

The impact of reversibility on the decision to disclose personal information

Eyal Peer

Graduate School of Business Administration, Bar-Ilan University, Ramat-Gan, Israel, and

Alessandro Acquisti

Heinz College, Carnegie Mellon University, Pittsburgh, Pennsylvania, USA

Abstract

Purpose – This paper aims to examine how reversibility in disclosing personal information – that is, having (vs not having) to option to later revise or retract personal information – can impact consumers' willingness to divulge personal information.

Design/methodology/approach – Three studies examined how informing consumers they may (reversible condition) or may not (irreversible condition) revise their personal information in the future affected their propensity to disclose personal information, compared to a control condition.

Findings – Study 1 (which included three experiments with different time intervals between initial and revised disclosure) showed that consumers disclose less in both the reversible and irreversible conditions, compared to the control condition. Studies 2 and 3 showed that this is because consumers treat reversibility as a cue to the sensitivity of the information they are asked to divulge, and that leads them to disclose less when reversibility or irreversibility is made explicitly salient beforehand.

Practical implications – As many marketers are interested in hoarding consumers' personal information, privacy advocates call for methods that would ensure careful and well-informed disclosure. Offering reversibility to a decision to disclose personal information, or merely pointing out the irreversibility of that decision, can make consumers reevaluate the sensitivity of the situation, leading to more careful disclosures.

Originality/value – Although previous research on reversibility in consumer behavior focused on product return policies and showed that reversibility increases purchases, none have studied how reversibility affects self-disclosure and how it can decrease it.

Keywords Privacy, Self-disclosure, Personal information, Reversibility

Paper type Research paper

Introduction

In recent years, there has been increasing attention in the marketing literature to the collection of consumer data for tracking and targeting purposes (Yan *et al.*, 2009; Farahat and Bailey, 2012) and the associated privacy considerations (Goldfarb and Tucker, 2011) – including how best to ask consumers for their personal information (Nam *et al.*, 2006). Many companies, for example, try to encourage consumers to disclose their e-mails or postal addresses to receive promotional offers. In many cases, marketers offer consumers the assurance that they will have the option to unsubscribe from promotional mail-outs in the future, if they wish to, in the hope that this will encourage more consumers to divulge their contact information and, thus, expand the company's database of potential consumers. However, no research to date has explored whether the prospect of reversibility in the decision to provide personal information can increase or decrease a consumer's propensity to self-disclose such information. The issue we explore in this paper is how

reversibility (or lack thereof) might affect this decision to reveal (or withhold) personal information online.

Although not examined in the context of self-disclosure, reversibility seems to play a pivotal role in many consumer decisions (Petersen and Kumar, 2009). Consumers rely on a retailer's return policy as a cue for both the quality of the product and its vendor (Bonifield *et al.*, 2002; Nasr-Bechwati and Siegal, 2005). That cue usually prompts consumers to increase their purchasing likelihood, as it fosters the belief that a product that can be returned is more likely to deliver on its promise (Wood, 2001). In essence, the reversibility of a purchasing decision usually provides consumers with valuable information about the likelihood that their decision to buy a product proves successful and not regretful. Groot *et al.* (2009) showed that product trials (having the option to purchase a product for a trial period) increased the attractiveness of a product compared to a normal sale even more than a money-back-guarantee. Crowley and Sade (2004) found that providing the option to cancel offers given at an auction affected the volume of offers, but not the price of offers. Della Vigna and Malmendier (2006) found that gym members with a monthly subscription (with the option to cancel each month) were more likely to remain enrolled after the first year, compared to members with a yearlong contract. Gilbert and Ebert (2002) also found that reversibility could

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actually decrease a consumer's post-decisional satisfaction, suggesting that consumers who purchased more because of lenient return policies might be actually less satisfied with their purchased goods.

Although reversibility in a decision to purchase a product provides a valuable cue regarding the product and the vendor's quality and reliability, it might also offer a different kind of cue concerning decisions pertaining to self-disclosure – that is, the act of revealing personal and sensitive information about oneself (Moon, 2001). Specifically, when consumers decide what and how much personal information they want to reveal, they might interpret reversibility as a cue indicating the degree of sensitivity attached to the information they have been asked to disclose. For example, a consumer being asked to provide her home address or e-mail account might disclose it to get a promised discount; but if told that it will not be possible to retract that information subsequently, the consumer might be less inclined to disclose the information. Similarly, a consumer considering whether to subscribe to receiving promotional e-mails (by disclosing one's e-mail address) or a social media user contemplating whether to post a picture on a social media network might choose differently depending on how reversible that decision is and whether the reversibility (or irreversibility) of that decision is made explicitly salient. Although some marketers might believe that informing the consumer of the option to unsubscribe in the future, if desired, should increase subscription rates, it is possible that such assurances may have the opposite effect: the consumer might interpret the offered reversibility as a cue regarding the sensitivity of the personal information required to disclose (i.e. e-mail address) and consequently may not divulge it. Thus, although offering reversibility might seem to be a good marketing strategy (because of the known positive effects of lenient return policies), it might backfire in the case of self-disclosure.

