: $F(2,20) = 0.73$, $p = .49$; uncertainty: $F(2,20) = 2.00$, $p = .16$). Mean scores for uncertainty were presented in Table 8 of the present chapter.

In turning to a possible interpretation of the additional analyses which were performed, several interesting patterns emerged -- again, keeping in mind the limitations previously presented. While shifts in the means for interpersonal uncertainty were relatively large and were in the predicted direction as hypothesized in the uncertainty literature overall, shifts in attraction scores were very minute at best, usually ranging from 0.0 to 1.0 -- a fraction of a point. Although these findings potentially call into question previous research concerning attitude similarity and attraction, again the limitations of the study do not allow this interpretation. Only additional research in this area would allow such an interpretation. The limitations of Phase II seem to do far less damage, however, when addressing Research Question Two. The cell means seem generally to support the construct validity of the

Interpersonal Uncertainty Scale. In addition, they provide supporting evidence for the construct validity of the conversational stage manipulation.

Summary

In Chapter III of this thesis the results of Phase I and II were presented. In addition, each phase was discussed in light of possible interpretations. Phase I, which described the construction and validation of an interpersonal uncertainty scale, was addressed in light of the existing literature concerning uncertainty. Phase II, which attempted to replicate previous findings, produced problems which forced an interpretation based on the questionable validity of the study. Although problems indeed existed for Phase II, they presented positive information concerning the potential construct validity of the Interpersonal Uncertainty Scale. In addition, they offered useful insights for future research.

Given the findings and conclusions which emerged as a function of Phases I and II, individually, we now turn to overall conclusions which emerged concerning the project as a whole, as well as to possible directions for future research. These topics will be addressed in Chapter IV, "Summary and Conclusions."

CHAPTER IV

SUMMARY AND CONCLUSIONS

In previous chapters, a rationale and literature review were presented which argued the value and merits of conducting the present research. As a result of the arguments made, a set of methods and procedures were delineated which were designed to address the overall research question. Finally, the results which emerged in this study were reported and discussed in an effort to explicate and interpret the research findings.

In Chapter IV of this thesis, an overall assessment of the study will be made. More specifically, four major questions will be addressed. First, given the purposes of the study, to what degree can the goals of the project be said to have been achieved? Second, in what ways does the study contribute to theory in the area of uncertainty as well as to theory concerning the attitude similarity-attraction relationship? Related to this question, what practical contributions does the overall study make? Finally, this chapter will address possible directions for future research concerning interpersonal uncertainty as well as concerning the relationships among attitude similarity, uncertainty and attraction.

Goal Achievements

As delineated in Chapter I, the purpose of the present research was twofold: (1) to construct and validate a measure of interpersonal uncertainty based on cumulative conceptualizations of uncertainty in the literature, and (2) to more clearly address the relationships among attitude similarity, uncertainty and attraction. In order to assess the degree of success that was realized in achieving these goals, the following discussion presents an evaluation of each phase comprising the study. The discussion will begin with an assessment of the degree to which Phase I achieved its primary goals. Following this evaluation, the discussion will turn to potential achievements which emerged from Phase II.

In beginning to evaluate the outcomes of Phase I and the degree to which this stage achieved its purpose, the overall results suggest that Phase I successfully achieved its primary goal, i.e., a viable interpersonal uncertainty measure was constructed. As established in the previous chapter, the ten-item Interpersonal Uncertainty Scale possesses moderate to high internal reliability as well as a moderately high degree of face validity. Estimates of the face validity of the scale included communality estimates produced by the principle components analysis and the provision of supporting evidence concerning current literature in the area of uncertainty. Estimates of the instrument's reliability took several forms. First, the factor loadings and the alpha coefficient provided evidence

for the internal consistency of the scale. Second, analysis of variance, multiple classification analyses, and/or the calculation of Pearson product-moment correlation coefficients revealed the potential generalizability of the Interpersonal Uncertainty Scale across the many demographic variables also employed in the study. Of particular interest were the potential differences which might exist across universities; no significant differences were found for this particular variable as well. Finally, the results of Phase II partially established the viability of the uncertainty scale; when utilized, the instrument produced cell means which emerged in the appropriate directions.

In turning to an evaluation of the degree of success achieved by Phase II of the present study, perhaps the best assessment would be that the "jury is still out" -- we simply cannot know the value of the study until future research is conducted. As stated in the previous chapter, two interpretations of the data exist. First, previous research by Sunnafrank and Miller (1981) and Sunnafrank (1983) in fact may be unreplicable, once corrections have been made for violations of statistical assumptions. However, the limitations of the present study itself prevent adequate testing of this hypothesis as well as suggest an alternative explanation: threats to the validity of the current research may have produced the discrepant results.

Thus, given the limitations which were reflected in Chapter III, the question remains: What relationship, if any, exists among attitude similarity, uncertainty and attraction? Although some light has been shed on possible reasons for inconsistencies in past attitude similarity-attraction research, particularly as a function of Chapters I and II of this study, little is known concerning the specific relationships which might exist. However, some additional light has been shed on the problems which arise when one attempts to address the specific hypothesized relationships. In addition, the study revealed significant insights regarding directions for future research.

Theoretical Contributions

In addressing the theoretical contributions of each respective stage of this study, again the outcome was favorable, particularly for Phase I. First, a viable operationalization of the uncertainty construct was achieved -- an operationalization which provides an additional means of addressing interpersonal uncertainty in initial interactions. (Again, the CLUES scales represent the only major alternative operationalizations, to date.) Because all theory building is based on a general ability of the researcher to tap the construct(s) of interest, creation of the Interpersonal Uncertainty Scale in this study provides a potential foundation on which future uncertainty research and theory might be based.

Second, the findings which emerged in Phase I provide support for Berger's (1975) argument that prediction (proactive attributional confidence) and explanation (retroactive attributional confidence) are inextricably bound. That items written for both dimensions of the construct loaded on the same initial principle component provides major supporting evidence for Berger's (1975) position. Ironically the findings simultaneously call into question much of Berger's research, however, given his almost exclusive reliance on Clatterbuck's CLUES scales. As stated earlier, Clatterbuck (1979) operationalized uncertainty through the use of two alternative scales: the first, which was designed to tap proactive attributional confidence, and the second, which addressed the concept of retroactive attributional confidence. Additionally, Clatterbuck argued that the two instruments were interchangeable, given the degree to which the two measures were found to be correlated. The flaw in Clatterbuck's logic, however, is that if the two scales in fact are highly correlated, they may be tapping a single, unidimensional uncertainty construct. Although Clatterbuck argues that the existence of strong correlations <u>supports</u> the interchangeability of the two uncertainty scales, an alternative argument may be made that sensitivity of the scale to measure what it is supposed to measure is the primary goal of the researcher whenever he or she utilizes an instrument or scale. In this instance, Clatterbuck may have traded the potential sensitivity of an

alternative scale for the ease which accompanied continued use of his own pre-existing uncertainty measures. Perhaps, a more precise index of interpersonal uncertainty might have been an instrument which taps both elements of uncertainty within a single, multi-dimensional instrument. The ten-item Interpersonal Uncertainty Scale represents one such possible index.

