



The social implications of planning: How public predictions bias future plans

Stephanie P. Pezzo^a, Mark V. Pezzo^{b,*}, Eric R. Stone^c

^a *University of South Florida, College of Medicine, USA*

^b *Psychological Sciences, University of South Florida, St. Petersburg, USA*

^c *Wake Forest University, USA*

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Abstract

The planning fallacy, or tendency to underestimate how long a task will take to complete, is a robust phenomenon. Although several explanations have been offered (e.g., ignoring underestimations made in the past), we hypothesized that self-presentation concerns may also contribute to the bias, and that this effect may be exacerbated by a previous failure to complete a task on time. Half of our sample ($n = 85$) were led to believe that they failed to complete an initial task on time, and half were not. Predictions were then made for time to complete a second task either verbally to a familiar experimenter (high self-presentation) or anonymously (low self-presentation). Although verbal predictions exhibited the typical planning fallacy, anonymous predictions did not. Additionally, verbal predictions were less accurate, that is, less correlated with actual completion times, than were anonymous predictions. There was no significant difference in the bias as a result of the failure manipulation, nor was there an interaction between the self-presentation and failure conditions.

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Introduction

In our fast-paced, deadline-driven world, there is enormous pressure to finish projects on time. Although motivation to “get the job done” seems intuitively beneficial, it may be so strong that it produces predictions that are too optimistic to be met. Anecdotal evidence suggests that the problem is far-reaching. College students find themselves asking their professors for extensions on papers they hoped to complete weeks ago, while professors ask their editors for extensions on their own papers. Indeed, research has verified that predictions consistently exhibit the “planning fallacy”; that is, peo-

ple expect to finish a task much earlier than they actually do (see Buehler, Griffin, & Ross, 2002).

Unfortunately, attempts at debiasing have had little success. For example, asking participants to recall past projects that have run late, to decompose the project into subcomponents, to predict a “worst-case scenario,” and offering incentives for accurate prediction have all failed to reduce the planning fallacy (Buehler, Griffin, & MacDonald, 1997; Buehler, Griffin, & Ross, 1994; Byram, 1997; Newby-Clark, Ross, Buehler, Koehler, & Griffin, 2000). Even “consider the opposite” and frequentistic prediction strategies, found to be successful in other contexts, do not appear to be effective in the planning domain (Buehler et al., 1994; Byram, 1997; Griffin & Buehler, 1999). Thus, a more complete understanding of the mechanisms underlying this bias is needed before consistently successful debiasing methods can be developed.

* Corresponding author.

E-mail address: pezzo@stpt.usf.edu (M.V. Pezzo).

In the first theoretical analysis of the planning fallacy, Kahneman and Tversky (1979) took a predominantly cognitive approach, attributing the fallacy to people's tendency to make case-based rather than statistically informed judgments. Kahneman and Tversky suggested that people make biased forecasts because they focus on *singular* information (i.e., the specific features of a given task) and ignore *distributional* information (i.e., one's personal completion history with the task and the typical completion rate for the general population). More recently, Buehler et al. (1994) refer to one's tendency to ignore previous failures as "past neglect" and suggest that this is the key element in the planning fallacy. Indeed, in a verbal protocol, only 7% of participants' responses referenced past experiences, whereas 74% of responses centered on future plans for the project (Buehler et al., 1994). Further, a later study found that encouraging participants to focus on specific plans for completion of a task increased their optimistic bias (Buehler & Griffin, 2003).

A pessimistic theory with optimistic expectations

A particular implication of neglecting past experiences is the most intriguing aspect of the planning fallacy—that it persists in spite of awareness that one has typically underestimated in the past. In other words, people continue to make optimistic predictions for the future while maintaining pessimistic theories about their general ability to complete tasks on time. Why would people so readily ignore valuable feedback from previous experiences? A compelling argument by Buehler et al. (1994) suggests that one factor may be the desire to avoid self-blame for a past failure. They argue that to diminish the negative impact of past failures on their self-image, planners attribute these failures to specific, externally controlled, temporary factors. Although this strategy protects the self-image, it also causes past experiences to be regarded as irrelevant to future situations. Consistent with this idea, Buehler et al. found that observers who made predictions for another person (and who were presumably not motivated to attribute away past failures) exhibited less planning bias than did the actors themselves.

