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Surveys in marketing often ask one member of a household what other members think of a new product idea or what their preferences are in terms of existing products and brands. The authors investigate the strategies proxy-reporters use to answer such questions and how close they come to what the target respondents themselves answer. They find that as the extent to which a couple talks to each other or participates in an activity together increases, proxy-reporters tend to use more specific information about the target respondent, and the convergence between self- and proxy-reports tends to increase. Furthermore, as the extent of participation/discussion increases, the strategies used to arrive at self- and proxy-reports become more similar. Implications for improving the quality and cost-effectiveness of survey research are discussed.

How Well Do You Know Your Partner? Strategies for Formulating Proxy-Reports and Their Effects on Convergence to Self-Reports

Marketing decisions are often based on people's self-reports. For example, marketing surveys typically ask consumers questions about their behavior (e.g., frequencies of purchasing/consuming different products) and attitudes (e.g., their reactions to different advertisements or opinions about brands). Sometimes, however, contacting the right respondent can be expensive, requiring a number of callbacks and appointments.

We investigate a less expensive method of gaining information about a person—that is, the use of proxy-reports. A wide range of market research surveys rely on proxy-reports. For example, a recent Market Facts Mail Panel survey asked members to report the number of cups of coffee that had been consumed at home by household members during the past week, as well as the preferred coffee creamers used by other household members. Furthermore, some major government surveys, such as the Current Population Survey,

rely extensively on proxy-reports. The use of proxy-reports can increase the amount of information obtained about a household while reducing the cost and time associated with collecting this information.

The adequacy of proxy-reports has been examined in two research areas. First, survey researchers have examined the extent of errors associated with proxy-reports relative to self-reports (see Moore 1988). The results suggest that the quality of proxy-reporting varies considerably, depending on the substantive area of the survey. Because the methodology used to examine the adequacy of proxy-reporting has also differed across domains, it is difficult to draw conclusions as to why differences in the quality of reporting occur. Furthermore, there is no existing theory that explains the occurrence of this variability across substantive domains or the factors that may affect such variability. Neither is there work that explores whether the quality of reporting varies within a substantive domain. Finally, many of these existing studies have examined proxy-reports only when the target respondents were not available to be interviewed. The quality of proxy-reports was assessed by comparing the responses of two groups of people that provide either self- or proxy-reports. Thus, the independent effects of reporting and sampling biases have not been separated.

Second, in the household decision-making literature a number of studies have examined the agreement between spousal reports of decision influence and household task al-

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location (e.g., Davis 1970; Douglas and Wind 1979; Granbois and Willet 1970; Monroe et al. 1985; Quarm 1981). These studies indicate that though agreement between reports is high at an aggregate level, there is considerable response variability among couples at an individual level. However, there is little understanding of the *sources* of this variability.

We examine the correspondence between respondents' answers about their own attitudes and behavior, and those provided by their partner or spouse. Because household members' reporting errors may be similar, it is likely that correspondence between reports will exceed the accuracy of reports when an objective measure is available. It is also possible that for certain sensitive behaviors, proxy-reports may be closer to the truth than self-reports. From a practical perspective, however, it is the substitutability of reports, which is the focus of this research, that is of key importance.

In contrast to previous research, we focus on how differences in the *memory storage* and *retrieval mechanisms* between self- and proxy-reporters might affect the correspondence between their reports. We use both process measures and the convergence between self- and proxy-reports to examine these issues. Our primary hypothesis is that the convergence between reports will increase as couples' joint participation in a behavior or discussion about a topic increases.

In the following section, we examine how increased discussion and joint participation affect the way we acquire, encode, and store information about another person. We then describe the results of two studies. Finally, we discuss the implications of our findings for marketing research and household decision making.

THEORETICAL FRAMEWORK

The memory structure for information about oneself versus that for other people could vary as a function of (1) the way information is acquired about an event or attitude, (2) the context in which information is encoded, and (3) how information is stored in memory. These factors in turn affect the strategies that will be used to form a self- versus a proxy-report.

Information Acquisition

Knowledge structures of self- and proxy-reporters are likely to differ in terms of the manner in which relevant inputs are acquired. Behavioral information about oneself is based on actual experiences. On the other hand, information about other people's behavior can be acquired through joint participation in an event, through observation, or by word-of-mouth communication. Likewise, people learn about their own attitudes through inferences from their thoughts, feelings, and behavior (e.g., Bem 1972). Others do not have direct access to these attitudes, so they rely on inferences from discussion or observation of their partner's behavior.