A third theoretical contribution which Phase I makes to a clearer understanding of the uncertainty construct is that the findings call into question the alleged contribution of perceived "influence" or "control" to an explication of interpersonal uncertainty (see Berger and Bradac, 1982). Because approximately one-third of the items constructed in the present study for the initial 65-item Interpersonal Uncertainty Scale addressed the concept of "influence," and because no "influence" items loaded purely on any principle component, a question is raised regarding the value of the concept's inclusion in the uncertainty literature. Two possible explanations exist, however, for the "poor showing" of the influence dimension: (1) influence, in fact, may not affect interpersonal uncertainty in initial interactions or (2) the operational definition of the construct may have been inadequate, given that no items loaded on any resulting factor. Although the first explanation represents one viable interpretation of the results, the probability that all 17 "influence" items fell out of the analysis by chance alone seems exceptionally low, given the approximately equal loading on Factor 1 by

items tapping "prediction" and "explanation." However, because this study represents at best an initial attempt to tap the hypothesized relationship between "influence" and interpersonal uncertainty in initial interactions, future research more completely should address the issues before definitive conclusions regarding the relationship may be drawn.

In turning to the theoretical contributions of Phase II and its implications for the uncertainty literature, perhaps the greatest contribution which emerges is the heightened sense of awareness that the study produced concerning inherent problems in attitude similarity-attraction research. Although no easily interpretable findings may be said to have resulted from Phase II, valuable insights were gained regarding the need for researchers to more accurately report procedures that are utilized and limitations which emerge. Certainly, in recent years, the editorial policies of Communication journals seem to have changed, particularly regarding the length and form in which these research elements are presented. More specifically, a premium seemingly is placed on studies containing no visible limitations. Such a policy is reflected in the few articles which include precise descriptions of research procedures as well as the few which precisely address the respective study's limitations. As a result of such policies, specific attempts on the part of this researcher to replicate one such study provide a key

example of the problems which possibly may emerge. Thus, through accurate reporting of the problems which existed in the present research and through a careful delineation of the study's limitations, it was hoped that researchers might gain from both the content and the form in which the results and discussion of this study were presented. Given the nature of theory building as a scientific enterprise, such insights alone contribute to the overall theory building process.

A second theoretical contribution which the completion of Phase II offers is the establishment of a need for greater caution when conducting dyadic research. As reflected throughout this dissertation, the use of dyadic data necessarily complicates any research endeavor, particularly the procedural and statistical decisions which must be made. As a result, special care must be taken to test for potential violations of assumptions as well as to use the appropriate statistical procedures. The limitations of this study alone reflect the scope of these concerns, as does the rationale and literature review on which this study was based.

Finally, although we know little more about either the attitude similarity-attraction relationship or the potential mediating effects of uncertainty, Phase II may have shed some light on particular reasons for inconsistencies in the literature. First, violations of assumptions will produce often uninterpretable results. As a result, if such violations are overlooked, one's findings may seem inconsistent rather than

difficult to interpret. Second, internal validity problems within a given study may contribute to the perception that inconsistencies exist, particularly as a function of such threats as high mortality rates, testing effects or selection effects. The precise outcomes of these effects were described in Chapter III. Third, an inability on the part of researchers to successfully manipulate their independent variables has posed particular threats to research in the areas of attitude similarity, uncertainty and attraction (e.g., Berger and Clatterbuck, 1976, and the present study). As a result of this problem, the construct validity of those studies may be called into question and, again conflicting results may emerge in the process. Finally, threats to the external validity of a study can directly affect one's results, in many ways which often make one's data uninterpretable. As argued in Chapter III, persons, settings, and times employed in a given research project directly impact on one's results. In short, each form of validity discussed and its respective degrees of achievement have the potential to directly affect one's results and subsequent interpretations. Consequently, the potential and actual existence of such threats across the attitude similarity-uncertainty-attraction literature helps partially to explain inconsistent and contradictory findings.

Practical Contributions

In attempting to establish the practical significance of each phase completed in this study, again, the discussion may

be broken into two separate parts: (1) contributions made by Phase I regarding the Interpersonal Uncertainty Scale and (2) contributions potentially offered as a function of Phase II, which addressed the attitude similarity-uncertainty-attraction relationship. Each of these potential contributions will be addressed in the following paragraphs.

Perhaps, the single-most practical contribution of this study was the creation of the ten-item Interpersonal Uncertainty Scale. As stated earlier, this index is moderate to high in internal consistency, evidenced by the factor loadings, as well as the reliability of the scale across the three different sections of the country, to date (the South, the Southwest and the Midwest respectively; see Chapter III, page 74). In addition, the communality estimates indicate a moderate degree of validity for the factor structure, and the direction of the cell means for uncertainty assessed in Phase II were found to exist in the hypothesized direction. The latter provides initial supporting evidence for the construct validity of of the scale.

In terms of the practical contribution of the scale itself, little information is available, given the recency of its construction and initial validation. In addition, problems existed in Phase II of the study, by which the value of the scale was to have been assessed. Until future research has been conducted and the scale has been thoroughly tested, little information will exist concerning its practical significance.

In turning to the practical contributions of Phase II, perhaps the greatest value of this stage lies in its directions for future research. Because the completion of Phase II was problematic in several areas concerning the study's overall validity, many insights were revealed as a function of its limitations. However, given that these "insights" have been reviewed at several points, again the question turns to the overall practical contributions of the study. In answering this question, the same response as that concerning Phase I must be given: namely, that much more research remains to be conducted before assessments of the study's practical value will be known.

Having acknowledged this additional limitation of the study, the discussion now turns to potential directions for future research. Again, the presentation will focus on future directions for research concerning both uncertainty and the relationships among attitude similarity, uncertainty and attraction.

Directions for Future Research

In turning to directions for future research which emerged from the present study, potential directions evolved for (1) uncertainty research overall, (2) for scholars who are interested in the relationships among attitude similarity, uncertainty and attraction, and (3) for this researcher regarding her own specific research program. Given the value of these directions for researchers which emerged as a function of the

study, the decision was made to report each set of possible options at the present time. The discussion begins with an address of directions for future research in the area of uncertainty.

Future Research in the Area of Uncertainty

In turning to directions for future research concerning "uncertainty" which evolved from the present study, two major goals emerged as targets for researchers in the area. First, measures of uncertainty should continue to be developed and to be stringently evaluated at every level with regard to reliability and validity. Such assessments will allow for more accurate measurements of the uncertainty construct. In addition, once one (or more) valid and reliable indexes have been constructed and thoroughly tested, attempts should be made to construct ways of manipulating uncertainty.