This actor–observer study further supported the past neglect hypothesis in that observers who were given information about actors' past experiences predicted slightly less optimistic completion times than did observers not given this information. However, this within-observer difference was rather small relative to the difference between actors' and observers' predictions. Even when they had no information concerning actors' past performance, observers still predicted significantly later completion times than did actors. This finding prompts us to search for other factors that may contribute to the actor–observer difference.

The social implications of planning

An important characteristic of planning is that most predictions are made to *other* people (e.g., predicting to students when exams will be graded, forecasting to an editor when a paper will be completed). They are thus inherently social tasks affected by interaction norms and the desire for acceptance, for example. However, despite consistent evidence that the desire to present a favorable impression to others is a powerful force in guiding social behavior (e.g., Leary & Kowalski, 1990; Sedikides, 1993), the planning fallacy literature has been relatively silent with regard to the role of this motive.

A self-presentation account of the planning fallacy suggests that people make optimistically biased predictions to present themselves positively to others. Intuitively, it seems clear that people do make optimistic predictions, at least in part, to please others. Consider the graduate student who is asked to predict the completion of her first-year project. If we assume that she desires the approval of her advisor, will she not be motivated to provide an optimistic forecast in order to enhance her image? Although there are likely other cognitive and motivational mechanisms underlying the planning fallacy, self-presentation may be an important factor in interpersonal prediction contexts. Indeed, it seems a plausible explanation for the large unaccounted for differences between observers' (who presumably have no self-presentation concerns) and actors' biases in Buehler et al.'s (1994) study.

The idea that people make *worse* judgments when predicting to another person may seem contrary to existing research on accountability, which suggests that people make more temperate and effortful (and presumably more accurate) judgments when they are predicting to others (Tetlock, 1985; Tetlock & Kim, 1987). However, this is not the only reported effect of accountability. There is evidence that accountability actually exacerbates biases if people are not aware of the mechanism responsible for the bias (Tetlock & Boettger, 1989). Because the paradox of the planning fallacy is that people continue to exhibit it despite being aware that they do, we can assume that people are not privy to the mechanism causing them to make overly optimistic predictions (Nisbett & Wilson, 1977). Additionally, our hypothesis is consistent with Quinn and Schlenker's (2002) findings of "reverse accountability," in which people who are motivated to get along with others conform to others' preferences when accountable, even if it results in a poor judgment.

The only study of which we are aware that has discussed self-presentation concerns (Buehler et al., 1994) concluded that they have no effect on the planning fallacy. Buehler and colleagues attempted to rule out the possibility of a self-presentation bias by explicitly informing some participants that the accuracy of their

prediction would be assessed. They reasoned that if the planning fallacy were due to self-presentation, participants given this information would exhibit less bias than would participants not given this information. Indeed, the same optimistic bias was found regardless of whether or not participants were told that the accuracy of their predictions would be assessed. However, because all participants knew that both their predicted and actual completion times would be recorded, participants may have already assumed that these times would be compared, even without being explicitly told. Finding that emphasizing accuracy does not affect the bias may simply indicate that self-presentation motives supersede the desire for accuracy. That is, people may be more influenced by immediate presentation goals than by the temporally distant consequences of an inaccurate presentation.

The implications of past failure

A potential implication of the self-presentation hypothesis is that self-presentation concerns may increase the extent to which one can jointly hold a pessimistic general theory and yet still make a current optimistic prediction. In other words, self-presentation may exert an even stronger effect on predictions if the planner has experienced a previous failure with the same person. Reconsider our graduate student estimating when she will finish a project. If she has recently taken too long to complete a previous task, it seems reasonable to predict that she will be even more motivated to generate an overly optimistic forecast to make up for the previous failure. Assuming that experiencing failure produces a significant affective reaction, such a prediction is consistent with evidence that an affective load increases the likelihood of self-presentational behavior (Paulhus & Levitt, 1987).

This desire to redress a past failure is consistent with Brown and Smart's (1991) findings that people spent longer helping a research assistant if they had recently experienced a failure than those who did not. Similarly, people who believed they upset the order of a graduate student's index cards were more likely than those who did not to "make it up" to the experimenter by circulating petitions (McMillen, Jackson, & Austin, 1974), donating money for research (Regan, 1971), or making phone calls (Konoske, Staple, & Graf, 1979). Although feeling a need to atone for a previous failure may be beneficial in certain situations, it may set up a dangerous feedback loop in planning situations. Taking too long to complete a task may cause a planner to make unrealistically optimistic predictions in the future, which makes her more likely to fail again and so on.

