Predicted Outcome Value and Uncertainty Reduction Theories
A Test of Competing Perspectives

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This research tests several contrasting predictions from uncertainty reduction and predicted outcome value theories. Pairs of college classmates engaged in initial conversations with one another on the first day of classes. Research participants then reported on each pair's behavior during these conversations and their reactions to their partner and relationship. With few exceptions, predicted outcome value theory proposals were consistently supported by the results of this investigation. However, results failed to support uncertainty reduction theory's original axioms and theorems when predicted outcome value was taken into account. These findings are interpreted as strongly supporting the predicted outcome value perspective and its claim that uncertainty reduction processes are subservient to outcome maximization goals in initial interactions.

Uncertainty reduction (Berger, 1979, 1987; Berger & Bradac 1982; Berger & Calabrese, 1975) and predicted outcome value theories (Sunnafrank, 1986a, 1989) offer competing explanations of interpersonal communication in early acquaintance. Uncertainty reduction theory (URT) proposes that communication behavior in these situations is primarily understandable through interlocutors' goals of predicting and explaining the actions of partners and self. Conversely, predicted outcome value theory (POV) posits that interactants' goals of achieving positive relational outcomes provide a more accurate and complete account of both communication behavior and uncertainty reduction attempts in beginning interactions. Several contrasting predictions follow from this central theoretical difference, most of which have yet to be tested.

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However, much of the research generated by URT as well as initial examinations of POV indicate that such tests would prove useful.

A large and rapidly growing body of research on uncertainty reduction has developed since Berger and Calabrese's (1975) initial theoretical formulation. This research has examined uncertainty reduction processes in initial interactions (Clatterbuck, 1979; Douglas, 1984; Kellermann, 1986), in later relational stages (Parks & Adelman, 1983; Planalp & Honeycutt, 1985; Planalp, Rutherford, & Honeycutt, 1988), as well as in intercultural and cross-cultural situations (Gudykunst, 1983, 1985a, 1985b, Gudykunst & Nishida, 1984; Gudykunst, Nishida, & Schmidt, 1988). In addition, much of this research has produced increased understanding of the information seeking processes that individuals employ to reduce uncertainty (Berger & Douglas, 1981; Douglas, 1985, 1987; Kellermann & Berger, 1984).

The heuristic value of URT is clear from the amount of research and accompanying information that it has produced regarding interpersonal communication processes. However, research results have produced only mixed support for Berger and Calabrese's original theoretical propositions, and for subsequent modifications (Berger, 1979; Berger & Bradac, 1982). As Sunnafrank's (1986a) review notes, only half of the tests reported to that time had produced support for uncertainty reduction axioms and theorems. Much of the research reported since appears to reflect only a slightly improved pattern (Sunnafrank, 1989).

There are two general explanations for this pattern of mixed theoretical support: URT has either been inappropriately tested or it is inaccurate. Inappropriate testing appears a likely explanation in several cases. For example, research frequently employs methods which may produce relational situations where concerns about uncertainty are low. Berger (1979) indicated that uncertainty reduction processes should be most likely in situations involving initial interaction partners with whom one expects to interact in the future, partners who act in a deviant manner, or those who have sufficient incentive value to the individual. Appropriate tests of theoretical predictions should therefore employ research procedures designed to examine situations in which at least one of these conditions exists. Some unsupportive results for uncertainty reduction predictions come from studies which fail on this count.

Although methodological problems partially account for unsupportive uncertainty reduction findings, apparent theoretical inaccu-
Racies have also been discovered. For example, Kellermann (1986) found that the expectation of future interaction may not always produce greater efforts to reduce uncertainty. Contrary to Berger and Calabrese's original formulation, Planalp and Honeycutt (1985) discovered that communication may sometimes increase uncertainty in relationships. Several studies have reported that information seeking and uncertainty level may be negatively related or unrelated (Gudykunst, 1983, 1985b; Gudykunst, Yang, & Nishida, 1985) rather than positively related as expected. Modification of URT can account for some of these theoretically inconsistent findings. Indeed, past modifications of the theory (Berger, 1979, 1987; Berger & Bradac, 1982) resulted, in part, from these and other incompatible results.

Sunnafrank (1986a) suggested that modification of theoretical specifications may be insufficient to address the mounting negative evidence. His predicted outcome value theory proposes that the root of these problems may be in a misplaced reliance on uncertainty reduction as the major explanatory construct for early acquaintance communication behavior. In the POV perspective, uncertainty reduction is subservient to each interactant's primary goal of experiencing positive relational outcomes. Sunnafrank's (1986a, 1989) reinterpretation of uncertainty reduction results indicates that POV has the potential to explain many of the empirical inconsistencies there found. In addition, some initial investigations have provided further support for the utility of POV (Barnes, 1988; Sunnafrank, 1988). More detailed examination of the differences between uncertainty reduction and predicted outcome value theories is provided in the following section. Research designed to test several pairs of conflicting predictions from URT and POV is then described, and the results are presented and discussed.

THEORETICAL DIFFERENCES

Berger and Calabrese's (1975) original version of uncertainty reduction theory proposed seven axioms concerning an early acquaintance relationship between uncertainty level and amount of verbal communication, nonverbal affiliative expressiveness, information seeking, intimacy level of communication content, reciprocity rate, similarity, and liking. A series of 21 theorems positing relationships between these latter variables through uncertainty was deduced from the theory's axioms.
Sunnafurk’s (1986a) predicted outcome value theory developed propositions which conflicted with each of the original URT axioms and with nine of its theorems. A basic understanding of uncertainty reduction and predicted outcome value theories is necessary to explain the reasons for these differences.

