Managing boundary turbulence through the use of information manipulation strategies: A report on two studies

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Abstract: In two studies, participants responded to a scenario in which they were asked to imagine they had revealed private information shared with a close friend or a recent acquaintance to a third party, thereby violating a privacy boundary, and were then confronted by the friend or acquaintance. Also manipulated was the degree of privacy of the information involved. The combined results suggest, among other things, that clarity, whether in the form of truth-telling or falsification, was a preferred strategy in situations involving information of a more private nature and that privacy level and relationship type influenced truth-telling. The strategies of falsification and equivocation were found to be significantly related to these independent variables. Communication competence and ambiguity tolerance were also implicated in strategy selection.

Keywords: communication privacy management; information manipulation; equivocation; falsification; boundary turbulence

1. Introduction

Communication privacy management (CPM) theory provides a framework for understanding how and under what circumstances people seek to manage information which they consider to be more or less private (Petronio, 2002). Much of the research supporting the theory has been exploratory in...
nature and focused more on particular content areas such as HIV status, medical mistakes, and triangulation in stepfamilies (Affi, 2003; Cline & McKenzie, 2000; Petronio, 2006). The mechanics of specific, strategic message selection used in managing pieces of private information has yet to be examined in detail. The present study focuses on some of the key factors which influence the kinds of information manipulation strategies that individuals choose when dealing with situations where privacy management issues are paramount. We use existing theory and research, including work on CPM, information manipulation theory (IMT) (McCornack, 1992), and equivocation (Bavelas, 1998; Bavelas, Black, Chovil, & Mullett, 1990; Bello, 2000a, 2005b; Bello & Edwards, 2005; Edwards & Bello, 2001) to propose several hypotheses and research questions.

2. Literature review and rationale

2.1. Principles of CPM

CPM is a relatively new and emerging theory that provides a rich and complex understanding of the rules individuals use to make decisions about what information should be disclosed and what information should be protected. Five basic suppositions serve as the framework for this theory. Three of these suppositions are directly relevant to the present study.

The first of these defines what constitutes private information. According to Petronio (2002) private information is defined as that which matters deeply to an individual. The term private disclosure as opposed to self disclosure is preferred because the information revealed may be private information about one’s self or private information about another individual. This is an important distinction because the standard notion of self disclosure is that it leads to intimacy. However, the revelation of private information does not always assume a trajectory toward intimacy.

The second relevant supposition of CPM addresses privacy boundaries. These boundaries deal with the concept of information ownership. Personal privacy boundaries include information about the self over which one has sole control, while collective boundaries govern private information that is shared. One may simultaneously manage personal boundaries and a variety of collective boundaries. (Petronio, 2002).

The final relevant supposition is that CPM is a rule-based management system. This system provides a basis for individuals to make decisions about how private information, that which is said to be owned or co-owned, is to be handled. According to Petronio, the three basic management processes are privacy rule foundations, boundary coordination, and boundary turbulence. The third of these management processes addresses what happens when boundary coordination is unsuccessful, and is especially relevant to our research. Petronio (2000, 2002) noted that because boundary coordination is complex and often happens on multiple levels, boundary turbulence may occur. Turbulence can be thought of as conflict that occurs regarding our expectations about boundaries and their regulation. It can result from intentional privacy violations, boundary mistakes, unclear boundaries, or dissimilar boundary orientations. Regardless of the reason for the breach, boundary turbulence must be resolved. Individuals may modify existing rules or create new rules in order to achieve coordination.

2.2. Information manipulation

A tenet of CPM is that as boundary turbulence is experienced, the individuals involved will try to make communication adjustments to reduce this turbulence (Petronio, 2000, 2002). This study is relevant because it explores the verbal strategies proffered when one has been caught in a deliberate privacy boundary breach. Previous work on CPM has been much more concentrated on establishing the creation and implementation of rules to prevent boundary violations as opposed to how one handles being confronted after a violation has occurred. What might the nature of these verbal strategies and adjustments include? Because CPM is essentially about personal and interpersonal information, particularly private information and how it is handled, we can use IMT (McCornack, 1992) to provide a basis for examining the specific verbal methods that individuals might use in
dealing with boundary turbulence. IMT suggests that a prime method for accomplishing deception is the intentional violation of one or more of H. P. Grice’s (1975, 1981) conversational maxims: quality (be truthful), quantity (give enough information), manner (be clear), and relevance. Violation of one or more of these maxims involves intentional manipulation of information possessed by the sender (McCornack, 1992), which results in some degree of deception (McCornack & Levine, 1992). Interpersonal deception theory (Buller & Burgoon, 1996) builds upon this work by suggesting three key verbal strategies for such manipulation: falsification, concealment, and equivocation. Falsification involves creating a fiction or fabrication, concealment hiding or withholding a key piece of information, and equivocation distorting information through intentional vagueness or ambiguity. In the current study, we propose to uncover some of the social and cognitive influences that are at work when individuals choose one or another of these strategies, including truth-telling, when reacting to a situation that involves boundary turbulence.

Some information boundaries are more permeable than others, allowing more or less access to private information (Petronio, 2000, 2002), which at least implies that some kinds of information are considered more private than others. When boundary turbulence occurs (for example, one party, in violation of previously negotiated rules, reveals information co-owned with a second party to some third party), the degree of privacy of the information involved would appear to be strongly predictive of the information manipulation strategy chosen to smooth over this turbulence. This possibility is at least suggested by the author of CPM when she says that people are routinely “making judgments about the degrees of privacy they wish to experience in any given interaction” (Petronio, 2002, p. 13). If privacy level does indeed matter in the process of handling such boundary turbulence, then it is plausible to suspect that relational risks associated with information manipulation strategies are greater as the privacy level of co-owned material increases. Imagine, for example, that John and Mary have negotiated a set of rules about the dissemination of co-owned information. John, in violation of those rules, decides to share a piece of such information with someone else, and Mary finds out about it and confronts John. It seems plausible that John would be more likely to tell Mary the truth about this breach of privacy if it dealt with a serious illness she had contracted than if it was about a vacation she was planning. More than likely, the parties involved feel a stronger sense of co-ownership of especially private material than they do of slightly private material. Therefore, more relational damage would occur if a manipulative strategy, such as falsification or concealment, were used when attempting to smooth over turbulence regarding especially private material. This would appear to be even more likely if John knows Mary well and considers her a close friend (Buller, Burgoon, Buslig, & Roiger, 1996). In such situations, the conversational maxim of quality would seem to apply more strongly than in similar situations that involve less private material and parties with a more tenuous relational connection. There is other research which suggests that relationship type as defined by length (i.e. friend or acquaintance) has some influence upon the use of information manipulation strategies (Bello, 2000, 2005a). Hence, we propose two related hypotheses:

H1: When managing boundary turbulence, participants will choose truth-telling more with close friends than with recent acquaintances and more as the privacy of co-owned information increases.