Related work and hypotheses

Typically, self-disclosures are irreversible by nature, with no practical option to revise their content before they reach others. For example, an embarrassing confidence shared in a conversation with a friend after a few beers cannot subsequently be taken back. Similarly, online, it is very hard to retract e-mails sent to the wrong address (and indeed most people prefer to apologize than to try to retract their e-mails, Cabitza and Loregian, 2008). Relatedly, Google has offered users of their popular e-mail service a feature that gives correspondents the option to “undo sending your mail” for a few seconds after the send button is pressed[1], presumably to help users avoid embarrassing self-disclosing situations. Self-disclosures made on online social networks (such as Twitter or Facebook) or on online forums and blogs are also, potentially, irreversible: once personal information is broadcast online, it is available to all who can see it and may also be retained (i.e. by saving or printing the relevant information), so the disclosure remains available even after the piece of information has been removed or taken down by the author (Mayer-Schönberger, 2011). However, consumers might actually believe that their acts of online disclosure are in some way reversible or, on the other hand, not take into account the irreversible nature of the disclosure when they decide what to reveal about themselves. Indeed, a recent study showed that people believed that they had more control over

who can access and use their online personal information (Brandimarte *et al.*, 2013) and actually provided more personal and even sensitive information when given artificial control over the publication of such information. Thus, it is possible that consumers might be disclosing more than they had actually intended to disclose.

This potential for “over-disclosure” can be related to what privacy researchers and scholars have referred to as the “privacy paradox” (Norberg *et al.*, 2007). The paradox describes the repeated finding that attitudinal scales do not accurately predict actual privacy behavior. For example, one study examined responses by consumers to a shopping agent who asked them increasingly sensitive questions and found that most provided the requested sensitive information, regardless of their previously stated privacy concerns (Spiekermann *et al.*, 2001). Another study showed that although people had expressed high degrees of concern about other people knowing their sexual orientation, political views or partners' names, many actually revealed such details on their social media profiles (Acquisti and Gross, 2006).

It would seem that decisions concerning self-disclosure are not always consistent, and that various factors affect the choice to disclose personal information (Moon, 2001). Contextual cues, such as a survey's look-and-feel or implicit social norms, seem to play a role in the decision whether to disclose intimate details (John *et al.*, 2011). Also, research participants have been shown to respond more honestly, and with higher levels of disclosure, to an online, versus a paper and pencil, version of the same questionnaire (Tourangeau, 2004) and to disclose less if the questions are presented in a dis-fluent manner (Alter and Oppenheimer, 2009). There is also a greater inclination to divulge information online rather than when communicating face-to-face (Whitty and Joinson, 2009). In a recent review of the literature and findings on privacy behavior, Acquisti *et al.* (2015) concluded that:

[p]eople are often unaware of the information they are sharing, unaware of how it can be used, and even in the rare situations when they have full knowledge of the consequences of sharing, uncertain about their own preferences.

The question we pose in this paper is how reversibility (or lack thereof) can affect decisions by consumers to reveal (or withhold) personal information online. When consumers share information online, they might believe that these disclosures are (at least in some way) reversible but may not be aware of the irreversible nature of their self-disclosures or, alternatively, reversibility is simply not salient enough to enter their decision-making process. Under such circumstances, it is possible that consumers may be actually revealing more than they intended. If this were true, then making consumers explicitly aware of the irreversible nature of their disclosure (or, on the other hand, making the disclosure decision reversible) should reduce the propensity on the part of individuals to disclose sensitive and intimate details about themselves. In other words, merely making self-disclosure decisions reversible, or emphasizing their irreversibility *beforehand*, might reduce the degree of self-disclosure on the part of consumers. One possible reason for this outcome might be that – similarly to the case of buying a product – reversibility is used as a cue in the decision-making process. However, unlike the purchasing scenario, in the case of

self-disclosure, reversibility might act as a signal to the sensitivity of the information being asked from consumers. For instance, as noted above, research on disclosure behavior has suggested that people's perceptions regarding the sensitivity of their own disclosures may depend on seemingly minor contextual cues such as a survey's look-and-feel, and that concerns over self-disclosure may be, paradoxically, made worse by assurances of better data protection (John *et al.*, 2011). Thus, when a decision to disclose personal information is suddenly made reversible, or when its irreversible nature is explicitly made salient, consumers might interpret that as signaling that they are being asked to reveal sensitive information and might consequently disclose less by way of sensitive personal information.