Berger and Calabrese (1975) assumed that the primary concern of individuals during initial interactions is the reduction of uncertainty about their own and their partner’s interaction behavior. The goals of this uncertainty reduction are to render partners’ behaviors more predictable, to provide explanations for the behaviors of the self and the other, and to choose appropriate self-behaviors given these predictions and explanations. Given the assumed central role of uncertainty reduction, Berger and Calabrese proposed that individuals will engage in communication behaviors to reduce uncertainty and that changes in uncertainty level during initial interaction will produce further relational and communicative influences. Berger’s (1979) subsequent modification of this position recognized that uncertainty reduction may not be the primary concern of individuals in all initial interaction situations and specified the aforementioned conditions of anticipated future interaction, incentive value, and deviance to identify interactions likely to raise uncertainty reduction concerns and trigger these uncertainty reduction processes.

Berger and Calabrese proposed several interrelated changes resulting from interactants’ efforts to reduce uncertainty during initial interactions. These specific proposals are discussed later, along with corresponding POV propositions. For now, it is sufficient to point out that these proposals generally reflect the expectation that uncertainty reduction during initial interactions has positive relational and communicative consequences. This reduced uncertainty would produce such results as more smoothly proceeding conversations, greater affiliative expressiveness, greater conversational intimacy, and increased liking between partners.

Scheidel (1977) discussed probable errors reflected in this positive bias regarding uncertainty reduction. In particular, Scheidel noted that decreased attraction should result from discovering negative uncertainty-reducing information. Berger (1987) and Berger and Bradac (1982) also acknowledged that uncertainty reduction may lead to either positive or negative consequences. Indeed, Berger’s (1987) recent modification of the uncertainty reduction perspective on liking reflects this position, although Berger focused this change on uncer-
tainty and liking in long-term relationships and apparently viewed negative consequences as less likely in initial interactions. However, a potentially erroneous positive uncertainty reduction bias remains in some unamended theoretical propositions, such as those regarding a positive influence of uncertainty reduction on communication intimacy and possibly on affiliative expressiveness.

While further revision and clarification of URT could obviously address this issue, it is already becoming clear that a consideration of such positive and negative consequences may necessitate more than theoretical modification. The central assumption that uncertainty reduction is the primary concern of initial interaction partners is clearly challenged by this possibility. As Berger (1987) himself suggested, "Uncertainty is not reduced for its own sake"; rather, it serves to "optimize outcomes" and help "assure goal achievement" (p. 41)—statements which sound very similar to the predicted outcome value (Sunnafrank, 1986a, 1986b) position that uncertainty reduction is subservient to outcome value considerations, despite contrary claims in Berger's (1986) response to this position.

Sunnafranks (1986a) predicted outcome value theory assumed that the primary goal of initial interactants is the maximization of their own relational outcomes. To this end, early acquaintance partners attempt to forecast the value of outcomes likely to be experienced in both potential immediate and subsequent relational futures. Once tentative forecasts are developed, individuals are expected to use them to decide how and whether to continue with the interaction and relationship. Consistent with various rewards-costs perspectives on interpersonal communication (Altham & Taylor, 1973; Homans, 1974; Kelley & Thibaut, 1978; Miller & Steinberg, 1975; Roloff, 1981), POV assumes that positive consequences are more likely when these forecasts indicate that future relational rewards outweigh costs.

Given this framework, Sunnafrank (1986a) proposed three general propositions concerning initial interactions:

First, individuals should be more attracted to partners and relationships when greater predicted outcome values are expected in the relational future. Second, increasingly positive predicted outcomes will produce more communicative attempts to extend interaction and establish future contact. Conversely, increasingly negative predicted outcomes will result in communicative attempts to terminate or curtail the conversation and future contact. Finally, individuals will attempt to guide conversations toward topics expected to result in the most positive outcomes. (pp. 10-11)
Sunnafrank indicated that these processes would be most likely when interactants expect that they will, or easily can, be in close physical proximity in the future. This future proximity scope condition appears to reflect the same logic as Berger's (1979) anticipated interaction condition.

Predicted outcome value theory further proposes that uncertainty reduction processes supply an important means of establishing, monitoring, and altering outcome value projections. Uncertainty reduction processes allow early acquaintance partners to gather information about, and share information with, one another. This information is then employed to project future outcome value possibilities and to pursue the most positive interaction alternatives. These outcome value expectations might lead to such general alternatives as attempts to terminate, restrict, continue, expand, or escalate the beginning interaction and relationship. The choice from these alternatives should have a direct influence on the communication environment of these interactions. At a minimum, individuals would engage in conversational behaviors which they expect will yield the most positive route to their chosen alternative(s).

Likely conversational behaviors influenced by these choices would include those addressed in the original uncertainty reduction propositions (Berger & Calabrese, 1975). The POV proposal that predictions of either negative or positive outcome values could result from uncertainty reduction processes leads to changes in the basic axioms and theorems proposed by Berger and Calabrese, changes which eliminate the positive uncertainty reduction bias there reflected. As a consequence, POV uncertainty propositions generally agree with URT axioms when positive predicted outcome value obtains, but they differ when negative outcomes are expected.

THEORETICAL PREDICTIONS

Axioms and Propositions

Predictions derived from URT axioms and POV propositions regarding the association of uncertainty level to amount of communication, nonverbal affiliative expressiveness, information seeking, intimacy of communication content, and liking are provided here. Prior to presenting these predictions, it should be noted that some extrap-
oration from the basic URT axioms and POV propositions is necessary to increase the number of contrasting claims which can be directly compared in the research reported here. The reasons for this are twofold. First, the basic propositions of both theories are causal in nature, but the current research provides only tests of association. The influence of uncertainty reduction on the above variables under conditions of positive and negative predicted outcome values, which would provide a direct test of the theories, can therefore not be examined. Such information will need to be inferred from the associations observed for uncertainty level.