H2: When managing boundary turbulence, participants will choose falsification and concealment more with recent acquaintances than with close friends and more as the privacy of co-owned information decreases.

2.3. The role of equivocation: an issue of competence

Equivocation is largely thought of by communication scholars as intentional vagueness or ambiguity in order to present an unclear message, one that can easily be interpreted in two or more ways by the listener (Bavelas, 1998; Bavelas et al., 1990; Bello & Edwards, 2005; Buller & Burgoon, 1996; Hamilton & Mineo, 1998). While there is widespread agreement on its basic definition, there is less agreement on issues such as its role in deception and the degree to which it constitutes a competent form of communication. Bavelas et al. (1990) have long held the view that equivocation is truthful but unclear communication. Other researchers have pointed out its fundamentally deceptive
nature, especially when equivocal messages are rated for degree of deception by study participants (Bello & Edwards, 2005; Edwards & Bello, 2001; McCormack & Levine, 1992) or when equivocation is conceptualized as an abrogation of one or more of Grice's conversational maxims (McCornack, 1992) and as a method for manipulating information (Buller & Burgoon, 1996). Part of the reason for this disagreement is that Bavelas et al. (1990) studied equivocation exclusively as a competent response to an avoidance-avoidance conflict and were thereby more likely to view it as a way of attempting not to falsify in a difficult social situation. Others, however, have pointed out that equivocation does have information manipulative properties and is viewed by observers as at least somewhat deceptive (Bello & Edwards, 2005; McCormack & Levine, 1992). Still other research has suggested that it is sometimes caused by factors other than avoidance-avoidance conflict (Bello, 2000a, 2005b) and that it is often viewed as less competent than more honest, straightforward messages, although more polite (Bello & Edwards, 2005; Edwards & Bello, 2001).

So, just what are the implications of these disparate views? There exist three competing rationales regarding the role equivocation, as one verbal strategy, might play in the management of boundary turbulence. If the view of equivocation as essentially competent communication prevails, logic would suggest that it is important enough to be used increasingly as the privacy level of co-owned information intensifies. Given this logic, one would suspect it to be used more with close friends than recent acquaintances. If the view of equivocation as less than competent communication prevails, logic would suggest that it would be used less as the privacy and sensitivity of co-owned information increases, as well as less with friends than acquaintances. A third possibility is that equivocation occupies some “middle ground” between truth-telling and the other two information manipulation strategies, and that this special role suggests more mixed results for equivocation than is implied in the first two rationales. We believe that the weight of the evidence of earlier studies most supports this third rationale. Adding to the weight of this evidence is another previous finding that points to equivocation as occurring more frequently in informal social situations that included friends than in formal social situations that included acquaintances (Bello, 2000, 2005a). Therefore, for example, one possible mixed result could show decreased equivocation as information privacy increases, enhanced equivocation with close friends compared to recent acquaintances, and perhaps an interaction of these factors. Because the current study is breaking new ground by combining theory on equivocation with CPM, it is difficult to gauge the nature of the result. We ask, therefore, the following research question:

RQ1: When individuals are managing boundary turbulence, how will the degree of information privacy and relationship type influence the choice of equivocation as an information manipulation strategy?

2.4. Likely cognitive factors
Previous studies have found that certain traits have some influence on the use of equivocation. This suggests the possibility that traits and other cognitive factors would have some connection to information manipulation strategies used when dealing with boundary turbulence. Bello (2000) found, for example, that ambiguity tolerance was related to the degree of equivocation used in hypothetical scenarios. Specifically, an interactive effect was uncovered. Those who had lower levels of ambiguity tolerance were more likely to adjust their use of equivocation depending on the formality or informality of the social situation, with increased equivocation in informal settings and much less equivocation in formal settings. This was explained by applying a “goodness of fit” model to low ambiguity tolerators, the idea that they prefer to adjust their style of verbal communication to match the nature of situational cues. In this particular case, they were less likely to equivocate in formal situations because the scripted and routine nature of formal situations suggests a corresponding need for more precision in the use of language. In her discussion of motivations that might influence the development of privacy rules, Petronio (2002) indicates that low ambiguity tolerators’ need to reduce uncertainty might affect how they develop and apply such rules.
Self-monitoring was also connected in previous research with the use of equivocation, although
the relationship was not hypothesized and was also rather tenuous (Bello, 2005a). Petronio (2002)
suggests that higher self-monitors might be more flexible in the development and application of
rules regarding disclosure of private information. On these bases, we decided to check for the pos-
sible influence of self-monitoring on equivocation and other verbal strategies for managing bound-
ary turbulence.

We also have reason to believe that communication competence and flexibility should have some
bearing on the way verbal strategies are used in handling boundary turbulence. This is based in part
on research suggesting that identity management is a motivator for individual decisions to avoid or
pursue disclosure of private information (Afifi & Guerrero, 1998; Guerrero & Afifi, 1995). If this is in-
deed true, and if effective identity management is one of the key components of communication
competence (Bello & Edwards, 2005; Johnson, 2007; Keaten & Kelly, 2008; Ting-Toomey, 1993), then
decisions and strategies regarding disclosure of private information should be related to compe-
tence. Although there is a lack of specific research on the role that competence should play, we have
an expectation that higher competence levels will accompany the trends predicted in H1 and H2,
provided those predictions are soundly based on the importance of Grice’s conversational maxim of
quality. That is, the more communicatively competent should be better equipped to recognize the
necessity of the behaviors predicted by H1 and H2.

Considering the foregoing reasoning, but also recognizing the paucity of extant research on the
role of these traits in managing privacy concerns, we ask the following:

RQ2: When individuals are managing boundary turbulence, how will their levels of
communicative competence, ambiguity tolerance, and self-monitoring be related to the
verbal strategies they choose, especially as reflected in the behaviors suggested by the
hypotheses and research question laid out above?