The present research

The present study examines the effects of making predictions either verbally (high self-presentation) or

anonymously (low self-presentation) and following either failure or success at a previous task. Doing so allows us to determine if a self-presentation motive can exacerbate the planning fallacy, and further, whether the effect of this motive persists, or is even strengthened by, a previous failure to complete a task on time.

Method

Overview

In the 2 (high or low self-presentation) \times 2 (failure or success) design, participants were randomly assigned to either give their predictions verbally to a familiar experimenter (high self-presentation) or anonymously (low self-presentation) and to either experience a failure or success with a previous task. Participants in the failure condition were led to believe that they had taken too long to complete the first of two tasks, whereas those in the success condition were led to believe that they finished the task on time.

Participants

Eighty-five introductory psychology students at Wake Forest University, between the ages of 18 and 22, received course credit for their participation. Only students who had a basic knowledge of Ebay's auction website were allowed to participate. All students participated individually.

Procedure

All participants were told that they would be participating in two separate experiments. In the first experiment, ostensibly designed to examine "online purchasing behavior," two tasks were to be completed: an online purchasing task and a follow-up questionnaire. For the online task, all participants were told that they had 20 min to think of four products that they would be interested in purchasing via the Internet, find the products on Ebay (www.ebay.com), and choose from which seller they would most likely buy the products. They were provided a form on which to indicate the specific name of each product, the name of the chosen sellers, and the highest price they would be willing to pay for each.

The Ebay task was chosen to permit and encourage distraction, so that participants could believably be told that they took too long to complete the task. The experimenter entered the room to check on the participant's progress while completing the Ebay assignment. After the check, all participants were instructed to notify the experimenter in the next room when they were finished with the task. At the completion of the task, participants

in the failure condition were told that they took much longer than expected to complete the first task and thus there was not time to complete the follow-up questionnaire before the second experiment. The experimenter then explained to participants in the failure condition that, although they would still receive credit, their data for the first experiment could not be used because they did not have time to complete the questionnaire. To emphasize the manipulation, the experimenter tossed participants' data sheets into a nearby trashcan. If participants asked to return to finish later, the experimenter thanked them, but replied that there were other participants coming and that this would not be possible. In the success condition, participants were thanked and the questionnaire was not mentioned.

All participants were then given a number of a room on a different floor of the building and instructed to go there for the "second" experiment. Participants were escorted to this room by the experimenter in the high self-presentation condition, but not in the low self-presentation condition. Once there, participants were given an assignment that they were to complete at home and return to the experimenter via email. Specifically, participants were to complete three tasks: (1) list 10 common racial stereotypes, (2) write a short essay about a situation in which they had been discriminated against, and (3) list 8 things that they considered offensive. This assignment was designed to require moderate effort and presumably require more than one sitting to be accomplished. The assignment was designed to be similar to tasks shown to produce the planning fallacy in previous studies (e.g., Buehler et al., 1994).¹

Instructions were given either directly by the experimenter (high self-presentation) or left in a room for participants to find (low self-presentation). In the high self-presentation condition, the same experimenter from the "first" experiment had participants read a sheet of paper with the instructions for the assignment, and then asked verbally "So that I'll have a general idea when the data will be collected, how many days do you think it will take to complete the assignment?"

In the low self-presentation condition, after leaving the first experiment, participants expected to find a different experimenter in the second room. However, a note was left on the door indicating that, due to an emergency, the experimenter had left for a few minutes but she had placed instructions and consent forms for the experiment on a table in the room. The note concluded with a phony signature. Inside the room, participants

found the same instructions read by participants in the high self-presentation condition, with the addition of the final statement reading "So that I'll have a general idea when the data will be collected, how many days do you think it will take to complete the assignment?". Participants were instructed to place their predictions in a folder ostensibly containing other students' predictions. Although there were not actually other predictions in the folder—in case participants were tempted to look at them for information about the "appropriate" time to finish—this wording was included to reinforce anonymity.

All participants were given an email address to which to send their completed tasks. Participants' actual completion times were determined from the email, which records the exact time and date that the assignment was sent. The assignments were examined to make certain that each participant had fully completed the task.

Because data for each participant were collected over an extended period of time, we could not determine immediately from participants whether the failure manipulation had its intended effect without the possibility of altering completion times. Therefore, we used two indirect manipulation checks to determine if the failure manipulation was successful. During the experiment, the experimenter recorded how many participants apologized after being told they had taken too long. Although hardly a perfect means of assessment, this technique does provide some indication of the effectiveness of the failure manipulation. Additionally, at the conclusion of the study, all participants were sent an email asking them to indicate how they felt after the Ebay task. They were encouraged to report any emotion—negative, positive, or neutral—that they experienced and assured that there was no "right" response.

