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When time becomes distorted: a narcissist's view

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WHEN TIME BECOMES DISTORTED: A NARCISSIST'S VIEW

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Abstract

Past research has shown that many factors influence an individual's ability to estimate time. One factor that has been researched extensively is personality traits. While a few studies have investigated the effects of narcissism traits on time estimation accuracy, only one study investigated the influence covert and overt narcissism on time estimation. Overt narcissists tend to be more explicit about their demands for attention, where as covert narcissists tend to be more implicit in their demands for attention and more introverted, and have feelings of inferiority. Previous research suggests that those who are entitled believe that their time is more valuable and that boring or mundane tasks are a waste of their precious time. The current study assesses time estimation in those with covert and/or overt narcissistic characteristics while completing a mundane task and a gratifying task. Participants complete both a boring and a gratifying task and were asked to estimate how long these tasks took. Additionally, participants completed questionnaires to assess Narcissism, self-esteem, and demographics. It was found that there were no statistical differences between those with covert and/or overt narcissistic characteristics in both the boring and the gratifying tasks. This suggests that those with overt and/or covert narcissistic characteristics estimate time similarly when engaged in boring or gratifying tasks. Understanding how people with these characteristics estimate time may help provide information regarding counseling and education for future professionals.

Keywords: time estimation, narcissism, boring task, interesting task

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Table of Contents

List of Tables

When Time Becomes Distorted: A Narcissist's View

Time is an important construct for human beings, as much of the lifetime is spent looking from past experiences to future goals. Everything the human being does depends on time and is rooted in the passage of time as a whole. As the fourth dimension, time is the only construct in the physical world that cannot be redone, undone, or stopped. No matter how hard one tries, time goes on (Buchwald & Blatt, 1974). Recent research has provided insight into how and why time estimation can be distorted. The principle of deciding whether and when a task can or cannot be accomplished is known as time estimation (Block & Zakay, 1997). When time estimation is inaccurate, goals and projects may suffer, as deadlines go by without realization.

Some researchers have focused on how people with different personality constructs (e.g., introversion and extroversion) estimate time (eg., Eysenck, 1959, Rammasayer, 1997). While past research has investigated the impact narcissistic traits have on time estimation (O'Brien, Anastasio, & Bushman, 2011), only one study could be found that investigated covert and overt narcissistic traits and the passage of time (Wink & Donahue, 1997). That study found that individuals with covert narcissism experience time as passing by more slowly during boring tasks than individuals with overt narcissism. The current research will investigate whether those with narcissistic personality traits overestimate how much time has passed when doing a boring task and a gratifying task compared to those lacking the narcissistic personality traits.

Narcissism is an ever growing personality trait in the American culture (Twenge, 2006). Individuals with a narcissistic personality believe that they are unique or special and that everyone should recognize their superiority [Diagnostic and Statistical Manual-

IV-TR (DSM-IV-TR), 2002]. They often fantasize about unrealistic success and idealized love; they may appear boastful, frequently accentuating their accomplishments (DSM-IV-TR, 2002). Studying time estimation in relation to narcissism may help one more fully understand how to engage the younger generations of the American culture. Understanding more fully how people with this personality type estimate time may help researchers in developing more effective methods for teachers to engage their students and increase the learning capabilities of those students.

Time Estimation Theory and Methodology

Time has been seen as one of the most important elements individuals have in their lives and has been characterized as the most "precious of all resources," one of which cannot be replaced (Levine, 1997, p. 37). The estimation of time differs based on multiple individual differences, such as an individual's ability to experience flow (Csikszentmihalyi, 1997), body temperature (Wearden & Penton-Voak, 1995), and mood (Gupta & Khosia, 2006).

Some of the most widely supported theories regarding time estimation involve the presence of an internal clock. One of these theories, Scalar Expectancy Theory (SET; Gibbon, 1977), proposes a pacemaker-accumulator model. According to SET, the ability to estimate time is dependent upon the interaction of an internal clock, decision-making ability, and working memory (Gibbon, 1977; Rakitin et al., 1998). That is, when a participant is told that a task will begin, an internal switch is turned on and an internal pacemaker generates pulses that are gathered in an accumulator. When the duration of time to be estimated has ended, the switch closes. The number of pulses collected is then compared with reference memory for that duration. The comparison between standard

duration and the number of pulses results in an individual's subjective time. Building on

internal clock theories, the executive gate model (Block, Hancock, & Zakay, 2010)

acknowledges the role of cognitive abilities, specifically the central executive. According

to the executive gate model, the gate to the accumulator for the internal clock pulse is

opened due to attention to time during the duration of the task. It is not a gate that opens

based on the start signal and end signal of a task, as is hypothesized in the Scalar

Expectancy Theory (Zakay & Block, 1996). This theory holds that the number of pulses

accumulated is determined by the amount of attention given to temporal information. The

more attention one pays to temporal information, the wider the gate opens to allow pulses

to be collected (Zakay & Block, 1997).

