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Feeling good at the right time: Why people value predictability in goal attainment

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HIGHLIGHTS

- Does information on upcoming goal attainment spoil some of its benefits?
- People hold a script that positive emotion is experienced after a goal is attained.
- Learning that a goal is going to be attained disrupts this script.
- And results in mellowed happiness and lower goal evaluation.
- Reawakening positive emotion after early knowledge of goal attainment is difficult.

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ABSTRACT

We investigate whether information on upcoming goal attainment spoils some of the benefits of attaining the goal, because people hold a script suggesting they should feel happy at the "right" time; that is, after the goal is attained. We find that people falsely recall sequences of events in a way that corresponds to a script of feeling happy upon goal attainment rather than upon learning that a goal will be attained (Study 1). The disruption of the goal-attainment script results in mellowed happiness and lower goal evaluation (Studies 2–4). We conclude that because of their expectation to feel happy only upon goal attainment, people experience mellowed positive emotion and goal evaluation when they learn that a goal will be attained. Reawakening positive emotion after having had early knowledge of goal attainment appears to be difficult.

Consider the goal of gaining admission to college. A student who works hard to attain this goal is likely to form expectations about the sequence of events, or "script" that would occur should he or she be admitted. Imagine that the student expects a notification letter in the mail, but receives a notification email to be followed up by a letter a few days later. Upon reading the acceptance email, the student may face a distinctly odd dilemma. Despite gaining admission to college, his or her expectations about the process were disrupted. The student may in some sense be left "waiting" for the official letter to arrive before fully experiencing happiness related to this goal. We suggest that this student will in fact experience a lower degree of happiness because the two-part admission notification policy violated a script. As a result, this student will value the admission less if the script was not violated. We suggest more generally that people subscribe to the notion that happiness should be experienced at the "right time" according to the script and violation of the script decreases positive emotion and valuation.

People commonly experience positive emotion when positive things happen to them, for example when they attain a goal. We suggest that over and above the happiness that attaining a goal brings, positive emotion is also affected by the way the goal was attained. This may occur because of goal scripts. Scripts are cognitive structures that organize prior knowledge of events that tend to occur one after the other with regularity (Fiske & Linville, 1980; Schank & Abelson, 1977). Goal scripts contain information on the process of pursuing a desired end-point (i.e., a goal), including the resulting emotional experience. People form scripts in part to answer a basic question: 'How should I react when an event that could happen, in fact does?' In the case of goal scripts, a basic component of the script is, 'I should experience positive emotion after I have attained a goal.' At times, however, information on goal attainment can be learned unexpectedly early in the process. If people judge attainment information so early as to be premature, they may act as though they are "waiting" for script to be fulfilled before experiencing full happiness. We suggest that because

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of this tendency to "wait for the right time," people will experience mellowed happiness and evaluate the goal less positively compared to a situation in which people learn attainment information when and as they expect it. In what follows, we discuss our theory in greater detail.

The scripted nature of goals

People perceive many of the goals they pursue as following a particular order of events, which we refer to as "goal scripts" (see also "plan schema;" Bower, 1982; Lichtenstein & Brewer, 1980). People organize knowledge of goals and goal-related actions according to generic "roadmaps" for how to behave and what to expect when they proceed on track toward their goals (Austin & Vancouver, 1996). In particular, people have in mind clearly delineated sequences of events that need to happen before they can experience goal attainment. Importantly, having expectations about how events will unfold is distinctly different from having expectations about these events' outcomes. To return to our opening examples, the admitted student will have formed expectations both about how she will be notified of the admission decision (be it via email and official letter or via email only) and also about her chances of admission. We study the former, and suggest that goal scripts not only contain expectations about the sequence of goal-related events, but also one's own emotional responses to those events.

Research on schemas and scripts informs our reasoning. People routinely interpret experiences through the lens of precomputed scripts (Hintzman, 1986; Medin & Schaffer, 1978). Script theory suggests that people represent familiar situations in memory as sequences of events, which in turn activate learned affective, cognitive, and behavioral reactions that are in line with these representations (Berkowitz, 1990; Fiske & Linville, 1980; Schank & Abelson, 1977; Snyder & Uranowitz, 1978; Tomkins, 1987). Norm theory also suggests that people determine their affective reactions to many events by assessing how typical these events are within a given context, and that people come to define typicality by recruiting stored knowledge learned from similar situations encountered in the past (Kahneman & Miller, 1986). The ability to view the world through these mental representations allows people to be frugal in exerting attention and energy when understanding and responding to stimuli (Cacioppo, Petty, Kao, & Rodriguez, 1986; Chaiken, 1987; Fiske & Taylor, 1984; Johnson & Eagly, 1989; Tetlock, 1983). People thus analyze stimuli in real time only when expectations are violated and an unusual event occurs (Bartlett, 1932; Graesser, Gordon, & Sawyer, 1979; Klein, Cosmides, Tooby, & Chance, 2002; Schank, 1982; Sherry & Schacter, 1987). In other words, scripts are mental roadmaps that "tell" people how to react to, including how to feel about, various events.

Notably, although scripts are efficient they also have a rigid structure. If scripted events occasionally deviate from the routine, people have to generate a novel response. We suggest that in the case of goals, scripts can be violated when people learn earlier than expected that they will attain a goal because goal scripts "tell" people to feel happy at the conclusion of a motivational episode (and not sooner). Indeed, the goal script people follow includes their own emotional reaction to attainment. When people interpret a motivational episode through the lens of a script, they compare how they expect events to occur to how events actually occur. Whether people experience intense positive emotion will depend on whether information received about the conclusion of a motivational episode actually coincides with the episode's conclusion. Commonly, learning that a goal has been attained will lead to intense positive emotion. In contrast, learning that a goal will be attained may be considered to be "premature" information, and thus people may experience mellowed positive emotion in response. Though people in these situations may not actively suppress positive emotion, we suggest they would experience muted positive emotion because a goal script is disrupted.

Separately from surprise about timing of information on goal attainment (i.e., violation of scripts), other types of surprise can occur and can either intensify or suppress positive emotion during goal pursuit (Le Poire & Burgoon, 1996; Mellers, Schwartz, & Ritov, 1999; Orthony, Clore, & Collins, 1988; Price & Geer, 1972; Schachter & Singer, 1962; Wilson & Gilbert, 2008). Thus, people may experience intense positive emotion because they are surprised about being able to attain the goal, especially if they thought about the goal as a long shot. In addition, people may be surprised when their progress is faster or slower than expected and experience the corresponding positive or negative emotion (Carver & Scheier, 1998; Fishbach, Zhang, & Koo, 2009; Higgins, 1987). Moreover, people may be surprised to learn about the cause of a positive outcome (e.g., that admission to college was partially determined by a good word from an alum).