Encoding Context

Because of differences in how information is acquired about oneself versus others, the context in which this information is encoded is also likely to differ. For example, Larsen (1985) found that information about reported events was accessed better through the memory of the context in

which the respondent had learned about the event than through cues related to the event itself. Therefore, whereas one person may encode his car purchase in terms of the specific details of the event, such as the car dealership or the time of year, his partner may have encoded this information in the context of a French restaurant where they discussed the purchase. For her, the purchase is less likely to be associated with the specific knowledge (e.g., the car dealership or the time of year) that may be accessible to her partner, unless she accompanied him while he made his purchase. Because of this, although cues related to the actual experience facilitate recall in the case of the self (Reiser, Black, and Abelson 1985), the cues most likely to stimulate more accurate recall for proxy-reports will be those associated with the context in which the information was acquired.

Information Storage

Research on the storage of autobiographical information (i.e., information pertaining to oneself) indicates that though all events are encoded episodically, as the number of experiences in any event class increases the semantic or general information about the event increases (Brewer 1988; Linton 1982; Wagenaar 1986; White 1982). Such generalized knowledge has its roots in episodic experiences, but over time the identity of these roots is lost, together with the context in which such information is acquired.

For frequent everyday behaviors particularly, information about oneself would tend to be more accessible in a semantic form (versus episodically), unless the different occurrences of the behavior are fairly distinct from each other (Menon 1993). Recent research also suggests that similar semantic knowledge structures can be formed about other people's characteristics, but only after extensive experience with the other person in a specific domain (Klein and Loftus 1993). In this case, experience may not be a direct function of the actual frequency of the behavior, but may instead be a function of discussion, joint participation, and the observation of the other person engaging in the behavior.

Finally, research has shown that autobiographical information is associated with enhanced recall relative to other information that is not self-referenced (Bower and Gilligan 1979; Klein et al. 1989). This is presumably because information about oneself is elaborated much more during encoding and is therefore easier to retrieve (Rogers, Kuiper, and Kirker 1977), and/or because information about oneself is better organized in memory than other types of information (Klein and Kihlstrom 1986). When information about others is not directly relevant to oneself, it is less likely to be elaborated on and therefore relatively fewer episodes if any are likely to be accessible in memory.

To summarize, as experience with another individual's behaviors and opinions increases, people are more likely (1) to have episodes about the other person available as inputs to judgments and (2) to have formed semantic structures similar to those one forms about one's own behavior. Without such experience, neither episodic nor semantic structures should be available. Thus, a proxy-report must be constructed using alternate information about the other person, which is inferred in contexts other than the one being queried.

Inputs for the Judgment Formulation Process

The form in which the information is stored and therefore accessible will affect the response formulation process. When respondents construct a self-report, if the information is accessible in memory in episodic form they can report specifics related to each episode, such as when the event occurred, with whom, and what exactly happened. On the other hand, if the information that is accessible is more semantic in nature, then respondents will use more general information in arriving at a response to a survey question (Blair and Burton 1987; Menon 1993; Schwarz 1990). Examples are rates of occurrence in the case of behavioral frequencies and generalizations about preferences, traits, and habits in the case of attitudes.

Unless proxy-reporters learn about their partner's behavior through joint participation, discussion, or observation, they will have neither episodic nor semantic information regarding the behavior or attitude available in memory. Therefore, proxy-reporters may be forced to infer from the information that is made accessible by the questioning context. They may be required to use other knowledge about the individual or the situation to construct a proxy-report. These inputs would not be related to specific episodes of a relevant behavior or discussion of their partner's attitude. For example, a proxy-reporter may recall an instance when the partner reacted negatively toward violence and may infer that he or she is in favor of gun control.

By contrast, if there is significant joint participation in a behavior or discussion between a couple on a particular topic, there may be more specific inputs on which to base proxy-reports as well as general rates of occurrence that have been formed on the basis of episodic information, which has subsequently become less accessible in memory or previously discussed attitudes stored in memory. Therefore, with higher levels of participation, discussion, or observation, the convergence between self- and proxy-reports is likely to increase.

To summarize, there are two key ways in which increased participation or discussion affects the inputs used to form a proxy-report. First, with increased participation or discussion, proxy-reporters should have greater access to specific episodic information. Second, with increased participation or discussion, proxy-reporters should have better developed semantic memory structures (based on episodic information) about the other person's behavior or attitude.

Thus, with increased participation and discussion, proxy-reports should be more similar to the self-report provided by their partners. These relationships are summarized in Table 1, which presents a general framework regarding why one might expect differences in the memory for information related to oneself as opposed to other people.