If, as suggested, people rely on contextual cues when they choose whether, and to what degree, to disclose personal information, it is reasonable to assume that people would rely on reversibility as another important cue by which they would form their judgments and make their decisions. As previous research has suggested, when making purchasing decisions, consumers interpret reversibility (e.g. lenient return policies) as a cue to the product and the vendor's quality, associating higher quality when reversibility is offered. In the case of self-disclosure, though, the situation is quite different. The decision concerning whether (and to what degree) to disclose personal information could rely on how sensitive they perceive the questions asked. Consider, for example, the case of answering sensitive questions to a survey. The common practice with surveys is to not offer reversibility to the respondents: participants are asked to respond to a question and then move on to the next question, without any explicit option to go back, review and possibly revise their responses. Thus, in such a situation, if responses to the questions are suddenly made explicitly reversible, this might be interpreted that as a cue concerning the sensitivity of the questions, or the information participants have been asked to divulge, and they might consequently disclose more carefully. The same is the case with explicit irreversibility: when it is implicit, it should not raise any concerns about privacy. However, when it is made explicitly salient, people might, again, interpret that as a cue to the sensitivity of the questions and information they have been asked to divulge and will, thus, disclose less. To summarize, we predict that when the reversibility or irreversibility of responses to sensitive questions is made salient beforehand, people would disclose less, compared to when it is not explicitly mentioned.

In addition, we also conjectured that this *ex ante* effect of reversibility would not be reduced by *ex post* revisions. In other words, we believe that people would not take full advantage of the opportunity to revise their responses, and, even if they did, the extent of the revisions would not decrease people's self-disclosure significantly. The rationale for this conjecture is based on the findings of various studies that have shown that, in most cases, people do not change their choices, even when they are given a chance to do so (Bullens *et al.*, 2011; Gilbert and Ebert, 2002). Thus, we predicted the effects of reversibility on self-disclosure to be the following:

- H1. When self-disclosure is made *reversible beforehand*, individuals would reveal less personal and sensitive information, compared to when it is not.
- H2. When the *irreversibility* of self-disclosure is explicitly mentioned, individuals would reveal less personal and sensitive information, compared to when it is not.
- H3. The sensitivity of the *revised* self-disclosure would not be significantly different than initial self-disclosure.

Thus, H1 and H2 would hold even after individuals had a chance to revise their self-disclosures.

In this paper, we present a series of studies that examined, and confirmed, these hypotheses. In the first three experiments, participants were asked to respond to various sensitive questions. Some of the participants were offered the opportunity to revise their responses either immediately after responding or following a short or long time delay. We found that when the reversibility or irreversibility of the disclosure is made explicitly salient *beforehand*, participants revealed less, compared to when reversibility was only offered *post hoc*. Two additional experiments showed that reversibility actually increased perceptions regarding the intrusiveness of the questions, which led to lower levels of self-disclosure.

Study 1

In the first study, we examined how reversibility would impact the disclosure of personal and sensitive information. Study 1 consisted of three separate experiments, identical in most aspects and thus are reported together. In all three experiments, participants were invited to take part in a study about "personality assessment" and were asked to answer several personal, and at times intrusive, questions. Some of the participants were not told anything beforehand (a control condition), whereas the other participants were explicitly told that they will (reversible condition) or will not (irreversible condition) have the option to change their responses before their final submission. We measured participants' propensity to disclose personal and sensitive information in response to these questions under these different conditions. The multiple experiments were run to test the robustness and generalizability of our results: the major difference between the three experiments were the samples and the time interval between the initial disclosure and the opportunity to change one's responses. In the following, we report the method of all three experiments together while highlighting the differences between them.

Method

Participants

In two of the experiments (A and C), participants were recruited from Amazon Mechanical Turk website (henceforth, MTurk), and in the other experiment (B), participants were recruited from a university-based participant pool. All participants were US adults. Table I presents the demographics and sizes of the samples, as well as payments made in each sample.