Here we investigate a different element of surprise in goal pursuit, namely the timing of learning about goal attainment. We predict that when people learn unexpectedly early that a goal will be attained, the disruption in the goal script will cause people to experience mellowed positive emotion. This is because learning early that a goal will be attained is inconsistent with goal scripts, making it difficult for people to identify the moment when they should feel happy. We suggest that this script mechanism will tend to go against the favorable resolution of uncertainty that occurs when a goal is attained. Attaining a goal removes uncertainty and results in positive emotion, but attaining a goal in a script-inconsistent manner mutes this positive emotion to a degree.

Importantly, after receiving early information, people may sometimes also learn that they attained their goal in the way that they initially expected to learn this information. For example, after getting an admission email the college applicant in our opening example can also receive the admission letter in the mail. An interesting question arises as to whether this college applicant would experience intense happiness when the letter comes. More generally, would learning that a goal will be attained (which disrupts the goal script) also lead to muted positive emotion once the goal is actually attained? We predict it does. Thus, because positive emotion is fragile and short-lived (Wilson, Wheatley, Meyers, Gilbert, & Axsom, 2000) and because goal attainment is highly expected if people learned about it in advance, completing the goal script after it has been disrupted would do little to reawaken happiness. We therefore predict that at no point – upon learning that the goal will be attained or that it was attained – will those for whom the goal script was disrupted experience the same level of happiness as those for whom the script was followed.

Goal value as an experiential phenomenon

An important consequence of mellowed positive emotion when attaining a goal is that the goal may be devalued. The link between positive emotion and high goal value has been theorized to be bidirectional (Fishbach, 2009). On the one hand, positive evaluation of a goal leads to a more positive experience of goal pursuit. When people evaluate a goal positively, they tend to experience positive emotion while pursuing and attaining it (Fishbach, Shah, & Kruglanski, 2004). Moreover, people experience goal-related stimuli more positively while pursuing a goal (Ferguson, 2008; Ferguson & Bargh, 2004), and also experience stimuli unrelated to an active goal more negatively than they experience stimuli related to an active goal (Brendl, Markman, & Messner, 2003).

On the other hand, positive experience during goal pursuit causes more positive evaluations of the goal. The affect-as-information approach makes this general prediction in suggesting that people derive evaluative information from their feelings (Clore, Gasper, & Garvin, 2001; Schwarz & Clore, 1983). Regulatory engagement theory proposes that under certain conditions high engagement and involvement while pursuing a goal leads to more positive evaluations of the goal (Higgins, 2006). Likewise, pursuing a goal in a manner that fits one's regulatory

orientation (eager versus vigilant strategy) can lead to more positive evaluations of the goal (Higgins, Idson, Freitas, Spiegel, & Molden, 2003). In addition, incentive theory proposes that goal states associated with positive affect create an incentive that motivates organisms to attain these states (Bindra, 1974). Indeed, other research finds that participants become more motivated to attain goals when these goals are subliminally paired with positive words (Custers & Aarts, 2005; see also Aarts, Custers, & Veltkamp, 2008). These theories, along with similar findings (i.e., Sherman, Rose, Koch, Presson, & Chassin, 2003), suggest that experiencing positive emotion during pursuit can increase goal value.

Accordingly, we suggest that the intensity of emotional experience at the time of attaining a goal can function as an indicator of goal value. We therefore predict that if people experience muted positive emotion as a result of learning that a goal will be attained earlier than expected, they would also value the goal less highly.

We believe that the potential link between positive emotion and goal value has important consequences. Because goal-value judgments predict future goal pursuit, people might be less likely to pursue the same goal if their experience of attaining it has been disrupted. Thus, future motivation for a particular goal domain may depend not only on the ability to initially attain this goal but also on the ability to attain this goal in the "right" way. Moreover, people may value their own accomplishments less highly because of the seemingly ancillary reason that they learned about these accomplishments sooner than they expected.

The present research

We hypothesize that people who receive information that a goal will be attained (i.e., early information) will experience mellower positive emotion and value the goal less highly than people who receive information that a goal has been attained. We provide three types of findings on memory, emotion, and valuation in support of our hypotheses.

We first measure people's memory to test for the existence and influence of the script that positive emotion is experienced after a goal has been attained. People remember events in accordance with their scripts (Brewer & Dupree, 1983; Roediger & McDermott, 1995). Accordingly, participants in Study 1 listened to short stories that depict actors attaining goals. We manipulated whether these actors feel happy upon learning that their goals will be attained or have been attained. We then asked participants to perform a surprise recall test. We predict that when recalling these stories, participants would be more likely to make script-consistent errors (falsely remembering that an actor was happy after attaining a goal) than script-inconsistent errors (falsely remembering that an actor was happy after learning that a goal will be attained).

We then assess emotion to test whether people experience muted happiness when they learn that they will attain their goals as opposed to learning that they have attained their goals. We further test whether this muted happiness persists even after people attain their goals. Study 2 tests the prediction that applicants to a summer internship experience mellower positive emotion when they unofficially learn of their acceptance. Studies 3 and 4 predict similar effects in the context of winning games.

Methodologically, in Studies 2–4 we manipulate whether participants learn that they will attain versus have attained their goal, thus creating script-inconsistent versus script-consistent situations, respectively. Our main comparison is between participants who learn they will attain their goal (i.e., script-inconsistent situation) and participants who learn they have attained their goal (i.e., script-consistent situation). We predict that participants in the script-inconsistent situation will feel less happy than participants in the script-consistent situation.

Our secondary comparisons are between participants who learn that their goal has been attained *after* they learned that their goal would be attained versus participants who learn that their goal has been attained *without having been exposed to* early information that their goal would be attained. Our hypothesis is that participants who learned that their goal would be attained would feel less happy at the point when they finally learn that their goal was attained as compared to participants who never received early information. Our reasoning for this prediction is that when people learn early that a goal will be attained, additional information that a goal has been attained would not convey anything new or unknown and thus would not evoke intense emotion.