3. Study 1

3.1. Method

3.1.1. Participants

Participants (N = 217) were recruited from communication classes at a medium-sized southern uni-
versity. The study’s plan was approved by the university’s institutional review board. Extra credit was
offered for the students’ participation, which was anonymous and voluntary. The sample consisted of
32.3% males and 67.3% females, with one person not indicating gender. The mean age was 21
(SD = 3.42) and ages ranged from 15 to 56. Juniors constituted the bulk of the sample (38.7%), fol-
lowed by sophomores (29.5%), seniors (25.8%), and freshmen (5.5%), with one individual not specify-
ing classification. With regard to ethnic group, 65.4% were Caucasian, 15.7% African-American, 10.1%
Hispanic, and 1.8% Asian; 2.8% indicated some other ethnicity and 4.1% indicated no ethnicity.

3.1.2. General procedure

Survey questionnaires and consent to participate forms were distributed to participants, who were
then asked to complete them during class time. Following the lead of some published equivocation
research (e.g. Bello & Edwards, 2005; Edwards & Bello, 2001), the questionnaire presented each par-
ticipant with a hypothetical scenario. This scenario involved an episode in which boundary turbulence
was experienced. The participants were asked to imagine that, in violation of an agreement they had
with another person, they had revealed to a third party some private information co-owned by the
participant and this other person. The participant was then confronted by the other person and asked
to explain why he/she had revealed this information to someone else. The participants were then
presented with four forced-choice responses and asked to indicate which responses they would most
likely and least likely use by rank ordering them from 1 (“most likely to say”) to 4 (“least likely to say”).
(A complete version of the survey scenario and responses is available from the lead author).
Questionnaires also asked participants to complete instruments designed to measure their levels of self-monitoring, communication competence, and ambiguity tolerance.

3.1.3. Predictor variables
The two key independent variables, privacy level and relationship type, were manipulated by varying aspects of the scenario. One version identified the other person as a “close friend” while another version identified this person as a “recent acquaintance.” In a similar manner, privacy level of the revealed information was varied from “especially private” to “somewhat private” to “slightly private,” both by altering the wording and the example of the kind of information involved. The especially private information involved a driving while intoxicated (DWI) charge, while the somewhat private and slightly private pieces of information involved a recent job offer and an upcoming vacation trip, respectively. These manipulations resulted in a 2 (relationship type) × 3 (privacy level) design with six different versions of the scenario being distributed to participants in such a way that each participant was randomly assigned to one of the scenario versions.

Self-monitoring was measured through the administration of the 13-item Revised Self-Monitoring Scale (Lennox & Wolfe, 1984), which is a commonly used instrument and which has been shown to have improved validity and reliability over the original scale (Allen, 1996; Dillard & Hunter, 1989; Lennox & Wolfe, 1984). Participants responded to items using a six-point scale, ranging from 0 (“certainly, always false”) to 6 (“certainly, always true”). Sample items include “In social situations, I have the ability to alter my behavior if I feel that something else is called for” and “When I feel that the image I am portraying isn’t working, I can readily change it to something that does.” Internal reliability (Cronbach’s alpha) was .81. The mean score was 43.88 (SD = 7.37), with a range from 17 to 64.

Ambiguity tolerance was measured with a modified version of the MAT-50. The MAT-50 was developed and tested for validity by Norton (1975) and has been widely used in social science research. The version used here contains 32 items, focusing only on the original sections that were communication related (Norton, 1975), and has been used successfully in previously published research on equivocation (Bello, 2000). It asks respondents to indicate “the degree to which the following statements apply to you” and makes use of a seven-point scale. Examples of items are “It irks me to have people avoid the answer to my question by asking another question” and “In a situation in which other people evaluate me, I feel a great need for clear and explicit evaluations.” Scores ranged in the present study from 54 to 155, with a mean of 98.27 (SD = 17.69). Internal reliability was .80 (Cronbach’s alpha).

Because we believed that the ability to adapt to surprising or changing communication circumstances would be important in managing boundary turbulence, we used a measure of communicative competence that included this characteristic. The Communicative Adaptability Scale (CAS) is a 30-item self-report measure that was developed and validated by Duran (1983). It includes at least four dimensions closely related to the notion of adaptability to social situations. These include social composure, social confirmation, social experience, and appropriate disclosure. The remaining dimensions are articulation and wit (Spitzberg, 1988). Sample items include “While I’m talking I think about how the other person feels” and “I find it easy to get along with new people.” The measure uses a five-point response scale, ranging from 1 (“never true of me”) to 5 (“always true of me”). The CAS has demonstrated validity, with Spitzberg concluding that it has significant relationships with other competence measures and similar constructs (1988), and Duran and Zakahi (1988) arguing that it works as a measure of overall competence when scores on all six dimensions are combined. It has been used as such an overall measure to successfully test hypotheses related to variables such as communication satisfaction and physical attractiveness (Zakahi & Duran, 1984).

Internal reliability for the measure as a whole has been acceptable (Cupach & Spitzberg, 1983). Here, internal reliability was .84 as measured by Cronbach’s alpha. The mean score was 107.57 (SD = 12.27) and scores ranged from 64 to 134.
3.1.4. Dependent variables
The dependent variables were the participants’ tendencies to use each of the four verbal strategies discussed in the rationale: truth-telling, plus each of the three information manipulation strategies of falsification, concealment, and equivocation. Each of these strategies was represented by one of the four forced-choice responses to the hypothetical scenario, which were rank ordered by participants for likelihood of use. Specifically, the closing of the scenario mentions that the other person, with whom the respondent co-owns a piece of private information, approaches the respondent and says, “I thought we had an agreement. Why did you divulge what I told you?” The respondent is then presented with the four choices, which were “I have no excuse—I’m sorry” (truth-telling), “I didn’t divulge that information” (falsification), “Which agreement are you talking about?” (concealment), and “Well, there are loose agreements and there are strict agreements” (equivocation).