In turning to the first of these directions for uncertainty research, perhaps the most compelling argument that may be made for the direction's value is that we cannot begin to understand interpersonal uncertainty until we can develop reliable and valid indicators of the underlying construct. In short, until researchers are able to successfully "measure" varying levels of interpersonal uncertainty, little information will be gleaned regarding the value of the uncertainty construct or its potential relationship to other variables such as attitude similarity and attraction.

Second, researchers must begin to find ways of manipulating the uncertainty variable, particularly once one or more valid and reliable indexes have been achieved. Such an ability is critical if researchers are to begin addressing the causal relationships which potentially exist between uncertainty and other variables of interest. Once the creation and validation of uncertainty measures have been achieved, in turn the measures of uncertainty themselves may act as manipulation checks. In this way the construct validity of the interpersonal uncertainty measure also may be assessed.

Future Research Concerning Attitude Similarity and Attraction

In addressing future directions for researchers who are interested in the relationships among attitude similarity, uncertainty and attraction, the task becomes increasingly arduous given the state of the literature concerning these variables. For example, before we can actually begin to address the hypothesized relationships among the variables, we must begin to sort out potential problems in previous research and to find ways of addressing potential inconsistencies before further work continues. Chapter I of this dissertation represents one such attempt to critically analyze previous research.

Related to this first suggestion, uncertainty scholars should become increasingly strenuous in assessing the merits of their own research, as well as the work of other researchers in pertinent or related areas of interest. As argued throughout

this thesis, much research has "slipped past" editors' and reviewers' hands with regard to methodological and statistical weaknesses. As a result, the literature is replete with inconsistent and contradictory findings.

Third, key studies should be replicated in instances where weaknesses in the research have become known. The attempted replication in the present study represents such an instance, in this case an important replication given the methodological and statistical weaknesses in the Sunnafrank (1983) study. Although, for some years, replications have been frowned upon as the "black sheep" of research endeavors, the very nature of the scientific enterprise actually requires the constant questioning of results. Applied to research concerning attitude similarity and attraction, replications of key studies which are questionable in nature may provide a more solid foundation from which to build an understanding of the relationships among attitude similarity, uncertainty and attraction. Unless such a foundation is built, current theories may begin to crumble.

Fourth, once such attempts are made to clarify potential inconsistencies existing in the uncertainty literature, both through critical assessments of research and possibly a number of replications, attempts should be made to manipulate successfully both "attitude similarity" and "uncertainty." Until these variables can be successfully manipulated, we cannot establish the existence of causal structures among attitude similarity, uncertainty and attraction.

Directions for a Specific Research Program in the Area of Attitude Similarity, Uncertainty, and Attraction

In turning to directions for a specific research program which emerge from the present research, perhaps the most immediate concern is the need to replicate Phase II, with corrections for each threat to validity established and delineated in Chapter III. Such a study would take into account the need for a much larger population from which Ss could be drawn as well as the need to more cautiously utilize randomization procedures and equal cell sizes. Second, this replication would attempt to more successfully manipulate the "attitude similarity" variable and would take into account the testing effect which potentially effected previous results. Finally, a more appropriate setting and time would be chosen for experimental sessions to maximize subjects' participation. In short, replication of the present study is of greatest concern.

Given the potential existence of supporting evidence which might emerge from such a replication of the current study, the next step would be the calculation of Pearson product-moment correlation coefficients between uncertainty and attraction at each level of the attitude similarity X conversational stage analysis. Results of such an analysis would produce additional insights concerning the relationships among uncertainty and attraction as a function of level of

attitude similarity and would lend credence to the construct validity of the Interpersonal Uncertainty scale.

Simultaneously, efforts could be made to take the Interpersonal Uncertainty Scale into additional research settings, in an attempt to assess the reliability of the uncertainty scale in non-laboratory settings. Likewise, assessments of validity might be made as a function of the degree to which the scale functioned successfully in each successive study completed. In either event, constant attempts should be made to establish the degree of validity and reliability of the uncertainty scale. In this way, more information might be gleaned concerning the uncertainty construct.

Given the possibility that a valid and reliable index of uncertainty might emerge from this hypothetical research, the next step would be an attempt to manipulate uncertainty, perhaps using the Interpersonal Uncertainty Scale as a manipulation check. Should the successful manipulation of both attitude similarity and uncertainty evolve in a given study, headway could be made in establishing the potential mediating effects of uncertainty in the attitude similarity-attraction relationship.

Summary

In summary, the purpose of this dissertation was two-fold: to construct and validate a measure of interpersonal uncertainty based on cumulative conceptualizations in the literature, and to test for the existence of possible relationships among

attitude similarity, uncertainty and attraction. Following the completion of a two-phase study, which was designed to address each of these goals, results concerning the successive stages of the research project were presented and interpreted. It was determined that Phase I achieved a highly positive degree of success, while Phase II was limited in the degree to which its immediate goals were achieved. Based on these perceptions, Chapter IV presented an overall evaluation of the study. In addition, directions for future research in the areas of attitude similarity, uncertainty and attraction were presented.

FOOTNOTES

[1]Specific details concerning the pairwise comparisons were not reported. The author stated only that a difference existed between the 0% and 100% conditions ($p < .05$), and that the differences between the 50% and 100% conditions fell just short of significance. (Berger and Clatterbuck, 1976)

[2]Although Berger et al (1976) made statements concerning directionality with regard to the hypothesized relationships between attraction and reciprocity of conversational exchange as well as for differences in predictive confidence as a function of sex, only results of their F-tests were presented as evidence. No tests of selected comparisons, the primary means of establishing directionality, were reported. Consequently, the authors' interpretation of the data is questionable.

[3]These results will be reviewed at a later point in time and, therefore, will not be presented here.

[4]Because the results concerning this hypothesis are not directly related to the research question, they will not be reviewed. For a more complete discussion, the reader is directed to Clatterbuck (1979).

[5]For example, Berger, Gardner, Parks, Schulman and Miller (1976) found that females reported higher confidence in predictive abilities than males while other researchers have found no significant gender effects.

[6]Due to scheduling problems and the distribution of attitude responses, at times it became necessary for the experimenter to arbitrarily pair the dyads.

[7]Compound symmetry is a special case of the sphericity assumption and requires equality of correlations between observations in all possible fixed effects levels across all levels of the random variable.