Notice that we predict that early information leads to muted positive emotion twice. In time 1 (upon learning that the goal will be attained), people will experience muted happiness because early information disrupts the goal script. In time 2 (upon attaining the goal), people will also experience muted happiness because by then this information was already known. Thus, we predict that disrupted goal scripts will lead to muted happiness in time 1, and lack of "news" will lead to muted happiness in time 2.

Finally, we assess valuation to test the hypothesis that participants would value a goal less highly if they learn that it will be attained versus has been attained. Studies 3 and 4 explore whether people not only feel less happy when they learn early that their goal will be attained, but also value the goal less highly as a result.

Study 1: Script-consistent errors in recalling emotional response to goal attainment

Previous research has identified the influence of scripts on cognition by examining people's memory, finding that people claim to remember details that never occurred when those details fit relevant scripts and schemas. For example, people claim to remember hearing words experimenters never articulated presumably because these words are semantically related to words experimenters did articulate (Deese, 1959; Roediger & McDermott, 1995; Schacter, 1999). After reading biographical passages about famous persons, people claim to recall details that they believed they read even though those details in fact came from extraneous knowledge about these celebrities (Sulin & Dooling, 1974). People also falsely recall that sentences implied by short stories actually occurred in those stories. For example, in one study participants read that an actor dropped a delicate glass pitcher of water on the floor but recalled that the pitcher broke when it hit the floor even though the story did not state this (Johnson, Bransford, & Solomon, 1973). In the domain of goals, memory appears to be organized around superordinate goals and therefore people falsely recall reading about goal-related actions that serve the same overarching goals (Brewer & Dupree, 1983).

This previous research suggests that when people have to "fill in" details of an incomplete account, they rely on scripts to do so. Accordingly, Study 1 tested whether people make script-consistent errors when recalling spoken stories that depict actors in motivational episodes. Participants listened to four stories in which actors learned that they were about to attain a goal before actually attaining this goal. In one condition, the stories described the actors as feeling happy after learning that they are about to attain the goal (i.e., script-inconsistent). In another condition, the stories described the same actors as feeling happy after learning that they have attained the goal (i.e., script-consistent). After listening to these stories and completing a filler task, participants took a surprise recall test in which they had to correctly order each story's events. We tested whether participants made more errors when recalling emotion in stories that depicted the actors as feeling happy after learning that they would be attaining their goals versus stories that depicted actors as feeling happy after learning that they attained their goals.

Method

Participants

Thirty-one undergraduates (17 women, 14 men) participated for nominal payment.

Procedure

We used a Timing of Emotion (script-consistent vs. script-inconsistent) between-subjects design. Participants took part in a study about "judgments of happy events." The experimenter informed participants that the study was composed of two tasks. The first task involved "making judgments about happy events." For this purpose, participants listened to four stories in which good things happen to four different people. The second "coloring task" served as a filler task prior to the surprise recall test.

During the first task, participants listened in random order to four prerecorded stories depicting actors attaining valued goals and feeling "very happy" either after learning that a goal they care about will be attained (script-inconsistent emotion) or after learning that this goal has been attained (script-consistent emotion). Each story contained 10 statements. The stories described people attaining the following goals: getting a dream job, winning a high-stakes poker game, having a great birthday party, and getting married (see Appendix A for details).

Each story had two versions, corresponding to script-consistent and script-inconsistent emotion. For example, one story depicts "Rachel," who discovers a diamond ring in the pocket of her boyfriend's jeans while doing the laundry. She infers that her boyfriend was about to propose marriage, and a few days later he indeed does. In the Script-Inconsistent condition, the four stories described actors as being happy when they learned that a goal would be attained. Thus, in this condition, Rachel was described as feeling happy after she discovered the diamond ring in her boyfriend's jeans pocket. In the Script-Consistent condition, the four stories described the actors as being happy when they learned that a goal was attained. Thus, in this condition, Rachel was described as being happy following her boyfriend's marriage proposal, which occurred after she discovered the diamond ring.

After listening to the four stories, participants completed a filler "coloring task" (about two minutes long) before moving to the surprise recall test. During the recall test, participants viewed four computer screens, each displaying the 10 statements narrated in each of the four stories. Each story's statements were displayed on one screen but in random order, and participants had to correctly order them to correspond to the order in which they occurred in the story. Finally, participants completed comprehension measures for each story (1 = *I had a lot of trouble understanding the story*, 7 = *I understood the story very well*) and plausibility measures for each story (1 = *not very plausible*, 7 = *the story is highly plausible*).

Results and discussion

In terms of story comprehension and plausibility, participants reported high levels of understanding the stories in both the Script-Inconsistent and Script-Consistent conditions ($M = 6.75$, $SD = .59$ vs. $M = 6.80$, $SD = .42$), $t < 1$, and the stories were similarly plausible ($M = 5.77$, $SD = 1.26$ vs. $M = 5.62$, $SD = 1.11$), $t < 1$.

The main dependent variable was whether participants correctly ordered the statement conveying the actor's happiness relative to the statement conveying goal attainment. For example, in the story depicting the accidental discovery of a diamond ring, an error in the Script-Inconsistent condition was placing the "Rachel felt very happy" statement after the statement "A few days later Tom proposed marriage to Rachel." In the Script-Consistent condition, an error was placing these two statements in the reverse order (see Appendix A for details). Note that we did not take into account errors in the absolute order of the statements when calculating this measure. For example, if a participant in the Script-Inconsistent condition recalled that the statement "Rachel felt very happy" was the fourth statement (it was actually the seventh statement in that story), we did not consider this an error so long as this participant placed "Rachel felt very happy" before "A few days later Tom proposed marriage to Rachel."

Each participant could make one of these "emotion-timing" errors per story. We summed these script-related errors for each participant, creating a range between 0 and 4 script-related errors per participant. In support of the hypothesis, participants made more emotion-timing errors when the stories depicted actors feeling happy after learning that a goal will be attained (i.e., script-inconsistent emotion; $M = 1.94$, $SD = 1.73$) than after learning that a goal has been attained (i.e., script-consistent emotion; $M = .07$, $SD = .26$), $t(29) = 4.14$, $p < .01$, $d = 1.51$. Thus, when positive emotion was depicted in a script-inconsistent way, participants falsely recalled that it was depicted in a script-consistent way in about half of the stories. Participants almost never made the opposite mistake.