Measures

To measure self-disclosure, participants in all experiments answered six open-ended questions. All of the questions were

Table I Characteristics of the samples in the experiments in Study 1

Experiment	Source	N	% males	Mean age (SD)	Payment
A	MTurk	203	30.05	34.67 (12.18)	\$0.80 per participant
B	UPP	270	33.74	28.24 (12.81)	\$25 gift card for 1% of participants
C	MTurk	243	33.50	33.82 (12.57)	\$1.20 per participant

chosen from a previous study that used sensitive questions to elicit personal disclosure (Moon, 2001). The first question was a non-sensitive question and was used as a “warm-up” question (“What are some of the things you like to do in your free time?”). The following questions were highly sensitive:

- Q1. What has been the biggest disappointment in your life?
 Q2. What is your most common sexual fantasy?
 Q3. What have you done in your life that you feel most guilty about?
 Q4. Describe the last time you were sexually aroused.

We followed Moon’s (2001) methodology for measuring *self-disclosure depth*, which is the degree to which people reveal personal and intimate information about themselves in response to open-ended questions. In each experiment, two different independent raters, blind to the research hypotheses and to the participants’ conditions, rated the disclosure depth of all the responses by using a scale ranging from 0 (non-response) to 4 (very intimate response), which we developed in a pilot study (see full details in the Appendix). When participants were given the option to revise their questions, the raters also coded the revised responses. The inter-raters’ agreement in all three experiments was high (mean Cronbach’s alpha = 0.79 and 0.82 for the initial and revised responses, respectively). To calculate a disclosure depth score for each participant, we averaged the ratings for the five intrusive questions (excluding the first non-sensitive question) both before and after the opportunity to revise to arrive at an *initial disclosure depth* and a *revised disclosure depth* score.

Design and procedure

Participants were invited to take part in a study about personality assessment and were told that they would be asked several open-ended questions about themselves in various domains in life. They were told that their responses would be read and analyzed by professional psychologists and that they would receive the results of these analyses by e-mail a few days after the study was completed. Thereafter, participants were asked to provide a valid e-mail address after being given the assurance that it will only be used to send them the results of the personality analysis. Participants were then asked to answer the open-ended questions described above and were told that if they felt uncomfortable answering any of the questions, they may write “I prefer not to say” to any of the questions. Participants were assured that answering, thus, would not invalidate the promised payment for completing the study.

We manipulated the reversibility of self-disclosures under the following conditions. Under the control condition, participants were not given any additional instructions before

they moved to answering the questions. In the *reversible* condition, participants were told, beforehand, that they would have the opportunity to review their responses and change them before finally submitting them. Under the *irreversible* condition, participants were told, beforehand, that they would *not* have the option to change their answers before submitting them. Then, all participants were asked to answer the six open-ended questions detailed above.

Up to this point, the procedure was identical in all three experiments. The difference between the experiments consisted in the length of the time interval between when participants answered the questions and when they were given a chance to change their responses (under the reversible and control conditions). In the first experiment (A, “no delay”), there was no time delay, and participants were given the option to change their responses immediately after answering the questions. In the second experiment (B, “short delay”), there was a short time interval during which participants were asked to read a short passage[2]. In the third experiment (C, “long delay”), participants were paid and discharged after the initial responses and were asked to (virtually) return about 24 h later to complete the study[3]. These procedural differences were designed to examine whether short vs long time intervals between initial disclosure and the opportunity to revise would impact participants’ revisions and their degree of ultimate self-disclosure.

After providing their initial responses, participants under the reversible and control conditions (in all three experiments) were then presented with their responses and were given the option to change any or all of their responses before finally submitting them. Participants under the irreversible condition were presented with their responses but could not edit them and were simply asked to review their responses and continue[4]. In addition, participants in Experiment C also completed a filler task (the ten-item personality inventory scale, or TIPI, Gosling *et al.*, 2003). Last, all participants provided their age and gender and were invited to provide additional comments. When the experiment was completed, we sent each participant a full debriefing letter informing them that their responses would not be actually analyzed by professional psychologists. Instead, we provided participants in Experiments A and B with the results of a text-analysis software applied to their responses or, for participants in Experiment C, their scores on the TIPI scale, compared to the population’s norms. The Institutional Review Board of the university in which the research was conducted approved these procedures.