The associational nature of this research leads to a second issue. URT axioms propose causal relationships involving uncertainty level from which associational statements can be directly determined. These axioms lead to the expectation that uncertainty level should be negatively associated with amount of communication, nonverbal affiliative expressiveness, intimacy level of communication content, and liking, while being positively associated with information seeking. POV proposes propositions which clearly lead to the expectation of a positive association between predicted outcome value and these variables, a prediction which provides the first hypothesis tested in the current study (Hypothesis 1). However, the logic underlying these POV propositions must be examined in an attempt to derive associational statements for uncertainty level. The same basic logic applies to POV associations between uncertainty level and amount of communication, nonverbal affiliative expressiveness, information seeking, and intimacy of communication content. Rather than repeating this for each of the variables in question, a general description of the reasoning involved is presented here.

POV proposes that positive predicted outcome value leads individuals to communicate in a manner calculated to continue, expand, or escalate their interaction and relationship with initial interaction partners. Such communicative behaviors include increases in amount of communication, nonverbal affiliation, information seeking, and content intimacy. Increases in each of these variables are expected to produce decreases in uncertainty level. Therefore, when predicted outcome value is positive, uncertainty level should be negatively associated with these variables. In addition, a negative association between liking and uncertainty level is predicted by POV when outcome value expectations are positive. With the exception of infor-
mation seeking, these POV predictions agree with expectations from URT axioms.

Negative predicted outcome value in a beginning relationship produces very different uncertainty level associations. The expectation of negative outcomes should generally produce attempts to curtail or terminate an initial interaction. Communicative behaviors associated with such attempts would include reducing amount of communication, nonverbal affiliation, information seeking, and content intimacy. POV indicates that declining levels of these variables should occur regardless of uncertainty level, suggesting that uncertainty level would be unassociated with each when predicted outcome value is negative. Negative predicted outcome value should also generate reduced liking across levels of uncertainty, leading to the expectation that liking and uncertainty would be unassociated in this situation. These expectations of no association differ in each case with the negative associations predicted by URT.

Overall, URT axioms and POV propositions produce several conflicting predictions regarding the association of uncertainty level to communication amount, nonverbal affiliation, information seeking, content intimacy, and liking. POV predicts that the association between uncertainty level and these variables will be negative when outcome value is positive and that these associations will be reduced to zero when predicted outcome value is negative. With the exception of a positive association between uncertainty level and information seeking, URT axioms predict that these associations will be negative, outcome value notwithstanding.

The research reported here tests the POV prediction that the associations between uncertainty level and communication amount, nonverbal affiliation, information seeking, content intimacy, and liking will differ for positive and negative predicted outcome value. It is hypothesized that this interaction effect of predicted outcome value and uncertainty level will produce more negative uncertainty associations when outcome value is positive than when it is negative (Hypothesis 2). Again following POV, it is hypothesized that this pattern will reflect significant negative associations between uncertainty level and communication amount, nonverbal affiliation, information seeking, content intimacy, and liking when predicted outcome value is positive, while these variables will be unassociated when predicted outcome value is negative (Hypothesis 2a).
Information Seeking

The association between information seeking and uncertainty level provides the only point of conflict between URT and POV when positive outcome value is predicted. This difference is due to theoretical disagreement over the role of information seeking in initial interactions. Berger and Calabrese (1975) proposed that high levels of uncertainty produce high levels of information seeking, while decreasing uncertainty levels leads to decreased information seeking. This relationship reflects the expectation that when individuals are uncertain, they will seek information to reduce this uncertainty; but as their uncertainty is reduced, information seeking is less necessary.

Predicted outcome value theory proposes a very different view of information seeking behavior. In contrast to URT expectations, Sunnafrank (1986a) posited that uncertainty reduction resulting in positive predicted outcome value will lead to increased information seeking. Such information seeking allows individuals to further test their predictions and possibly aids them in securing the positive outcomes that they project. Conversely, POV predicts that uncertainty reduction leading to negative outcome value expectations will produce decreased information seeking. This decreased information seeking will partially reflect a desire to avoid prolonging the interaction.

This difference regarding the role of information seeking leads to pairs of conflicting URT and POV predictions regarding the association between information seeking and communication amount, nonverbal affiliation, content intimacy, and liking (Sunnafrank, 1986a). Berger and Calabrese (1975) proposed that information seeking is negatively associated with these variables, while the POV perspective posits positive associations. The POV predictions are hypothesized and tested in the current study (Hypothesis 3).

METHOD

Participants

Students (N = 258) enrolled in 12 sections of a skills oriented small group communication course participated in this study which took place during the last hour of the first 1-hour-and-15-minute class meeting. Students were informed that the study involved getting acquainted with a classmate and responding to a questionnaire about
their experience. They were further informed that participation in this portion of the study could be completed during that first class session. All students registered in the classes agreed to participate in exchange for extra-credit consideration.

Procedures

The researcher randomly assigned students, who were included on the class registration lists, to dyads prior to the first day of classes. The class instructors announced the names of individuals composing each of these dyads at the beginning of the study. Participants were instructed simply to note the identity of their partner at this time. When one member of a dyad was absent, the remaining individual was assigned to a new dyad with another person whose partner was also missing. When an odd number of individuals in any section had missing partners, one individual was assigned to a dyad with the first available person from a list of students wishing to add the course. In such cases, it was announced that this person would be added to the class.

After all the dyads were determined, the instructors asked the students to get together with their assigned partners and get acquainted. Conversations between partners were allowed to continue for 3 minutes in 4 of the 12 sections, 6 minutes in another four sections, and 10 minutes in the final four sections. No predictions concerning an influence of conversation length were tested in this study. However, interaction time was varied to assure that study results would apply to a broader range of initial interactions.

Subsequent to getting acquainted, participants were asked to return to their original seats and complete a questionnaire which included the measures discussed later. This questionnaire also contained an item which asked if participants had conversed with their partner previously. Eight participants (from four dyads) indicated that they had and their responses were eliminated from the analysis. Responses of two further individuals were eliminated because they failed to complete the questionnaire.