One possible alternative explanation to this result is that participants simply had worse memory overall for stories that depicted script-inconsistent happiness. We therefore examined whether participants had worse overall memory in one of the conditions or that their memory was selectively worse for the emotion-related statements. We assigned "1" to any statement participants placed out of order, and counted the number of errors in each story for each participant. From this result we then subtracted the errors made in the statements conveying the actors' happiness, in order to avoid double-counting the script-related errors. This created a range between 0 and 36 possible recall errors unrelated to script that each participant could have made. Participants made a similar number of recall errors overall in the Script-Inconsistent condition as in the Script-Consistent condition ($M = 9.63$, $SD = 5.90$ vs. $M = 8.33$, $SD = 3.22$), $t(29) = .75$, $p = .46$, $d = .27$. This suggests that participants did not exhibit worse overall memory for script-inconsistent versus script-consistent stories. Rather, memory was selectively worse only for script-inconsistent emotion statements.

These results demonstrate that when participants erred in recalling the positive emotion expressed in the stories, these mistakes tended to be skewed toward misremembering that actors felt happy after learning that a goal has been attained versus would be attained. The results further demonstrate this finding was not due to differences in participants' comprehension of the stories or the stories' plausibility. Consistent with established research on scripts and schemas, participants apparently used scripts to make educated guesses when their memories for the stories were foggy. This suggests that participants organized their memories around a script of "feeling happy after the goal has been attained." Next, we examine whether participants experience mellowed positive emotion after learning that they will attain a goal versus have attained a goal.

Study 2: Early news attenuates happiness

To test our hypothesis on the actual impact of early information on positive emotion, we simulated an application to a summer internship for college students. We manipulated the hiring decision (accept vs. reject) and how participants learned it: either via an official acceptance letter or via a computer announcement preceding this acceptance letter. We predicted that (a) participants who received a computer announcement would be less happy upon receiving this information than participants who received the acceptance letter. We further predicted that (b) participants who received a computer announcement would also be less happy upon receiving the acceptance letter compared with participants who received the acceptance letter only, because by then the acceptance letter would be "old news." Thus, at no point would participants who received a computer announcement be as happy as those who did not receive it.

Method

Participants

Seventy undergraduates (44 women, 26 men) participated for a $2 flat payment plus a $1 bonus for success in the application.

Procedure

We used a Hiring Decision (accepted vs. rejected) × Early Information (included vs. not included) between-subjects design. Participants read on

computers that they would be applying to a summer internship with a (fictional) consulting company and that their task was to complete the best application possible. The application was composed of two parts: writing about two job-related experiences in the resume section and answering three interview questions, such as "do you prefer working independently or on a team and why?" This task mirrored a common endeavor for many undergraduates who seek to obtain summer internships during college.

An experimenter informed participants that he or she would download the applications, (ostensibly) evaluate them, and enter the results on a separate computer. In the Early-Information condition, approximately three minutes after having completed their applications, participants saw a caption on the computer saying, "Unofficial hiring decision: Your application has been accepted [vs. rejected]. The experimenter will give you an official letter shortly." In the No Early Information condition, this caption did not appear on the computer screen. All participants then rated their feelings "right now, at this very moment" (1 = *very unhappy*, 10 = *very happy*). Two minutes later, the experimenter gave them a letter indicating their application was accepted or rejected (depending on condition), confirming the early information for those who had received it. Finally, participants rated their feelings again on a similar scale. They were then debriefed and dismissed.

Results and discussion

An ANOVA of positive emotion on hiring decision × early-information × timing (1st vs. 2nd measurement) revealed a main effect for hiring decision, $F(1, 66) = 18.62$, $p < .0001$, indicating that participants were happier if their applications were successful. The analysis also revealed the predicted three-way interaction, $F(1, 66) = 14.16$, $p < .001$, suggesting different patterns for accepted and rejected participants (see Table 1).

Among accepted participants, an early-information × timing interaction emerged, $F(1, 34) = 4.25$, $p = .047$. As predicted, at time 2, participants who initially received the computer announcement were less happy upon receiving the official letter ($M = 7.53$, $SD = 1.38$) than participants who received only the official hiring information without having previously received computer announcement ($M = 8.53$, $SD = 1.07$), $t(34) = 2.44$, $p = .02$, $d = .81$. These results indicate that early information led to reduced positive emotion compared to the official letter. Notably, at time 1, participants who saw the computer announcement but had not yet seen the acceptance letter were not happier ($M = 6.35$, $SD = 2.18$) than participants who did not yet see the computer announcement, ($M = 6.11$, $SD = 1.33$), $t(34) < 1$. The unofficial computer announcement did not make participants happier.

To test our hypothesis that early information leads to reduced happiness compared to "timely" information, we compared participants' experiences immediately after first learning that they were hired, either by computer announcement (at time 1) or official letter (at time 2). Using this method, we conclude that early information led to a subdued emotional response compared with the official letter (*M*s = 6.35 vs. 8.53), $t(34) = 3.86$, $p < .001$, $d = 1.27$. Thus, at no point in time did early information make participants as happy as the scripted attainment information.

Among rejected participants, an early-information × timing interaction emerged, $F(1, 32) = 10.15$, $p < .005$. After the official letter (time 2), participants who had previously received early information were directionally but not significantly happier ($M = 5.40$, $SD = 2.03$) than participants who received only the rejection letter ($M = 4.63$, $SD = 2.31$), $t(32) = -1.01$, $p = .32$. Before seeing the official letter (time 1), rejected participants who had received early information were less happy ($M = 5.33$, $SD = 2.09$) than participants who did not receive early information, ($M = 6.74$, $SD = 1.82$), $t(32) = 2.09$, $p = .045$, suggesting that early information about goal failure led to reduced happiness.

Participants who did not receive early information in time 1 ($M = 6.74$) experienced reduced positive emotion after they received the rejection letter ($M = 4.63$), *paired* $t(18) = 3.79$, $p = .001$. In contrast, for participants who read the early computer announcement ($M = 5.33$), receiving the rejection letter did not affect happiness ($M = 5.40$), *paired* $t(14) = .22$, *ns*. These results suggest the early rejection reduced happiness compared to baseline, but may have partially protected happiness compared with scripted rejection information. We speculate that goal scripts may operate differently in goal failure from goal attainment, although we make no specific predictions about goal failure.