On the basis of this discussion, two sets of hypotheses are developed. The first set of hypotheses, tested in study 1, relates to cognitive processes. The second set, tested in study 2, relates to the extent of convergence between self- and proxy-reports.

Table 1
INPUTS USED TO FORM PROXY-REPORTS OF BEHAVIORS
AND ATTITUDES

Level of Participation or Discussion	Behaviors	Attitudes
Low	Estimation based on general impression; guess	General knowledge about situation or individual
High	<div style="border: 1px solid black; background-color: #e0e0e0; padding: 5px;"> For a low-frequency behavior: Episodic recall of behavior For a high-frequency behavior: Estimation strategy based on rates of occurrence </div>	<div style="border: 1px solid black; background-color: #e0e0e0; padding: 5px;"> Previously discussed attitude or opinion </div>

Shaded boxes indicate conditions where inputs used to form a proxy-report should be most like those used to form a self-report. In these conditions, convergence between reports is expected to be higher than in those conditions where the boxes are not shaded.

STUDY 1: JUDGMENT FORMULATION STRATEGIES

Research Hypotheses

We now develop hypotheses related to the effects of participation and discussion on the cognitive processes used to develop proxy-reports of attitudes and behaviors. As Schwarz (1990) points out, both of these judgments are subjective, and the processes used to answer such questions will be more similar than different. However, we develop separate sets of hypotheses for two reasons: (1) We focus on the effects of participation or discussion for behaviors, depending on the behavior examined and the effects of discussion alone on attitudes. For example, our pretesting indicated that information about another person's television viewership was most likely to be learned by participation, whereas information about another's readership habits was most likely to be gleaned through discussion. However, because it would be more unusual to learn about another's attitudes by joint participation (though it is possible), we focus on only the effects of discussion on attitude measures.¹ (2) As shown in Table 1, in the protocols we analyze, the effects of participation/discussion manifest themselves differently for reports of attitudes versus behaviors.

Proxy-reports of behaviors. As the frequency of an event increases, the distinct episodes become increasingly easier to confuse in memory, and a more general representation of the behavior becomes more accessible (Linton 1982). The two general strategies that respondents use to answer behavioral frequency questions are *estimation* strategies (e.g., recalling a rate of occurrence, such as "I wash my hair once a day; therefore, I washed my hair seven times last week") and *counting* strategies (i.e., adding up the individual occurrences of the behavior).

¹We do not address the role of observation as a mode of learning about another's behavior. Kojetin and Miller (1993) find that observation was most strongly related to agreement between dyadic reports about expenditures relative to discussion and joint participation. Therefore, the effects obtained in our paper are more conservative, and they would only be stronger if we had incorporated observation as a source of acquiring information about another person.

Table 2
TOPIC AREAS COVERED IN STUDIES 1 AND 2

	<i>Frequency question topics</i>	<i>Attitude question topics</i>
Study 1:	Books read for fun for school Television viewership Consumption of beer/alcohol Readership of newspapers magazines Illness	Attitudes toward certain political groups Labor unions NRA Women's groups Environmental groups Ku Klux Klan
Study 2:	Books read for fun for school Television viewership Consumption of beer/alcohol Illness # days sick # doctor visits	Attitudes toward certain political groups Labor unions NRA Women's groups Environmental groups Ku Klux Klan Interest in politics Judgments about the honesty of politicians, in general; specific politicians: Bush, Simon, Thomson, Helms, Dukakis, Kennedy, and Hart Judgments about the effectiveness of President Bush on issues of inflation unemployment the trade deficit the economy foreign policy

Previous research demonstrates that as the frequency of an event increases, respondents tend to use estimation strategies as opposed to counting strategies (Blair and Burton 1987; Burton and Blair 1991), primarily because general or semantic information is more accessible. We expect to replicate these findings for self-reports of behavioral frequencies. We also expect to extend these findings to proxy-reporting:

H₁: As the frequency of an event increases, respondents will tend to use estimation strategies more than counting strategies: (1) in self-reports of behaviors and (2) in proxy-reports of behaviors.

The differences in the encoding and storage mechanisms for information pertaining to oneself versus other people suggest that people have less access to specific information relating to others. For behavioral frequency judgments, this suggests that episodic information will not be available to proxy-reporters, so they must rely more on other inputs to form a judgment about their partner. Previous work has shown that reliance on general semantic information results in the use of estimation strategies in answering a frequency question (e.g., Menon 1993). Thus:

H₂: For the same behavioral frequency question, respondents are more likely to use counting strategies (versus estimation strategies) for self-reports than for proxy-reports.