It should be noted that these procedures were employed in an attempt to assure that the relationships examined would fall within the stated scope of uncertainty reduction and predicted outcome value theories. All of the relationships analyzed met the initial interaction requirements of Berger and Calabrese's (1975) and Sunnafrank's
(1986a) original formulations. In addition, the limited enrollment (maximum of 24 per section) of the selected course assured that students believed they would have several future opportunities to come into contact with their partners. The skills format of the course, as explained at the beginning of the class meetings, reinforced this perception by creating a social environment in which individuals expected that they would be involved in dyadic and small group interactions with their classmates during most future class sessions. This environment fulfilled the future-proximity scope condition of POV. It also produced a situation in which participants would anticipate that future interaction with their partners was likely, a condition which Berger (1979) and Berger and Bradac (1982) proposed as sufficient to elevate uncertainty reduction concerns.

Measures

Predicted outcome value was assessed through Sunnafrank's (1988) 10-item POV measure. This measure requires individuals to predict how positive a future relationship with a new acquaintance would be for them personally. Each of the items employs a 6-point response scale, which results in a total possible range from 10 (most negative expectation) to 60 (most positive expectation). Positive POV expectations (defined as scores of 37 and above) were obtained from 153 of the participants, while 65 participants reported negative outcome value expectations (scores of 33 and below) and 30 participants reported neutral expectations. A reliability coefficient alpha of .93 was obtained for this measure.

Uncertainty level was assessed with the seven items from Clatterbuck's (1979) CLUES7 scale. CLUES7 provides an estimate of individuals' attributional confidence concerning relational partners, a variable which has been widely used as a reverse indicator of uncertainty in past uncertainty reduction research. A 6-point response scale was again employed. Unlike most uses of this scale, scoring on each item was reversed so that low to high scores would directly reflect low to high uncertainty levels. This allowed straightforward comparison of subsequent correlations obtained for this measure with the associations predicted for uncertainty level in this study. This measure had a range from 7 (least uncertain) to 42 (most uncertain). An alpha coefficient of .86 was found for this measure.
The expectations of POV generally do not diverge from those of URT until interlocutors have had sufficient time to make outcome value assessments. Any test of these theoretical differences should therefore examine values of the relevant variables subsequent to this juncture. In an attempt to do this, the measures of nonverbal affiliative expressiveness, intimacy level of communicative content, amount of verbal communication, and information seeking which were employed in this study all attempted to ascertain the values of these conversational behaviors during the second half of the conversations. Each of these measures did so by asking individuals to report on their own behavior during this conversational period. The appropriateness of using such self-report measures of conversational behavior will be addressed after all of these measures have been more fully described.

Nonverbal affiliative expressiveness was assessed by asking interlocutors to report perceptions of their own smiling, eye contact, facial expressiveness, and body animation. Variations on this measure were reported by Gudykunst and Nishida (1984) and Sunnafrank (1988). As employed in the current study, a reliability (alpha) of .74 was observed for nonverbal affiliative expressiveness. Intimacy level of communicative content was measured through individuals' assessments of their own self-disclosive behavior (Sunnafrank, 1988). An alpha coefficient of .87 was obtained for this three-item scale. Amount of verbal communication was measured with a single item inquiring about the amount of talk that the individual contributed. Gudykunst, et al. (1985) and Sunnafrank (1988) reported high test-retest reliabilities for similar single-item measures of communication amount, but only a single version of this item was employed in the present study and reliability was not assessed. Four items from the social attraction dimension of McCroskey and McCain's (1974) attraction scale constituted the liking measure. A fifth item, which assumes individuals have yet to engage in conversation, was eliminated. An alpha coefficient of .83 was observed for this scale.

A new measure of information seeking was developed for the current study which attempted to more adequately reflect the posited types of interactive information seeking strategies available to interlocutors than had previous measures. Almost all past uncertainty reduction research concerning interactive information seeking strategies focused exclusively on interrogation (Douglas, 1987; Gudykunst, 1983, 1985; Gudykunst et al., 1988). As a result, previously developed
information seeking measures generally did not include assessments of interlocutors' use of either self-disclosure strategies (Berger, 1979) or nonverbal encouragement strategies (Sunnafrank, 1986a).

Two global questions, with accompanying 7-point response scales, concerning the individual's use of each of the three interactive strategies were included in the present measure. Interrogation items asked individuals to report the number of questions posed to their partner and the amount of information that they had expected to receive from those questions. Self-disclosure items assessed how frequently individuals employed self-disclosure to elicit information from their partner and the amount of information that they had expected to receive from the use of this technique. Nonverbal encouragement items asked individuals to report how frequently they had used nonverbal behaviors to encourage their partner to continue talking about a topic and how frequently they had used nonverbal behaviors to discourage such continued talk.

Principal components analysis of these six items supported the position that each of the three strategies constituted a distinct dimension of information seeking. Bartlett's sphericity test was significant for this analysis. Examination of obtained eigenvalues and a scree test indicated a three-factor solution. Each of the items loaded most heavily on the factor which produced the highest loading for the other item from its strategy type, and each had rotated factor loadings above .74 on these factors and below .27 on the remaining factors. These results indicated that subsequent analysis of the information seeking variable should examine the measures of each of the three strategies rather than a composite measure.

Disappointing reliabilities were obtained for these measures of strategy use. Alpha coefficients for interrogation, self-disclosure, and nonverbal encouragement were .51, .64, and .39, respectively. For interrogation and self-disclosure strategies, this indicates that there is only a moderate relationship between the number of times one uses these strategies and the amount of information one expects to acquire from their use. As Sunnafrank (1986a) suggested, several questions about an individual's demographic background may not yield as much information as a few probing follow-up questions. However, it is clear that both the number of uses of a strategy and the amount of information requested by its use should theoretically reflect information seeking. This theoretical expectation, the supportive factor-analytic results, and the marginal reliabilities led to a decision to re-
tain the interrogation and self-disclosure measures for subsequent analysis.