One concern relating to this study is that participants could have treated the computer announcement as uncertain, believing the internship acceptance could be taken away when the official letter arrived. This explanation implies, however, that participants who saw the computer announcement would experience a spike in positive emotion when the official letter confirmed their acceptance to the internship. This is because a lingering uncertainty is likely to intensify emotional responses when it is finally resolved favorably (Mellers et al., 1999). In contrast, if the official letter did not resolve any uncertainty, this would mean that it was no longer "news" and thus would elicit a weak emotional response. Study 2 demonstrates the latter: the official letter did not lead to a spike in positive emotion and, in fact, led to subdued positive emotion compared to participants who received only the official letter without having seen the computer announcement. We thus conclude that uncertainty does not seem to be the likely reason for participants' mellowed emotional responses to the early information. We also more directly test for the possible impact of reducing uncertainty in Study 4.

Two additional alternative explanations deserve mention. First, participants who did not receive early information had to wait longer to learn about the fate of their applications than those receiving early information. This difference in wait times may have contributed to the results. Second, receiving a hardcopy letter may be a more positive outcome than seeing an announcement on a computer screen, which in turn may have contributed to the muted happiness that Early Information participants experienced. Study 3 addresses the first of these issues by forcing participants to take action rather than wait to complete a goal, and Studies 3 and 4 address the second issue by equalizing the way in which participants receive information. Studies 3 and 4 also investigate the consequence of experiencing mellowed positive emotion when learning that a goal will be attained, namely lower goal valuation.

Table 1
Positive emotion as a function of early attainment information and timing of measurement (Study 2).

	Before official letter	After official letter
Accepted participants		
Early information not included	$6.11\ (1.33)_a$	$8.53\ (1.07)_b$
Early information included	$6.35\ (2.18)_a$	$7.53\ (1.38)_c$
Rejected participants		
Early information not included	$6.74\ (1.82)_a$	$4.63\ (2.31)_b$
Early information included	$5.33\ (2.09)_{a,b}$	$5.40\ (2.03)_{a,b}$

Note. Standard deviations noted in parentheses. Subscripts denote statistically significant differences in means ($p < .05$).

Study 3: Early news attenuates evaluation

Study 3 modeled a situation in which goal-related tasks must be completed after the goal has been attained. We asked participants to play a computerized "rock–paper–scissors" game. Their goal was to win two out of three rounds. We manipulated early information by varying the number of rounds participants had to play. In the No Early Information condition, winning the first two rounds meant that participants did not have to play the third round. In the Early Information

condition, participants were told that they would have to play three rounds regardless of the outcomes of the first two rounds. In this condition winning the first two rounds meant that the goal has been attained but another meaningless round is left to be played. We rigged that game such that all participants won the first two rounds. We predicted that participants who had a third round to play would feel less happy than participants who did not.

To unobtrusively examine goal valuation, we asked participants for the minimal price they would be willing to accept in exchange for the winner's prize. We predicted that participants who won the first two rounds and had to play a third round after winning (early information) would experience mellower positive emotion and would value the prize less highly after winning the second round (attainment with early information) compared to participants who had to play only two rounds, which they won (attainment with no early information).

Method

Participants

Eighty-two undergraduates (44 women, 38 men) participated for nominal payment, plus a Twix candy bar as the winner's prize.

Procedure

We used an Early Information (included vs. not) between-subjects design. Participants read that they would be playing rock–paper–scissors against the computer, with rock beating scissors, scissors beating paper, and paper beating rock. Participants read that their goal was to win the game, and that winning consisted of winning at least two out of the three rounds. Participants chose their moves and saw the computer's moves and the cumulative score after each round.

In the No Early Information condition, participants read that if a player won the first two rounds, the third round would not be played. Therefore, in this condition winning the first two rounds amounted to information that the goal will be attained with certainty. In the Early Information condition, participants read that they had to play three rounds regardless of their outcomes. In this condition, winning the first two rounds amounted to information that the goal will be attained because participants had to play one more meaningless round. In this structure, participants could experience a violation of a goal script because they knew that they have won the game after two rounds even though the game was not officially ended until the third round was over. The computer's moves were generated such that participants won each round, including the third round for the participants who played it.

Participants reported their feelings before the game and after two rounds. Participants who played the third round reported their feelings after they played it (1 = *very unhappy*, 10 = *very happy*). We measured goal value after the second round. Participants indicated the minimal amount they would be willing to accept for foregoing their winner's prize, the Twix chocolate bar. Participants could provide any amount. At the end of the game, participants were debriefed and dismissed.

Results and discussion

An ANOVA of emotion on early-information (included vs. not) × timing (before game vs. after 2 rounds) of emotion revealed a main effect of timing, $F(1, 80) = 44.71$, $p < .001$. Participants were happier after winning the second round than they were before the game. The analysis also revealed the predicted early-information × timing interaction, $F(1, 80) = 10.25$, $p = .002$ (see Table 2). Before starting the game, participants in the No Early Information (2-round) condition were as happy as participants in the Early Information (3-round) condition ($M = 6.55$, $SD = 1.83$ vs. $M = 6.91$, $SD = 1.70$), $t(80) = .91$, *ns*. After playing two rounds, when participants in both conditions knew they had won, those in the No Early Information (2-round) condition were happier ($M = 8.26$, $SD = 1.39$) than those in the Early Information (3-round) condition ($M = 7.51$, $SD = 1.79$), $t(80) = 2.11$, $p = .038$, $d = .47$. This result indicates that Early Information participants who had to play a third round experienced a mellower emotional response to winning.

We were concerned that participants in 3-round condition felt less happy after winning the second round not because of script violation but because they worried about losing the (meaningless) third round. However, even after playing (and winning) the third round, these participants were still not as happy ($M = 7.53$, $SD = 1.98$) as participants who officially won after two rounds, $t(77) = 1.91$, $p = .060$, $d = .43$ (3 participants failed to complete this measure), suggesting that winning the third round did not assuage any worries.

Regarding goal value, participants in the No Early Information (2-round) condition were willing to forego the prize for a higher price ($M = \$2.84$, $SD = 1.23$) than were participants in the Early Information (3-round) condition ($M = \$2.19$, $SD = 1.38$), $t(81) = 2.26$, $p = .027$, $d = .49$. This result suggests early information decreased goal valuation, potentially by reducing the emotional response to winning. Indeed, the intensity of positive emotion after the last round predicted willingness to accept in exchange for the prize, $r = .26$, $p = .02$.