Furthermore, as indicated in Table 1, as the participation/discussion between the couple increases, proxy-re-

porters should develop more specific knowledge structures about their partner's activities. As a result, individual episodes become more accessible. In addition, individual episodes should be perceived to be more diagnostic for answering a question about another's behavior than a rate of occurrence (Feldman and Lynch 1988). Therefore:

H₃: For proxy-reports of behavioral frequencies, as the level of participation or discussion between a couple on a specific behavior increases, the use of counting strategies will increase.

Proxy-reports of attitudes. Analogously, when answering attitude questions, proxy-reporters may rely on information that is not directly related to the attitude (e.g., "He's a very health-conscious person," or "She'd give a seven, because she enjoys the arts") and use such information as the basis on which to arrive at a judgment. Again, we expect the use of such general information to decrease as specific, more diagnostic information (e.g., "She belongs to the Sierra Club," or "He told me he hates the NRA") becomes available to the respondent, as would be the case with increased discussion between a couple. Thus:

H₄: For the same attitude question, respondents are more likely to use general information about their partner in formulating proxy-reports as compared to using general information about themselves in formulating self-reports.

H₅: For proxy-reports of attitudes, as the level of discussion between a couple increases, respondents use *less* general information about their partner in arriving at proxy-reports.

Design

We conducted face-to-face interviews with 50 couples who were either married or living together in the same household in Urbana-Champaign, Illinois. Interviews were conducted in a laboratory setting. Each of the two partners was scheduled back-to-back so that the couple did not have a chance to talk until both interviews had been completed. Couples received \$25 for their participation. They were recruited through advertisements posted in grocery stores, graduate housing offices, and other places on campus. The average age was 35.8 years. Fifty-one percent of the sample was employed full-time, 22% part-time, 2% were full-time students, and the remaining 25% were homemakers, retired, disabled, or temporarily unemployed.

Independent variables. Each partner was asked for self- and proxy-reports on a number of behavioral frequency and attitude items. In addition, respondents were asked about the extent to which they and their partner engaged in certain behaviors together or discussed a specific behavior or topic. The major topics that were covered in this questionnaire are presented in Table 2.

Dependent variable. Verbal protocols were the dependent variable in this study. Respondents were asked to think aloud as they responded to each question. Interviews were tape recorded. For the behavioral frequency questions, each response was coded as being either counting or estimation. If respondents used multiple strategies (which happened very rarely), the protocol was coded as being either predominantly counting or estimation. The types of information used to answer attitude questions were also coded. Multiple

Table 3
MEAN FREQUENCY BY STRATEGY (COUNTING VS. ESTIMATION)

	Self-Report		Proxy-Report	
	Counting	Estimation	Counting	Estimation
1. Frequency of reading newspapers	4.87 (44)	6.52* (42)	4.36 (32)	6.58* (41)
magazines	5.43 (73)	9.78* (10)	4.62 (52)	10.93* (17)
2. Number of books read for fun	3.97 (41)	13.00* (6)	3.52 (40)	3.67 (8)
for work	2.60 (38)	10.25* (3)	5.69 (26)	6.00 (8)
3. Number of hours of TV watched	5.77 (70)	12.26* (83)	4.82 (38)	13.58* (75)
4. Illness (number of days sick/number of doctor visits)	6.63 (112)	23.81* (26)	2.78 (104)	6.40* (26)
5. Frequency of alcohol consumption	2.87 (71)	9.52* (34)	2.63 (58)	9.09* (40)

Note: Figures in parentheses are cell sizes.

*F-values associated with the difference in mean frequencies of events while using an estimation strategy versus a counting strategy are statistically significant, $p < .05$.

types of information could be used for each item. The major categories included "use of self-report," "based on specific behavior/event," "based on discussion with others," and "based on general knowledge about self/other." The coding scheme used is discussed in detail by Bickart and colleagues (1990). The task of coding the 100 interviews was divided between two coders who were trained in the use of this coding scheme. In other studies using this scheme, multiple coders agreed on 91% of the statements (e.g., Menon 1993).

Results

H₁: Frequency formulation process as a function of the frequency of the event. Each respondent was classified as having used either a *counting* strategy (i.e., the enumeration of individual occurrences of an event) or an *estimation* strategy (i.e., an extrapolation based on a rate of occurrence). For ease of readability, Table 3 presents the mean reported frequency for people that used a counting versus an estimation strategy for each item. As expected, the mean reported frequencies were significantly higher when an estimation strategy was used for all self-reports and five out of seven proxy-reports ($p < .05$).

