

Brief Report

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Waiting for the Perfect Time: Perfectionistic Concerns Predict the Interpretation of Ambiguous Utterances About Time

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Abstract: Across numerous languages, individuals frequently employ two spatial perspectives – namely, the Moving Time and Moving Ego metaphors – to represent the movement of events in time. Specifically, the Moving Time perspective conceptualizes time as a dynamic entity that moves toward a stationary observer situated in a fixed location. In contrast, the Moving Ego metaphor positions the individual (the “ego”) as the one traversing through time, while time itself remains static. Previous research has established a positive association between procrastination and the adoption of the Moving Ego perspective. Drawing on findings that highlight the robust link between procrastination and perfectionistic concerns, we hypothesized that perfectionistic tendencies would correlate with a greater propensity to invoke an ego-moving representation of time. The present research tests this hypothesis and provides substantial support for this relationship. We demonstrate that a well-established measure of perfectionistic concerns is linked to an increased use of the Moving Ego perspective when interpreting ambiguous temporal utterances. Furthermore, this relationship is mediated by procrastination. This study presents the first empirical evidence that individual differences in perfectionistic concerns may influence how people perceive and interpret temporal relationships.

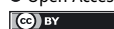
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1 Introduction

Conceptual Metaphor Theory (CMT) posits that individuals often comprehend complex, abstract ideas through more tangible experiences by relating them to

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familiar concepts, such as physical sensations or everyday experiences (Boroditsky 2018; Lakoff and Johnson 1980). For instance, when we assert that “time is money,” we are not literally equating time with currency; rather, we employ our concrete understanding of money – its value, spending, and saving – to interpret the significance of time in our lives.

In the current inquiry, we focus on the Moving Time and Moving Ego metaphors, two prominent types of spatial metaphors for time (Clark 1973; Duffy and Feist 2014). In the cognitive science literature, “time-moving” and “ego-moving” metaphors reflect deep cognitive frameworks that shape how we relate to time in our daily lives and influence our decision-making processes. In the Moving Time metaphor, time is perceived as a moving entity, while the individual remains stationary, as illustrated by the expression, “*The U.S. presidential election is rapidly approaching us.*” Conversely, in the Moving Ego metaphor, the individual (the ego) is the one moving through time, while the events themselves are fixed in place. This perspective emphasizes the subjective experience of progressing through time, as exemplified by the phrase, “*We are approaching the U.S. presidential election.*”

To assess individuals’ preferences for these two types of temporal perspective, numerous published studies have employed the “Next Wednesday’s meeting disambiguation paradigm” (e.g., “*Next Wednesday’s meeting has been moved forward 2 days. What day is the meeting now?*”) (Boroditsky and Ramscar 2002; Winter and Duffy 2020). For instance, McGlone and Harding (1998) exposed participants to sentences utilizing either the Moving Time or Moving Ego metaphors. Their findings revealed that participants tended to interpret the ambiguous statement in a manner consistent with the primes. Specifically, those primed with the “Moving Time” metaphor interpreted “Next Wednesday” as the immediate Wednesday, resulting in the meeting being moved forward by 2 days to Monday. In contrast, participants primed with the Moving Ego metaphor perceived themselves as moving through time, leading them to interpret “Next Wednesday” as the Wednesday following the current week; thus, moving the meeting forward by 2 days would reschedule it to Friday. These findings demonstrate a clear alignment between the activated metaphorical frame and the manner in which participants disambiguated the statement.

Recent studies have demonstrated the malleability and flexibility in the adoption of two distinct temporal perspectives. For example, a significant body of research has established connections between personality traits and temporal reasoning (Li 2020; Duffy, Feist, and McCarthy 2014). By incorporating both self-report and behavioral measures, Duffy and Feist (2014) found that individual differences in conscientiousness and procrastination are linked to the manner in which individuals perceive temporal relationships. Drawing on findings that procrastination is characterized as the act of delaying or postponing tasks or decisions until the last

minute (Milgram, Mey-Tal, and Levison 1998), Duffy and Feist (2014) posited that procrastinators would be more likely to adopt the Moving Ego perspective. This linkage arises because the deferment associated with procrastination can be conceptualized as rendering deadlines to feel temporally distant. In alignment with the implications of the Moving Ego perspective, participants who invoked the Moving Ego representation (responding “Friday”) exhibited a greater extent of procrastination compared to those who invoked the Moving Time representation (responding “Monday”) when addressing the question about next Wednesday’s meeting. These findings suggest that personality differences may act as antecedents in individuals’ choice of these two spatial metaphors for time.