The reliability for nonverbal encouragement was unacceptably low. This appeared to be largely attributable to the fact that while great variation existed on the use of nonverbal behaviors to encourage partner disclosures, over 80% of the study participants reported low use of nonverbal behaviors to discourage such disclosure. This may well reflect societal norms concerning the use of nonverbal encouragement and discouragement during early acquaintance. As Kellermann and Berger (1984) reported, individuals generally employ socially appropriate, positive nonverbal behaviors to relax partners during information seeking attempts. The socially inappropriate use of nonverbal discouragement would appear to be a relatively unlikely occurrence, at least during early acquaintance. Given this, only the item concerning the use of nonverbal behaviors to encourage partner disclosures was employed in subsequent analysis.

Prior to reporting the results of the current study, a brief discussion of the decision to employ self-report measures of conversational behavior is in order. One of the major strengths of the current study is its examination of initial encounters occurring in an environment where sustained future contact is naturally likely. In the present study, accomplishing this required that all pairs converse on the first day of classes to reduce the opportunity for prior observation of, and contact with, one another. Given the number of simultaneously occurring conversations which resulted, it was impossible to observe directly the conversational behaviors of interest and impractical to record them. Self-report measures of these behaviors were the best available alternative.

It should be noted that there are other sound justifications for the use of self-report measures. Such measures of conversational behavior have been a staple in uncertainty reduction research. Given this, and the goal of providing an initial test of contrasting POV and URT predictions, the use of such self-report measures in the current study is reasonable. Moreover, self-reports would be the preferred method of measuring some conversational behaviors of interest. Self-report measures might be necessary to assess the use of information seeking strategies such as self-disclosure and nonverbal encouragement. Simply measuring the occurrence of behaviors which could be taken as self-disclosure and nonverbal encouragement would not provide information about the individual's strategic use of these behaviors,
while the current self-report measures of these behaviors would (see earlier description of the self-disclosure and nonverbal encouragement measures). Additionally, given individual variation in defining information intimacy, measuring intimacy of communication content would be facilitated by self-reports from the individuals doing the defining.

It is not the purpose of this article to argue that self-reports are the best method of measuring all of the conversational behaviors examined in this study. Rather, self-reports constitute one valid and, particularly in the case of uncertainty reduction research, accepted means of doing so. Given the constraints of the present study’s research situation, their use appears to be well justified.

RESULTS

Preliminary analysis was necessary before testing the hypotheses posed in this study. First, partners' scores on the variables of interest were examined to determine whether partners' responses could be analyzed in the same data set or if they should be analyzed separately. Second, the influence of conversation length was examined to determine if this variable should be considered when interpreting the theoretically relevant results of the study.

As Kraemer and Jacklin (1979) indicated, mutual influence in conversations may produce correlated partner responses, giving rise to a violation of the assumption of independent observations when such correlated responses are analyzed together. The following method was employed to examine this possibility for each of the nine variables involved in the current analysis. The mean absolute difference between partners' scores on each variable was determined. This mean difference was then compared to the mean difference obtained between the scores of randomly paired individuals. If partner responses were positively related on any variable, their responses should be more similar than those of the random pairs. This similarity would be manifested in lower absolute differences for partners in the preceding comparison. Conversely, negatively related partner responses would produce more discrepant scores than would the responses of random pairs, leading to greater absolute differences between partners' responses. The $t$ tests revealed that none of these comparisons between
partners and random pairs even approached significant levels for any of the variables. The power of these tests, assuming a medium effect size of \( \eta^2 = .06 (d = .50) \) and an alpha level of .05, exceeded .97. Apparently, partners' responses on the variables of interest were unassociated, at least as measured in this study. Given this, hypothesis tests were conducted on a single data set containing both partners' responses.

Conversational length was next examined to ascertain whether it was influencing the study results in a manner which would need to be accounted for in interpreting hypothesis tests. Separate regression analyses were conducted for the seven dependent variables in the study, with conversation length, predicted outcome value, uncertainty level, and all interactions involving these three variables entered as the independent variables. Significant independent effects of conversation length on nonverbal encouragement \((t = 2.43, df = 213, p < .05)\) and content intimacy \((t = 2.46, df = 213, p < .05)\) were observed. Inspection of these variables revealed that the value of each increased slightly with increasing conversational length. No further independent effects were observed for conversation length. In addition, none of the two-way interactions of conversation length with either uncertainty level or predicted outcome value were significant. However, one three-way interaction of these variables occurred for interrogation \((t = 2.40, df = 212, p < .05)\). This interaction reflected the fact that, for all conversation lengths, the relationship between uncertainty and interrogation was more positive when POV was negative than when POV was positive but that this difference became slightly less pronounced as conversation length increased. Given that 27 interactions involving the time variable were examined in this analysis, this one significant result very likely represents a chance finding. Moreover, this relatively minor interaction would not influence the results of hypothesis tests in this study. Given these interaction results, conversation length was collapsed for subsequent tests of hypotheses.

Hypothesis Tests

Examination of the hypotheses proceeded in the following manner. A series of regression analyses was conducted with predicted outcome value, uncertainty level, and the interaction between these two variables entered as the independent variables. Given that the key
differences between POV and URT being tested in this study focused on contrasting expectations for positive and negative predicted outcome value, the responses of the 30 individuals reporting neutral outcome value expectations were eliminated from the analysis. Given the dichotomous nature of the theoretical distinctions between the influence of positive and negative outcome value, predicted outcome value was coded with a 1 when POV was positive \( (n = 153) \), and a 0 when negative \( (n = 65) \). Communication amount, nonverbal affiliation, content intimacy, liking, and the three information seeking strategies served as the dependent variables in these analyses. The coefficient of determination \( (R^2) \) obtained from each analysis, the unstandardized regression coefficients \( (b) \) for the independent variables, and associated significance information are reported next.

