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Persistence motives in irrational decisions to complete a boring task

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RUNNING HEAD: Irrational decisions to complete tasks

Persistence Motives in Irrational Decisions to Complete a Boring Task

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Abstract

We explored a novel task paradigm where participants from the online work marketplace Amazon Mechanical Turk were given the choice to quit or continue an unfinished boring task for identical economic rewards. In Studies 1a and 1b, about half the participants chose to continue (corresponding to an average of 55 and 35 cents in foregone earnings). Participants' self-reported reasons for continuing involved various types of *persistence motives*, reflecting a desire to persist or complete per se. Studies 2, 3a, 3b, and 3c ruled out the possibility that people continued because they enjoyed the task or believed there were additional rewards for continuing. Study 4 showed that the choice to quit/continue was associated with the manner in which the choice was presented (persistence test vs. decision-making test) and individual differences in dispositional persistence motives. The present data indicate that motivational forces independent of the focal reward may affect intertemporal decisions.

Keywords: Motivation, Persistence, Intertemporal choice, Delay of gratification, Completion effect.

”Never give in. Never give in. Never, never, never, never—in nothing, great or small, large or petty—never give in, except to convictions of honor and good sense.”
Winston Churchill

Successful completion of education and success at work are often dependent on persistence through activities which are not rewarding in themselves. Choosing whether to endure is often a choice between the immediate relief and the benefits obtained so far versus more work and a larger future reward. In the classic delay of gratification studies by Mischel and colleagues (e.g., Mischel & Ebbesen, 1970; Mischel, Ebbesen, & Raskoff Zeiss, 1972) children were given the choice between eating a single marshmallow/pretzel now and waiting for an additional marshmallow/pretzel. Persistence in this task was considered as an indication of good self-control, and later studies revealed that the ability to delay rewards as a child was related to beneficial long-term outcomes such as better personal and interpersonal competencies as adolescents (e.g., Mischel, Shoda, & Peake, 1988).

The marshmallow task represents one type of *intertemporal choice*, as participants choose between options with consequences separated in time. The purest forms of intertemporal choices are those studied in the temporal discounting paradigms (see Frederick, Loewenstein, & O'Donoghue, 2002). In a typical temporal discounting task, participants are asked to choose between a reward that will be available immediately (or in a short time) and a reward that will be available at a later time; for instance $20 now versus $25 in a week. Such studies show that people perceive delayed rewards as less valuable than immediate rewards, that is, they discount the value of future rewards. In contrast to the simple choice in the discounting paradigms, the studies by Mischel and colleagues involve a more complex trade-off between immediate and future costs and benefits. Similar to many real-life situations, choosing a larger reward in the latter paradigm requires perseverance in working or waiting (Peake, Hebl, & Mischel, 2002). One has to choose between a) the smaller immediate reward plus the relief of no waiting/working and b) the larger delayed reward plus the costs of

waiting/working. Although Mischel, Ayduk, & Mendoza-Denton (2003) proposed that the studies on determinants of delay of gratification illustrate ways in which future rewards are discounted relative to immediate ones, the introduction of effortful waiting or work, in contrast to the pure delay in the discounting studies, may introduce factors other than discounting (See Paglieri, 2013).

Research on intertemporal choice has often been concerned with failures to delay gratification (e.g., Ainslie, 2005). In a sense, we turn the focus around and ask why people often choose to wait or work for a delayed reward when an immediate one is available. If the delayed reward is larger than the immediate one, this may be a good reason for persistence, but we suspect that there are several other forces involved that may boost the motivation to persist. For instance, people may want to test their perseverance, feel pride in their ability to exert self-control, adopt a competitive goal, apply a personal rule of never giving up, or perhaps persist for the intrinsic value of completion per se. We have chosen to call these motivational forces *persistence motives.* In contrast to the focal motives of goal-directed behavior, persistence motives are not the main reasons for adopting a goal or initiating a task. Relatedly, Wicklund and Gollwitzer (1982, p.4) suggested that objective goals sometimes can be overridden by so-called *self-defining goals*, which are related to the expression of certain qualities such as being competent. Several of the motives mentioned above appears to be instances of such self-defining goals, but we use the term persistence motives, since this will not preclude goals or motives that are not related to self-definitions (for instance, a compulsive urge to finish what one starts). Note that in the present context we define *motive* broadly as any ”energizer” (i.e., reason) for goal-directed behavior, including sub-goals and more general principles or dispositions.

If the motive for completing a task is economic gain, people should quit when having obtained the reward. However, as outlined above, persistence or completion may become

motives of their own after task initiation. In the present research we attempted to construct a situation where motives to persist could be disentangled from the motive for initiating the task. More specifically, we were interested in whether people would choose to continue a boring task when offered the choice to quit with full payment. In contrast to most studies on intertemporal choice, the current research involved a choice where the immediate reward, not the delayed reward, was the economically rational option.

Completion Effects

There is much previous research that indicates that people have difficulties in putting an unfinished task aside. Zeigarnik (1927) found that people were able to recall twice the amount of information from an unfinished task compared to a finished task (but see Butterfield, 1964). Around the same time, Ovsiankina (1928) found that people possessed a strong motivation to reengage in interrupted tasks. The motivational tension produced by task interruptions and the strong willingness to complete work has also been documented in later work (Adler & Kounin, 1939; Henle & Aull, 1953; Reeve, Cole, & Olson, 1986).

One type of situation where task persistence produces economically irrational decisions is illustrated in studies on sunk costs. In the classic work by Arkes and Blumer (1985), participants were asked to imagine that they had invested a large amount of money in a failing project that was close to completion. Then, they were asked whether they would like to complete the project by investing further resources. Most of the participants (85%) chose to invest further in the failing project. Navarro and Fantino (2009) found a similar effect for time investments. Participants who worked for a short time (10 min) on a task were less likely to choose to continue this task compared to a group who worked for a longer time (50 minutes) on the task. The effects were somewhat elusive and seemed to depend on a certain level of voluntary choice or engagement in the task (see also Soman, 2001 for problems in revealing a ”sunk time” effect).