One additional line of research has demonstrated possible links between procrastination and perfectionism (Abdollahi et al. 2020). Perfectionism is a personality trait characterized by striving for a perfect outcome and by setting exceptionally inflexible and high standards for performance and activities. Although perfectionism was originally considered to be a one-dimensional maladaptive trait (Burns 1980), it is currently conceptualized as a two-dimensional model, with perfectionistic strivings and perfectionistic concerns (Stoeber and Otto 2006). The former indicates a tendency to demand perfection of oneself, others, and/or the world, representing an adaptive aspect of perfectionism (self-oriented perfectionism; Hewitt and Flett 1991). The latter entails a propensity to obsess about mistakes and react negatively to discrepancies between performance expectations and actual performance, representing a maladaptive aspect of perfectionism (personal standards; Frost et al. 1990). Multiple studies have shown that this two-dimensional model of perfectionism can generalize across different cultural groups (Smith et al. 2016).

While there are mixed findings in regard to the relationship between perfectionistic strivings and procrastination (Kurtovic, Vrdoljak, and Idzanovic 2019), extant evidence consistently shows that perfectionistic concerns are positively related to procrastination (Egan, Wade, and Shafran 2011). For instance, in a 7-day, 14-occasion daily diary study, Smith et al. (2017), found that perfectionistic concerns had a large positive relationship with the amount of procrastination on a given day. This is because perfectionists are afraid of being unable to reach their goals perfectly and thus choose to delay a planned behavior as long as possible. Given the findings that there is a strong correlation between the maladaptive form of perfectionism and procrastination, the present study, for the first time in the literature, focused on the role of perfectionistic concerns in temporal reasoning. We predicted that individual differences in perfectionistic concerns would be associated with a greater use of Moving Ego perspective in the interpretation of ambiguous utterances about time, and that procrastination would mediate this association.

2 Methods

2.1 Participants

We invited 264 undergraduate students (140 females; $M = 20.1$ years; $SD = 1.7$) to participate in this study. Participants received a modest monetary compensation for their involvement. Research assistants approached potential participants on campus to invite them to take part. After securing informed consent, all participants completed a series of paper-and-pencil questionnaires while seated. All participants were native speakers of Mandarin.

2.2 Materials and Procedure

Perfectionistic concerns were evaluated using the 9-item Concern Over Mistakes subscale of the Multidimensional Perfectionism Scale (Cronbach's $\alpha = 0.81$; Frost et al. 1990). Sample items include: *"I should be upset if I make a mistake"* and *"If I do not perform as well as others, it indicates that I am an inferior human being."* Participants rated each item on a 5-point scale, ranging from 1 (extremely uncharacteristic) to 5 (extremely characteristic).

To assess procrastination, we utilized the 20-item Student Procrastination Scale (SPS, Lay 1986), which demonstrated a Cronbach's α of 0.82. Participants responded to statements on a 5-point scale (1 = very true, 5 = very untrue). Sample items include: *"I am continually saying 'I'll do it tomorrow'"* and *"A letter may sit for days after I write it before mailing it."*

Participants also completed the Chinese version of the "Next Wednesday's meeting" probe to assess their temporal perspectives. The ambiguous time question and instructions, adapted from Li and Cao (2020), were presented as follows:

Please provide your response to the question below without spending too much time thinking about it, and do not change your survey response.

原定于下周三开的会议, 现将其移动两天, 会议现在周几召开 (*Next Wednesday's meeting has been MOVED two days. What day has the meeting been rescheduled to?*).

Following the completion of these measures, participants were debriefed regarding the true purpose of the study.

2.3 Results and Discussion

Debriefing responses indicated that none of the participants correctly inferred the relationship between the personality measures and metaphorical perspectives on

time. If Mandarin speakers demonstrated no significant preference for either the Moving Time or Moving Ego metaphors, an unbiased outcome would be one in which participants adopt a temporal perspective at chance levels (50 % for each metaphor). However, prior research has indicated that university students tend to favor the “Friday” response, aligning with the ego-moving perspective (Duffy and Feist 2014). Consistent with these findings, our study revealed a bias towards the Moving Ego metaphor among participants. Specifically, a majority of participants (193 out of 264, or 73.1 %) invoked the Moving Ego representation by responding “Friday.” A chi-square goodness-of-fit test indicated that the proportions of Monday and Friday responses were statistically different from the expected 50 %, $\chi^2(1) = 56.38, p < 0.001$, Cramer $V = 0.46$, 95 %CI[0.3535, 0.5584].