Given that the strategy used (i.e., counting versus estimation) is the binary dependent measure stated in *H₁*, a more appropriate statistical test is the use of logistic regressions that treat event frequency as the continuous independent variable. As expected, these logistic regressions also revealed a significant main effect in the case of all behaviors for self-reports ($p < .05$). In the case of proxy-reports, the same pattern of results manifested itself for all behaviors except books read. However, in this latter instance, the data are directionally supportive of *H₁*, though the differences are not statistically significant.

Therefore, we replicated the finding of Blair and Burton (1987) that as the frequency of an event increases, people rely more on estimation strategies than episodic enumera-

Table 4
USE OF COUNTING STRATEGIES IN FREQUENCY FORMULATION

	Report (% Using Counting Strategies)		
	Self-Report	Proxy-Report	χ^2
1. Number of times read			
newspaper	51.4	42.9	7.41*
magazines	87.7	75.4	10.61*
2. Number of books read			
for fun	88.2	85.2	0.34
for work	90.5	76.2	6.47*
3. Number of hours of TV watched	45.7	33.6	23.85*
4. Number of days ill	81.2	80.0	.92
5. Number of times had alcohol	67.6	59.2	5.00*

* χ^2 -values associated with the differences in the use of counting strategies between self- and proxy-reports are statistically significant at $p < .05$.

tion. In addition, we extended this finding to proxy-reporting.

H₂: Use of counting strategies for self versus proxy reports. Table 4 presents the percentage of respondents using a counting versus an estimation strategy in arriving at self- and proxy-reports for each behavioral frequency item. As expected, these percentages were significantly greater for self- than for proxy-reports for five comparisons ($\chi^2_s > 5.0$, $p < .05$). The nonsignificant differences (though in the direction predicted) observed for books read for fun and number of days ill may again be due to a ceiling effect, because more than 80% of the sample used a counting strategy for these items. Therefore, *H₂* was supported.

H₃: Effect of participation/discussion on reporting strategies for proxy-reports of behavioral frequencies. The level of participation/discussion between the couple for a behavior was elicited on a three-point scale (1 = never, 2 = some-

Table 5
USE OF COUNTING STRATEGIES AS A FUNCTION OF THE EXTENT OF PARTICIPATION

DV = Use of Counting Strategies	Beta-Coefficients (from Logistic Regression Runs)			
	Participation/Discussion ⁺	Frequency	Interaction	χ^2
1. Number of times read newspaper	5.06*	.27*	2.54*	24.59*
2. Number of books read for work	.04	.71	.25*	2.21
for fun	2.66**	-1.71*	.59*	7.64*
3. Number of hours of TV watched	.29*	-.97*	-.29*	32.43*
4. Number of days ill	.22*	-.17*	.02	15.31*
5. Number of times had alcohol	1.03*	-.19*	.24*	31.37*

*significant at $p < .05$.

**significant at $p < .10$.

+Although we elicited the extent to which a couple discussed behaviors 1 and 2, for behaviors 3, 4, and 5, we elicited the extent to which a couple watched TV together, accompanied the partner to a doctor, and drank together, respectively.

times, and 3 = frequently).² H_3 was tested by running logistic regressions using participation/discussion as the independent variable and the strategy used in formulating proxy-reports (counting versus estimation) as the binary dependent variable. In addition, because the frequency report itself was observed as having an effect on the frequency formulation process (i.e., H_{1b} was supported), we included this variable and the interaction term as predictors in the analysis. The beta-coefficients and the associated χ^2 values are presented in Table 5.

As expected, the actual frequency is inversely related to the use of counting strategies. More importantly, increased participation/discussion was directly related to the use of counting strategies for five out of the six behaviors ($p < .05$), and this effect was obtained over and above the effect of actual frequency. These data provide support for H_3 .

H_4 : Use of general information for self- versus proxy-reports of attitudes. We expected that proxy-reports would be more likely to be based on general information about the target person than would self-reports.

The five political groups on which self- and proxy-reports were elicited were labor unions, the National Rifle Association, women's rights groups such as NOW, environmental groups such as the Audubon Society, and the Ku Klux Klan. The results provide strong support for H_4 . In the case of each of the five political groups, as well as at the average level, proxy-reporters tended to use general information about the other person much more than self-reporters used general information about themselves (the use of general information about oneself/the other person averaged across the five political groups: proxy-reports = 36%, self-reports = 13%; $z = 4.52$, $p < .05$).