There is a "classic trio" of methods to collect time estimates (Wearden, 2003).

The first method is known as verbal estimates. This method involves the experimenter

presenting the task to be estimated and the participant providing a verbal estimation of

how much time has passed after the task has been completed. The second method is

known as production, which involves the experimenter requesting the participant to

produce a given interval of time. The third technique is a method of reproduction. The

experimenter engages in the task for a certain amount of time and the participant must

reproduce this task in the same amount of time (Allan, 1979). According to research by

Siegman (1962), verbal estimates and production produce the most reliable measures of a

participant's time estimation. That study also argued that reproduction of time intervals is

not a reliable measure of time estimation. In addition, the production method is

susceptible to confounding variables such as impatience or difficulties in delaying

response (Block et al., 1998).

Two types of time duration experience are prospective and retrospective time estimation. Prospective time estimation involves the experimenter informing the participant before the experiment begins that he or she will be asked afterward how much time has passed. On the contrary, in retrospective time estimation, the participant does not know in advance that he or she will be estimating how much time has elapsed and the question of time estimation is essentially sprung on the participant (Block, 1990; Ornstein, 1969). According to a study done by Block and Zakay (1997), prospective and retrospective time estimations involve different cognitive abilities. Prospective time involves a more executive-based model (Block et al., 2010) of time estimation. Retrospective time involves research with a more memory-based model of time estimation. Furthermore, the researchers found that the executive-based model of time estimation, when employing a prospective time estimation model, is less variable, and more accurate than the retrospective judgments.

Many people do not like it when their time is wasted. Therefore, when one inaccurately estimates time, and it is seen as a valuable resource to this person, confusion may emerge in the life of that individual because one of the greatest resources is either seemingly wasted or dragging. It is possible that individuals with narcissistic characteristics may especially feel this way.

Narcissism

Narcissism is traditionally characterized by a pattern of grandiose behaviors, fantasies, and sense of self, and a need for the admiration of others (DSM-IV-TR, 2000). The DSM-IV-TR requires an individual to have five of the criteria listed in the DSM-IV-TR for a diagnosis of Narcissistic Personality Disorder (NPD). These criteria include,

among others, arrogance, lack of empathy, and exploitation of others. Narcissism is not only seen as a personality, but as traits that an individual possess. Recent research has supported the idea of narcissism as a personality trait (Foster & Campbell, 2007; Miller & Campbell, 2010). Trait narcissism, as it is referred to, is seen as a spectrum of traits where an individual falls somewhere on this spectrum. This differs from Narcissistic Personality Disorder (NPD) in that NPD is seen as categorical; the individual either has the diagnosis or does not. The present study will focus on trait narcissism rather than the clinical disorder of NPD.

From this concept of narcissism, two separate and distinct types of narcissism have been theorized, overt and covert narcissism (Gabbard, 1989; Wink, 1991). Individuals with overt narcissistic characteristics are differentiated by grandiosity (a.k.a.: grandiose narcissism; Wink, 1991), more explicit demands of attention, self-absorption and a more extroverted personality (Gabbard, 1989; Wink, 1991). Individuals with covert narcissistic characteristics (a.k.a.: vulnerable narcissism; Wink, 1991), are characterized by feelings of inferiority, hypersensitivity to others, being more implicit with their demands of attention and having a more introverted personality (Gabbard, 1989; Wink, 1991). Although these are distinct forms of narcissism, they do have characteristics in common, including arrogance and interpersonal exploitation (Wink, 1991). Individuals with traits common in narcissism are thought to cope with deficits, such as feedback failure from others, by suppressing one (grandiosity or vulnerability) and expressing the other (Kohut & Wolf, 1978). This suggests that the overt narcissist expresses a grandiose exterior, suppresses the vulnerable exterior, while still having a vulnerable core. Such an individual has an extroverted personality and displays explicit demands for attention, but

still needs the admiration and exploitation of others. The covert narcissist suppresses

grandiosity, and projects vulnerability, while still having a vulnerable core. Such an

individual projects feelings of inferiority and has an introverted personality, while

maintaining the need for admiration and exploitation of others. .