The significance and direction of the regression coefficients for the independent effect of predicted outcome value and for the interaction of predicted outcome value and uncertainty level provided tests of Hypotheses 1 and 2, respectively. For all dependent variables, Hypothesis 1 predicted a positive association with predicted outcome value. Significant and positive regression coefficients provided support for this prediction. Hypothesis 2 predicted that all associations between the dependent variables and uncertainty level would be more negative when predicted outcome value was positive than when it was negative. Support for this hypothesis was therefore obtained whenever significant and negative regression coefficients were observed for the interaction effect of predicted outcome value and uncertainty level. The obtained correlations between uncertainty level and each variable under positive and negative predicted outcome value conditions were compared to further test this interaction. Significant differences between these correlations in the expected direction provided support for Hypothesis 2. The direction and significance of these correlations were next examined to test Hypothesis 2a. This hypothesis predicted significant negative correlations for positive predicted outcome value and nonsignificant correlations for negative outcome value. The appropriate correlations are presented in Table 1.

Finally, correlations between each of the information seeking strategies and communication amount, nonverbal affiliation, intimacy, and liking were examined to test Hypothesis 3, which predicted significantly positive associations among these variables. Table 2 provides the relevant correlations.
### TABLE 1

**Correlations With Uncertainty Level**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Predicted Outcome Value Level</th>
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<tbody>
<tr>
<td></td>
<td>Positive (N = 153)</td>
<td>Negative (N = 65)</td>
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<tr>
<td>Communication amount</td>
<td>-.28*</td>
<td>-.07</td>
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<tr>
<td>Nonverbal affiliation</td>
<td>-.44*</td>
<td>.02</td>
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<tr>
<td>Content intimacy</td>
<td>-.30*</td>
<td>.05</td>
</tr>
<tr>
<td>Liking</td>
<td>.02</td>
<td>-.24*</td>
</tr>
<tr>
<td>Information seeking</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interrogation</td>
<td>-.23*</td>
<td>.29*</td>
</tr>
<tr>
<td>Self-disclosure</td>
<td>-.08</td>
<td>-.03</td>
</tr>
<tr>
<td>Nonverbal encouragement</td>
<td>-.21*</td>
<td>.20</td>
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</table>

*p < .05.

### TABLE 2

**Correlations for Information Seeking**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Interrogation</th>
<th>Self-Disclosure</th>
<th>Nonverbal Encouragement</th>
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<td>Communication amount</td>
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<td>.20*</td>
<td>.25*</td>
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<tr>
<td>Nonverbal affiliation</td>
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<td>.12*</td>
<td>.44*</td>
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<tr>
<td>Content intimacy</td>
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</tr>
<tr>
<td>Liking</td>
<td>.19*</td>
<td>.08</td>
<td>.29*</td>
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*p < .05.

**Communication Amount**

The regression analysis for amount of verbal communication resulted in a significant coefficient of determination ($R^2 = .12, F [3, 214] = 9.81, p < .001$). A significant independent main effect was observed for predicted outcome value ($b = 1.60, t = 1.84, df = 214, p < .05$), with the regression coefficient in the positive direction predicted in Hypothesis 1. No independent effect was observed for uncertainty level.

The interaction between predicted outcome value and uncertainty level on amount of communication approached significance ($b = -.04, t = 1.33, df = 214, p < .10$), with the regression coefficient in the negative direction expected in Hypothesis 2. As predicted in Hypothesis 2a, uncertainty level and communication amount were negatively correlated when predicted outcome value was positive, and uncorrelated when it was negative (Table 1). The difference between these correla-
tions was in the direction predicted in Hypothesis 2, and it approached significance ($z = 1.45, p < .08$).

Nonverbal Affiliation

A significant coefficient of determination was observed for nonverbal affiliative expressiveness ($R^2 = .21, F [3, 214] = 18.62, p < .001$). Hypothesis 1 was again supported by a significant and positive independent effect for predicted outcome value ($b = 10.68, t = 3.63, df = 214, p < .001$). No independent effect was observed for uncertainty level.

A significant predicted outcome value by uncertainty interaction was observed ($b = -0.35, t = 3.18, df = 214, p < .001$). The negative regression coefficient supported the prediction of Hypothesis 2. Further evidence in support of Hypothesis 2 was provided by a correlation between uncertainty and nonverbal affiliation which was more negative when predicted outcome value was positive than when it was negative ($z = 3.28, p < .001$). Hypothesis 2a was also supported: Uncertainty level was unassociated with nonverbal affiliation when predicted outcome value was negative, and these variables were negatively associated when predicted outcome value was positive (Table 1).

Content Intimacy

A significant coefficient of determination was observed for intimacy of communication content ($R^2 = .04, F [3, 214] = 2.88, p < .05$). However, no independent nor interaction effects were observed for predicted outcome value and uncertainty level. Neither Hypothesis 1 nor 2 was supported by this analysis. Hypothesis 2a was also disconfirmed. Results demonstrated that uncertainty level and content intimacy were uncorrelated when predicted outcome value was positive but were negatively correlated when it was negative, a pattern opposite to that predicted.

Liking

A relatively strong coefficient of determination was observed for liking ($R^2 = .39, F [3, 214] = 45.29, p < .001$). A significant and positive effect was observed for predicted outcome value ($b = 7.64, t = 3.95,$
df = 214, p < .001), again supporting Hypothesis 1. No independent
effect was observed for uncertainty level.

Predicted outcome value and uncertainty level produced a signif-
icant interaction on the liking variable (b = -.16, t = 2.17, df = 214, p <
.05). The negative regression coefficient for this interaction effect
provides support for Hypothesis 2. As predicted by Hypothesis 2a,
the correlation between uncertainty level and liking was negative
when outcome value was positive and was insignificant when out-
come value was negative (Table 1). The difference between these
correlations was significant (z = 2.40, p < .01), providing further
support for Hypothesis 2.