H_5 : Effect of discussion on reporting strategies for proxy reports of attitudes. We predicted that the use of general information about one's partner in formulating a proxy-report would decrease with discussion. For each individual, the extent of discussion with his or her partner on a particular topic was measured on a seven-point semantic-differential scale (1 = never to 7 = frequently).

We analyzed the data over the five political groups mentioned previously. We ran logistic regressions using the extent of discussion as the continuous independent variable and the use of general information about the partner as the binary dependent variable (i.e., did versus did not use general information). This analysis revealed that the extent to which a couple discusses a topic has a significant impact on the use of general information in proxy-reporting ($\chi^2(1) = 3.68$, $p < .05$). Therefore, H_5 was supported.

Summary of Findings

The results of study 1 support all five hypotheses. For behavioral frequency questions, both self- and proxy-reports tend to be based on estimation (versus counting) strategies as the frequency of the event increases. In addition, when the frequency of the behavior is accounted for, proxy-reports of behaviors are more likely to be based on a counting strategy than are self-reports. Furthermore, the use of a counting strategy in forming proxy-reports increases with increased participation in the behavior. For attitude questions, proxy-reports are more likely to be based on general information about the target person than are self-reports. Also, the proxy-reporter's use of general information decreases as the level of discussion increases.

STUDY 2: CONVERGENCE BETWEEN SELF- AND PROXY-REPORTS

Research Hypotheses

In study 1, we found that when discussion or joint participation was low, proxy-reports were more likely to be based on general information about the target respondent. This results in a greater reliance on the use of heuristics or other inferential strategies. In study 2, we examine how these cognitive processes affect the convergence between self- and proxy-reports.

As the level of participation or discussion between a couple increases, so will the specific information about the partner increase on a particular topic (Prentice 1990). To the extent that respondents rely on specific information to answer questions about their partner, we expect the *similarity* between the couple's responses to increase. Thus:

²An even more sensitive measure of participation might be asking how often a couple participates together relative to the total time they engage in the behavior. In our pretesting, we found that respondents had a difficult time answering this question.

H_{6a}: As the extent to which a couple participates in or discusses a specific behavior together increases, proxy-reports of behavioral frequencies are likely to be more similar to self-reports.

H_{6b}: As the extent to which a couple discusses a topic increases, proxy-reports of attitudes are likely to be more similar to self-reports.

Method

We conducted study 2 for three reasons. First, although H₆ could be tested using the data from study 1, we wanted to make sure that the process of eliciting verbal protocols, which may make the respondent more aware of the judgment task, did not change the reported judgment. Second, we wanted to replicate the results using another mode of survey administration, so we decided to conduct study 2 through telephone interviews. Third, we covered additional topics in study 2. Because of the timing of the survey (it was conducted soon after the 1988 elections), we included topics on politics that had not been included earlier (see Table 2).

Therefore, in study 2 we conducted telephone interviews with 201 couples who were married or living together during 1989–1990 in Urbana-Champaign, Illinois. Telephone numbers were selected using the random digit dialing (RDD) method. The interviews with each couple were scheduled so that the time between interviews with the partners was minimized to lessen the possibility of discussion between them. Interviews were conducted by trained field interviewers and closely supervised by the senior staff of the Survey Research Laboratory, University of Illinois. The interviews lasted for an average of about 20 minutes per person.

As in study 1, respondents were first asked for their own report and then for a report about their partner. At the end of the interview, background information, such as the extent of participation or discussion on topics, confidence in proxy-reports, and the number of years the couple had been together, was collected along with household demographics. The demographic data revealed that the average age was 40.8 years. Of the sample, 61% percent were employed full-time, 19% part-time, 4% were full-time students, and 16% were homemakers, retired, disabled, or temporarily unemployed.

Results

H₆: *Effect of participation on convergence.* We predicted that as the level of participation or discussion between partners increases, the convergence between self- and proxy-reports should increase. To test H₆, we ran regressions using the following model:

$$\text{Self-report} = a + b_1(\text{proxy-report}) + b_2(\text{participation/discussion}) + b_3(\text{interaction between proxy-report and participation/discussion})$$

Using this model, we expect that as the participation/discussion increases, the proxy-report is a better predictor of the self-report (i.e., there is greater convergence between self- and proxy-reports). Therefore, the term in which we are really interested and which should be statistically significant for our hypothesis to be supported is the interaction between participation/discussion and the proxy-report (i.e., b₃). We

would expect the associated beta-coefficient to be positive, given the hypothesized direct relationship between participation/discussion and convergence between self- and proxy-reports.³

We first ran a factor analysis on each set of similar questions to determine that they all loaded on to only one factor. In the case of behavioral frequencies, we treated the following questions as being similar: (1) television viewership—weekdays and weekend; (2) alcohol consumption—drinking beer and liquor and getting drunk; and (c) health—number of days ill and number of times the respondent went to the doctor.