Results

Initial disclosure

Table II shows the means and standard deviations for the initial disclosure scores for the conditions in all three experiments. An ANOVA on mean initial disclosure with

Table II Initial and revised disclosure scores between conditions and experiments in Study 1

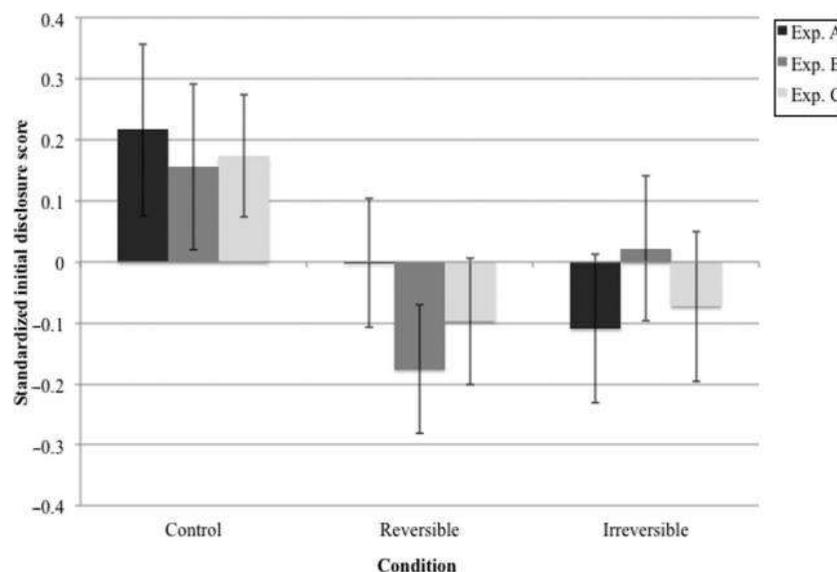
Condition Time delay*	Control			Reversible			Irreversible		
	No	Short	Long	No	Short	Long	No	Short	Long
<i>N</i>	54	90	70	50	89	67	99	91	66
Initial disclosure mean (SD)	1.54 (0.60)	2.20 (1.03)	1.39 (0.47)	1.68 (0.63)	2.52 (0.94)	1.51 (0.48)	1.48 (0.59)	2.39 (0.93)	1.40 (0.48)
Revised disclosure mean (SD)	1.54 (0.61)	2.29 (1.07)	1.38 (0.46)	1.67 (0.61)	2.6 (0.88)	1.49 (0.48)			

Notes: *The time span between participants' initial disclosure and the option to revise it (if given that option) according to the experiment: A—no time delay, B—short (few minutes) time delay and C—long (a day) time delay

experiment and condition as between-participants variables showed a statistically significant effect for the experiment and the condition, $F(2, 667) = 112.03, 3.76, p < 0.001$, $p = 0.02$, respectively, but not for the interaction, $F(4, 667) = 0.77, p = 0.54$. The average initial disclosure score was highest in the “short delay” Experiment B ($M = 2.37, SD = 0.97$), compared to Experiments A and C (“no delay” and “long delay”; $M = 1.54, 1.43, SD = 0.60, 0.48$, respectively). Additionally, the average initial disclosure score was highest under the control conditions ($M = 1.99, SD = 0.87$), compared to the reversible and irreversible conditions ($M = 1.76, 1.78, SD = 0.86, 0.83$, respectively). To examine the net effect of the condition on the initial disclosure, we standardized the initial disclosure scores in each experiment; these are presented in Figure 1. As can be seen, across all the experiments, participants under the control condition disclosed more ($M = 0.76$), compared to those under reversible or irreversible conditions ($M = -0.11$ and -0.05 , respectively), $F(2, 676) = 4.84, p < 0.01$. *Post hoc* comparisons, using Bonferroni's correction, showed that the difference between the control to the reversible or irreversible conditions was statistically significant ($p = 0.01$ and 0.04 , respectively), and that there was no significant difference between the reversible and irreversible conditions ($p = 1$).

Revised disclosure

As can be seen in Table II, the disclosure scores did not change much after the revision. Again, we found statistically significant effects for the experiment, $F(2, 398) = 77.47, p < 0.01$, and for the condition, $F(1, 398) = 5.94, p = 0.02$, but not for the interaction, $F(2, 398) = 0.87, p = 0.42$. These effects showed that, as for the initial disclosure scores, participants in Experiment B still disclosed more after the revision ($M = 2.45, SD = 0.06$), compared to Experiments A and C ($M = 1.61$ and $1.44, SD = 0.07$ and 0.06 , respectively). Additionally, participants under the control condition disclosed more on average than those under the reversible condition across all experiments ($M = 1.92$ vs 1.74 , respectively, $SDs = 0.05$). A test for the differences between initial and revised disclosure showed no statistically significant effect, $t(403) = -0.82, p = 0.41$. Examining the mean per cent of responses, participants chose to change[5] between initial and revised disclosure showed very low percentages in Experiment A (“no delay”; 14.00 per cent under the control condition and 16.67 per cent under the reversible condition), that increased in Experiment B (“short delay”; 41.98 vs 31.65 per cent, respectively) and in Experiment C (“long delay”; 50.75 vs 32.86 per cent, respectively).