The original interpretation of the sunk cost effects was that people continue to spend money in order to avoid wasting the original investment (Arkes & Blumer, 1985). However, later studies have shown that for some types of sunk cost decisions the level of completion is a stronger determinant than the amount of invested resources (Conlon & Garland, 1993; Boehne & Paese, 2000; Garland & Conlon, 1998, but see Moon, 2001). This led Garland and Conlon (1998) to propose that when a project is approaching its end, a completion goal may substitute the original motive of economic gain. In this respect, research on the dynamics of goal pursuits may also provide a useful perspective for understanding why people persist on a task when alternative and more immediate rewards are available.

Goal Dynamics

The commitment-progress model (e.g., Fishbach, & Dhar, 2005; Fishbach, Zhang, & Koo, 2009) posits that initial goal pursuit may be a signal of sufficient progress towards a goal or a signal of goal commitment. In the first case people may disengage from the goal and pursue alternative goals, and in the latter case people will persist because the goal is perceived to be valuable. We suspect that this enhanced valuation can take two forms during task engagement: people may interpret their efforts as commitment to the overarching goal (e.g. make money), or people may become committed to the task per se, that was originally the means towards the goal. Similarly, discrepancy-reducing motivation from uncompleted goals (e.g. Koo & Fishbach, 2008) may be directed at the overall goal ("I have not yet made the money I aimed for"), or at the means towards the goal ("I have not yet finished the task [that will earn me money]").

According to Touré-Tillery and Fishbach (2011) people do not only derive value from goal outcomes, but also by "doing things the right way", which means that people are motivated to pursue goals with actions that are in accordance with personal values and standards. If completing a task, rather that taking the easy way out, is the right thing to do

according to personal values and standards, then these values and standards illustrate the concept of persistence motives as described earlier.

In many cases, people will benefit from breaking an overarching goal into more concrete ones (e.g. Locke & Latham, 1990), but sometimes, subgoals seems to interfere with the overall goal. For instance, Fishbach, Dhar, and Zhang (2006) found that initial success on a subgoal may signal sufficient progress towards this goal and make people pursue alternative, even conflicting goals. Furthermore, post-completion errors (Byrne & Bovair, 1997), for example leaving the card in the ATM after withdrawing money, may represent an instance where the completion of a subgoal (put money in wallet) interferes with the overall goal of completing the transaction (Fishbach, Koo, & Finkelstein, 2014). The present research has the potential to reveal a different type of disruption from subgoals: in contrast to cases where a *finished* (or failed) subgoal interferes with the overall goal, the present studies may illustrate cases where an *unfinished* subgoal interferes with the overall goal. Such an effect would be consistent with the finding that when people plan to fulfill a goal in a particular way they may miss alternative ways of achieving the goal (Masicampo & Baumeister, 2012).

The Present Research

In order to explore the idea that people may continue a task even after being offered the original incentive, we developed a novel task paradigm for adults participating in the online work marketplace Amazon Mechanical Turk (MTurk). In the first part of a repetitive and boring task, participants could choose to quit at any time for a smaller monetary reward or persist for a larger monetary reward. After completing about three fourths of the task, participants were offered the option to quit for the larger monetary reward, or they could continue working for the exact same amount. Since continuing would consume time that could be spent on other paid tasks, the delayed reward had less economic utility than the immediate reward. In addition, there was a chance that they could fail at the task by making

too many mistakes, which means that the probability of obtaining the larger reward was higher when quitting. Thus, we explored whether the willingness to endure could be over-generalized to situations where it constituted suboptimal behavior--at least in terms of economic gain. In this sense, the choice is similar to certain types of sunk cost problems (e.g. Navarro & Fantino, 2009), but in structure, the task is more reminiscent of the delay of gratification paradigm (e.g. Mischel & Ebbesen, 1970).

The present research differs from and expands on past research in several respects. Our main perspective is that of intertemporal choice, and in contrast to the typical studies on delay of gratification/delay discounting/self-control, the immediate reward is, in terms of economic utility, larger than the delayed and more effortful reward. Otto, Markman, and Love (2012) also investigated decisions where the immediate rewards represented normatively correct choices, and found that high-impulsive individuals made better decisions than low-impulsives in this particular context. In the present article we are not concerned with who makes the right or wrong decision, instead we use the reward contingencies as means to explore the idea of persistence motives. By disentangling the initial monetary reward from the motivation to complete a task we are able to explore the role of persistence motives in pursuits of delayed effortful rewards.

In addition to highlighting the role of persistence motives in intertemporal choice, the present study also strengthens and builds on past results related to sunk costs and completion effects. The most salient difference from past research is the reward structure. In typical sunk cost scenarios, people have the option to accept a failed outcome or to invest further, where the latter option will increase the losses. In the present design, participants choose between accepting a successful outcome and investing further towards the same successful outcome. There is little research on sunk costs from personal behavioral investments, and in the study by Navarro and Fantino (2009) the option to disengage from the task involved similar

costs/benefits as the option to continue the task (both 15 more minutes of work). On the other hand, the studies on completion effects typically involve personal efforts (e.g. Ovsiankina, 1928). However, these tasks are not embedded in a similar reward structure where people are rewarded for quitting.

Last, the present research suggests a different type of disruption from means/subgoals than what has been explored in past research on goal dynamics. After initiating the task, people may infer commitment to the means towards obtaining money, which may render alternative routes (i.e., quitting the task) to the same goal relatively less attractive. That is, the initial effort on the task adds value to the task per se (see also Fishbach, Shah, & Kruglanski, 2004), but not to the overarching goal. The present research explores the motivational forces behind this added value.

More concretely, we were interested in exploring two questions. First, to what extent are MTurk participants willing to continue on a repetitive, boring task after the full payment has been offered for quitting? If participants choose to continue, this would indicate that they are driven by motives independent of the focal economic reward, since continuing implies foregone earnings from alternative work and a lower likelihood of obtaining the reward. This leads to the second question: Why would participants choose to continue the task when this is the economically inferior option?

Study 1a provided a first test of how many participants would choose to persist in a boring task that mainly involved waiting. In order to avoid multitasking while waiting, we introduced a more demanding task in Study 1b, and we asked for reasons why people choose to persist. In Studies 2 and 3, we added control conditions to rule out the possibility that people continued because they enjoyed the task, or expected unannounced benefits. In Study 4, we tested whether framing the choice to continue/quit as a persistence test versus a

decision-making test could affect the decisions, and whether measures of dispositional motives could predict the participants' choices.