3.1.5. Manipulation checks
In order to confirm the validity of the privacy level manipulation, a modified version of the basic survey scenario was administered to a set of students (N = 83) similar in background to the main set of participants. The first section of the scenario was presented to all of these participants, with a third of them each receiving a version that included, respectively, each of the three topics that were designed to manipulate privacy level but without any reference to how private the topic was. The question was asked, “How private do you consider such information to be?” Responses were given on a seven-point Likert-type scale that ranged from “not very private” (1) to “somewhat private” (4) and “very private” (7). Based on a one-way analysis of variance, results clearly confirmed the efficacy of the manipulation, F(2, 80) = 10.06, p < .001, η² = .20. As expected, the upcoming vacation trip topic was seen as the least private (M = 3.48, SD = 1.70), the new job offer topic as moderately private (M = 4.04, SD = 1.58), and the DWI charge topic as most private (M = 5.36, SD = 1.57).

The validity of the four responses was supported by a manipulation check using a separate set of participants similar in makeup to the main sample. These participants (N = 23) were briefly instructed about the nature of the information manipulation strategies employed in the study, and then presented with a version of the scenario including the four response choices. Instead of rank ordering them for likelihood of use, they were asked to match each response with its corresponding strategy type. The results showed, for truth-telling and falsification, 100% agreement by the individuals in this sample with the way we had operationalized these concepts. For equivocation and concealment, all but three of the participants, 87%, agreed with the operationalization of these concepts.

3.1.6. Data analysis
Because the dependent variable data were rank ordered, ordinal regression equations were run for each of the four verbal strategies: truth-telling, falsification, concealment, and equivocation. In each equation, the predictors, all between-subjects variables, were degree of privacy of the co-owned information (three levels) and relationship type (close friend or recent acquaintance) as factors, with self-monitoring, ambiguity tolerance, and communication competence as covariates. All statistical analyses were performed using the latest version of SPSS for Windows.

With an N of 217, an alpha level set at .05, and with the number of groups and covariates involved, an analysis using GPower software (Faul, Erdfelder, Buchner, & Lang, 2009) showed a power of .73 for detecting medium-sized effects and .14 for detecting small effects. This means while there was adequate power for detecting variable relationships as significant when the relationship was moderately strong (the standard is .15 or 15% shared variance for regression), there was less than adequate power for detecting variable relationships as significant as the strength of the relationship declined to a small level (the standard is .02 or 2% shared variance for regression) (Cohen, 1988). This suggests that there might have been additional statistically significant findings in Study 1 had the power of the tests been higher.
3.2. Results

3.2.1. Hypotheses
The first hypothesis, that truth-telling would be used in managing boundary turbulence more with close friends than with recent acquaintances and more as the privacy of co-owned information increases, was supported. There was a main effect finding for the influence of privacy level on truth-telling. Truth-telling was chosen more often both for the especially private and somewhat private conditions than for the slightly private condition. For the especially private condition, ordinal regression produced the following: $B = -0.75$, Wald = 5.34, $df = 1$, $p = .02$. For the somewhat private condition, $B = -1.14$, Wald = 11.80, $df = 1$, $p = .001$. The negative signs of the coefficients indicate that participants chose lower numerical rankings for truth-telling in these conditions than in the slightly private condition. Lower numerical rankings indicate greater likelihood of use. The overall model test was significant ($\chi^2 = 16.79$, $df = 6$, $p = .01$, pseudo $R^2 = .08$). As a way of more clearly conceptualizing support for this part of the first hypothesis, note the mean ranks for each condition: similar ones for the especially private ($M = 1.86$, $SD = 1.08$) and somewhat private ($M = 1.62$, $SD = .89$) situations, but a markedly different one for the slightly private situation ($M = 2.24$, $SD = 1.17$) (See Figure 1).

Although there was no main effect of relationship type on truth-telling, additional support for the first hypothesis can be seen in the finding of an interactive effect of privacy level and relationship type on truth-telling. In essence, this finding showed that the main effect mentioned above applied significantly more to close friends than recent acquaintances. That is, when managing boundary turbulence with friends, participants were more likely to choose truth-telling as a strategy when privacy of co-owned information increased beyond the slightly private. Ordinal regression results for the interaction of friendship with the especially private condition were $B = -1.03$, Wald = 4.49, $df = 1$, $p = .03$; and for the interaction of friendship with the somewhat private condition, $B = -1.17$, Wald = 5.66, $df = 1$, $p = .02$. The overall model was also significant ($\chi^2 = 24.03$, $df = 8$, $p = .002$, pseudo $R^2 = .11$). Again, mean ranks help to clarify: they are similar for the condition involving close friends

Figure 1. Effect of privacy level of co-owned information on the choice of truth-telling as a verbal strategy. Lower rank scores indicate greater likelihood of use.
and especially private information ($M = 1.58$, $SD = .99$) and the condition involving close friends and somewhat private information ($M = 1.44$, $SD = .81$), but quite different for the condition involving close friends and slightly private information ($M = 2.41$, $SD = 1.18$). On the other hand, there was no significant difference between the means for the condition involving recent acquaintances and especially private information ($M = 2.11$, $SD = 1.12$) and the condition involving recent acquaintances and slightly private information ($M = 2.11$, $SD = 1.17$) (See Figure 2).

The second hypothesis, that falsification and concealment would be used more with recent acquaintances than with close friends and more as the privacy of co-owned information decreases, was partially supported. A main effect was found for the influence of relationship type on falsification (but not concealment). In managing boundary turbulence, as predicted, participants dealing with recent acquaintances chose to falsify more than those dealing with close friends ($B = .58$, $Wald = 5.06$, $df = 1$, $p = .02$). In this case, the positive sign of the coefficient means that participants chose higher numerical rankings for falsification in the friend condition ($M = 2.97$, $SD = 1.06$) than in the acquaintance condition ($M = 2.61$, $SD = 1.16$). The overall model, however, did not attain significance ($\chi^2 = 9.27$, $df = 6$, $p = .16$, pseudo $R^2 = .04$). No effect was found for the predictive value of privacy level on either falsification or concealment.

Why did privacy level significantly predict the use of truth-telling, but not the use of the information manipulative strategies of falsification and concealment? Apparently, the answer can be found in the way that privacy level also influenced equivocation, an issue which the first research question addressed.