Figure 1 Standardized initial disclosure scores between conditions and experiments in Study 1

Note: Error bars represent ± 1 standard error from the mean

Discussion

The results of the three experiments reported in Study 1 confirmed our hypotheses that:

- 1 Reversibility had an *ex ante* effect on the degree of self-disclosure by participants.
- 2 Most participants did not take advantage of the opportunity to revise their responses when given the chance.
- 3 Even when participants did revise their responses, these revisions did not significantly change their initial degree of self-disclosure.

These three findings combined suggest that in the context of self-disclosure, reversibility has a mainly *ex ante* effect on decision-making: when reversibility (or irreversibility) is made salient beforehand, people seem to treat the questions as more sensitive and disclose personal information more carefully, consequently providing less disclosing responses.

We designed the next two studies to explore the explanation that reversibility affects disclosure, by increasing the perceived intrusiveness of the disclosure questions. To do that, we would have wanted to have participants rate the intrusiveness of the questions and answer the questions and to examine the correlation between the intrusiveness rating and self-disclosure. However, we realized that we could not use this approach in this situation, because the rating of the intrusiveness of the questions and actually responding to the questions might have concurrent effects: the mere action of rating the questions could alert participants to their potentially intrusive nature, which would lead them to disclose less. Conversely, the manner in which an individual responded to highly sensitive questions could bias the subsequent ratings of those questions by that individual. Thus, we decided to conduct two separate studies: in the first one (Study 2), we examined whether explicitly stressing reversibility (or irreversibility) beforehand would increase people's perceptions of the intrusiveness of the self-disclosure questions. In the second one (Study 3), we explored whether increasing the intrusiveness level of the questions (by having participants rate them before answering them) would decrease their subsequent self-disclosures on those questions, compared to when they were asked to rate the questions only after they have already answered them. We predicted that the results of these two studies combined would suggest that:

- Reversibility increases the perceived intrusiveness of the questions.
- Increased perceived intrusiveness reduces self-disclosure.

Study 2

Method

Participants

We recruited 148 US adults (49.7 per cent males, $M_{\text{age}} = 33.31$, $SD = 12.2$) from MTurk. Participants were each given 50 cents for their participation.

Design and procedure

Participants were invited to complete a short online survey. They were told that they would be asked to provide their opinion on a large-scale survey we were planning to execute in the future. After providing their age and gender, participants

were presented with the following description of the planned survey:

The survey we are planning to conduct includes asking people several sensitive questions about themselves. Participants will be asked to answer these questions in detail, potentially revealing personal, sensitive, embarrassing or even incriminating details about themselves. All of the questions will be mandatory, but participants will be permitted to write, "I prefer not to say", if they feel uncomfortable about answering any of the questions.

Participants in the *irreversible* condition were additionally told:

Also, participants will be told, beforehand, that their responses to the questions are final. Once they submit their responses, they will not have a chance to edit or change any of them.

In contrast, participants in the *reversible* condition were told that "participants will be told, beforehand, that their responses to the questions are not final. After they submit their responses, they will have a chance to edit or change any of them". Then, all participants were presented with the sensitive questions from Study 1. Participants were asked to read these questions and then rate each one according to their perception of the question's intrusiveness on a scale from 1 (not at all intrusive) to 9 (extremely intrusive).

Results and discussion

The internal reliability of the ratings of the questions was high (Cronbach's $\alpha = 0.82$), so we averaged their scores into one "perceived intrusiveness" measure. As expected, perceived intrusiveness was the lowest among the control condition participants ($M = 4.76$, $SD = 1.9$), compared to the reversible or irreversible conditions ($M = 5.48$, 5.33 , $SD = 1.5$, 1.9 , respectively). A planned contrast, comparing the control condition to the other two conditions confirmed the hypothesis that these differences were statistically significant, $t(129) = 1.95$, $p < 0.05$.