In terms of perfectionistic concerns, participants invoking the ego-moving representation ($M = 20.50, SD = 5.50$) had higher perfection scores than participants invoking the time-moving representation ($M = 18.39, SD = 4.98$), $t(262) = 2.83, p = 0.003$, $d = 0.35$, 95 %CI[0.7517, 3.4683]. In a similar vein, participants taking the Moving Ego perspective ($M = 3.47, SD = 0.53$) displayed a higher level of procrastination than participants taking the Moving Time perspective ($M = 2.99, SD = 0.57$), $t(262) = 6.81, p < 0.001$, $d = 0.87$, 95 %CI[0.3413, 0.6187]. Moreover, in concordance with prior work which demonstrates that procrastination operates in parallel to perfectionistic concerns (Smith et al. 2017), we found that there was a significant positive correlation between these two variables, $r = 0.55, p < 0.001$, 95 %CI[0.464, 0.631].

To further determine if differences in perfectionism is related to people’s perspectives on the movement of events in time, we conducted a logistic regression (ego-moving perspective = 1, time-moving perspective = 2). The results showed that individual scores on perfectionistic concerns was a significant predictor of interpretations of temporally ambiguous utterances, Nagelkerke $R^2 = 0.045$, $B = 0.078$, $SE = 0.029$, Wald ($df = 1$) = 7.57, $p = 0.006$, odds ratio = 1.082, 95 %CI = [1.023, 1.144].

Finally, we tested whether procrastination mediated the relationship between perfectionistic concerns and time representation. As expected, bootstrapping analyses revealed that procrastination is a positive mediator in explaining the association, as the 95 % confidence interval for the indirect effect did not contain zero, [0.690, 1804].

3 General Discussion

Our research indicates that perfectionistic concerns robustly predict ambiguity resolution in the interpretation of temporal metaphors. Specifically, higher scores on perfectionistic concerns were associated with a greater inclination to utilize the Ego Moving metaphor, while lower scores were linked to a preference for the Time

Moving metaphor. This pattern of results aligns with social psychological literature regarding the influence of personality on temporal reasoning, particularly in the context of maladaptive perfectionism.

There is reason to believe that individuals characterized as “unhealthy” perfectionists are more likely to favor the Ego Moving perspective and postpone meetings to a later date. For example, existing research has demonstrated that perfectionistic concerns correlate with a range of negative outcomes, including heightened and persistent anxiety about mistakes, diminished confidence in one’s abilities, and pervasive feelings of guilt (Fedewa et al. 2005). These elevated expectations and levels of self-blame contribute to an increased propensity for procrastination. Consistent with these findings, we present the first empirical evidence suggesting that individual differences in perfectionistic concerns may have modest predictive value for one’s tendency to procrastinate, particularly in the context of rescheduling meetings, which corresponds with the Ego Moving perspective. Such results imply that perfectionistic concerns not only affect psychological well-being but are also related to micro-level cognitive processes, such as temporal reasoning.

Despite the evidence supporting a link between procrastination and the Ego Moving perspective, recent investigations have raised questions about the replicability of these findings. For instance, in a replication of Duffy and Feist’s (2014) study exploring the relationship between procrastination and metaphorical perspectives on time within U.K. samples, Wool and Holmes (2015) found no evidence of this association in U.S. samples. Our findings indicate that procrastination mediates the correlation between perfectionistic concerns and the Ego Moving representation among Mandarin speakers, thus providing some evidence for the role of procrastination in the interpretation of ambiguous temporal expressions. These discrepancies suggest that there may be culture-specific moderations in the associations between personality and temporal reasoning.

The present research is not without limitations. One notable limitation pertains to the reliance on self-report data, which may introduce bias as participants reflect on their experiences concerning procrastination and perfectionistic concerns. A second limitation relates to the cross-sectional design of the study, which restricts our ability to draw causal inferences. It remains uncertain whether perfectionists are more likely to invoke the Ego Moving representation or whether frequent use of Ego Moving metaphors contributes to the development of perfectionistic concerns. Third, perfectionism is a multidimensional construct, and it remains an open question whether other facets of perfectionism correlate with temporal reasoning. Finally, while our sample was culturally diverse in comparison to much of the prior research on WEIRD (Western, educated, industrialized, rich, and democratic) populations (Henrich et al. 2010), caution should be exercised in generalizing these findings to other populations.

Research ethics: All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent: Informed consent was obtained from all participants.

Author contributions: The author has accepted responsibility for the entire content of this manuscript and approved its submission.

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