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APPENDIX A

Booklet I

Booklet I

To the Reader:

The study in which you are about to participate focuses on how we form impressions of other people and how that process affects our thoughts and feelings about future relationships with those individuals. In order to help us understand this process, we will be asking you to complete an information sheet and a brief attitude questionnaire. We then will provide you with the same questionnaire, as it was completed by a student at another major university, and will ask you to form an impression of that person based on his or her responses. Once you have read his or her responses and have thought about what that person is like, we will ask you to complete another attitude survey and a questionnaire with that person in mind. We hope that you enjoy participating in this study and that you find it to be an interesting experience. Thank you, in advance, for your participation.

INFORMATION SHEET: Please fill in the following information about yourself.

1. Social Security Number: _____*

2. Age: _____

3. Sex (circle one): Male Female

4. Ethnic background (circle one): Caucasian, not Hispanic
Black, not Hispanic
Hispanic
Asian or Pacific Islander
American Indian or Alaskan Native
Other (please specify) _____

5. Hometown and State: _____

6. University: _____

7. Year in school (please circle one): Freshman
Sophomore
Junior
Senior
Graduate Student
Other (please specify): _____

8. Major: _____

*Note: We are asking for your social security number in order that we may complete additional research in the future without confusion. Any responses that you make in this questionnaire will remain confidential.

ATTITUDE SURVEY 1: Each of us has our own unique attitudes and opinions concerning current issues. On the following scale, please indicate whether you agree or disagree with the following statements.

	Agree	Disagree
1. Nuclear power should not be maintained as a major source of energy in the United States.	_____	_____
2. Women should have the right to choose abortion as an alternative method of birth control.	_____	_____

APPENDIX B

Bogus Questionnaires:

The Attitude Similarity/Dissimilarity Manipulation

ATTITUDE SURVEY 2: Like the scale that you just completed, the following questionnaire was completed by a student at another major university. After reading his or her answers which are presented below, take a few moments and form an impression of the type of person that you think he or she is, based on his or her responses. Also think about the extent to which that person's attitudes overall may agree or disagree with yours.

	Agree	Disagree
1. Nuclear power should not be maintained as a major source of energy in the United States.	X	
2. Women should have the right to choose abortion as an alternative method of birth control.	X	

ATTITUDE SURVEY 2: Like the scale that you just completed, the following questionnaire was completed by a student at another major university. After reading his or her answers which are presented below, take a few moments and form an impression of the type of person that you think he or she is, based on his or her responses. Also think about the extent to which that person's attitudes overall may agree or disagree with yours.

	Agree	Disagree
1. Nuclear power should not be maintained as a major source of energy in the United States.	X	
2. Women should have the right to choose abortion as an alternative method of birth control.		X

ATTITUDE SURVEY 2: Like the scale that you just completed, the following questionnaire was completed by a student at another major university. After reading his or her answers which are presented below, take a few moments and form an impression of the type of person that you think he or she is, based on his or her responses. Also think about the extent to which that person's attitudes overall may agree or disagree with yours.

	Agree	Disagree
1. Nuclear power should not be maintained as a major source of energy in the United States.	____	X
2. Women should have the right to choose abortion as an alternative method of birth control.	X	____

ATTITUDE SURVEY 2: Like the scale that you just completed, the following questionnaire was completed by a student at another major university. After reading his or her answers which are presented below, take a few moments and form an impression of the type of person that you think he or she is, based on his or her responses. Also think about the extent to which that person's attitudes overall may agree or disagree with yours.

	Agree	Disagree
1. Nuclear power should not be maintained as a major source of energy in the United States.	____	X
2. Women should have the right to choose abortion as an alternative method of birth control.	____	X

APPENDIX C

Attitude Survey 3:

The Manipulation Check

ATTITUDE SURVEY 3: Based on the impression that you have just formed of the person whose attitude survey you have read, to what degree do you agree or disagree with the following statements?

	Very Strongly Agree	Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree	Very Strongly Disagree
1. Generally, I believe that this person and I have similar attitudes.	1	2	3	4	5	6	7
2. This person and I are dissimilar in beliefs.	1	2	3	4	5	6	7
3. Overall, this person and I are similar to one another.	1	2	3	4	5	6	7

APPENDIX D

The 65-Item Interpersonal Uncertainty Scale

Questionnaire

INSTRUCTIONS: Please read carefully the following statements which are designed to tap your thoughts and feelings about other people. Then, specifically keeping in mind the person that you just formed an impression about, circle the number (ranging from very strongly agree to very strongly disagree) which best represents the degree to which you agree or disagree with each of the statements. Think carefully about each individual statement before selecting your response.

QUESTIONNAIRE

		Very Strongly Agree	Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree	Very Strongly Disagree
1.	Generally, I feel uncertain that I could predict the personal values that _____ holds.	1	2	3	4	5	6	7
2.	In general, I feel confident that I could have an impact on ___'s personal values.	1	2	3	4	5	6	7
3.	In general, I feel confident that I could influence the rewards that would exist in a relationship with _____.	1	2	3	4	5	6	7
4.	Generally, I feel sure that I could predict the risks involved in a relationship with _____.	1	2	3	4	5	6	7
5.	I feel unsure of my ability to explain how _____ would respond in most formal settings.	1	2	3	4	5	6	7
6.	In most formal settings, I feel sure that I could predict how _____ would respond.	1	2	3	4	5	6	7
7.	I feel certain that I could accurately predict what _____ would want to achieve if she/he spoke with me.	1	2	3	4	5	6	7

		Very Strongly Agree	Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree	Very Strongly Disagree
8.	In most situations, I feel unsure that I could explain ___'s responses toward me.	1	2	3	4	5	6	7
9.	I am doubtful of my general ability to predict how _____ would behave.	1	2	3	4	5	6	7
10.	I feel that I know _____ well.	1	2	3	4	5	6	7
11.	In general, I feel certain that I could influence ___'s personal attitudes.	1	2	3	4	5	6	7
12.	Generally, I feel certain about predicting ___'s personal preferences.	1	2	3	4	5	6	7
13.	I feel uncertain that I could predict how _____ would respond to me in most situations.	1	2	3	4	5	6	7
14.	In general, I would feel unable to explain the potential status of a relationship with _____.	1	2	3	4	5	6	7
15.	I feel that I could accurately predict ___'s personal attitudes.	1	2	3	4	5	6	7
16.	I would feel uncertain about predicting ___'s feelings and emotions.	1	2	3	4	5	6	7
17.	In general, I am unsure that I could explain ___'s behavior.	1	2	3	4	5	6	7