The results of this study showed that the perceived intrusiveness of questions increased when the reversibility or irreversibility of the responses was made salient beforehand. This provided support for the first part of our account, which argues that *ex ante* reversibility increases the perceived intrusiveness of the questions, which in turn reduces self-disclosure.

Study 3

The final study was designed to explore the second part of our explanation and to show that when questions are perceived as more intrusive, they elicit lower levels of self-disclosures. We conjectured that asking people to rate the intrusiveness of the questions *before* responding to them would increase the perceived intrusiveness of the questions and would lead to lower levels of disclosure, compared to when questions are rated after participants have answered them. We then hypothesized that this difference in the ratings of questions' intrusiveness would affect participants' levels of self-disclosure, showing lower levels of self-disclosure when questions were rated as more intrusive.

Method

Participants

We recruited 301 US adults (55 per cent males, $M_{\text{age}} = 30.8$, $SD = 10.8$) from MTurk, who received \$1 for completing the study.

Design and procedure

Participants were told that the study would test their personality, and that their responses to several open-ended questions would be read and analyzed by a group of trained psychologists. The study used deception:

- Participants were told that answering the survey question would be the first step in a three-part study.
- They would receive the results of the analyses of their responses when they returned to complete the last part of the survey.

In reality, participants were only required to answer the first part and were then debriefed that their responses would not be read or analyzed by anybody outside the research team. Following a non-sensitive question (“What are some of the things you like to do in your free time?”), participants were asked to respond to same questions used in Study 1. Participants were also asked to rate the intrusiveness of the questions (from 1, not at all, to 5, very much) either before or after they answered them. Participants were all paid the full amount promised to them for completing all parts of the study (\$1).

Results and discussion

We found that the perceived intrusiveness of the questions was rated differently before vs after answering the questions: participants who first rated the intrusiveness level of the questions before answering them rated all the questions as more intrusive than participants who first answered the questions before rating them. A MANOVA on the intrusiveness ratings of all five questions showed a significant effect for the condition (Wilk’s $\lambda = 0.95$, $F(6,289) = 2.57$, $p < 0.05$). Inter-raters’ agreement was adequately high (Cronbach’s $\alpha = 0.85$), so we averaged self-disclosure depth across all questions. We found, as expected, that disclosure in the “after” condition was higher than in the “before” condition ($M = 1.30$ vs 1.50 , $SD = 0.32$, 0.36 , respectively, $t(299) = 3.72$, $p < 0.01$).

Thus, we concluded that, as we expected, when questions were evaluated before the actual disclosure, they were perceived as more intrusive, compared to when they were evaluated afterwards. Moreover, these differences in the perceived intrusiveness were associated with differences in self-disclosure. Participants who evaluated the questions before answering them (which caused them to perceive the questions as more intrusive) revealed less about themselves, compared to participants who perceived the questions as less intrusive (because they evaluated the questions only after answering them).

The results of Studies 2 and 3 combined support for the proposed explanation for why reversibility showed an effect on people’s self-disclosure in the three experiments in Study 1. As Study 2 showed, reversibility increased the perceived intrusiveness of the questions. As Study 3 showed, increasing the perceived intrusiveness of the questions (which was done by asking participants to rate them before, rather than after, answering them) led to lower levels of self-disclosure. Put together, these findings suggest that reversibility increases the perceived intrusiveness of the personal information being

solicited, which, in turn, reduces the propensity to disclose personal information.

General discussion

The results of the studies reported in this paper show that the awareness of the fact that one’s self-disclosure can, or cannot, be revised can prompt people to treat disclosure situations more carefully and sometimes avoid sensitive disclosures. When the reversibility or irreversibility of responses to sensitive questions was made salient beforehand, people perceived the intrusiveness of the question as higher and disclosed less, compared to when reversibility was offered only after the initial disclosure. It seems that people treat reversibility as an important signal concerning the sensitivity of the questions, or the information the questions request, and decide (consciously or not) to disclose less personal information in those situations.

The effects we found were of only moderate magnitude. Reversibility and irreversibility only slightly, albeit statistically significantly, decreased the degree of self-disclosure. We believe the main reason for these small effects lies in a floor effect, one that occurred because people knew that they were taking part in a research study and, thus, might have generally disclosed less than they would have in real life, and for this reason, they were probably less susceptible to our manipulation compared to how they might have responded in real life. We thus consider the current findings as a conservative estimation of how reversibility can affect self-disclosure and conjecture that the actual effect in everyday life might be even stronger than what we were able to discern in our limited research settings.