For attitudinal items, we treated the following questions as similar: (1) attitudes toward political groups—NRA, NOW, KKK, environmental groups, and labor unions; (2) honesty of politicians—in general, and of Bush, Simon, Thomson, Helms, Dukakis, Kennedy, and Hart; (3) attitudes toward Bush's policies—inflation, unemployment, trade deficit, economy, and foreign policy.

The analysis revealed that for each set of related questions, only one factor emerged with an eigenvalue greater than one. We then used a scaled measure for similar questions as the dependent measure for the regression runs.⁴ Table 6 presents the standardized beta-coefficients and the R² values.

For the behavioral frequency questions, we find positive, statistically significant beta-coefficients for four of the five items (R²s ranging from .01 to .55). For the attitudinal questions, we find that the standardized beta-coefficients associated with the interaction term are all significant (R²s ranging from .19 to .68). Therefore, we can conclude that as the extent of participation/discussion increases, the convergence between self- and proxy-reports increases as well, providing support for H₆. Furthermore, the figures in parentheses in Table 6 indicate that these findings were replicated in study 1, making our results more reliable.⁵

Summary of Findings

Study 2 showed that increased participation in a behavior or discussion of a topic is related to higher levels of convergence between self- and proxy-reports. Therefore, as proxy-reporters use more specific inputs for their judgments (as determined in study 1), they tend to get closer to what the other person may have responded him or herself.

³We did not use the difference between self- and proxy-reports as a dependent measure because of problems associated with its reliability (Peter, Churchill, and Brown 1993).

⁴We computed the reliability (i.e., Cronbach's alpha) for measures that were elicited using scales, which ranged from .88 to .94.

⁵An alternative explanation for these effects is that couples who have been together longer are more likely to discuss events or participate in behaviors together; additional analyses suggest this is not the case. First, across all behaviors and attitudes, the average correlation between discussion/participation and the number of years a couple has been together was only .01. Second, the number of years a couple had been together had no effect on the convergence between self- and proxy-reports. This is consistent with earlier research suggesting that the number of years of marriage is not related to consensus between partners (Van Es and Shingi 1972) or the accuracy of spousal reports (e.g., Corfman 1991).

Table 6
THE EFFECTS OF PARTICIPATION/DISCUSSION ON THE CONVERGENCE BETWEEN SELF- AND PROXY-REPORTS

DV = Self-Report	Standardized Beta-Coefficients (From Regression Runs)			R ²
	Proxy-Report	Participation/Discussion	Interaction	
<i>Behavioral frequency questions</i>				
1. Number of books read				
for fun	-.56* (-.715*)	-.28* (-.23**)	6.75* (7.02)	.55* (.09)
for work	-.96 (-.22)	-.06 (.11)	1.00** (.40)	.02 (.06)
2. Number of hours of TV watched (2 items) ^a	.21** (.93*)	.10* (.03)	.09** (.33*)	.10* (.39*)
3. Alcohol consumption (3 items) ^a	-.59 (-.05*)	-.30 (-.08*)	.96* (.48*)	.16* (.18*)
4. Illness (2 items) ^a	.07 (.84)	.20* (.42*)	-.14** (.95)	.03* (.11*)
<i>Attitude questions</i>				
1. Political groups (5 items) ^a	.65* (.74*)	-.13* (-.44**)	.32* (.50*)	.49* (.30*)
2. Interest in politics	-.38* (.26)	-.76* (-.35*)	.43* (-.18)	.19* (.32*)
3. Honesty of politicians (8 items) ^a	.52* (.25*)	-.12** (-.37*)	.25* (.64*)	.45* (.55*)
4. Bush (5 items) ^a				

Note: Figures in parentheses are the results of a similar analysis using the data from study 1.

*significant at $p < .05$

**significant at $p < .10$

^aThe different items were scaled into a single measure at the individual level before regressions were run.

DISCUSSION

Our main hypothesis was that as the level of discussion or joint participation in an event between a couple increases, the convergence between self- and proxy-reports will increase. We reported the results of two studies that provide support for this hypothesis. In addition, we investigated the processes underlying the increased convergence. The results of study 1 suggest that the increased levels of convergence at higher levels of participation/discussion may be due to increased reliance on *specific* inputs. In other words, as discussion or participation increased, self- and proxy-reporters tended to use similar kinds of inputs to construct judgments. We did not expect the effects of discussion or joint participation on convergence to vary for reports about behaviors versus attitudes, and no major differences were observed.