3.2.2. Research questions
The first research question addressed the issue of how, while individuals are managing boundary turbulence, the degree of information privacy and relationship type would influence the use of equivocation. With regard to privacy level, the results show that the choice of equivocation occurred in a manner opposite to that of truth-telling. Whereas truth-telling was more common with more
private information, equivocation occurred more frequently with less private information. This pattern suggests that individuals tended to choose equivocation as an alternative to truth-telling when dealing with less important, less sensitive information. Specifically, equivocation was chosen less often for both the especially private and somewhat private conditions than for the slightly private condition. For the especially private condition, ordinal regression showed $B = .84$, Wald $= 6.77$, $df = 1$, $p = .009$. The result for the somewhat private condition was $B = .94$, Wald $= 8.63$, $df = 1$, $p = .003$. The overall fit of the model was significant ($\chi^2 = 12.99$, $df = 6$, $p = .01$, pseudo $R^2 = .06$). The mean rank scores for equivocation in each of the conditions were as follows: 3.19 ($SD = .86$) for the especially private situation, 3.18 ($SD = .96$) for the somewhat private situation, and 2.71 ($SD = 1.12$) when dealing with slightly private information (See Figure 3).

Just as with the main effect of privacy level on truth-telling, relationship type served to moderate this effect in the form of an interaction. That is, this tendency for equivocation to be used more in the least private condition applied more to close friends than recent acquaintances ($B = -1.06$, Wald $= 5.43$, $df = 1$, $p = .02$). The result for the fit of the overall model also reached significance ($\chi^2 = 16.14$, $df = 8$, $p = .04$, pseudo $R^2 = .07$). Whereas, the equivocation mean rank scores were virtually identical for close friends and recent acquaintances in the especially private and somewhat private conditions, they were quite different in the slightly private condition. The mean rank for equivocation while dealing with close friends in the slightly private condition was 2.44 ($SD = 1.13$), while for recent acquaintances in the same condition it was 3.00 ($SD = 1.03$) (See Figure 4).

The second research question concerned the role played by certain individual traits in relation to the choice of verbal strategies for managing boundary turbulence. We reasoned that communication competence, ambiguity tolerance, and self-monitoring might be involved in this process. The results show interactive effects involving two of the three traits. In the first case, there was an interaction between communication competence and privacy level as they influenced truth-telling. In essence, the main effect for privacy level on truth-telling was reflected significantly more in the...
choices of those with higher communication competence. Those with higher competence were more likely to choose truth-telling in dealing with more private information. The ordinal regression results for this interaction in the especially private condition were $B = -0.06$, Wald $= 4.75$, $df = 1$, $p = 0.03$; for the somewhat private condition, they were $B = -0.09$, Wald $= 9.90$, $df = 1$, $p = 0.002$. Significant results were also obtained for the overall model ($\chi^2 = 27.04$, $df = 8$, $p = 0.001$, pseudo $R^2 = 0.12$). In order to visualize this interaction, we performed a mean split for CAS scores. Those who scored below the mean of 108 were in the low competence category and those at or above the mean were in the high competence category. We were then able to graph the interaction between the CAS categories and privacy level as they affected truth-telling (See Figure 5).

The other significant interaction involving a trait was for ambiguity tolerance and relationship type as they combined to affect truth-telling. Those higher in ambiguity tolerance were more likely to adjust their tendency toward truth-telling in boundary turbulence management, depending on whether they were communicating with close friends or recent acquaintances. Specifically, higher ambiguity tolerance resulted in significantly more truth-telling with friends than with acquaintances. Those with lower ambiguity tolerance, on the other hand, preferred not to change their tendency to tell the truth whether they were communicating with close friends or recent acquaintances ($B = -0.04$, Wald $= 5.20$, $df = 1$, $p = 0.02$). For the overall model, $\chi^2 = 27.04$, $df = 8$, $p = 0.001$, pseudo $R^2 = 0.12$. Again, we split ambiguity tolerance scores at the mean of 98 to produce a low ambiguity tolerance category and a high ambiguity tolerance category so that we could more easily visualize this interaction (See Figure 6).

3.2.3. Test of parallel lines
The test of parallel lines, in the case of all of the significant findings mentioned above, was insignificant. This result shows that a key assumption of ordinal regression, that responses across levels of the dependent variable are equivalent, was not violated.
3.3. Discussion
Perhaps the key implication of this study’s findings is that, based on several of the core principles of CPM, the privacy level of co-owned information has a pervasive effect upon the ways in which individuals manage boundary turbulence resulting from a breach of the rules associated with that co-owned information. A majority of the study’s central findings involved information privacy level in some way. The only exceptions to this rule were the interactive finding of relationship type and ambiguity tolerance upon the choice of truth-telling as a verbal strategy, as well as the main effect finding for the influence of relationship type on falsification. Taken as a whole, therefore, our findings lend strong support to CPM, and suggest that further research of this type, which is hypothesis driven and focuses on fundamental communication behaviors associated with CPM, is certainly warranted and would likely be quite productive.

Also, the fundamental importance of Grice's conversational maxim of quality to managing boundary turbulence is readily apparent, as can be seen in the support for the first hypothesis and partial support for the second hypothesis. People appear to be more likely to manage such turbulence by relying on a truth-telling strategy, especially when the turbulence is heightened because the key information in question matters more deeply to the parties involved. This reliance on a truth-telling strategy for more private information is even more important in communicating with close friends than recent acquaintances. The study's findings also suggest that information manipulative strategies also play a key role in managing privacy boundaries as importance and privacy of co-owned material decreases. This is true in the case of equivocation and, as acquaintances become involved, in the case of falsification.

The role that communication competence and ambiguity tolerance played in extending and adding depth to the findings associated with the first hypothesis demonstrates, among other things, the
promise of a social cognitive explanation of communication dealing with privacy concerns. The finding that those higher in communication competence were more likely to choose truth-telling in more private situations seems especially indicative of the fundamental importance of this strategy as privacy of co-owned material increases. Because the more communicatively competent chose this strategy, it suggests that there is a prescriptive nature to it, which is not surprising given the emphasis that other scholars have placed on Grice’s conversational maxim of quality. Also, the fact that ambiguity tolerance was positively associated with the willingness to adapt the degree of truth-telling to the nature of the specific relationship involved suggests that an open, flexible approach to managing boundary turbulence might be preferable. It also appears plausible that those who have low ambiguity tolerance preferred to avoid the ambiguity that accompanies interpersonal conflict resulting from admitting a difficult truth, whereas those with high ambiguity tolerance were willing to take on such conflict, at least in a more important and longer lived relationship.