Studies 1a and 1b

The first studies were exploratory. We were interested in the proportion of participants that would continue the boring task for no further payment. This may give some insights into the importance of persistence motives. If a large proportion of participants choose to continue, this shows that persistence motives may play an important role in intertemporal choices. Although we had no specific predictions, we experienced from pilot studies that a substantial proportion of participants continued when there was a negligible difference between the immediate small and the delayed larger rewards, suggesting that some individuals would continue even when the immediate and the delayed rewards were of equal value. An additional goal of Study 1b was to investigate how participants explained their economically sub-optimal choices, which would provide further knowledge about different types of motives for persisting.

Method

Participants. We recruited 179 participants from MTurk for Study 1a and 144 for Study 1b. For a more detailed description of the characteristics of MTurk participants, see Casler, Bickel, and Hackett (2013), and Goodman, Cryder, and Cheema (2013). We required that participants were located in the US, with at least 50 previous assignments completed, and a 99% approval rate from past assignments. Age ranged from 18 to 70, $M = 33$, $SD = 11$; about 40 % were women in Study 1a and 57% in Study 1b. Participants were given US$1.50 for participation in addition to $1.50 or $3 in bonus depending on their choices.

Procedure. After completing a survey containing measures not reported in the current article (See Supplemental Materials), participants received information about "a very simple task that lasts for 25 minutes". They were informed that the task mainly involved waiting, and

that if they managed to finish the task they would get a $3 bonus. If they chose not to do the waiting task or chose to exit by pressing the letter E during the task, they would only get a $1.5 bonus (See Supplemental Materials). To ensure that the participants waited at their computer they were required to hit the key ”V” within 10-second time limits at request (this was repeatedly requested three seconds after each prior key press). If participants failed to respond within time at three occasions, the task would end, and they would only receive the $1.5 bonus. A screenshot of the task is presented in Figure 1.

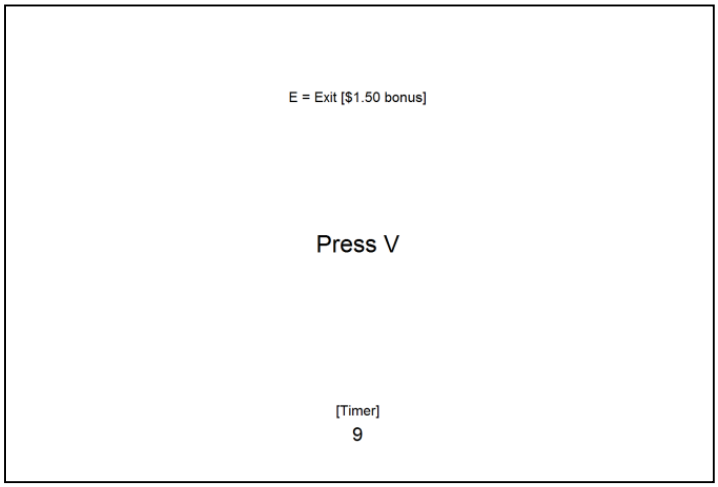

Figure 1. The task used in all studies.

About every third minute the task was interrupted with three questions. On scales from 1 to 10 participants rated their motivation to complete the entire task, the level of boringness, and how long a 25-minute period feels like, each question with a 30-second time limit. All participants were asked about their average normal earnings per hour at the current time of day if they had performed other tasks on MTurk.

The choice to continue or quit. After 18 minutes, participants were informed that 7 minutes remained, and they were asked whether they would quit for the full bonus if this option was available. This apparently hypothetical question was intended to elicit deliberate choices (but see Study 4). On the next page, participants were given the actual option to quit

for the full bonus. The complete verbatim instructions for the hypothetical and the actual choices for all studies can be found in the Supplemental Materials. Those who chose to complete the task were asked how they managed to finish the task (what they occupied themselves with during the waiting task).

Procedure Study 1b. The procedure in Study 1b was very similar to the above, except that participants were required to hit one of two keys (vs. one key in Study 1) at request (either ”N” or ”V”) within 10-second time limits. The delay between each trial was shortened from 3 seconds to 2 seconds. If participants failed to hit the correct key, or failed to respond within the 10-second time limit at three occasions, the task was terminated and the participant would only receive the $1.5 bonus. The choice to continue or quit was similar to Study 1a, but was presented after 19 minutes (not 18 minutes), when 6 minutes of the task remained. Those who completed the task were asked why they chose to continue.

Results and Discussion

In Study 1a, one participant failed to respond within the time limits and four participants failed one or more of two attentional checks embedded in the survey (see Supplemental Materials). In Study 1b, five participants failed due to errors or late responses, and one was not able to press the designated keys due to technical difficulties. The distribution of choices for the remaining participants in Studies 1a and 1b can be found in Table 1. Below, and in all subsequent result sections, we provide 95% confidence intervals in brackets. Further details about the statistical methods can be found in the Supplemental Materials.

About 37% [30%, 44%] of the sample in Study 1a chose to continue, and about 54% [45%, 62%] continued in Study 1b. These percentages reflect the proportion of all participants, not only those who reached the choice to quit for the full bonus. When

considering only those who reached this choice, 48% [39%, 56%] of the participants in Study 1a and 65% [56%, 73%] in Study 1b chose to continue the task.

The choice to continue was likely not based on enjoyment of the task, since the mean rating on the 10-point boringness scale (10 = ”Most boring experience ever”) for those who chose to continue was 7.5 (*SD* = 2.1) in Study 1a and 8.3 (SD = 1.7) in Study 1b. The average self-reported earnings for other MTurk tasks at that time of day was $4.7 (*SD* = 2.2) in Study 1a and $3.5 (SD = 2.26) in Study 1b. This means that participants who continued were on average willing to forego 55 and 35 cents in Study 1a and 1b, respectively.

An indication that the option to continue for no further payment may have been perceived as sub-optimal was apparent from the initial hypothetical choices. Across the two studies, 21 participants who reported that they would quit if given the opportunity changed their minds when given the actual choice, whereas only 6 of those who said they would continue chose to quit when given the actual choice. This suggests that some participants were aware that this was not an economically good choice, but still chose to persist.