Notice that whereas Study 2 was potentially vulnerable to an alternative explanation based on uncertainty about goal attainment, this study is far less amenable to this alternative. In Study 2 participants could potentially discount the computer announcement because it was unofficial and perhaps there was a small chance that the official letter might reverse it. However, in this study participants who won the first 2 rounds knew that they attained the goal, and the prize, with certainty.

This study shows that people experience mellowed positive emotion and assign lower goal value after learning that they will be attaining a goal. The next study provides more evidence of this conclusion, as well as further evidence against an alternative account based on anticipated regret (Mellers & McGraw, 2001; van Dijk, Zeelenberg, & van der Pligt, 2003). It is logical that people believe that failing to attain a goal would feel bad. When people are very close to attaining a goal, they might also believe that failing to attain the goal on the very last step would feel even worse, which in turn may lead to a preemptive holding back of positive emotion. We suggest a different explanation, rooted in people's inclination to experience positive emotion in a script-consistent manner. To distinguish our explanation from the alternative, we test whether learning that the goal is closer (partial goal attainment) does not lead to muted positive emotion when the goal is finally attained. We predict that participants who learn about partial goal attainment would not experience muted positive emotion when they attain their goal later on, because partial information does not conclude a motivational episode and thus does not disrupt the goal script. In contrast, we predict that participants who learn early that they will attain the goal would experience muted positive emotion when they eventually attain the goal because this information is script-inconsistent. Thus, by comparing partial and complete information on upcoming goal attainment we can rule out the possibility that learning

Table 2
Positive emotion as a function of early information (number of rounds played) and timing (Study 3).

	Before game	After winning (2 rounds)	After 3 rounds
No early information (quit after winning two rounds)	$6.55\ (1.83)_a$	$8.26\ (1.39)_b$	–
Early information (played a 3rd round after winning)	$6.91\ (1.70)_a$	$7.51\ (1.79)_c$	$7.53\ (1.98)_c$

Note. Standard deviations noted in parentheses. Subscripts denote statistically significant differences in means ($p < .05$).

early that a goal would be attained leads to muted positive emotion because participants want to protect themselves from the prospective emotional cost of ultimately failing. Indeed, across the partial and complete information conditions, the cost of ultimately failing (and the anticipated regret) may increase; however only in the complete information condition is the script disrupted.

Study 4: Partial versus complete information

Study 4 examines the effects of early information conveying partial or full attainment on positive emotion and goal valuation. Participants played a game of chance in which their goal was to pick the joker from three cards shown facedown. Participants knew that they won or lost the game when they learned the identity of the card they picked (i.e., that it was the joker. In reality, everyone won). Importantly, participants could also deduced this information on winning after learning the identities of the 2 cards they did not pick (i.e., that none of them was the joker).

We manipulated whether participants got a chance to peek at none, one, or both of the cards they did not pick, thereby manipulating both the early nature and completeness of the information. Only participants who peeked at both of the cards they did not pick and saw none of them was the joker, knew with certainty that they won. In contrast, participants who peeked at one of the cards they did not pick and saw it was not the joker, knew that they were closer to winning. Naturally, participants who could not peek at any of the cards they did not pick had no early information about whether they won or lost. As a direct measure of goal value, participants indicated how important winning the game was for them. We predicted that participants who saw both of the cards they did not pick (early and complete information) would feel less happy and would value the game less highly than participants who saw one of the cards (early and partial information) or none of the cards (no early information) they did not pick.

The predicted difference in positive emotion between participants who saw one and two of the cards they did not pick would argue against an anticipated-regret explanation. When participants see one of the facedown cards, they come closer to winning, which in turn increases the emotional cost they would predict to incur should they eventually lose. According to an anticipated-regret account, participants would actively hold back positive emotion in an attempt to preempt this potentially heightened disappointment, which in turn would lead to mellow positive emotion after seeing the final outcome. In contrast, according to our proposed emotion-script account, participants should experience muted positive emotion when they know with certainty that they won (when they see both of the cards they did not pick), because only in this condition would experiencing positive emotion be script-inconsistent.

Method

Participants

Seventy-two undergraduates (38 women, 34 men) participated for $2 plus a $1 bonus for winning the game.

Procedure

We used an Early Information (complete, partial, none) between-subjects design. Participants played a game on personal computers and their goal was explicitly stated as winning the game. To win, they had to guess which card was the joker. Participants saw three cards face down on the screen, and guessed which one was the joker by clicking on one of the cards.

After picking their card, in the Complete Information condition the two cards that participants did not pick were flipped using computer animation so participants could see their identities. This early information was complete: if the joker was not one of the two displayed cards, participants knew they had won. The computer was programmed so that neither of the flipped cards was the joker, so that participants never lost the game. In the Partial Information condition, only one of the cards that participants did not pick was flipped (not the joker). Participants' chances of winning therefore increased, representing partial progress toward the goal. Participants in the No Information condition saw neither of the cards they did not pick prior to learning the outcome.

For all conditions, the screen then showed the identities of all three cards with the words "You Won!" above them. Participants rated their feelings (1 = *very unhappy*, 10 = *very happy*) twice: after they had peeked at zero, one, or two of the cards they did not pick, and after they saw all the cards and the win announcement. We measured goal value by asking all participants afterwards, "How important was it for you to win at 'find the joker?'" (1 = *not important at all*, 9 = *very important*). At the conclusion of the study, participants were debriefed and dismissed.

Table 3
Positive emotion as a function of the number of cards shown and timing (Study 4).

Cards shown early	Before official result	After official result
None	6.21 $(1.84)_a$	8.86 $(1.81)_b$
One (early and partial information)	6.83 $(1.98)_{a,c}$	8.44 $(1.86)_b$
Two (early and complete information)	6.92 $(2.33)_{a,c}$	7.48 $(2.66)_c$

Note. Standard deviations noted in parentheses. Subscripts denote statistically significant differences in means ($p < .05$).

Results and discussion

An ANOVA of emotion on early-information × timing of emotion revealed a main effect of timing of emotion: participants were happier after announcing the outcome than before. It also revealed the predicted early-information × timing interaction, $F(2, 69) = 5.70$, $p < .01$ (see Table 3). Before announcing the outcome, participants who peeked at two cards did not differ from participants who peeked at one card and participants who did not peek at any of the cards, $ts < 1$. However, after announcing the outcome participants who peeked at two cards were less happy ($M = 7.48$, $SD = 2.66$) than those who peeked at one card or did not peek ($M = 8.44$, $SD = 1.86$ and $M = 8.86$, $SD = 1.81$), $t(69) = 2.18$, $p = .033$, $\eta_p^2 = .08$. These results indicate that early and complete information led participants to experience muted positive emotion, whereas early and partial information did not.