The results of this study also serve to highlight the rather unique role that equivocation plays as an information manipulation strategy for handling boundary turbulence. The “mixed” findings regarding equivocation, that it is used more with less private information and, yet, that this tendency applies more to close friends than recent acquaintances, is evidence of this special role. In terms of the three rationales regarding the possible role of equivocation in managing privacy issues, the third one appears to have been supported: equivocation occupies some “middle ground” between truth-telling and the other, perhaps more manipulative, verbal strategies that we examined. Apparently, in line with some other findings (Bello & Edwards, 2005; Edwards & Bello, 2001), equivocation is perceived as less competent for handling difficult situations than is truth-telling, but perhaps as more competent than falsification and concealment. Along these lines, we found no support for the use of concealment as a strategy, and rather limited support for falsification. Equivocation, instead, appeared to be the primary strategy that people turned to in situations where truth-telling seemed
less important, as in the case of dealing with less private information between close friends. The following is speculative, but perhaps participants saw equivocation as too sophisticated a strategy to spend cognitive energy on when dealing with recent acquaintances, but important enough to use with close friends in less private situations where simple falsification would have been easier but more risky to the relationship.

A few limitations and concerns regarding our study need to be addressed. First, it is curious that findings were clustered around the two most private conditions (DWI and a new job offer) vs. the least private condition (an upcoming trip). That is, differences in strategy choices occurred between the least private and the other two conditions as a cluster, with no significant differences shown between the especially private and the somewhat private condition. The most likely explanation for this appears to be that college students might not have perceived much of a difference in the privacy levels associated with a DWI and a new job offer (despite the results of the manipulation check). Perhaps college students, given the drinking culture firmly established on many college campuses, are just as likely to speak freely about DWIs as they are about job offers.

A second limitation concerns the use of only one type of boundary turbulence, which is that associated with an intentional breach of an established boundary around co-owned information. Petronio (2002) makes reference to other kinds of boundary turbulence, such as mistaken breaches and a lack of clear boundaries. Future research might explore such types of boundary turbulence to determine whether the current findings would apply in those situations.

Finally, the forced-choice nature of the scenario responses, while often used to test initial, specific hypotheses regarding a theory (Bavelas et al., 1990; Bello, 2005a), is more artificial than would be securing natural language responses from participants placed in similar scenarios and then coding those responses for levels of truth-telling, falsification, concealment, and equivocation contained within them. Such an approach, while more laborious and resource consumptive, needs to be pursued at some point as this line of research progresses. Until that time, it would make sense to at least ask participants to indicate the degree of the likelihood of use of each of the strategies rather than rank ordering them. This would result in interval-level data that would allow for more sophisticated and powerful statistical testing.

4. Study 2
The goal here was to improve on the data collection method and analysis used in the first study, as well as to employ different situational content in the scenarios so as to replicate, extend, and further generalize the findings from that study. We use the same set of existing theory and research to propose several hypotheses and research questions.

Based on the literature review and rationale from Study 1, as well as the fact that the two hypotheses of that study received some support, we re-propose them as well as repose the same two research questions from Study 1 (see above).

4.1. Method

4.1.1. Participants
The plan of the study was approved by the university institutional review board. Participants were recruited, via a network sampling technique, using communication classes at the same medium-sized southern university that was the site of the first study. The original sample consisted of 292 participants, but due to missing data, the number of usable responses was smaller (N = 265). The sample was made up of 35.2% males and 64.8% females. The mean age was 23 (SD = 6.40) and ages ranged from 17 to 63. College juniors constituted most of the sample (34.8%), followed by sophomores (27.0%), seniors (26.6%), freshmen (6.0%), and graduate students (1.1%). With regard to ethnic group, 66.7% of the participants were Caucasian, 18.0% African-American, 10.5% Hispanic, 1.5% Asian, and .4% Native American. A total of 3.0% indicated some other ethnicity.
The makeup of this sample was quite similar to that in Study 1, although this time the network sampling approach produced a slightly older sample with increased age variance as well as a larger number of participants.

4.1.2. General procedure
Students from communication classes were supplied with an electronic link to the survey used to collect data, posted on Survey Monkey (www.surveymonkey.com). The survey included a consent to participate form. Students were given extra credit not only for completing the survey themselves, but also for having friends, family members, and acquaintances complete it. Participation was anonymous and voluntary. Data were collected using a survey very similar to Study 1’s. The questionnaire presented each participant with a hypothetical scenario. This scenario involved an episode in which boundary turbulence was experienced. The participants, as in Study 1, were asked to imagine that, in violation of an agreement they had with another person, they had revealed to a third party a piece of private information co-owned by the participant and this other person. In the scenario, the participant was then confronted by the other person and asked to explain why he/she had revealed this information to someone else. The participants were then presented with four responses and asked to indicate, for each response, how likely they would be to use it in that situation based on a Likert-type scale ranging from 1 (“very unlikely”) to 7 (“very likely”). This aspect of data collection varies from Study 1, in which participants were asked to rank order the responses from 1 (“most likely to say”) to 4 (“least likely to say”). (A complete version of the survey scenario with responses is available from the lead author).

As in Study 1, participants also completed instruments designed to measure their levels of self-monitoring, communication competence, and ambiguity tolerance.

4.1.3. Predictor variables
Also in the manner of Study 1, the two key independent variables, privacy level and relationship type, were manipulated by changing aspects of the scenario. In one version of the scenario, the other person is identified as a “close friend” while another version identified this person as a “recent acquaintance.” Just as in Study 1, privacy level of the revealed information was altered from “especially private” to “somewhat private” to “slightly private.” The especially private information involved an arrest for shoplifting, while the somewhat private and slightly private pieces of information involved embarrassing photos on MySpace and an upcoming car purchase, respectively. In Study 1, the three levels of privacy were instantiated using content areas different than these (see above). By varying the content areas in Study 2, we hoped to increase the generalizability of any replicated results. These manipulations resulted in a 2 (relationship type) × 3 (privacy level) design with six different versions of the scenario. Each web address randomly given to a participant was linked to one of the scenario versions, so that each participant completed only that one version and no others.