Table 1. Distribution of Choices for Studies 1a and 1b.

	Quit before start ($1.5)	Quit during task ($1.5)	Quit for full bonus ($3)	Continue task ($3)	Total
Study 1a	7% (12)	16% (28)	40% (69)	37% (63)	100% (172)
Study 1b	4% (6)	14% (19)	28% (39)	54% (74)	100% (138)

Motives for choosing to continue. Study 1b included an open-ended question asking participants why they chose to continue. The two authors independently coded these reasons into three non-exclusive categories: a) Expected Benefits (e.g., believed there was an

additional bonus or wanted to see if something happened), b) Social Commitment (e.g., do what one initially promised), c) Completion/Persistence (e.g., wanted to finish what one has started, prove one could make it, already come this far). The categories were derived after initial inspection of the responses. The inter-rater reliability (kappa) was .63 (Expected Benefits), .82 (Social Commitment) and .61 (Completion/Persistence). Disagreements were solved through discussions. Table 2 presents the frequencies and percentages of participants whose reasons could be categorized into one or more of the three categories (percentages of those who chose to continue). Note that several reasons did not fall into any of the above categories. For instance, two participants stated that they actually enjoyed the task, one found it meditative, and another explained that he continued because the choice was unexpected.

Nevertheless, the majority of those who continued provided reasons related to the category Completion/Persistence. A more detailed analysis of the responses coded into this category revealed a variety of motives. Some participants wanted to complete the task because they had ”already come this far” or because there was ”so little left”. This might be related to the pleasure of completion or closure, as one participant put it: ”It was close enough that waiting longer for the satisfaction of completion was not a big deal.” Another typical reason was related to the principle of completing what one has started. Achievement may also have played a role, since some of the accounts referred to accomplishment, challenge, determination, stubbornness, goals, and to prove oneself.

Thus, we found several types of persistence motives which may guide intertemporal choices and boost motivation in self-control tasks. In addition, the Social Commitment category also represents one type of persistence motive that can support self-regulation in everyday life for some individuals. Although a few participants continued in the hope that there would be extra benefits, most of the participants claimed to be motivated by other reasons.

Table 2. Counts and Percentages of Participants with Reasons Belonging to Three Different Categories, Study 1b.

Expected Benefits	Social Commitment	Completion/Persistence
14% (10)	16% (12)	65% (48)

Study 2

In Study 1b, participants reported their reasons for continuing the boring task, and although we consider these responses as valuable information about potential determinants of the choices, there is still a chance that reasons were provided post hoc. Therefore, we needed a way to rule out the possibilities that most participants continued because they enjoyed the task, or because they believed there would be additional rewards for continuing. Accordingly, we constructed a control condition where the task was defined as completed when the participants received the choice to continue or quit. If the number of participants who choose to continue would differ between this *Completed* condition and the original *Uncompleted* condition, we could attribute these differences to a desire to persist and complete the unfinished task, and not to task enjoyment or expectations of unannounced rewards.

Method

We recruited 102 new participants from MTurk, 47% were women, age ranged from 19 to 66, $M = 32$, $SD = 10$. The procedure in the *Uncompleted* condition was identical to the procedure in Study 1: Participants were informed that they needed to perform the task for 25 minutes in order to get the full bonus, and after 19 minutes they were asked if they would have quit if we raised the exit bonus to $3 (same as completion bonus). After answering this hypothetical question they were given the actual choice between continuing and quitting.

Participants in the *Completed* condition were initially informed that they would need to perform the task for 19 minutes in order to get the full bonus. After 19 minutes they received the information that they had finished the task and would receive the full bonus, and they were asked whether they would like to continue the task for another 6 minutes (with no additional payment). After answering this hypothetical question they were given the actual choice between continuing and quitting. Thus, the choice in the Uncompleted condition and choice in the Completed condition were economically equivalent, but differed in what was defined as a completed task.

Results and Discussion

One participant failed an attention check in the preceding survey, and five participants failed due to errors or late responses (2 in the Uncompleted condition and 3 in the Completed condition). The hypothetical choices showed that three participants in the Uncompleted condition and seven participants in the Completed condition changed their minds from quitting to continuing. Three participants in the Uncompleted condition changed their minds the other way around. The proportions of those who actually continued in the two conditions differed by .28 [.09, .44] (i.e., a difference of 28 percentage points). See upper panel of Table 3 for the distribution of all choices. When considering only those who reached the critical choice, 63% in the Uncompleted condition and 22 % in the Completed condition chose to continue for no further payment, which gives a difference in proportions of .42 [.19, .58].

In other words, there was a clear difference in the proportions who continued in the Uncompleted and the Completed condition. If participants in Study 1a and 1b continued merely because they enjoyed the task or because they thought further work would give larger rewards, we would have observed a different pattern of results, with similar levels of willingness to continue across the conditions.

Table 3. Distribution of Choices According to Conditions, Studies 2, 3a, 3b, and 3c.

	Quit before start ($1.5)	Quit during task ($1.5)	Quit for full bonus ($3)	Continue for 6 minutes ($3)	Total
Study 2					
Uncompleted	4% (2)	23% (12)	27% (14)	46% (24)	100% (52)
Completed	2% (1)	14% (6)	66% (29)	18% (8)	100% (44)
Study 3a					
Uncompleted	3% (1)	14% (5)	67% (24)	17% (6)	100% (36)
Completed	7% (2)	10% (3)	83% (25)	0 % (0)	100% (30)
Study 3b					
Uncompleted	10% (3)	26% (8)	42% (13)	23% (7)	100% (31)
Completed	4% (1)	4% (1)	88% (21)	4% (1)	100% (24)
Study 3c					
Uncompleted	10% (3)	30% (9)	30% (9)	30% (9)	100% (30)
Completed	12% (6)	8% (4)	79% (41)	2% (1)	100% (52)

Studies 3a, 3b, and 3c

The studies so far indicated that at least half of the participants who reached the choice between leaving a boring task early with a full bonus and continuing despite a hit at economic efficiency, chose the latter. Study 2 provided evidence that this effect was not merely due to expectations of further rewards or task enjoyment. In the next three studies we wanted to test the strength of this motivation to continue by varying the presentation of the choice. Although we consider the information about the options to quit or continue fairly lucid (See Supplemental Materials), we wanted to see whether we could make it even clearer that

continuing would be an economically irrational choice. Instead of a choice to exit the ongoing task, we wanted to create more distinct alternatives, as if participants reached a junction where one could choose between two different routes. We attempted to achieve this by presenting the choice as a decision between an option "a)" and "b)". As further additions to the test of the robustness of people's persistence motives, we used the term "full bonus" only in relation to the quit option, and for the choice to quit and continue, we assigned two keys that had not been previously used by the participants (in Study 2, quitting for the full bonus was assigned to the same key as quitting for the smaller bonus in the first stage of the experiment).