Covert and overt narcissism are typified as having differing levels of self-esteem.

Those with covert narcissistic characteristics tend to have lower levels of self-esteem

compared to individuals with overt narcissistic characteristics (Rathvon & Holmstrom,

1996). Those with overt narcissistic characteristics are seen as having higher levels of

self-esteem and according to the research done by Rose (2002), higher levels of self-

esteem are positively correlated with higher levels of life satisfaction. Furthermore,

although both are maladaptive, that study argued that overt narcissism has more adaptive

features than the covert counterpart. Additionally, research concurs that people with overt

narcissistic characteristics are seen as having higher levels of well-being (Watson,

Hickman & Morris, 1996). Covert narcissism has a negative correlation with these same

factors; the higher the level of covert narcissism, the lower the levels of self-esteem and

happiness (Hickman, Watson, & Morris, 1996).

Additionally, higher levels of well-being, or a lack of psychopathology, have been

linked to either non-significant overestimation of time, or accurate subjective experience

of time (Bschor et al., 2004). In order to more fully understand narcissism and time

estimation, one must look at a key aspect to all components of narcissism, specifically,

that of entitlement.

Entitlement and Time

Entitlement is an important aspect of narcissistic traits, is a defining characteristic

of narcissistic personality disorder, and has been seen as a very maladaptive component to both constructs of narcissism (DSM-IV-TR, 2002; Raskin & Terry, 1988). Entitled narcissists believe that they are owed something because of their superiority and hence, are invested in collecting what they believe is rightfully theirs (Campbell, Bonacci, Shelton, Exline, & Bushman, 2004).

According to O'Brien, Anastasio, & Bushman (2011), those with a sense of entitlement believe that their time is more valuable than anyone else's. They also may perceive wastes of their time, such as boring tasks, as frustrating. In their first study, O'Brien et al. (2011) initially assessed entitlement by having participants complete an entitlement questionnaire in addition to a battery of tests assessing perception of time and different entitlement measures. Participants were then assigned to either an interesting, or a boring task. The authors' results found that there was a positive relationship between entitlement and estimations of how much time had passed during the dull task to a significantly inaccurate extent. In other words, the more entitled the participant felt, the more time they estimated had passed. However, there were no significant differences in entitled individuals and non-entitled individuals in estimating time while completing an interesting task.

In follow-up to their research, O'Brien et al. (2011) primed individuals to experience entitlement and had them estimate time on boring tasks. Those participants who had been primed with entitlement, both subliminal and explicit, when engaging in a dull task perceive this task as a greater waste of their time and took much longer to complete this task compared to those not primed with entitlement.These findings suggest that narcissists (both subtypes), with a sense of entitlement, will perceive that others are

wasting their time with tasks they deem unimportant.

It is conceivable that engaging in a boring task that does not involve the narcissistic need for admiration would be deemed unimportant to those with narcissistic traits. Past research has indicated that entitlement (a narcissistic trait) has been positively correlated with time estimations on boring tasks. Therefore, individuals with narcissistic traits (both covert and overt narcissistic traits) will overestimate time while engaged in a boring task. However, past research has also indicated that self-esteem is positively correlated with well-being. Individuals with high levels of well being also tend to estimate time more accurately than those with low levels of well-being. Individuals with overt narcissistic characteristics tend to have higher levels of self-esteem and well-being. What this indicates is that those with overt narcissistic characteristics, with their higher levels of self-esteem, will not be as inaccurate when estimating time in a boring task.

Furthermore, past research has indicated that individuals with certain personality constructs aside from narcissism also tend to inaccurately estimate time. Buchwald and Blatt (1974) state in their research that those with an introverted personality type tend to overestimate how much time has passed in general and that those with an extroverted personality type tend to underestimate how much time has passed in general. As stated previously, the covert narcissist tends to be characterized as an introverted personality and the overt narcissist tends to be characterized as an extroverted personality. Taken together with earlier research, it can be argued that individuals with either covert or overt narcissism traits will underestimate time when a task is gratifying. However, those with covert narcissism traits will overestimate time while engaged in a boring task, while those with overt narcissism traits will estimate time accurately while engaged in a boring task.