		1 Very Strongly Agree	2 Strongly Agree	3 Agree	4 Don't Know	5 Disagree	6 Strongly Disagree	7 Very Strongly Disagree
18.	Generally, I am confident that I could explain what I would say to _____.	1	2	3	4	5	6	7
19.	I could empathize with (share) the way _____ feels about himself/herself.	1	2	3	4	5	6	7
20.	I feel sure that I could predict the common goals that _____ and I would have in a personal relationship.	1	2	3	4	5	6	7
21.	In general, I feel uncertain that I could explain common goals for our relationship.	1	2	3	4	5	6	7
22.	In most instances, I feel confident that I could influence the costs that would arise in a relationship with _____.	1	2	3	4	5	6	7
23.	I am doubtful that I could choose the best way to talk with _____ in most situations.	1	2	3	4	5	6	7
24.	I feel uncertain about predicting how _____ would respond in most informal settings.	1	2	3	4	5	6	7
25.	In most instances, I feel doubtful that I could explain ___'s personal values.	1	2	3	4	5	6	7
26.	I feel doubtful that I could predict the future status of a relationship with _____.	1	2	3	4	5	6	7

		Very Strongly Agree	Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree	Very Strongly Disagree
27.	In most cases, I feel certain that I could explain ___'s personal attitudes.	1	2	3	4	5	6	7
28.	In most instances, I would feel unsure of my ability to explain our responses to one another.	1	2	3	4	5	6	7
29.	In general, I am confident that I could predict the costs involved in a relationship with _____.	1	2	3	4	5	6	7
30.	Generally, I am sure that I could influence what _____ would want to achieve when speaking with me.	1	2	3	4	5	6	7
31.	I feel doubtful that I could explain the conflict that would exist in our relationship.	1	2	3	4	5	6	7
32.	I would feel uncertain of my ability to influence ___'s personal goals.	1	2	3	4	5	6	7
33.	Generally, I am sure that I could influence what _____ would say to me.	1	2	3	4	5	6	7
34.	I feel certain that I could understand the way that _____ feels about himself/herself.	1	2	3	4	5	6	7
35.	In general, I feel confident that I could control the risks involved in a personal relationship with _____.	1	2	3	4	5	6	7

		Very Strongly Agree	Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree	Very Strongly Disagree
36.	Generally, I feel unsure that I could predict what I would want to achieve when speaking with _____.	1	2	3	4	5	6	7
37.	In most instances, I feel confident that I could predict future conflicts in our relationship.	1	2	3	4	5	6	7
38.	I feel sure of my ability to manage conflict in a potential relationship with _____.	1	2	3	4	5	6	7
39.	I feel doubtful that I could predict rewards that would come from a personal relationship with _____.	1	2	3	4	5	6	7
40.	Generally, I am uncertain that I can predict how _____ would evaluate me in most situations.	1	2	3	4	5	6	7
41.	In general, I would feel confident of achieving my goals in a personal relationship with _____.	1	2	3	4	5	6	7
42.	Generally, I am sure that I could explain ____'s personal beliefs.	1	2	3	4	5	6	7
43.	In most instances, I feel doubtful that I could influence the goals of a personal relationship with _____.	1	2	3	4	5	6	7
44.	Generally, I feel confident that I could explain why _____ would say to me the things that s/he would say.	1	2	3	4	5	6	7

		Very Strongly Agree	Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree	Very Strongly Disagree
45.	In general, I feel doubtful that I could influence the decisions that _____ makes.	1	2	3	4	5	6	7
46.	I am doubtful of my ability to influence ___'s personal beliefs.	1	2	3	4	5	6	7
47.	I feel uncertain that I could explain ___'s responses in most informal settings.	1	2	3	4	5	6	7
48.	In general, I feel confident that I could explain the rewards that would exist in our relationship.	1	2	3	4	5	6	7
49.	I feel sure that I could explain ___'s personal preferences.	1	2	3	4	5	6	7
50.	I feel doubtful that I could influence the status of a relationship with _____.	1	2	3	4	5	6	7
51.	I feel certain that _____ would like me.	1	2	3	4	5	6	7
52.	In general, I am doubtful that I could affect ___'s personal preferences.	1	2	3	4	5	6	7
53.	In most cases, I would feel unsure about predicting how we would respond to one another.	1	2	3	4	5	6	7
54.	Generally, I feel certain that I could affect how _____ would respond to me.	1	2	3	4	5	6	7

		Very Strongly Agree	Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree	Very Strongly Disagree
55.	I feel confident that I could predict how I would respond to _____.	1	2	3	4	5	6	7
56.	In general, I feel uncertain that I could predict ____'s personal beliefs.	1	2	3	4	5	6	7
57.	I am uncertain that _____ could choose the best way to talk with me in most situations.	1	2	3	4	5	6	7
58.	I feel doubtful that I could explain ____'s evaluations of me.	1	2	3	4	5	6	7
59.	In general, I feel sure that I could explain the costs that would exist in a personal relationship with _____.	1	2	3	4	5	6	7
60.	Generally, I feel unsure that I could influence the way that _____ behaves.	1	2	3	4	5	6	7
61.	I feel doubtful that I could influence how _____ would evaluate me.	1	2	3	4	5	6	7
62.	In most instances, I feel certain that I could explain the risks involved in a personal relationship with _____.	1	2	3	4	5	6	7
63.	I would feel confident about what to say to _____ in most situations.	1	2	3	4	5	6	7

		1 Very Strongly Agree	2 Strongly Agree	3 Agree	4 Don't Know	5 Disagree	6 Strongly Disagree	7 Very Strongly Disagree
64.	I feel confident that I could explain my responses to _____.	1	2	3	4	5	6	7
65.	Generally, I am uncertain about what _____ would say to me in most conversations.	1	2	3	4	5	6	7

APPENDIX E

The 10-Item Interpersonal Uncertainty Scale

INTERPERSONAL UNCERTAINTY SCALE

		Very Strongly Agree	Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree	Very Strongly Disagree
1.	I am doubtful of my general ability to predict how _____ would behave.	1	2	3	4	5	6	7
2.	I feel sure that I could predict the common goals that _____ and I would have in a personal relationship.	1	2	3	4	5	6	7
3.	I feel uncertain about predicting how _____ would respond in most informal settings.	1	2	3	4	5	6	7
4.	In most instances, I feel doubtful that I could explain ___'s personal values.	1	2	3	4	5	6	7
5.	In most cases, I feel certain that I could explain ___'s personal attitudes.	1	2	3	4	5	6	7
6.	In general, I am confident that I could predict the costs involved in a relationship with _____.	1	2	3	4	5	6	7
7.	Generally, I feel confident that I could explain why _____ would say to me the things that s/he would say.	1	2	3	4	5	6	7
8.	In general, I feel confident that I could explain the rewards that would exist in our relationship.	1	2	3	4	5	6	7
9.	I feel sure that I could explain ___'s personal preferences.	1	2	3	4	5	6	7
10.	In general, I feel sure that I could explain the costs that would exist in a personal relationship with _____.	1	2	3	4	5	6	7

APPENDIX F

The Interpersonal Judgment Scale

QUESTIONNAIRE NUMBER THREE: For each of the following questions, please place an "X" in the blank beside the sentence which best represents your thoughts and feelings about the person with whom you have just shared your ideas concerning the attitude items.