In Study 3b, we omitted the questions about how long a 25-min (19-min) period felt like, because we believed that this focus on duration might increase the likelihood of continuing until the full 25-min had passed. For Study 3c, we changed the instructions because one participant indicated that there was a confusion related to the meaning of the word "finish" (i.e., complete) and "exit"/"quit". Essentially, Studies 3a, 3b, and 3c were replications of Study 2, with slight changes in the presentation of the choice.

Method

Participants. Another 71 (31 women) MTurk participants were recruited for Study 3a, 61 (29 women) for Study 3b and 90 (33 women) for Study 3c. Two, three, and five participants in the Completed conditions of Studies 3a, 3b, and 3c, respectively, were excluded due to late responses or errors, and three participants in the Uncompleted conditions of each study were excluded. None failed the attention checks embedded in Studies 1a and 1b.

Procedure. The procedure was similar to Study 2 except for the changes in the instructions discussed above. In Study 3c quitting/exiting was consistently referred to as "quit", and continue/finish/complete was referred to as "complete".

Results and Discussion

There were only slight differences in the procedures of the three studies, and the pattern of results was very similar (see Table 3). For this reason, we only report the aggregated analyses of differences. The data for each study is presented in Table 3. Across studies, 23% [15%, 33%] of those in the Uncompleted condition continued, whereas only 3% [1%, 8%] of those in the Completed condition continued. The combined difference in proportions was .20 [.11, .29], heterogeneity estimate I^2 = 0%, Q = 1.26. When considering only the participants who reached the critical choice, 34% [19%, 53%] of those in the Uncompleted condition continued, whereas 3% [1%, 10%] in the Completed condition continued. The difference in proportions between conditions was .31 [.14, .48], heterogeneity estimate, I^2 = 52%, Q = 4.18. In other words, even when we made a clear distinction between the two options and the term "full bonus" was only mentioned in relation to the quit alternative, there was still a stronger willingness to continue the task for no further payment in the Uncompleted conditions compared to the Completed conditions. Given the effect size above, the sample size required for a power of .80 would be 44 in each group. Thus, in combination, the three studies provide strong evidence for a reliable difference between conditions.

The hypothetical choices for those in the Uncompleted condition revealed that 12 individuals changed their minds from quitting to continuing when facing the actual choice. None of the participants changed their minds the other way around. This mirrored the results from studies 1a and 1b, where it seemed like people found the option to quit for the full bonus appealing, but for some reason did not quit when facing the actual choice.

Study 4

We were interested in two more indications that could illuminate the potential role of persistence motives in intertemporal choices. First, we wanted to see whether presenting the decision in a way that focused on persistence versus making a good choice could have an

impact on people's willingness to continue. This would establish a causal link between the activation of some types of persistence motives (e.g., having a principle to never quit, being hardworking) and the decisions made by the participants. Second, we wanted to see whether quantitative measures of various dispositional motives were associated with the decision. By dispositional motives we mean general inclinations to hold certain motives. Based on the reasons for continuing given by the participants in the previous studies, we constructed a range of statements that were related to different types of motives (e.g., desire to help the researcher, urge to complete things). We assumed that several of these motives would correlate with the choice to continue or quit. In addition, we included a measure of how trustworthy the researcher was perceived to be, since distrusting participants may have doubted that they would receive money when quitting before the task was finished. Another supplementary goal of Study 4 was to check whether the inclusion/exclusion of the initial hypothetical choice made a difference to the actual choices.

In brief, we predicted that relatively more participants would continue when the choice was presented with a focus on persistence (the Persistence condition) compared to a focus on making a decision (the Decision condition). And we predicted that measures of various motives, based on the responses by participants in the previous studies, would correlate with the choice to quit/continue.

Pilot Study and Power Analysis

An initial study suggested a relatively small effect size of the new experimental manipulation (Persistence vs. Decision), and we therefore decided to switch from the more descriptive focus on proportions to testing whether there was a difference between conditions in the predicted direction. For the initial study, which was used as a pilot for Study 4, we obtained data from 99 MTurk participants (reported in Table 4). The procedure of the choice task was similar to the main study (described below) except for small differences in the

presentation of the choices (see Supplemental Materials). This initial data indicated differences in proportions of about .15 in the predicted direction, where 35% of those reaching the critical choice in the Decision-making condition continued, and 50% in the condition where the choice was framed as a persistence test continued. Based on these figures we used the software Gpower to compute the sample size needed for a one-sided 95% confidence interval not overlapping zero (corresponding to a one-tailed test of significance). The analysis showed that 134 participants were needed in each condition. Assuming that about 20% would quit before the critical choice, we would need a further 34 participants in each group. We therefore aimed for a total of about 340 participants and used sequential assignment to conditions in order to get equal sample sizes in the conditions.

Method

Participants and Procedure. For the main study, we obtained responses from another 345 MTurk participants. None failed an attention check. Demographic data was not collected due to an error in the script. The procedure was similar to previous studies, except for the presence/absence of the hypothetical question and the different presentations of the choice to quit for the full bonus. In one experimental condition, the choice was presented as a "Decision-Making Test", and in the other condition, the choice was presented as a "Persistence Test" (see Supplemental Materials for the verbatim record). Before the task started, participants indicated their level of agreement with a series of statements described below.

Measures. The measures of dispositional motives were derived from the reasons to continue given by participants in the previous studies. Before conducting Study 4, we constructed 97 statements and obtained survey responses from 107 MTurk participants (none of which participated in the pilot or the main study). These responses were subjected to

several Principal Component Analyses based on topics, and from these we constructed 11 scales that measured specific motives.