Of special interest is the fact that most of the participants in our studies did not take advantage of the option to revise their responses. Moreover, even the minority of participants who did exercise their option to revise their responses did not change their degree of self-disclosure significantly and did not use that option to help them avoid sensitive disclosures. This suggests that in the context of self-disclosure, reversibility (or irreversibility) has only an *ex ante* effect on people’s perceptions of the intrusiveness of the questions they have been asked and on the personal information they choose to disclose in their responses. Future research on the topic should indeed examine this and other related questions to better understand the role of reversibility on self-disclosure by consumers.

From a marketing perspective, the fact that providing reversibility, or even just merely pointing out the fact that disclosure is irreversible, reduced self-disclosure, can inform marketers who aim at collecting and using personal information from consumers. These marketers might, contrary to current practice, opt to not mention (or even hide) the (ir)reversible nature of their request for self-disclosure. From a managerial perspective, it is important to understand that reversibility in self-disclosure operates through a different mechanism than how it operates regarding purchasing decisions. Although reversibility (lenient return policies) seems to increase purchasing decisions, it appears to reduce self-disclosure. Managers and marketers may thus choose to highlight the lenient return policies for their products and services, in the (justifiable) expectation that this will increase

sales. However, it is still unclear whether, and how, marketers and firm can benefit from highlighting (or hiding) the reversibility (or lack thereof) of their privacy policies.

Previous studies of reversibility (Bullens *et al.*, 2011; Gilbert and Ebert, 2002) have generally focused on how it affects people's post-decisional evaluation of their choices (affecting their satisfaction or regret from their decisions), but neglected to examine the pre-decisional impact reversibility can have on the actual choices and decisions people make in the presence or absence of reversibility. In contrast, many studies in consumer behavior (Groot *et al.*, 2009; Wood, 2001) focused on how reversibility can affect purchasing choices, through the use of different product return policies. The current research examined an uncharted domain of self-disclosure behavior by simultaneously comparing the effects of both *ex ante* and *ex post* reversibility on people's choices and behavior. This novel line of questioning may be applied to other contexts in which people's choices and decisions might be affected differently by *ex ante* vs *ex post* reversibility. For example, it is possible that product choices might be affected by reversibility only when it is offered *ex ante* and not *ex post*. On the other hand, regret from one's decisions might be affected differently if that decision was made reversible before or after the fact. More research is needed to examine and compare the effects of both of these types of reversibility and to compare these to the effect of irreversibility; this might shed more light on the role of this important factor on people's decision-making processes.

Appendix – measuring disclosure depth

In all studies, two independent raters, blind to the research hypotheses and to the participants' conditions, rated each of the open-ended responses for all participants using the following scale, which was developed and pre-tested in a pilot study: non-responses (e.g. "I prefer not to say") were rated as 0; tame responses (responses that included personal information that is not unusual or different from many other people and that did not make the person vulnerable to others in any way, e.g. "I like to read books and newspapers") were rated as 1; responses that were somewhat intimate (that disclosed private information that would make the person feel somewhat vulnerable to others in some way, such as emotionally vulnerable, e.g. "I do not have any children of my own"; "I smoke") were rated as 2; intimate responses (that disclosed private information that would most likely make the person vulnerable to others in some way, e.g. "I had an abortion"; "I am an alcoholic") were rated as 3; very intimate responses (that disclosed highly private and sensitive information that made the person extremely vulnerable to others in some way, e.g. "I was addicted to drugs"; "I wish I could have sex with my niece") were rated as 4.

Notes

- <https://support.google.com/mail/answer/1284885>
- One passage concerned "the pros and cons of hybrid vehicles", another was about "the benefits of self-disclosure" (excerpted from Frattaroli, 2006) and a third about "the risks of privacy threats" (adapted from a Wikipedia article about internet privacy). We found no statistically significant

differences in disclosure between these groups, $F(2,157) = 0.75, p > 0.05$.

- Among the 243 participants, 203 (84 per cent) also completed the second part of the survey (the participants who dropped out were evenly distributed across the conditions). The average time interval between completing the two parts was 27.4 h (SD = 18.5).
- In Experiment A (no delay), half of the participants under the irreversible condition did not even review their responses. Because we did not find any differences between these two groups, we collapsed them.
- We considered "changes" as those that included changing more than one word. Changing one word (or less) was, in most cases, instances in which participants corrected typographic or grammar errors.

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Corresponding author

Eyal Peer can be contacted at: eyal.peer@biu.ac.il

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