Results

Manipulation checks

Ninety-three percent (39 out of 42) of participants in the failure condition apologized to the experimenter for having taken too long. Many of these participants expressed great remorse and offered to come back to finish the task. In the follow-up survey, 74% (29 out of 39) of respondents from the failure condition reported feeling that they had failed and/or experienced guilt (i.e., responded with at least one statement such as "I felt bad for taking too long," "I felt guilty for not finishing," or "I felt like I had let the experimenter down") whereas none of the success condition participants reported these feelings.

Dependent variables

Two dependent variables were measured in this study—predicted and actual completion times: *Predicted*

¹ In a pilot survey of 294 students, 174 (59%) reported that they typically underestimated the amount of time they would take to complete similar tasks, whereas 45 (15%) reported that they typically overestimated and 75 (25%) reported that their predictions were usually accurate. This suggests that our task meets the "pessimistic general theory" criterion for a test of the planning fallacy.

completion times were the values given by participants during the experiment. *Actual completion times* were the number of days participants actually took to complete the assignment (measured from the end of the experiment until the assignment was sent via email). Because many participants spontaneously gave predictions in terms of “half days,” and because we could not determine the exact time at which the assignment was completed, we chose to record predicted and completed times in “half days.”

Analyses

Six participants were dropped from the analyses because they failed to complete the second assignment. No condition lost more than two participants, leaving 20 participants in each condition except Low Self-presentation/Failure, which had 19 participants.

Repeated measures ANOVA

Data were analyzed using a $2 \times 2 \times 2$ repeated measures ANOVA, with both Self-presentation (high vs low) and Past (failure vs success) as a between-subject factor, and Completion Time (predicted vs actual) as a within-subject factor. Interesting, the main effect of Completion Time, which indicates the existence of an overall planning fallacy, was only marginally significant, $F(1, 75) = 3.68$; $p = .06$, partial $\eta^2 = .047$. However, as seen in Fig. 1, the absence of a bias is only seen in the low self-presentation conditions. Indeed, a significant Self-presentation \times Completion Time interaction ($F(1, 75) = 10.67$; $p = .002$; partial $\eta^2 = .13$) indicates that the size of the planning fallacy was significantly larger in the high self-presentation condition (mean bias = 1.98 days) than in the low self-presentation condition (mean bias = -0.51 days).

Additionally, there was a significant main effect of Past, $F(1, 75) = 4.68$, $p = .034$, partial $\eta^2 = .06$, indicating that participants in the failure condition were more

likely to both predict earlier completion times and to actually finish earlier than were participants in the success condition. Finally, in contrast to our prediction, there was no significant Past \times Self-presentation \times Completion Time interaction, indicating that the failure manipulation did not increase the effect of the high/low self-presentation manipulation. A Past \times Self-presentation interaction was marginally significant ($p = .08$) but not theoretically meaningful. All other tests were nonsignificant (p 's $> .2$).

Correlations between predicted and actual completion times

To gain further insight into why the planning fallacy occurred in some situations but not others, we examined the correlations between predicted and actual completion times. Overall, participants' predicted and actual completion times were significantly correlated ($r = .33$, $p = .003$). However, when the high and low self-presentation conditions are examined separately, this relationship is only present in the low self-presentation condition. Whereas predicted and actual completion times for participants making anonymous predictions were significantly correlated ($r = .62$, $p < .001$), these variables were not correlated for participants in the high self-presentation conditions ($r = .05$; $p = .772$). Employing a Fisher r -to- Z transformation, these correlations were found to be significantly different ($z = 2.88$; $p = .002$).

Discussion

As predicted, self-presentation motives exerted a sizeable influence on the planning fallacy. It appears that the desire to present a favorable impression to others does contribute to the generation of unrealistically optimistic forecasts. This finding is important because it reverses a common intuitive prescription for the planning fallacy—increasing accountability. Our results suggest that if increasing accountability by making predictions publicly also increases self-presentation concerns, it may actually exacerbate the planning fallacy by motivating people to overpromise.