The scale *Help Requesters*[1] measures the motivation to help the researcher (e.g., "It is important for me to help requesters with their research); *Keep Word* measures the motivation to always do what one says (e.g., "If I say that I'll do something, then I always do it."); *Social Commitment* concerns doing what is expected by other people ("I do what people expect of me"); *Urge to Finish* measures the desire to complete tasks ("I have an urge to finish everything I start"); *Feedback Desire* is related to interest in learning about oneself from tests ("I am very interested in feedback from tests of my skills and abilities"); *Honest Worker* concerns one's attitude towards providing good data on MTurk ("I always do my very best at each and every MTurk HIT"); *Impression Making* measures how concerned one is about the impression one makes on others ("I care strongly about how people look at me"); *Hardworking* is about reaching goals and pushing oneself ("When I set myself goals I always accomplish them"); *Self-Control Joy* concerns whether exercising self-control feels positive ("Self-restraint gives me pleasure"); and the scale *Trust in Requester* concerns participants' trust in requesters ("Requesters on MTurk cannot be trusted"). Cronbach's Alphas can be found in the diagonal of Table 5 and the full scales are included in the Supplemental Materials.

Results and Discussion

Ten participants in the Persistence condition and 15 in the Decision condition failed due to errors or late responses. Since the first part of the Study was identical for the two conditions, we focused the analyses on those who reached the choice to quit for the full bonus. We employed a Generalized Linear Model using the GENLIN function in SPSS 21 (logit link, binomial distribution), controlling for the effect of the hypothetical choice. The

[1] The term "Requester" refers to persons who publish tasks on MTurk

estimated difference in proportion of participants who continued between the Persistence group (.61) and the Decision group (.49) was 0.11, one-sided 95% CI [0.00, infinity]. In other words, there was a tendency for a higher willingness to continue in the Persistence condition compared to the Decision condition. The decision to quit or continue did not seem to be substantially affected by the inclusion/exclusion of an initial hypothetical choice, difference in proportions = 0.06 [-0.07, 0.20]. Therefore, we present the distribution of actual choices pooled across these conditions in Table 4.

By inspection of Table 4, one can see that more participants quit during the task (i.e., before reaching the choice to quit with a full bonus) in the Decision condition compared to the Persistence condition. If, by incident, the higher levels of quitting in the Decision condition led to a more selective sample on the critical choice, the difference between conditions is likely larger, since those who are willing to quit already opted out before reaching the critical choice. A similar analysis as above on those who continue versus quitters at all stages, gives a difference in proportions of 0.13, [0.04, infinity].

Thus, by framing the choice as a persistence test rather than a choice seemed to increase the willingness to continue, but note that a substantial proportion was motivated to continue even when the choice was framed as a decision-making task. This may not be surprising, given the fact that the first 19 minutes of the task were identical for the two experimental conditions and likely activated similar types of persistence motives.

Comparing the hypothetical choices to the actual choices, it turned out that 4 participants changed their minds from continue to quit (all in the Persistence condition), and 7 participants changed their minds from quit to continue (2 in the Persistence condition).

Table 4. Distribution of Choices, Pilot and Main Study 4.

	Quit before start ($1.5)	Quit during task ($1.5)	Quit for full bonus ($3)	Continue for 6 minutes ($3)	Total
Pilot Study					
Persistence	9% (4)	12% (5)	40% (17)	40% (17)	100% (43)
Decision	6% (3)	10% (5)	54% (26)	29% (14)	100% (48)
Study 4					
Persistence	8% (12)	18% (28)	29% (46)	46% (72)	100% (158)
Decision	9% (14)	27% (43)	33% (53)	32% (52)	100% (162)

Correlational analyses. The second aim of the study was to see whether the decisions correlated with measures of motives generated from the reasons to continue given by the participants in Study 1b. The correlation matrix is provided in Table 5. The first column shows the point bi-serial correlations between the measures of motives and the choice to continue, where *continue* is coded 1 and *quit for full bonus* is coded 0 (excluding all other participants); the second column shows the correlations between the measures of motives and the choice to continue when 0 represents quitters at all stages of the experiment. There seemed to be no substantial differences in the patterns of correlations for the two measures. The associations between the motives and the choices were weak, which may not be surprising given the single decision, but overall the data seemed to support the assumptions of a relation between the choice to continue and some of the motives.

The measure Trust in Requester was included because we assumed that participants who distrusted the requester/researcher would not dare to quit before the task was finished. However, this measure seemed to tap into a desire to cooperate, since those who trusted the requester were more likely to continue the task and were more likely to score higher on the Help Requester motive (see Table 5).

Table 5 should not be read as a definitive picture of the relative importance of various persistence motives. The diversity of self-reported reasons for continuing in Study 1b suggests that several of the motives may be active for only a handful of participants. Even if only few participants spontaneously adopt a certain motive, the motive could still be exploitable for increasing motivation if one attempted to activate it more directly.

Table 5. Correlations of Choices (Continue = 1, Quit = 0) and Measures of Motives (Cronbach's Alphas in Parentheses), Study 4.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1. Continue Choice	___												
2. Continue vs. All	1	___											
3. Help Requester	.081	.118*	(.82)										
4. Keep Word	.151*	.152**	.273**	(.81)									
5. Social Commitment	-.024	.020	.171**	.143**	(.68)								
6. Urge to Finish	.208**	.222**	.331**	.545**	.136*	(.88)							
7. Never Quit	.136*	.137*	.290**	.521**	.202**	.635**	(.83)						
8. Feedback Desire	.159*	.156**	.442**	.190**	.159**	.316**	.217**	(.76)					
9. Honest Worker	.115	.118*	.365**	.297**	.004	.361**	.248**	.365**	(.84)				
10. Impression Making	-.071	-.049	.006	-.101	.485**	-.038	-.105	.181**	-.042	(.90)			
11. Hardworking	.108	.090	.340**	.518**	.190**	.608**	.721**	.346**	.247**	-.021	(.80)		
12. Self-Control Joy	.041	.069	.305**	.342**	.214**	.318**	.384**	.210**	.087	.107*	.570**	(.89)	
13. Trust Requester	.138*	.105	.498**	.177**	.256**	.245**	.255**	.352**	.349**	.087	.237**	.200**	(.87)
Correlation N	222-223	317-319	341-343	341-343	341-343	340-342	340-342	341-343	341-343	341-343	341-343	341	___

Note. * $p < .05$; ** $p < .01$

General Discussion

Our first goal of this project was to explore to which extent participants in the online work marketplace Amazon Mechanical Turk would choose to continue with a boring task when offered the choice to quit for the full payment. Choosing to continue would inflict an economic loss in terms of foregone earnings and reduce the likelihood of obtaining the largest reward. Still, between 34% and 65% of those who were offered this choice (23% to 54% of all participants) chose to continue.