Current Research

The present study assessed the accuracy of time estimation for overt and covert narcissistic subtypes. A prospective verbal time estimation paradigm was used. Narcissism was assessed by using the Pathological Narcissism Inventory (Pincus et al., 2009) in order to both quantify narcissistic characteristics and to piece apart the subtypes. Based on previous literature, it is hypothesized that those with covert narcissistic characteristics would overestimate how much time had passed while engaging in a boring task compared to those with overt narcissistic characteristics. It was also hypothesized that the covert and overt narcissist will underestimate to the same degree how much time passed when engaging in a gratifying task.

Method

Participants

The participants were 67 undergraduate students at a public university located in the Pacific Northwest. Participants consisted of predominantly Caucasian (61.5%) females (66.7%; further demographics can be seen in Table 1), with a mean age of 20.91 (SD = 3.6). All participation was completely voluntary and the students signed up for the study via Sona Systems website. The students received extra credit for participating in the study in their psychology courses.

The study utilized a 2 (covert and overt narcissism) by 2 (gratifying and boring task) within subjects design. The dependent variable was the estimated passage of time in exact minutes as stated from the participant. All participants engaged in both the gratifying and the boring task and all participants completed the Pathological Narcissism Inventory (Pincus et al. 2009).

Materials and Procedure

Participants were brought into the lab on an individual basis where the experimenter explained that the purpose of the study is to assess time estimation and personality. The participants were provided with the consent form and brief introductions on what they would be doing during the study. Participants were then provided instructions for either a boring task or a gratifying task (counterbalanced) and instructed that they would be estimating time of tasks. The dull task involved writing about the participants' average day and the gratifying task involved writing about the participant's greatest life accomplishment. The experimenter left the room during the task. There were no clocks in the room and the participants were asked to leave their bags, including their phones, outside the room in a safe area. After three minutes and forty-five seconds, the experimenter entered the room and asked the participant to estimate how much time had passed. The time was then recorded. The participant then completed the second task.

 After both tasks were complete, the participant completed the Pathological Narcissism Inventory (PNI; Pincus et al. 2009). This measure is a 52-item measure that asks participants to rate themselves on a 6-point scale ranging from 0, *not at all like me*, to 5, *very much/totally like me*. There are 7 subscales in the PNI which asses Entitlement Rage, Exploitativness, Grandiose Fantasy, Hiding the Self, Devaluing, Self Sacrificing Self-Enhancement and Contingent Self-Esteem. This measure is a reliable measure of narcissism with a coefficient alpha of .95 (Pincus et al. 2009). Additionally, participants completed the Rosenberg Self-Esteem Scale (Rosenberg, 1965) to assess self-esteem. The Rosenberg Self-Esteem scale consists of 10 items rated on a 5 point scale ranging from 1, *strongly disagree*, to 5, *strongly agree.* This test has shown to be reliable with a

coefficient alpha of .90. Directly following this task the experimenter provided the

participant with a demographic questionnaire assessing the participants' age, gender,

education, and major. In order to maintain anonymity, the consent forms were separated

from the response packets and were labeled with numbers. Afterwards, the participants

were debriefed, thanked, and dismissed. No follow-up was necessary.

Scoring

Raw verbal time estimation scores were used. The participants' narcissism scores

were obtained from the Pathological Narcissism Inventory (PNI; Pincus et al., 2009). The

procedure from Wright, Lukowitsky, Pincus, and Conroy (2010) was followed to

calculate the seven subscales of the PNI (e.g., exploitativeness, grandiose fantasy, self-

sacrificing self-enhancement, contingent self-esteem, hiding the self, devaluing, and

entitlement rage subscales). Specifically, the mean of the items on the measure belonging

to the seven different subscales was computed. The overt (grandiose) and covert

(vulnerable) scales were computed from the seven different subscales. Specifically, the

overt (grandiose) scale was calculated as the average mean score on the exploitativeness,

grandiose fantasy, and self-sacrificing self-enhancement subscales. The covert

(vulnerable) scale was calculated as the average mean score on the contingent self-

esteem, hiding the self, devaluing, and entitlement rage subscales. Additionally, a total

mean score was evaluated for the overall PNI score for each participant. An ANOVA was

run to analyze the potential affects covert (vulnerable) and overt (grandiose) narcissism

has on time estimation accuracy during each task.