Another test of our hypothesis involves comparing participants' experiences immediately after receiving (either early or scripted) information for the first time. Early information (peeking at 2 cards, $M = 6.92$; $SD = 2.33$) led to a subdued emotional response compared with scripted information (peeking at 0 cards or 1 card, $Ms = 8.86, 8.44$), $t(69) = 3.44$, $p = .001$, $\eta_p^2 = .15$. Thus, at no point in time did early information make participants as happy as scripted attainment information.

Next, we analyzed the value measure. Participants who peeked at two cards early rated winning the game as less important ($M = 3.88$, $SD = 2.56$) than participants who peeked at zero cards or one card ($M = 5.69$, $SD = 2.74$ vs. $M = 5.56$, $SD = 2.28$), $t(66) = 2.65$, $p = .01$, $\eta_p^2 = .10$ (3 participants failed to complete this measure).

We further tested whether emotional experience after winning the game mediated the effect of early information on lower goal valuation. We first created a variable equal to "1" for the early-and-complete information condition (peeking at two cards early) and "0" for the other conditions (peeking at zero cards or one card early). To test for mediation, we used a bootstrapped estimation of the indirect effect of early information on value through emotion (Preacher & Hayes, 2004). The bootstrapped estimate of the 95% confidence interval of this indirect effect, using 5000 bootstrap resamples, lay between .063 and 1.15. Because this interval does not contain the zero point, we conclude that emotion mediated the effect of early information on value at significance level < .05.

Study 4 shows that people experience mellowed positive emotion when they win a game only when they had early and complete information, but not when the early information was partial. Presumably, participants knew that they attained their goal after peeking at the two cards they did not pick, but did not experience intense positive emotion because that would have been script-inconsistent. If these participants were still in doubt about whether they attained the goal, they would have displayed a similar pattern to participants who learned partial information. These findings are thus inconsistent with an anticipated-regret account. This alternative account predicts that people would experience mellowed positive emotion also following partial progress toward the goal (after peeking at one of the cards they did not pick), because they would attempt to preempt potentially heightened disappointment if they lose after coming so close to winning. This did not occur.

General discussion

Positive emotion is one of the psychological benefits of attaining goals. Previous research has proposed that feeling happy primarily depends on whether a goal is attained or not (e.g., Carver & Scheier, 1998; Fishbach & Ferguson, 2007; Higgins, 2006; Locke & Latham, 2002; Schmeichel & Inzlicht, 2013), but the current research finds that another factor affecting post-attainment happiness is the timing of attainment information. Due to the scripted nature of goals, when people learn that a goal will be attained (versus has been attained), they experience mellowed positive emotion. Moreover, this mellowed positive emotion then leads to judgments of diminished goal value.

Study 1 provided evidence of the script people follow when acknowledging goal attainment. Specifically, people made script-consistent errors when recalling the order of events in stories depicting happiness following goal attainment. Studies 2, 3, and 4 demonstrated that people experience mellowed positive emotion when they learn they will attain a goal (versus have attained a goal), and as a result value attaining the goal less highly. Study 2 demonstrated mellowed emotion when the notification of acceptance to a summer internship was unofficial. Studies 3 and 4 demonstrated that mellowed positive emotion results in reduced goal value in the context of familiar and highly scripted games. Next, we discuss theoretical extensions, boundary conditions, and implications for existing research.

When are script disruptions likely to mute positive emotion?

There are several boundary conditions for the dampening effect of information on upcoming goal attainment. First, the broadness of people's construal of their goals may determine what constitutes goal attainment and results in positive emotion. For example, if a student construes his/her goal as “admission to college,” then we predict that early information via email about upcoming admission will lead to reduced positive emotion. But if the student thinks of the goal as “getting a good education,” then the admission script will be less relevant and our effect may disappear.

Second, for a script effect to emerge people must experience early information on goal attainment as disruptive to a script. Different environments can develop different scripts for the same event. For example, some applicants may hold a script that admission is only granted upon receiving a letter in mail whereas other applicants may hold a script that admission is granted upon receiving an email. These differences in script content would lead to differences in the affective reaction to markers of goal attainment.

Third, script-inconsistent goal attainment is more likely to lead to muted positive emotion for goals that can elicit a minimal degree of arousal. That is, emotion needs to be part of the script. For example, admission to college is likely to be an emotional goal whereas paying a utility bill is not likely to be an emotional goal. Both can be highly scripted. Therefore, whereas script-inconsistent information that one has been admitted to college is likely to lead to muted positive emotion, script-inconsistent information that one has paid one's utility bill is not.

Implications for surprise and uncertainty

Research suggests that surprising situations are associated with intense emotion, be it positive or negative (Orthony et al., 1988; Wilson & Gilbert, 2008). The present research can be thought of as documenting situations in which expected (vs. unexpected) goal attainment results in more intense positive emotion. We find that at times people encode early – and therefore, potentially unexpected – information as disruptive of a goal script, and experience mellowed positive emotion.

However, early information is more surprising than expected information terms of its timing and not in terms of its content. We therefore believe that our findings do not contradict the conclusion that surprise leads to intense emotion. Our findings instead suggest that the intensifying effect of surprise on positive emotion may be less pronounced when the surprise is in the timing of information compared to the content of the information. In addition, although our experiments document situations in which the dampening effect of disrupting goal scripts overcame the intensifying effect of surprise, it may not always. For example, for goals that are stressful to pursue, the surprising information that the goal will be attained very soon could lift the stress away and allow one to enjoy the final stages of goal pursuit. Alternatively, the happiness from winning low probability goals (e.g., a multimillion dollar state lottery) could be so intense that timing will have negligible influence on one's happiness.

We further point out that the goals we study are those characterized by goal scripts. This is a subgroup of the goals people can pursue. For goals not characterized by a clear sequence of events, we would not predict script effects. Because scripts may be shaped by familiarity and social norms, we speculate that non-scripted goals may tend to be novel and idiosyncratic goals. This is because people may learn scripts either through personal experience or through social communication. For example, people who attempt to run a half-marathon for the first time may not know the script associated with attaining this goal. First-time runners are less likely than veteran runners to know whether a medal or another prize is given to finishers, when this medal is received, how finish times are recorded and accessed, as well as other details. In contrast, veteran runners are far more likely to have developed a script for half-marathons. However, some goals that are particularly shaped by social norms do not require personal experience for people to develop a script, because the script is transmitted by others. For example, gaining admission to college is a goal often characterized by a clear script even though most college applicants pursue this goal only once in their lives. This may be because the college admission process is widely discussed among college representatives, parents, and the applicants themselves.