It appears that experience with the behavior of one's partner or his or her attitudes leads to an increased ability to recall episodes. In addition, with increased experience, people are more likely to form semantic knowledge structures about their partner's behaviors (e.g., rates of occurrence) and attitudes (e.g., a stored attitude judgment). When people lack such knowledge, they are more likely to construct a judgment using whatever information is most accessible to them at the time.

It is important to note that with increased experience with one's partner, the response formulation process for a proxy-report would mirror that for a self-report, because the memory structures associated with oneself and another person become more alike as the extent to which the two people participate in a behavior or discuss a topic increases.

We focused on whether either increased joint participation in a behavior or discussion would be related to in-

creased convergence. It would be interesting to see if the same pattern is observed when other modes of acquiring information, such as observation, are considered. When observing the behavior of another, we do not necessarily have the opportunity to form shared elaborations or inferences. Therefore, we might expect that whereas observation is related to increased accuracy of reporting, it may not be related to increased convergence between self- and proxy-reports, particularly for reports about sensitive attitudes and behavior (cf. Kojetin and Miller 1993).

Is increased convergence between self- and proxy-reports indicative of increased *accuracy*? It is possible that increased discussion or joint participation is related to increased convergence, because the inputs used to form the judgment are similar. However, this does not necessarily mean that these inputs are more accurate. Increased discussion or participation may increase a proxy-respondent's access to shared memories that are constructed after the event, rather than more veridical memories based on the actual experience.

For example, in a study using an independent accuracy criterion, Bickart and colleagues (1992) found that the accuracy of self-reports about a behavior actually decreased with increased discussion. This supports the notion that with increased discussion, couples construct their own reality, which may be different from what they actually experienced (McLeod and Chaffee 1972). The extent to which these shared memories reflect reality and predict future behavior is a question for further research.

From a practical perspective, convergence is probably the best indicator of the quality of proxy-reports available. This is particularly true for reports of attitudes, for which it is dif-

difficult or impossible to obtain an independent accuracy criterion. Assuming that we want to obtain survey responses similar to those provided by a self-reporter, our results suggest that both the amount of discussion between a couple on a particular topic and their level of joint participation in a behavior are good screening variables for determining whether a proxy-reporter is appropriate. On the other hand, the number of years a couple has been together is probably not a good screening variable, at least for the types of questions asked in these studies.

We see several potential avenues for further research. First, we suggest that this analysis be extended to other domains. For example, work in household decision making suggests that the level of role differentiation affects reporting (e.g., Douglas and Wind 1979). In this study, we did not explicitly manipulate the content of the question in terms of its relationship to role structure. Further research may be directed toward identifying content domains where women report better than men and vice versa.

Second, it would be useful to investigate the effects of question structure on convergence. Previous research has indicated that for reports about decision influence, specific questions result in greater convergence than general questions (e.g., Corfman 1991; Davis 1971; Silk and Kalwani 1982). When reporting about behaviors, however, we might expect convergence to be greater when proxy-reports are elicited using general questions, because proxy-reporters are not likely to have access to specific episodic information. Therefore, they may be more accurate in inferring general rates at which their partner engaged in a behavior rather than the specific number of times a behavior occurred in a given time period. This would provide guidelines for how best to structure questionnaires for self- versus proxy-reports in different survey domains.

Third, further research should focus on examining the viability of discussion and participation as screener variables relative to other variables in selecting proxy-reporters. Potential screener variables include respondents' confidence in their ability to report about others, characteristics of the dyad such as length of a relationship or relationship type (see Kojetin and Miller 1993), and role structure. A theoretical framework relating these variables as well as other forms of communication within a household to the adequacy of proxy-reports of behaviors and attitudes is an important direction for further research.

We have shown how increased communication between a couple or joint participation in an event is related to greater convergence between self- and proxy-reports of behaviors and attitudes. These differences in convergence appear to be related to the kinds of inputs that are accessible to proxy-reporters in forming their responses. As knowledge about one's partner in relation to a particular dimension increases, respondents are more likely to use specific inputs and less likely to rely on inferences to form proxy-reports.

Further research should be directed toward understanding (1) the relationship between convergence and accuracy, (2) the effects of observation and other modes of learning on knowledge structure about others, and (3) the effects of question structure and domain on the accuracy of proxy-reports.

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