1. Intelligence (check one):

___ I believe that this person is very much above average in intelligence.
___ I believe that this person is above average in intelligence.
___ I believe that this person is slightly above average in intelligence.
___ I believe that this person is average in intelligence.
___ I believe that this person is slightly below average in intelligence.
___ I believe that this person is below average in intelligence.
___ I believe that this person is very much below average in intelligence.

2. Morality (check one):

___ This person impresses me as being extremely moral.
___ This person impresses me as being moral.
___ This person impresses me as being moral to a slight degree.
___ This person impresses me as being neither particularly moral nor particularly immoral.
___ This person impresses me as being immoral to a slight degree.
___ This person impresses me as being immoral.
___ This person impresses me as being extremely immoral.

3. Working Together in this Experiment (check one):

___ I believe that I very much dislike working with this person in this experiment.
___ I believe that I dislike working with this person in this experiment.
___ I believe that I dislike working with this person in this experiment to a slight degree.
___ I believe that I neither particularly dislike nor particularly enjoy working with this person in this experiment.
___ I believe that I enjoy working with this person in this experiment to a slight degree.
___ I believe that I enjoy working with this person in this experiment.
___ I believe that I very much enjoy working with this person in this experiment.

4. Adjustment (check one):

___ I believe that this person is extremely maladjusted.
___ I believe that this person is maladjusted.
___ I believe that this person is maladjusted to a slight degree.
___ I believe that this person is neither particularly maladjusted nor particularly well adjusted.
___ I believe that this person is well adjusted to a slight degree.
___ I believe that this person is well adjusted.
___ I believe that this person is extremely well adjusted.

5. Personal Feelings (check one):

___ I feel that I like this person very much.
___ I feel that I like this person.
___ I feel that I like this person to a slight degree.
___ I feel that I neither particularly like nor particularly dislike this person.
___ I feel that I dislike this person to a slight degree.
___ I feel that I dislike this person.
___ I feel that I dislike this person very much.

6. Knowledge of Current Events (check one):

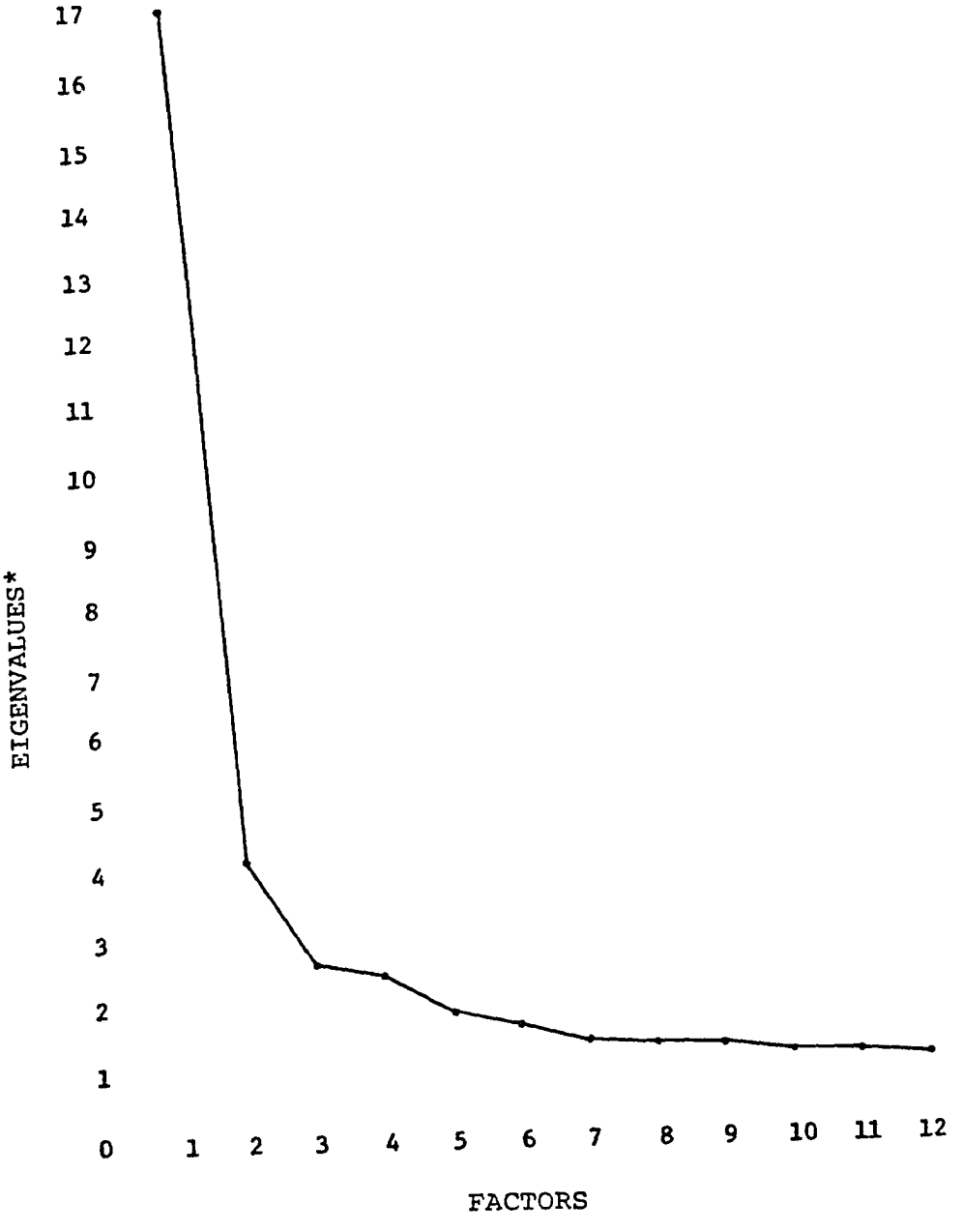
___ I believe that this person is very much below average in his (her) knowledge of current events.
___ I believe that this person is below average in his (her) knowledge of current events.
___ I believe that this person is slightly below average in his (her) knowledge of current events.
___ I believe that this person is average in his (her) knowledge of current events.
___ I believe that this person is slightly above average in his (her) knowledge of current events.
___ I believe that this person is above average in his (her) knowledge of current events.
___ I believe that this person is very much above average in his (her) knowledge of current events.

APPENDIX G

Factor Analysis Results

TABLE 1

SCREE TEST RESULTS



*Exact Eigenvalues are reported in Table 4 on page 55.