Our second goal was to dig deeper into the reasons why people chose to continue the boring task. In Study 1b, participants provided their own explanations. Some continued because they expected unannounced additional rewards, but the reasons given by the majority seemed to involve persistence or completion per se. There were several variations of these persistence motives, some related to achievement, some seemed to reflect a compulsion to complete, and others applied personal principles of never giving up or always finish what one starts. In addition, some participants felt socially committed to complete the task. This illustrated the plethora of potential non-focal motives that may increase the likelihood of choosing a delayed reward.

Studies 2 and 3 included control conditions where people choose whether to continue a task that was defined as completed. Participants in the original uncompleted conditions were considerably more willing to continue than participants in the control conditions, with a difference in proportions corresponding to 42 percentage points for Study 2 and 31 percentage points across Studies 3a, 3b, and 3c (28 and 20 percentage points when considering the entire samples). These results suggested that the decisions to continue were not merely due to enjoyment of the task or beliefs about additional rewards.

Study 4 revealed that participants were more likely to continue when the choice was presented as a test of perseverance compared to a choice presented as a decision-making test,

suggesting that for some of the participants the goal of persistence/completion was replaced by the goal of making a good decision. Additionally, Study 4 revealed several correlations between dispositional tendencies for various persistence motives and the choice to continue. Taken together, the studies suggest that persistence motives may play an important role in some types of intertemporal choices.

Changing Motives?

Our interpretation of the results is that people initiated the task in order to attain the economic reward, and that this reason for doing the task changed. That is, the motive behind the goal changed from an economic one to commitment or persistence/completion per se. Variations of this interpretation are that the goal of attaining the reward was replaced by a goal of completion (cf. Conlon & Garland 1993), that the objective goal was replaced by self-defining goals (cf. Wicklund & Gollwitzer, 1982), and that the overarching goal of attaining money was disrupted by the subgoal of completing the task (cf. Fishbach, Koo, & Finkelstein, 2014).

A premise for the interpretation of a change in motives and goals is that participants were mainly motivated by the economic reward when starting the task. The finding that participants were less willing to continue on a task for no payment when the task was defined as completed indicates that this might be true. Additionally, we tried to publish an assignment identical to Study 3a with the phrase ”No payment” substituted for the information about bonus and payment. Only 6 participants were recruited after 8 hours (one in the hope of an economic reward, and one because of curiosity as to why such a long task had no payment). In comparison, the data from the 71 participants in Study 3a was collected in less than 4 hours (same day of the week and same time of day), suggesting that the majority of the participants were mainly economically motivated.

Note that even if money was a decisive factor, there might have been additional motives present from the beginning, which together with the economic incentive triggered the behavior. Therefore, the results do not necessarily reflect a qualitative change of motives or goals, but may instead reflect a strengthening of motives that were already present. It is, however, difficult to imagine that the urge to complete things and the principle to keep one's word (see correlations in Table 5) were motives for task initiation.

We can summarize our interpretation of the data in the following way: The goal to obtain the outcome was replaced with the goal to complete what was originally the means to an outcome. The underlying motives behind this substitution are likely not task enjoyment or expectations of additional monetary rewards, but may be related to self-definitions, social commitment, personal rules/principles, and an urge to complete things. The uncompleted task seemed to trigger motives that added value to the pursuit of the delayed reward. Put differently, people became committed to the means. Note that our results represent a slightly different case than what Toure-Tillery & Fishbach (2011) refers to as means-focused motivation. If a student in a pottery class prioritizes learning over creating a product, we consider learning as an outcome; however, if the student persists in finishing a vase or completing a class when he/she experience no further learning outcomes (e.g., unskilled instructor), this might be a parallel to the present case, where the original means become a goal on its own.

Contributions of the Current Research

First, we believe the investigation of the choices in the present setting is interesting in its own right, as a description of behavior in a particular context. We have shown that a substantial proportion of participants in an online work marketplace were willing to continue on a boring, repetitive task when the initial main incentive for completing the task was offered for quitting. The results from the studies excluded several potential reasons for this seemingly

irrational behavior, and suggested other more likely reasons. Second, we believe the present project expand on the different perspectives presented in the introduction. Below we will discuss in more detail how the present results contribute to and differ from the research on the Zeigarnik-Ovsiankina effect, sunk costs, goals, and intertemporal choice.

Our original intention was to introduce completion effects (e.g., Ovsiankina, 1928) into an intertemporal choice perspective, and not so much to contribute to the research on completion effects. Still, we believe the present research adds to this literature by illustrating completion effects in a novel context. Prior research has established that people are strongly motivated to reengage in interrupted activities such as unsolved puzzles (Ovsiankina, 1928; Reeve, et al., 1986). The present research goes a step further and reveals a motivation to continue and complete work even when the task is simple, boring, repetitive, provides no other form of closure than reaching a designated time limit, and results in an economic loss.

Compared to the research on sunk costs, the present research involves a different reward structure. Whereas the typical research on sunk costs investigates the willingness to invest in a failing project, we investigated the willingness to invest in a successful project, where the successful outcome was obtainable without further investments. Data on sunk cost for investments of personal efforts is also scarce, and the present results illustrate how behavioral investments on an uncompleted task can inflict economic loss in terms of foregone earnings.