Grandiose and Vulnerable Subscales

Because there are multiple models that exist for the structure of the PNI (eg., Wright et al., 2010), a data analysis was performed in order to examine the subscales' goodness of fit in relation to the loading of the seven subscales on the two narcissistic subtype scales. Moderate to high internal consistency reliability for the subscales was observed. These included Contingent Self Esteem (M = 1.73, SD = 1.02, α = .93), Exploitativeness (M = 2.49, SD = 1.01, α = .78), Hiding the Self (M = 2.88, SD = .91, α = .76), Self Sacrificing Self Enhancement (M = 3.08, SD = .89, α = .76), Grandiose Fantasy (M = 3.03, SD = .98, α = .79), Devaluing (M = 1.65, SD = .99, α = .85), and Entitlement Rage (M = 1.85, SD = 1.03, α = .87).

Results

Boring Task

To analyze the difference in time estimation accuracy between overt (grandiose) and covert (vulnerable) narcissism during the boring task, an ANOVA was performed. Counter to expectation, the result of the ANOVA revealed no main effect for overt (M = 16.81, SD = 4.87) or covert narcissism (M = 17.6, SD = 7.12), Fs < 1, or an interaction between them, F < 1. This suggests that individuals with overt and covert narcissistic characteristics reported similar levels of time estimation accuracy (M = 5.61, SD = 2.53) while engaging in a boring task.

Gratifying Task

An ANOVA was completed to analyze the difference in time estimation accuracy between overt (grandiose) and covert (vulnerable) narcissism while completing a gratifying task. As expected, the result of the ANOVA revealed no main effect for overt

(M = 16.81, SD = 4.87) or covert narcissism (M = 17.6, SD = 7.12), Fs < 1, or an interaction between them, F < 1. These results suggest that those with overt and covert narcissistic characteristics provide similar time estimations (M= 5.48, SD= 2.55) when engaging in a gratifying task.

Supplementary Analysis

Correlations were conducted between the seven subscales and the total on the PNI in order to assess the relationships between the scales. Results of the correlations show that a majority of the subscales are statistically related, rs = .29, p = .012, to r = .74, $p <$ .00. However, several correlations did not reach significance (see Table 2). The 'contingent self-esteem' scale was not correlated with the 'exploitativeness' subscale, $r(69)$ = .17, p = .17. The 'exploitativeness' scale was not correlated with the 'hiding the self' subscale, $r(74)$ = .03, p = .81, or the 'devaluing' scale, $r(72)$ = .18, p = .13. The 'self sacrificing self-enhancement' scale was not correlated with the 'hiding the self scale', $r(72)$ = .17, p = .14.

Correlations were also conducted between the seven subscales of the PNI, the PNI total and time estimation. The only correlation to emerge was between the 'hiding the self' subscale of the PNI and the time estimation provided on the gratifying task, $r(76)$ = .31, p = .007. This suggests that as scores on 'hiding the self' [i.e., "reflecting an unwillingness to show others ones faults and needs" (Pincus et al., 2009, p. 368)] increased, so did their estimation times on gratifying task. No correlation emerged between the PNI total or subscales of the PNI and time estimations on the boring task.

Self-esteem in relation to time estimation was also assessed partway through the research process. This was done in order to address whether the covariate was

significantly related to time estimation in the current study. An ANOVA was performed. The results from the ANOVA indicate that self-esteem (M = 16.6, SD = 2.3) was not related to the dependent variable of time estimation, Fs < 1, ps > .86.

Discussion

The purpose of this research was to extend Wink and Donahue's (1997) study. Using self-report questionnaires, that study found that covert narcissists tended to experience time as passing by more slowly when engaged in a boring task when compared to both non-narcissists and overt narcissists. Using a verbal prospective time estimation paradigm, the present study investigated time estimation accuracy in individuals with traits of overt and covert narcissism while completing a gratifying and a boring task. It was hypothesized that those with covert narcissistic characteristics would overestimate how much time had passed while engaging in a boring task when compared to both those with overt narcissistic characteristics. It was also hypothesized that the covert and overt narcissist will underestimate to the same degree how much time passed when engaging in a gratifying task.