Interestingly, this finding seems to contradict evidence that people are more accurate when they know their claims will be tested (e.g., Schlenker, 1975). Why would planners in our study make unrealistic predictions in situations in which their claims could be invalidated? One possibility, of course, is that people believe they are making accurate predictions. People may not worry about the possibility of an unfavorable future impression when they make unrealistic predictions because myriad cognitive errors have convinced them that they will, in fact, finish on time. This idea is supported by the finding that planners express extremely high confidence

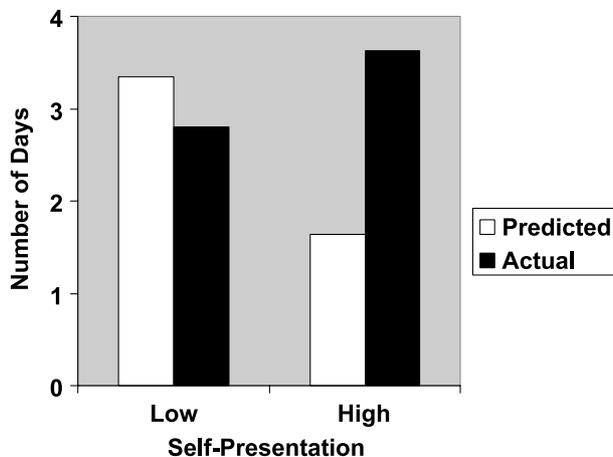


Fig. 1. Predicted and actual completion times as a function of high/low self-presentation mode of prediction.

($M_s = 70\text{--}88\%$) in their predictions (Buehler et al., 1994, 1997).

Of course, even if people are uncertain about the accuracy of their predictions, it may not significantly temper their optimism. Whereas most of the work of Schlenker (1975) and others involved a relatively immediate performance assessment, there is almost always a delay between prediction and assessment in planning contexts. Evidence suggests that almost all behavior is influenced more heavily by immediate than long-term consequences (e.g., Mischel, 1974; Tice, Bratslavsky, & Baumeister, 2001). Theories of *delay discounting* hold that the perceived value of an outcome decreases as the outcome becomes more temporally distant (e.g., Cairns & van der Pol, 2000; Green, Fry, & Myerson, 1994; Kirby & Marakovic, 1995; Rachlin, Raineri, & Cross, 1991). Thus, when planning for the future, concern for presenting the self desirably *at that moment* may outweigh the possibility of a later undesirable impression resulting from failing to complete the task on time. When immediate and future self-presentation goals collide, the effect of self-presentation is likely to be greater for immediate goals.

The effects of past failure

To what extent can self-presentation influences be exacerbated by a previous failure to complete a task on time? We predicted that participants who had recently taken too long to finish a project would be even more motivated to generate an optimistic prediction to make up for the previous failure. Indeed, participants in the failure condition did predict that they would finish the task earlier than did participants in the success condition. However, these participants were able to actually finish the task earlier as well. In other words, the failure manipulation did not affect the net bias in participants' predictions—at least in this study, people did seem to learn from their mistakes. This unexpected finding cannot be explained presently and certainly warrants further study.

Notably absent from the results is a significant interaction between the two manipulations. Although the mean number of days for participants in the high self-presentation/failure condition was greater than those in the other conditions, this effect was not significant in terms of a three-way interaction. Whether this is due to a small sample size or some other factor, our prediction that a previous failure might increase the effect of self-presentation was not supported.

Correlations between predicted and actual completion times

In addition to examining the magnitude of the planning bias, it is also instructive to consider the extent to

which planners' forecasts contain information about when they will actually complete a task. Buehler et al. (1994) found that despite a large optimistic bias, participants' predictions were significantly correlated ($r_s = .36\text{--}.82$) with their actual completion times. Thus, even though predictions were biased, participants were not completely ignorant of those factors that would affect their completion of the project. Although our data, too, show a modest *overall* correlation between these variables, the relationship is strikingly absent in the high self-presentation condition. That is, predictions made verbally were not at all predictive of actual completion times. Does this mean that socially driven influences override cognitive processes and promote the production of mindlessly optimistic predictions? This possibility seems plausible, and further work is needed to determine the mechanism by which such an effect would occur.

Concluding remarks

This study is unique in that it is the first to eliminate the planning fallacy by removing self-presentation motives. We recognize that because even the anonymous predictions were made *for* another person, self-presentation effects were still present to a certain degree. However, this motive was arguably reduced considerably and could thus be interpreted as a reasonable manipulation.

Further, we acknowledge that in many real-world situations, it may not be feasible to make predictions anonymously. However, by advancing knowledge of the mechanism underlying the planning fallacy, the present findings have also introduced the possibility of more practical methods of “debiasing,” such as reducing the demand characteristics of the prediction or making salient the sequelae of a failed prediction.

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