With regard to research on goals, the present studies illustrate an interesting variation of a *substitution effect* (See Fishbach, Koo, & Finkelstein, 2014), where a subgoal is substituted for an overarching goal. For instance, data reported by Camerer, Babcock, Loewenstein, & Thaler (1997) suggested that some of the cabdrivers in New York went home from work after reaching an approximate daily income goal--even on good days--and therefore had to work longer hours on days that were less profitable. Thus, the subgoal of

reaching a daily limit disrupted a more efficient strategy towards the overarching goal of making money (to work longer on good days, shorter on bad days). As Fishbach, Dhar and Zhang (2006, p.240) puts it: ”[…] thinking purely in terms of subgoal attainment interferes with adequate self-regulation.”

The present results expand on the above idea by indicating a disruption of goal pursuit from uncompleted subgoals. For many of the participants, the means towards the outcome seemed to become a goal on its own and substituted the original goal of making money. In turn, this hampered the pursuit of alternative and more efficient ways of obtaining the reward one initially aimed for.

In recent studies by Klein and Fishbach (2014) participants were told that their goal would be successfully attained before actual goal completion. It turned out that the knowledge that they would succeed decreased positive affect upon goal completion, likely because they held a script about when to feel good in the process of goal pursuits (i.e., after completion). We did not include any measures of affect after completion or after receiving the information that the participants could quit and receive the larger reward, but it would be interesting to see whether those who chose to quit experienced positive affect when learning that they could receive the full bonus, and whether those who continued experienced the choice as a less pleasant break of the script of goal attainment.

Most important, we believe the new paradigm illuminates some fundamental issues of intertemporal choice. The studies illustrate the complexity and dynamics of motives for pursuing delayed rewards, which to some extent have been neglected in this literature (see also Herman & Polivy, 2003). At least for the type of situations involving waiting or working, the choice between an immediate and a delayed reward is not based on a simple weighting of the most salient rewards, but involves a range of second-order motives. The studies further suggest which types of motives people may hold when pursuing a delayed reward through

waiting or work. A more speculative implication would be that some of the motives may be candidates for explaining cross-domain self-control. Whether persistence motives work as buffers for various problematic behaviors needs further research, but preliminary analyses of the unreported survey data collected in the present project suggest that the choice to continue may be associated with lower scores on the Disinhibition facet of the Sensation Seeking Scale (Zuckerman, 1994), a sub-scale that predicts drug use and high risk sexual behavior (e.g., Roberti, 2004).

It might be useful to keep the present results in mind when designing studies within the fields of intertemporal choice. If you give someone the choice between one glass of juice now and waiting 30 minutes in the lab for two glasses of juice, you are not (only) measuring the relative discounting of delayed juice. Even in the case of discounting paradigms with "pure" intertemporal choices, such as $200 now vs. $250 in a week, we suspect that similar motives may be at work (e.g., "I want to show that I am a patient person").

Methodological Issues

Studies 3a, 3b, and 3c seemed to produce more quitting than the other studies in both the Uncompleted condition and the Completed condition. We first believed that this was due to the separation of options into a) and b), and the expression "full bonus" only mentioned in relation to the quit option. However, Study 4 also presented the options in terms of a) and b), and the expression "full bonus" cannot account for the potential differences in the Completed conditions. Understanding these differences across studies is not vital for the present purpose, but it would be interesting to explore this issue further. Possible candidates for further investigation are the topics of the surveys preceding the task, time of day and week (likely related to differences in samples), and the inclusion of instructions such as: "Apparently, you are heading for the full bonus and do not want to quit to receive the $1.50 exit bonus. But

would you […]," which may signal commitment (cf. Fishbach & Dhar, 2005) and introduce a desire to be consistent with one's engagement with the task so far.

The current setting was artificial and the task included several features that may have contributed to the decision to continue (e.g., repeatedly rating the motivation to complete the entire task). We never aimed to isolate the determinants of the effect in the current paradigm, since our intention was merely to illustrate the potential role of various persistence motives. However, we believe similar motives are at least as likely to have an impact in the real world. In everyday situations, tasks often allow for a sense of structural closure (complete a report, solve a problem), the sense of social commitment is likely stronger (no anonymity), and people are more aware of task demands (e.g., knowledge about the difficulties in breaking out of a drug addiction). Besides, reason and persistence motives are pulling in different directions in the present paradigm, whereas they often play on the same team in the real world.

Structurally, the task used in the present studies bears a resemblance to the delay of gratification paradigm (e.g. Mischel et al., 1972); except that the critical choice involves a delayed reward which in practice is smaller than the immediate reward. One might argue that the task has little to do with choosing delayed rewards since both the immediate and the delayed rewards need to be credited before it becomes available on the participants' accounts. A "hot" reward like food or a drug might have produced different results (See Forzano & Logue, 1994), but money, even in the form of numbers on a screen (your bank account), is not an uncommon incentive in the real world, and several paradigms have successfully used symbolic money that can later be exchanged for real money (e.g., Bechara, Tranel, & Damasio, 2000). To the very least, the present studies may be helpful in understanding why people are able to delay some types of gratification.

Summary and Conclusions

We wanted to see how participants from MTurk would behave when offered the full payment for quitting a repetitive and boring task. Many participants chose to accept this offer, but a surprisingly high proportion chose to continue for no further payment. The reasons participants gave for choosing to continue involved aspects of social commitment, achievement, principles (never quit what one starts), urges to complete, but also expectations of additional rewards. However, the choice to continue could not be solely explained by expectations of additional rewards, and neither by task enjoyment. Overall, the studies suggested that a number of various persistence motives seemed to play a role when choosing the economically irrational option to continue the boring task for no further payment.

Theoretically, the new paradigm is interesting, as it is structurally similar to studies on delay of gratification, except that the immediate reward is the economically superior option. This implies that motives other than a desire for the focal rewards may be at work when people choose between a delayed and an immediate reward. The message that people are likely motivated by various principles, self-presentation concerns, and a desire to finish tasks may seem trivial. However, we believe the present paradigm illustrates the dynamics of incentives and highlights the role of non-focal motives, which may be important in understanding intertemporal choices and self-control. A person can be motivated by the prospects of a slim body, and the likelihood of reaching this state is likely a function of factors such as the subjective value of a slim body and how time discounts this value. However, the present studies indicate that the struggle towards such a delayed reward is supported by a range of persistence motives that seems to be largely independent of the focal reward.

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