The present study found time estimates were not significantly different between individuals with covert and overt narcissism traits while completing a boring task. This is surprising given past findings (i.e., Wink & Donahue, 1997) that have found covert narcissists (vulnerable) may tend to overestimate time in a boring task compared to individuals with overt narcissism (grandiose) traits. Specifically, Wink and Donahue (1997) argued that this is possibly due to individuals with covert narcissism being more prone to boredom than individuals with overt narcissism traits. In the current study, it is possible that the findings were not similar because it used an in vivo method with

participants engaging in a task and estimating time. Furthermore, in the Wink and

Donahue (1997) study, participants were not engaged in a task but filled out

questionnaires assessing their boredom proneness and how they perceive time. This may

have led to the discrepancy between the two studies.

The current research sought to expand Wink and Donahue's (1997) research to

include an interesting task specifically intended for those with narcissistic characteristics

to find gratifying. In the present study, the gratifying task consisted of the participants

writing down their greatest life achievement. It was predicted that prospective time

judgments in a gratifying task would be underestimated by both those with covert and

overt narcissistic characteristics. As hypothesized, no statistical difference was found

between covert and overt narcissistic characteristics in the gratifying task. No research

could be found that investigated time estimation abilities in individuals with covert and

overt narcissistic traits while completing a gratifying task. By having individuals with

narcissistic traits write about their most gratifying moment, it should tap into the

narcissistic need for admiration thus resulting in them underestimating time in this

gratifying task.

Finally, supplementary correlations showed interesting findings. For example, the

positive correlation between the 'hiding the self' subscale of the PNI and the time

estimate for the gratifying task was not anticipated. This suggests that higher ratings on

the 'hiding the self' subscale, "reflecting an unwillingness to show others ones faults and

needs" (Pincus et al., 2009, p. 368), is associated with higher estimates of time during the

gratifying task. An explanation for this may be the nature of the gratifying task.

Participants had to complete a task answering a question about their greatest life

achievement. In this way, individuals may have been attempting to justify their greatest achievement as something that is truly an achievement. Time estimation plays a role when looking at the possibility that the gratifying task is cognitively loading on an individual. According to research by Brown (1985), the more a task loads on one's cognitive resources, the less likely an individual is to be accurate in a prospective time judgment. Therefore, if participants feel as though they have not had great life achievements, this may have induced stress and negative emotions in the individual, leading them in an attempt to hide part of who they are and estimate the task as taking longer than it truly did. Research has shown that increases in stress and negative emotions in participants can lead to overestimations of time (Droit-Volet, Brunot, & Niedenthal, 2004). While the current study did not show significant overestimations of time in the gratifying task, there was a weak correlation between the 'hiding the self' subscale and the gratifying task. The potential for significance when more participants are assessed is a possibility.

Limitations to the current study include the number of participants in the study. Specifically, the current research comprised of 67 participants from a college campus located in the inland Pacific Northwest. In addition, additional analysis revealed that time estimates provided during the boring task and the gratifying task were strongly correlated with one another, $r = .69$, $p < .001$. An explanation for this may be that the boring task was not as boring as it could have been and the gratifying task was not assessing the narcissistic need for attention as it had been previously thought. The tasks were designed after carefully reviewing qualities as is defined by Narcissistic Personality Disorder in the DSM-IV-TR (2000). Additionally, the boring task was chosen because it was believed to

be mundane enough to be perceived as boring. A final limitation of the current study was

that it did not allow for the participants to actively engage with others. The chosen trait

from narcissism for the gratifying task was the need for admiration. What may have been

lacking was another individual to give that admiration. The current study did not make

use of this aspect and did not rely on admiration from others, but instead relied on

boasting about that admiration in private.

   Future research is encouraged to investigate the task used to elicit narcissistic

behaviors more thoroughly. Individuals with narcissistic characteristics do not feel they

need to do anything to gain others' attention and admiration; they should simply have it.

Therefore, it might be more beneficial to indulge the idea that they already have

admiration. One idea is to have the researchers pander to the participants' inner

narcissistic characteristics. Instead of having them do a task, engage the participant

passively or actively. That is, the experimenter would engage a participant in speaking

about themselves, while either showing great interest by doing something like

complimenting them, or little interest, by doing something like ignoring them all

together.

   Furthermore, it may prove beneficial to include a real-life element to the tasks.

Individuals with narcissistic characteristics tend to rely on admiration from others and

exploitation of others. Future research needs the interesting task to be more

narcissistically gratifying. Additionally, future research may want to assess the weak

correlation found between the 'hiding the self' subscale of the PNI and the boring task.