An alternative account to our findings suggests that participants experienced mellowed positive emotion because uncertainty brings positive emotion and the early (script-inconsistent) information alleviated their uncertainty. This alternative account relies on research on the “pleasures of uncertainty,” which identifies a situation in which uncertainty is a source of positive emotion (Bar-Anan, Wilson, & Gilbert, 2009; Wilson, Centerbar, Kermer, & Gilbert, 2005). That uncertainty effect, however, is obtained only so long as people know that the outcome is positive, which makes this alternative account inapplicable to our research. When the outcome is positive, uncertainty about residual factors can prolong happiness by causing people to ruminate about their positive experience. In contrast, participants in our studies were uncertain about whether the outcome would be positive or negative until they got either the early (script-inconsistent) or script-consistent information. Rumination about outcomes that can turn out to be negative is unpleasant and potentially injurious to well-being (Buhr & Dugas, 2002; Loewenstein, Weber, Hsee, & Welch, 2001; Pennebaker, 1997; van den Bos, 2001). Favorable resolution of

uncertainty about the positive or negative outcome usually increases positive emotion, which is why we believe that the alleviation of uncertainty is not why our participants experience mellowed positive emotion.

Another alternative account suggests that after learning that a goal will be attained and while waiting for information that the goal has finally been attained, people might experience residual uncertainty. People might perceive, or make themselves believe in, an outside chance that a new piece of information will disconfirm the early information. In other words, people might be leery of having goal attainment snatched away at the last moment. Our experiments argue against this uncertainty account in at least two ways. First, if people are uncertain about whether they attained the goal after they learn that a goal will be attained, they should experience intense positive emotion when they finally learn that the goal has been attained and the uncertainty is removed. This response, however, is not what we find. People instead experience relatively mellow positive emotion even after they learn in a script-consistent manner that the goal has been attained. Second, if people experience residual uncertainty about goal attainment, they might preemptively hold back positive emotion to buffer against the high emotional cost of having goal attainment ultimately snatched away. This account also predicts, however, that people will preemptively suppress positive emotion after learning information that conveys partial progress toward goal attainment. In contrast, the results of Study 4 indicate that information on partial progress did not lead participants to hold back positive emotion, as evidenced by these participants' ability to experience intense positive emotion when they finally learned that their goal has been attained.

Can people reawaken mellowed positive emotion?

The present research suggests that people experience mellowed positive emotion when the goal script is disrupted. This finding raises an important question: Can people disregard early information and fully experience positive emotion at the time of their choosing?

Research on affective forecasting suggests that positive emotion is fragile (Wilson et al., 2000). Overcoming a bad mood is relatively difficult, but ruining a good mood is much easier. Our studies also speak to the fragility of positive emotion. Participants in Studies 2–4 were unable to experience intense positive emotion after they learned that they attained their goals before they expected. Once positive emotion is "tampered with," it appears to be difficult to reignite. It appears that positive emotion can be dampened relatively easily, but reawakening it appears to be more difficult.

Appendix A. Goal attainment stories (Study 1)

Bolded statements contained information on the protagonists' feeling and appeared either in a script-inconsistent position or in a script-consistent (in parentheses) position.

A. Rachel's marriage proposal story

1. Rachel has been going out with Tom for several years.
2. They are very much in love.
3. Rachel moved in with Tom and they have been living together in a condo.
4. They share the household chores with each other.
5. Rachel happened to do the laundry one day, when she discovered a diamond ring in Tom's jeans pocket.
6. She realized that Tom was about to propose marriage to her. She put the ring back and waited.
7. **Rachel felt very happy**.
8. A few days later, Tom proposed marriage to Rachel.
9. Rachel quickly accepted Tom's marriage proposal.
   (~Rachel felt very happy.)
10. Rachel and Tom told their parents the news and their parents congratulated them

B. Emily's birthday story

1. Today is Emily's birthday.
2. Zoe, one of Emily's best friends, called Emily on her cell phone.
3. Zoe invited Emily to come to her apartment later, and Emily asked why.
4. Zoe let it slip by mistake that she and Emily's other close friends are planning a surprise party for Emily.
5. **Emily felt very happy.**
6. Emily showed up at Zoe's apartment.
7. Emily checked her hair and makeup with her pocket-size mirror.
8. When Emily opened the door, she saw that the apartment was full of people.
9. Everybody yelled, "Surprise!"
   (~Emily felt very happy.)
10. Zoe presented a cake and Emily blew out all the candles.

C. Jane's job offer story

1. Jane has always wanted to get a job in advertising
2. Jane always dreamed about working for a particular advertising agency.
3. Jane applied to this agency and was invited to a job interview.
4. At the end of the interview, the company representative told Jane that the advertising agency will contact her only if she was hired.
5. If Jane was not hired, the company representative said, the advertising agency will not contact Jane again.
6. A week later, Jane came out of the shower and noticed that she had a missed call on her cell phone from the company representative.
7. **Jane felt very happy.**
8. Jane returned the call, and the company representative told Jane that she indeed was hired.
   (~Jane felt very happy.)
9. Jane thanked the company representative on the phone.
10. Jane wrote down her new work schedule.

D. Jeffrey's game story

1. Jeffrey is a serious poker player.
2. One night, Jeffrey played against five other players in a game with high financial stakes.
3. In poker, players who want to stop playing in a particular round can "fold," which means quitting this round and losing all the money that they bet in this round.
4. Jeffrey bet a lot of money on a particular round.
5. In this round, everyone folded except Jeffrey and one other player.
6. When this other player picked up a new card he accidentally revealed the cards he was holding for a precious second. The other player didn't notice that he revealed his card accidentally.
7. Jeffrey noticed it, and immediately knew that he had better cards than the other player.
8. **Jeffrey felt very happy.**
9. At the end of the game, when Jeffrey and the other players finally showed their cards, Jeffrey indeed had the better cards.
   (~Jeffrey felt very happy.)
10. Jeffrey collected all the money he won in this round.

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