TABLE 2

ITEMS NOT LOADING ON FACTOR 1 OF THE INTERPERSONAL UNCERTAINTY SCALE-65

Items	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	H^2
1. Generally, I feel uncertain that I could predict the personal values that _____ holds.	.33	-.28	.22	.03	-.09	.27	-.19	-.04	-.17	.12	-.06	-.24	.46
2. In general, I feel confident that I could have an impact on _____'s personal values.	.34	.36	-.08	.34	-.11	.26	.20	-.11	.16	.37	.08	.08	.69
3. In general, I feel confident that I could influence the rewards that would exist in a relationship with _____.	.43	.32	-.03	.28	.08	.14	.07	.16	.09	.29	-.10	.22	.57
4. Generally, I feel sure that I could predict the risks involved in a relationship with _____.	.44	-.27	-.24	-.07	-.21	.14	.01	-.04	.03	-.000	-.10	.15	.43
5. I feel unsure of my ability to explain how _____ would respond in most formal settings.	.51	-.28	.14	.16	.08	-.01	.22	.000	-.41	.18	.05	-.20	.68
6. In most formal settings, I feel sure that I could predict how _____ would respond.	.56	-.29	-.12	.21	.07	.06	.26	.04	-.28	.09	.11	-.21	.68
7. I feel certain that I could accurately predict what _____ would want to achieve if she/he spoke with me.	.48	-.26	-.11	.13	.07	.27	.19	.16	-.06	-.16	.04	.11	.51
8. In most situations, I feel unsure that I could explain _____'s responses to me.	.39	-.16	.33	-.10	.01	.21	-.01	.20	-.34	.002	-.07	.26	.57
10. I feel that I know _____ well.	.40	-.32	-.27	.30	.09	-.01	.15	-.10	.03	.19	.11	-.11	.53
11. In general, I feel certain that I could influence _____'s personal attitudes.	.51	.31	-.13	.30	-.19	.27	.07	-.009	.12	.14	.05	.05	.62

TABLE 2 (Continued)

Items	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	h^2
12. Generally, I feel certain about predicting _____'s personal preferences.	.57	-.32	-.20	.15	.08	.01	.11	.004	.04	-.003	.04	.03	.51
13. I feel uncertain that I could predict how _____ would respond to me in most situations.	.39	-.18	.25	.21	-.03	.26	-.10	.12	-.09	.007	-.10	.13	.42
14. In general, I would feel unable to explain the potential status of a relationship with _____.	.43	-.34	.25	.06	-.03	.03	-.29	.08	.03	.16	-.25	.14	.56
15. I feel that I could accurately predict _____'s personal attitudes.	.60	.41	-.15	.14	-.02	.09	-.02	.05	.06	-.02	-.09	-.13	.61
16. I would feel uncertain about predicting _____'s feelings and emotions.	.52	-.35	.11	.22	.03	.03	-.23	.10	.09	-.04	.08	.07	.54
17. In general, I am unsure that I could explain _____'s behavior.	.43	-.31	.17	.09	.08	-.002	-.15	.009	.03	-.03	-.10	.14	.37
18. Generally, I am confident that I could explain what I would say to _____.	.46	.20	-.04	-.33	.08	.32	.07	.15	.21	-.04	.01	-.02	.55
19. I could empathize with (share) the way _____ feels about himself/herself.	.37	.23	-.09	-.08	.44	.24	-.12	.14	.15	.16	-.15	-.14	.57
21. In general, I feel uncertain that I could explain common goals for our relationship.	.49	.03	.05	.09	.22	-.27	.03	.24	.02	-.31	-.20	-.07	.57
22. In most instances, I feel confident that I could influence the costs that would arise in a relationship with _____.	.58	.12	-.24	.06	-.23	-.02	-.005	.20	.02	-.07	-.17	.09	.55

TABLE 2 (Continued)

Items	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	h^2
23. I am doubtful that I could choose the best way to talk with _____ in most situations.	.42	.26	.22	-.19	.17	.08	-.02	.32	.06	.04	.01	-.27	.54
26. I feel doubtful that I could predict the future status of a relationship with _____.	.54	-.27	-.03	-.01	-.09	-.30	.01	.06	.29	.16	-.24	-.08	.64
28. In most instances, I would feel unsure of my ability to explain our responses to one another.	.47	.11	.24	-.35	.09	.06	.22	-.05	.19	-.006	-.13	-.15	.56
30. Generally, I am sure that I could influence what _____ would want to achieve when speaking with me.	.55	.21	-.26	.11	-.06	.16	.15	.09	.06	-.17	-.01	.13	.54
31. I feel doubtful that I could explain the conflict that would exist in our relationship.	.44	-.06	.09	-.40	-.22	.04	.04	.29	-.06	-.006	.03	-.14	.52
32. I would feel uncertain of my ability to influence _____'s personal goals.	.52	.31	.11	.08	-.19	.04	.06	.09	.17	-.05	.03	-.12	.48
33. Generally, I am sure that I could influence what _____ would say to me.	.47	.24	-.17	.18	-.13	.08	.04	-.11	-.05	-.28	-.05	.18	.49
34. I feel certain that I could understand the way that _____ feels about himself/herself.	.45	.06	-.17	-.21	.27	.22	-.31	.03	.12	-.13	.24	-.10	.59
35. In general, I feel confident that I could control the risks involved in a personal relationship with _____.	.52	.22	-.26	-.04	.18	-.04	-.14	-.07	-.17	-.001	-.08	-.002	.48

TABLE 2 (Continued)

Items	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	h^2
36. Generally, I feel unsure that I could predict what I would want to achieve when speaking with _____.	.41	.17	.29	-.40	-.05	.03	.20	.08	-.13	-.05	.10	.05	.52
37. In most instances, I feel confident that I could predict future conflicts in our relationship.	.52	-.21	-.29	-.27	-.35	-.03	.04	.04	-.16	-.06	.07	.07	.64
38. I feel sure of my ability to manage conflict in a potential relationship with _____.	.50	.36	-.11	-.15	.15	-.12	-.10	.02	-.19	.09	.12	-.09	.52
39. I feel doubtful that I could predict rewards that would come from a personal relationship with _____.	.47	.18	.08	-.07	.002	-.31	.16	.24	-.03	.16	.11	.06	.48
40. Generally, I am uncertain that I can predict how _____ would evaluate me in most situations.	.54	-.26	.27	-.11	-.06	-.05	.22	-.09	.14	-.04	.006	.22	.58
41. In general, I would feel confident of achieving my goals in a personal relationship with _____.	.54	.34	-.13	.02	.33	-.14	-.13	.003	-.08	.10	-.09	.08	.60
42. Generally, I am sure that I could explain _____'s personal beliefs.	.56	-.22	-.22	-.07	.18	.13	-.10	-.17	-.03	-.17	.28	-.03	.62
43. In most instances, I feel doubtful that I could influence the goals of a personal relationship with _____.	.53	.42	.17	.10	-.11	-.17	.03	.09	-.02	-.11	.02	.07	.56
45. In general, I feel doubtful that I could influence the decisions that _____ makes.	.48	.46	.22	.22	-.20	.06	-.04	-.009	.02	-.10	.16	-.04	.62