Future research may want to further assess whether individuals who score high on this

specific scale also tend to overestimate time in tasks that delve further into achievements,

honors, and/or awards. Additionally, adding more narcissism scales to assess whether individuals' narcissism scores fluctuate based on what task they are engaged in and how they estimate time in those tasks. In the therapeutic setting, future research may want to assess how individuals with Narcissistic Personality Disorder estimate time. The current study only looked at narcissistic traits and findings may be different when including the Personality Disorder. Additionally, future research may want to include group activities to assess how others besides the individual with narcissistic personality/traits influence this person's time estimation. It is possible that, with the influence of others, the person with narcissistic personality/traits will estimate time differently then when by themselves, especially if there is failure to provide feedback for this individual from others.

Narcissism and time estimation have been studied separately and together, but little research could be found that investigated subtypes of narcissism (covert and overt narcissism) and time estimation. The purpose of the present study was to expand on Wink and Donahue's (1997) research to include an in vivo element, prospective paradigms, and an interesting task. Counter to hypotheses, there were no statistical differences in time estimates made between individuals with covert and overt narcissistic characteristics in the boring task. However, in line with prediction, there was no difference in time estimates made between individuals with covert and overt narcissistic characteristics in the gratifying task. The supplemental analyses found a correlation between the 'hiding the self' scale from the PNI and the gratifying task. This may be due to individuals experiencing negative emotions regarding a possible lack of achievements leading them to have longer estimations of time (Brown, 1985). Future research should investigate this.

Narcissism's effects on time estimation could provide information on how to

better engage clients with narcissistic characteristics in the therapeutic setting. For instances, the therapist wants to understand the entirety of who the client is, and understanding how the client estimates a crucial part of the day can prove important when attempting to understand certain actions by the client. The narcissistic client may arrive late to session, arrive early and demand to be seen or arrive right on time. Understanding these intricacies of time estimation of the client can help in therapeutic interventions revolving around assisting the client in understanding the value of others' time along with interpersonal skills. In the realm of education, the same may hold true. Students may come to class late, or end class early. Students may need to do group projects and for individuals with especially high narcissistic traits, group projects can be difficult, specifically for those who are not the narcissistic individuals. Understanding the intricacies of how the general population, which has been shown to have increasing levels of narcissism (Twenge, 2006), estimates time can prove beneficial to professors and teachers. Having this information may help in engaging the children of tomorrow.

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Table 1

Demographics

	Ethnicity	
	Frequency	Percent
African American	6	7.7
Asian	5	6.4
Caucasian	48	61.5
Hispanic	4	5.1
Middle Eastern	1	1.3
Multi-racial	11	14.1
Other	2	2.6

	Relationship	
	Frequency	Percent
Single	60	76.9
Married	6	7.7
Divorced	1	1.3
Living with Partner	10	12.8

Note: Frequency refers to the number of participants endorsing a particular demographic item; Percent refers to the percent of participants endorsing a particular demographic item.

Table 2

Pearson Correlations between all PNI subscale means and time estimation means

Factor Means	Boring Task	Gratifying Task	Vulnerable	Grandiose	PNI	CSE	EXP	SSSE	HS	GF	DEV	ER
Gratifying Task	.693*	1.0*										
Vulnerable	.087	.064	1.0*									
Grandiose	.090	.070	.655*	1.0*								
PNI	.094	.060	.918*	.900*	1.0*							
CSE	-.002	-.074	.901*	.660*	.864*	1.0*						
EXP	.015	.008	.147	.646*	.424*	.165	1.0*					
SSSE	.020	-.004	.412*	.696*	.604*	.485*	.348*	1.0*				
HS	.220	.305*	.700*	.310*	.569*	.391*	.028	.172	1.0*			
GF	.058	.122	.492*	.791*	.698*	.495*	.301*	.443*	.285*	1.0*		
DEV	.057	.083	.848*	.568*	.781*	.635*	.177	.287	.495*	.369*	1.0*	
ER	.176	.152	.781*	.856*	.898*	.710*	.403*	.446*	.452*	.549*	.743*	1.0*

Note: PNI = Pathological Narcissism Inventory; CSE = Contingent Self Esteem; EXP = Exploitativeness; SSSE = Self Sacrificing Self Enhancement; HS = Hiding the Self; GF = Grandiose Fantasy; DEV = Devaluing; ER = Entitlement Rage; Gratifying Task = mean time estimation for the gratifying task; Boring Task = mean time estimation for boring task; Pearson Correlations used. *$p<.05$

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