Self-monitoring was again measured through the Revised Self-Monitoring Scale. In the present study, internal reliability (Cronbach’s alpha) was .84. The mean score was 39.76 with a standard deviation of 8.02. Scores ranged from 16 to 60. Ambiguity tolerance was, as in Study 1, measured with the modified version of the MAT-50. Scores ranged in the current study from 58 to 165, with a mean of 106.55 (SD = 18.14). Internal reliability was .82 (Cronbach’s alpha). Finally, we once again measured communication competence with the CAS. In the current study, internal reliability was .87 (Cronbach’s alpha). The mean score was 107.94 (SD = 13.24) and scores ranged from 79 to 142.

4.1.4. Dependent variables
The dependent variables were the participants’ tendencies to use each of the four verbal strategies discussed in the rationale. These were the same strategies included in Study 1 and they were operationalized the same way. The only difference, as mentioned above, was that in Study 2 participants rated them for likelihood of use rather than rank ordering them.
4.1.5. Manipulation check
We confirmed the validity of the manipulation of privacy level by administering a modified version of the basic scenario to a set of participants \(N = 57\) similar in background to the main set of participants. The first section of the scenario was presented to all of these participants, with a third of them each receiving a version that included, respectively, each of the three topics that were designed to manipulate privacy level but without any direct indication of topic privacy level. The question was then asked, “How private do you consider such information to be?” The same seven-point Likert-type scale from Study 1 was used to gauge responses to this question. Based on a one-way analysis of variance, results confirmed that the manipulation was successful, \(F(2, 54) = 18.84, p < .001, \eta^2 = .41\). As expected, the upcoming car purchase topic was seen as the least private \(M = 2.67, SD = 1.28\), the MySpace embarrassing photos topic as somewhat private \(M = 3.89, SD = 1.88\), and the arrest for shoplifting topic as most private \(M = 5.60, SD = 1.19\). In addition, a Scheffe’s post hoc multiple comparisons analysis showed that each topic was perceived as significantly different in privacy level from each of the other two. The mean difference between the slightly private and somewhat private conditions was 1.22, \(p = .05\); for the slightly private and especially private conditions, the difference was 2.93, \(p < .001\); and for the somewhat private and especially private conditions, the difference was 1.71, \(p = .003\).

4.1.6. Data analysis
Instead of the several ordinal regression analyses used in the first study, the General Linear Model was used in SPSS to construct and test a multivariate model that included the predictors of relationship type and privacy level as factors (along with gender as a control) and self-monitoring, ambiguity tolerance, communication competence, and age as covariates. The multiple dependent variables were likelihood of use scores for each of the verbal strategies for manipulating information.

For an \(N\) of 265, an alpha level set at .05, and with the number of variables involved, an analysis of this multivariate model using GPower software (Faul et al., 2009) revealed enhanced power (compared to Study 1) of .94 for detecting effect sizes as small as .03 and of .99 for slightly larger effect sizes (.05).

4.2. Results

4.2.1. Hypotheses
The first hypothesis, that truth-telling would be used in managing boundary turbulence more with close friends than with recent acquaintances and more as the privacy of co-owned information increases, was partially supported. Unlike the first study, there was no main effect finding for the influence of privacy level on truth-telling, specifically that truth-telling was more common as privacy level increased. Instead, that relationship was reserved for falsification (see second hypothesis results below and corresponding discussion). As in the first study, however, relationship type did have an influence on truth-telling. Although previously it was in the form of an interactive effect, truth-telling was rated in Study 2 as a useful strategy significantly more often with friends than with acquaintances. The overall test for the influence of relationship type on all the dependent variables was significant, Wilks’ \(\Lambda = .97\), \(F(4, 250) = 1.92, p = .05\) one-tailed, partial \(\eta^2 = .03\). The univariate test for truth-telling also attained significance, \(F(1, 253) = 6.66, p = .005\) one-tailed, partial \(\eta^2 = .026\). The likelihood of use mean for truth-telling with friends was 5.42 \((SD = 1.69)\) and for acquaintances was significantly lower at 4.90 \((SD = 1.69)\). This finding also parallels the finding from Study 1 that falsification was less common with friends than with acquaintances.

The second hypothesis, that falsification and concealment would be used more with recent acquaintances than with close friends and more as the privacy of co-owned information decreases, was partially supported, as in Study 1. However, that support took a different form than it did in the first study. While there was no relationship between increased privacy level and the use of falsification in the first study (instead, as noted above, truth-telling increased with privacy level in that study), such a relationship did materialize in Study 2. Here, participants were more likely to falsify as privacy level increased. Although the overall multivariate model was not significant for the influence of privacy level, univariate tests did show that privacy level and falsification were positively related,
$F(2, 253) = 2.86, p = .05$, partial $\eta^2 = .022$. Pairwise comparisons revealed the specifics. Those dealing with especially private ($M = 3.17, SD = 2.05, p = .04$) and somewhat private information ($M = 3.22, SD = 1.85, p = .03$) were significantly more likely to say they would use falsification than those dealing with slightly private information ($M = 2.55, SD = 1.68$). Why was this finding seemingly so contradictory to that of the first study? This issue is addressed in the discussion section below.

### 4.2.2. Research questions

The first research question dealt with the issue of how information privacy level and relationship type would influence the equivocation use. In Study 1, there was a significant finding for the influence of privacy level on equivocation, with equivocation being chosen more often as the privacy of information decreased. In other words, participants in that study tended to eschew equivocation when the information involved was more private and use it more often in less private situations. Although there was no such statistically significant finding in the present study, the mean trend was in precisely the same direction. Notice that this trend is opposite of that for the connection between privacy level and falsification (see significant result above for Study 2), that is, that participants used falsification more as a strategy for dealing with situations where the information involved was more private and, therefore, more sensitive. This converse pattern suggests that individuals tended to choose equivocation as an alternative to falsification when dealing with less important, less sensitive information, although it is true that, as already noted, the trend for falsification reached statistical significance while the trend for equivocation did not.

The second research question addressed the role played by key individual traits in choosing verbal strategies for boundary turbulence management. As in the initial study, we found that these traits were involved. The results show main effects for two of the three traits and an interactive effect involving the third. Both ambiguity tolerance and communication competence were responsible for main effects. In the first case, ambiguity tolerance significantly influenced the cluster of dependent variables, Wilks’ $\Lambda = .954, F(4, 249) = 2.97, p = .02$, partial $\eta^2 = .05$. Specifically, as ambiguity tolerance increased, so did the use of equivocation in handling boundary turbulence, $F(2, 252) = 4.57, p = .03$, partial $\eta^2 = .02$. In the second case, communication competence was significantly related to the tendency to use truth-telling as a strategy ($F(1, 252) = 3.79, p = .05$, partial $\eta^2 = .02$) and its relation to the use of falsification approached significance ($F(1, 252) = 3.28, p = .07$, partial $\eta^2 = .01$). Communication competence was positively related to the strategy of truth-telling and negatively related to the strategy of falsification.