TABLE 2 (Continued)

Items	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	h^2
46. I am doubtful of my ability to influence _____'s personal beliefs.	.47	.44	.13	.19	-.27	.05	.02	-.04	-.02	-.19	.09	-.20	.63
47. I feel uncertain that I could explain _____'s responses in most informal settings.	.51	.005	.16	.009	.000	-.20	.25	-.18	-.11	-.04	-.06	-.06	.44
50. I feel doubtful that I could influence the status of a relationship with _____.	.54	.30	.20	.03	-.10	-.14	-.20	.05	-.15	.08	-.003	-.05	.53
51. I feel certain that _____ would like me.	.43	.32	-.08	.21	.35	-.17	-.001	-.16	-.15	.07	-.06	.06	.54
52. In general, I am doubtful that I could affect _____'s personal preferences.	.52	.41	.11	.32	-.16	-.04	-.17	-.13	-.01	-.05	.13	-.05	.64
53. In most cases, I would feel unsure about predicting how we would respond to one another.	.54	-.17	.30	-.02	.13	-.12	-.13	-.10	.09	.09	-.001	.15	.51
54. Generally, I feel certain that I could affect how _____ would respond to me.	.49	.20	-.05	-.05	.008	.12	-.07	-.26	-.26	-.11	-.25	.02	.52
55. I feel confident that I could predict how I would respond to _____.	.56	-.07	-.03	-.28	.04	.06	.12	-.09	-.04	-.002	.007	.16	.45
56. In general, I feel uncertain that I could predict _____'s personal beliefs.	.54	-.17	.19	.05	-.07	-.002	-.24	-.32	.15	-.12	.01	-.07	.56
57. I am uncertain that _____ could choose the best way to talk with me in most situations.	.26	-.06	.37	.13	.21	-.16	.10	.03	.26	-.12	.39	.20	.58
58. I feel doubtful that I could explain _____'s evaluations of me.	.46	-.06	.36	-.23	-.07	-.05	-.04	-.10	-.02	.13	.17	.24	.52

TABLE 2 (Continued)

Items	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	H^2
60. Generally, I feel unsure that I could influence the way that _____ behaves.	.52	.14	.26	.21	-.18	-.06	-.02	-.18	.03	-.04	-.13	-.19	.52
61. I feel doubtful that I could influence how _____ would evaluate me.	.53	.17	.25	-.10	-.07	.03	-.04	-.18	-.04	-.07	-.35	-.002	.55
62. In most instances, I feel certain that I could explain the risks involved in a personal relationship with _____.	.57	-.04	-.23	-.23	-.29	-.08	-.31	.04	.06	.21	.10	-.03	.68
63. I would feel confident about what to say to _____ in most situations.	.57	.21	-.007	-.20	.18	.03	.04	-.25	.02	.14	.08	-.02	.54
64. I feel confident that I could explain my responses to _____.	.46	.24	-.05	-.41	.06	.17	.22	-.23	.16	.02	-.18	-.05	.64
65. Generally, I am uncertain about what _____ would say to me in most conversations.	.52	-.23	.14	-.06	.10	-.13	.22	-.13	.11	.14	.01	-.03	.46
Eigenvalues	16.94	4.19	2.51	2.36	1.8	1.49	1.32	1.30	1.22	1.15	1.12	1.05	
% of Variance	26.1	6.4	3.9	3.6	2.8	2.3	2.0	2.0	1.9	1.8	1.7	1.6	
Cum % of Variance	26.1	32.5	36.4	40.0	42.8	45.1	47.1	49.1	51.0	52.8	54.5	56.1	

APPENDIX H

Multivariate Analysis of Variance Results

TABLE 1

Multivariate Analysis of Variance for Perceived Similarity, Interpersonal Uncertainty and Attraction*

Effect	Degrees of Freedom	F-Value	Probability > F
Similarity	(6,36)	2.25	.06
Sex	(3,18)	0.17	.91
Similarity x Sex	(6,36)	0.14	.99
Conversational Stage	(6,76)	9.03	.0001
Similarity x Conversational Stage	(12,100)	0.87	.58
Sex x Conversational Stage	(6,76)	0.29	.94
Similarity x Sex x Conversational Stage	(12,100)	1.29	.24

*The criterion used in this analysis was Wilk's criterion.

APPENDIX I

Analysis of Variance Results

TABLE 1

Univariate Analysis of Variance for Interpersonal Uncertainty

Source	Df	Sums of Squares	F-Value	Probability > F
Similarity	2	957.52099685	2.60	.16
Sex	1	8.96047419	0.04	.85
Similarity x Sex	2	77.44807298	0.16	.85
Dyad (Similarity x Sex) [Error (between)]	20	4786.62777778		
Conversational Stage	2	1937.00692168	32.66	.0001
Similarity x Conversational Stage	4	24.24510045	0.20	.93
Sex x Conversational Stage	2	15.94134791	0.27	.77
Sex x Similarity x Conversational Stage	4	105.73587536	0.89	.48
Conversational Stage x Dyad (Similarity x Sex) [Error (within)]	40	1186.02222222		

Note: R^2 = .884 for overall model.

TABLE 2

Univariate Analysis of Variance for Interpersonal Attraction

Source	Df	Sums of Squares	F-Value	Probability > F
Similarity	2	16.41168458	0.73	.49
Sex	1	1.69638432	0.15	.70
Similarity x Sex	2	3.80356704	0.17	.85
Dyad (Similarity x Sex) [Error (between)]	20	224.95555556		
Conversational Stage	2	17.65418944	5.14	.01
Similarity x Conversational Stage	4	4.65924559	0.68	.61
Sex x Conversational Stage	2	1.19699454	0.35	.71
Sex x Similarity x Conversational Stage	4	14.52804428	2.12	.10
Conversational Stage x Dyad (Similarity x Sex) [Error (within)]	40	68.67777778		

Note: R^2 = .816 for overall model.

TABLE 3

Univariate Analysis of Variance for Perceived Attitude

Similarity -- Manipulation Check

Source	Df	Sums of Squares	F-Value	Probability > F
Similarity	2	347.06236592	4.86	.02
Sex	1	0.55652390	0.02	.90
Similarity x Sex	2	10.12747027	0.14	.87
Dyad (Similarity x Sex) [Error (between)]	20	714.45555556		
Conversational Stage	2	121.58551913	10.67	.0002
Similarity x Conversational Stage	4	37.19175892	1.63	.19
Sex x Conversational Stage	2	0.38697632	0.03	.97
Sex x Similarity x Conversational Stage	4	6.58495285	0.29	.88
Conversational Stage x Dyad (Similarity x Sex) [Error (within)]	40	227.81111111		

Note: R^2 = .855 for overall model.