Information Seeking

Of the three information seeking strategies employed in this study,
both interrogation and nonverbal encouragement produced signifi-
cant regression results. However, the self-disclosure strategy pro-
duced no significant coefficient of determination, independent effects,
or interaction effect. Moreover, no significant correlations were ob-
served between self-disclosure and uncertainty for either positive
or negative outcome value conditions, and the difference be-
tween the observed positive and negative outcome value correlations
was insignificant.

R² values of .09 (F [3, 214] = 6.93, p < .001) and .10 (F [3, 214] = 8.10
p < .001) were observed for interrogation and nonverbal encour-
agement strategies. Significant positive independent effects were ob-
served for predicted outcome value on interrogation (b = 6.43, t = 3.82,
 df = 214, p < .001) and on nonverbal encouragement (b = 3.83, t = 3.33,
 df = 214, p < .001), both of which support Hypothesis 1. A significant
independent effect was observed for uncertainty level on interroga-
tion (b = .13, t = 2.35, df = 214, p < .05). However, this significant
regression coefficient was opposite in direction to a significant simple
correlation (r = -.13, df = 214, p < .05) observed for uncertainty level
and interrogation, as well as to a nonsignificant partial correlation
(controlling for outcome value) between these variables. These find-
ings indicated that suppression (Cohen & Cohen, 1975) involving
uncertainty and the interaction term was producing an erroneous
reading of a positive relationship in the regression coefficient (see
Note 2 for a further discussion of the suppression issue). No inde-
pendent effect for uncertainty level was observed on nonverbal encouragement.

Predicted outcome value and uncertainty level produced significant interaction effects on both interrogation (b = -.22, t = 3.48, df = 214, p < .001) and nonverbal encouragement (b = -.12, t = 2.77, df = 214, p < .01). In both cases, the regression coefficients were negative and supported Hypothesis 2. Hypothesis 2a was supported by the results of nonverbal encouragement: Uncertainty level and nonverbal encouragement were negatively associated when predicted outcome value was positive and were unassociated when outcome value was negative. The difference between these two correlations was significant (z = 2.77, p < .01), providing further support for Hypothesis 2. Hypothesis 2a was partially supported by results showing that interrogation was negatively associated with uncertainty when predicted outcome value was positive. However, instead of becoming unassociated when outcome value was negative, the association between these two variables became positive. As expected in Hypothesis 2, the correlation between uncertainty and interrogation was more negative when predicted outcome value was positive than when outcome value was negative (z = 3.55, p < .001).

Table 2 presents the correlations between these three information seeking strategies and communication amount, nonverbal affiliation, content intimacy, and liking. As predicted in Hypothesis 3, all 12 correlations were positive, 10 of them significantly so. It should be noted that most of these associations are obviously weak. This is undoubtedly due, in part, to the low reliabilities of the information seeking measures. However, it should be remembered that POV makes no predictions about the magnitude of these associations, only about their direction. These results provide consistent support for a weak positive association of information seeking strategy use to communication amount, nonverbal affiliation, content intimacy, and liking.

Summary

Hypothesis 1 and 2a were each supported in five of seven tests, Hypothesis 2 was supported in 10 of 14 tests, and Hypothesis 3 was supported in 10 of 12 tests. Conversely, none of the seven tests for the independent effect of uncertainty level conformed to URT expectations when predicted outcome value and the interaction of these two
variables were considered. Moreover, URT predictions of negative associations between information seeking and each of the other dependent variables were rejected in each of the 12 tests conducted.

DISCUSSION

This research was conducted to test contrasting predictions and assumptions of uncertainty reduction and predicted outcome value theories. Results provide strong support for the predicted outcome value position and no substantial support for Berger and Calabrese's (1975) original uncertainty formulation.

Prior to further interpreting the consequences of these results for URT and POV, a brief examination of the two variables that produced disconfirming results for both theories is in order. Neither content intimacy nor self-disclosure was significantly influenced by the independent and interactive effects of predicted outcome value and uncertainty level. It appears that the processes postulated by POV and URT may not hold for content intimacy and self-disclosure in brief initial interactions. However, it should be recalled that the current measure of self-disclosure strategy suffered from very low reliability. Questions about POV and URT predictions regarding self-disclosure use in initial conversations must remain unresolved until tests are conducted which employ more reliable measures.

In retrospect, the unsupportive results for content intimacy seem reasonable. Individuals are unlikely to disclose even moderately intimate information to partners during typical initial interactions. Given this, a longer period of acquaintance may be necessary before the expected influences of predicted outcome value and uncertainty level on content intimacy would emerge. It may also be that the information seeking strategy of self-disclosure is more heavily relied on as content intimacy increases in these later stages of acquaintance. That is, interrogation concerning increasingly intimate information may generally be considered rude. To obtain such intimate information in later acquaintance, individuals may be likely to increase their use of the self-disclosure strategy. Future research involving longer periods of early acquaintance should examine these possibilities.

With these two exceptions, the current findings strongly and consistently support POV. Of the remaining 32 hypothesis tests, 27 produced significant levels of support, 4 others were in the predicted
direction, and 1 resulted in partial support. Intercorrelations among the set of dependent variables may partially explain this degree of consistency. However, the average magnitude of these intercorrelations was only .20, suggesting that any such influence was well within acceptable range. Moreover, it should be clear that POV proposes that a single outcome value process is involved in producing most of these associations. The fact that the current hypotheses were stated in terms of relations to the set of dependent variables emphasizes this point. Rather than an indication of several different initial interaction processes, the results from this study are best taken as offering repeated confirmation of the underlying process articulated by POV.

The support for this underlying process indicates that initial interactants' communication behaviors and relational decisions are guided by a desire to maximize their outcomes. To this end, they attempt to form predictions about the potential outcome value of these relationships and various behaviors in which they could choose to engage. Relationships forecasting positive outcome values produce communicative behaviors which would be compatible with the pursuit of those outcomes. Such behaviors would include increasing communication amount, nonverbal affiliation, and information seeking. When negative outcome value is projected, these communication behaviors should decrease as the interactants attempt to restrict or terminate the conversation and relationship. The observed independent association of predicted outcome value with these variables, as well as with liking, is consistent with this perspective.