The interactive finding mentioned above involved self-monitoring and the combined effect it had along with privacy level of information. Specifically, self-monitoring and privacy level interacted to influence the degree to which equivocation was indicated as a verbal strategy, $F(2, 254) = 3.24, p = .04$, partial $\eta^2 = .03$. The mean trend toward equivocation use in dealing with less private information, though nonsignificant in the current study, was significantly more accentuated for high self-monitors than for low self-monitors. High self-monitors seemed to more strongly recognize and adhere to the norm emphasizing a greater role for equivocation in handling less private (and less sensitive) information. This interactive effect is represented in Figure 7, for which self-monitoring scores were split at the mean into low and high groups.

### 4.3. Discussion

The key implication of Study 2’s findings is that they are generally supportive of Study 1, especially that privacy level of co-owned information has a significant impact on how individuals verbally manage boundary turbulence associated with that co-owned information. There was a main effect as well an interactive effect for the influence of privacy level on verbal strategies, along with a number of other significant findings. As with Study 1, therefore, Study 2’s findings provide support for tenets of CPM and for the importance of Grice’s (1975, 1981) conversational maxim of quality for managing boundary turbulence.
In our initial study, a key finding was that truth-telling was preferred in handling breaches that dealt with very private information. Indeed, this was one of the reasons that we concluded in that study that people likely prefer information manipulative strategies for situations involving less private information and a non-manipulative strategy (truth-telling) for those involving very private information. So, then, what are we to make of the current finding that, instead, falsification was the preferred strategy in situations dealing with more private information? Which of the two seemingly contradictory findings is right? Or, is there an explanation that resolves the apparent discrepancy and adds more depth to our understanding of the matter? We believe there is such an explanation.

The heart of the explanation is that it could be that clarity is the underlying message quality that is preferred in dealing with boundary breaches regarding very private and sensitive information. Such clarity can take the form of either truth-telling or outright falsification; note that neither of these strategies, by definition within interpersonal deception theory, is equivocal in nature. Whether truth-telling is the most preferred strategy (as in Study 1) or falsification is preferred (as in Study 2) could depend on a variety of factors that this area of research has yet to explore. One such factor is suggested by the content differences of the especially private scenarios from the first study to the second. Recall that the especially private scenario in Study 1 revolved around a boundary breach dealing with a DWI charge, whereas in Study 2 the especially private information dealt with an arrest for shoplifting. It seems quite possible that to college students, who made up the majority of the samples in both studies, a DWI charge is less sensitive and potentially face-threatening than is a shoplifting charge. We base this conclusion on the strong probability that driving under the influence of alcohol is a more normative behavior for college students than is shoplifting. If this is indeed the case, then participants might have calculated that being truthful about having revealed a shared secret regarding a DWI charge was not excessively risky to the status of the relationship. However, the higher sensitivity level of a shoplifting arrest could have led participants to the conclusion that telling the truth in that case was too risky to the relationship.
Whether people decide to tell the truth or to falsify about boundary breaches that deal with very private information might depend, therefore, on something akin to the sensitivity level of that private information. But why not just opt for the unclear strategy of equivocation in such situations, something which participants in both studies tended to avoid? The answer is likely that the fundamental risk of any equivocation, by definition, is that the interpretation of the message is left more open to the receiver, including the valence of that interpretation. Hence, most people are probably disinclined to risk the possibility of the less favorable interpretation when the boundary breach involves very sensitive material because in such a case a negative interpretation could lead to more damage to the relationship and more difficulty in relational repair. However, this same risk associated with equivocation may seem worth taking in cases involving less sensitive information because in that case even if there is a negative interpretation, there will be less relational damage and easier relational repair. In our initial study, we suggested that equivocation was being used, where information privacy level was low, as a substitute for the truth-telling that was more common in situations involving more private information. It now appears that an adjustment of that conclusion is in order: perhaps it is more accurate to say that equivocation is used in low privacy situations as a substitute for clearer messages that are favored in high privacy situations, whether that clarity is in the form of truth-telling or falsification.

We believe that this line of reasoning that focuses on clarity as the key does a neat and effective job of explaining the disparate results in the two studies for truth-telling vs. falsification with more private information, as well as the similar results across the studies regarding the use of equivocation in situations with less private information. Although this explanation is logical, it strongly suggests the need for further research to test it empirically. This research can and should also explore factors in addition to sensitivity level of the co-owned information that might add to our understanding of this clarity-oriented explanation.

The main effect finding in the present study for the influence of ambiguity tolerance on equivocation, as well as the interactive effect of self-monitoring and privacy level as they influence equivocation, add depth and detail to the key findings discussed above. First, the fact that those who are more tolerant of ambiguity would also be more likely to opt for equivocation as a strategy for managing boundary turbulence makes sense. The tolerance for uncertainty that ambiguity tolerance implies should be reflected in a greater use of equivocal messages, in that these messages appear uncertain in intent and are uncertain in interpretation. This finding also suggests that those who have higher ambiguity tolerance are the driving force behind the tendency to use equivocation more in situations where the privacy level of co-owned information is low. Second, the fact that high self-monitors are more likely to choose equivocation in situations involving less private information is in line with Petronio’s (2002) assertion that such individuals would be more flexible in the way that they apply rules regarding private information. Such flexibility implies greater attention paid to what the social situation calls for, and apparently the social situation revolving around boundary breaches of slightly private information calls for less clarity rather than more (see explanation above).

Although we believe that Study 2 represents an improvement over Study 1, a couple of limitations discussed in the first study still need to be addressed. The first limitation is that both studies dealt with only one type of boundary turbulence (see discussion section of Study 1). Future research could productively examine the use of verbal strategies for handling other kinds of boundary turbulence.

Next, although the nature of data collection and analysis was improved upon in Study 2, greater realism and ecological validity could be obtained by coding natural language responses, for the verbal strategies they contain, to manipulated scenarios similar to the ones used in both of the current studies.
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