POV further proposes that uncertainty reduction helps initial interactants to form outcome value predictions on which their communicative decisions are based. At the onset of initial interactions, individuals are expected to attempt to reduce uncertainty in order to form outcome value predictions. When these predictions are positive, increases in communication should produce further reduction in uncertainty level. When predictions are negative, efforts to curtail communication should lead to little further change in uncertainty level. These proposals are consistent with the observed interactions of predicted outcome value and uncertainty level and with the correlations involving uncertainty level under positive and negative predicted outcome value conditions.

Obviously, future research which examines the causal relationships posited by POV is needed to more fully test this proposed process.
The study reported here has taken a first step toward understanding this process. Unlike many past studies of uncertainty reduction, this research examined initial interactions among individuals who anticipated long-term close proximity with one another. Research which employs imagined relationships, laboratory interactions, and recall of past interactions can all add to our understanding of communicative processes. The current strategy of examining initial interactions in situations where these interactions have real consequences for future interactions and relationships provides another fruitful avenue to pursue.

What are the consequences of these results for uncertainty reduction theory? The current study provides no support for the contested uncertainty reduction theory axioms and theorems. Moreover, these results directly challenge the position that individuals are primarily concerned with uncertainty reduction during initial interaction (Berger, 1986; Berger & Calabrese, 1975). This is just one of many studies (for reviews, see Sunnafrank, 1986, 1989) which report problems with the original URT axioms, theorems, and assumptions. Berger’s (1979, 1987) and Berger and Bradac’s (1982) modifications of URT may partially address some of the issues raised by this research. Berger’s (1987) alteration of the uncertainty perspective on liking, which incorporates the possibility of uncertainty reduction leading to positive or negative attraction, is consistent with the current results. Berger also indicated that research results suggest that the relationships involving amount of communication and nonverbal affiliation may be more complex than originally proposed. Certainly, his continuing work on information seeking will help illuminate these complexities and add to the substantial knowledge which this work has already contributed to understanding interaction processes. Perhaps in adjusting to these complexities, uncertainty reduction theory may eventually provide an alternative explanation which will be consistent with the results reported here.

However, the POV position that outcome maximization goals motivate and explain initial interaction communicative behavior presently appears to provide the most accurate and parsimonious account of these findings. Future research which continues to examine the implications of the POV perspective for communication processes is clearly justified.
NOTES

1. Individuals' second-half estimates of their conversational behavior and intentions were highly correlated with their reports of behavior and intentions in the first half of the conversations, with correlations of .58 for amount of verbal communication, .80 for nonverbal affiliation, .93 for intimacy (heightened because both halves produced very low intimacy), .62 for interrogation, .84 for self-disclosure, and .83 for nonverbal encouragement. These correlations support the unsurprising conclusion that conversational behaviors during the first and second half of initial interactions are highly related.

These correlations also indicate that individuals recalled some differences between their behavior on most variables during these two time periods. Even so, it is possible that individuals found it difficult to make a clear distinction between these halves. Such a possibility could partially undermine the usefulness of asking individuals to report on their behavior during the second half of a conversation. However, it should be recalled that the purpose of asking for second-half behaviors was to assure that outcome value estimates were formed and influencing interlocutors during the period studied. The results reported in this study clearly demonstrate that such was the case. Particularly relevant to this point are the results indicating that even participants in 3-minute conversations performed as expected of individuals who had formed outcome value expectations, suggesting that these expectations are formed by the first minute or two of initial conversations. Given this, obtaining estimates of second-half behavior would have had the desirable and intended effect of eliminating all or most behaviors performed in the brief moments prior to such formation.

2. Examination of the standardized regression coefficients, along with relevant correlations and partial correlations, indicated the presence of suppression effects (Cohen & Cohen, 1975) for several of the regression analyses. Most of these effects involved predicted outcome value and the interaction term, although suppression involving the interaction term and uncertainty was observed in two analyses. Given this, these standardized coefficients could not be employed to assess the relative importance of the independent variables. To avoid potential reader misinterpretations on this point, only the unstandardized coefficients are reported here.

It should be noted that these suppression effects did not influence the substantive results of this study. Significant interaction effects involving uncertainty level and predicted outcome value were discovered with the regression analyses of five of the seven variables. Alternative analysis (reported in the text) of each of these significant interactions produced results which correspond exactly to these regression findings. Clearly, the significance and direction of the regression results regarding these interactions are authentic.

Since significant interaction effects preclude separate interpretation of the independent effects of each variable, suppression regarding these independent effects is not an issue. Nevertheless, it should be noted that these regression findings (with one exception) appear to accurately reflect the significance and direction of the independent effect of outcome value and uncertainty. In all cases involving significant interactions, significant predicted outcome value regression coefficients were produced with variables for which corresponding simple correlations and partial correlations (controlling for uncertainty) were also significant and in directional agreement. However, the one observed significant regression coefficient for the independent effect of uncertainty (on
interrogation) was opposite in direction to both simple and partial (controlling for outcome value) correlations between these variables, and this is so indicated in the text. The presence of suppression was only indicated in one other analysis involving the independent effect of the uncertainty variable (on nonverbal encouragement). In this case, it acted to increase the value of the regression coefficient for uncertainty beyond the value of its simple correlation with the dependent variable. Since this coefficient remained insignificant, this did not create a problem.

Nor did suppression create interpretive problems related to the two regression analyses which produced insignificant effects for the interaction. Analysis of the self-disclosure variable revealed an insignificant $R^2$ of .01. The lack of significant independent and interaction effects is certainly an accurate reflection of the research results regarding this variable. Correlational analysis (Table 1) of the content intimacy variable demonstrated that any influences on that variable were opposite to those predicted in this study, providing further verification of the regression findings.

REFERENCES


