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How Narcissism Relates to Social Rank Dynamics in Teams

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A thesis submitted in partial fulfillment of the requirements for the Master of Science degree in Psychology

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Abstract

Team performance can be impaired when two team members both believe they outrank one another in status (upward-status disagreement; USD; Kilduff et al., 2016). Drawing from the narcissistic admiration and rivalry concept (Back et al., 2013), the current study examined how two forms of narcissism distinctively relate to USDs across a team's lifecycle. Gathering data at four time points, I studied over 126 small task teams from inception to dissolution. The results indicate that narcissistic admiration did not predict one's status perception tendency or absolute status. However, narcissistic admiration predicted the number of USDs one experiences during team formation and before team dissolution. Narcissistic rivalry predicted other-status derogation across all time points and a decrease in absolute status over time. Moreover, narcissistic rivalry predicted the number of USDs one experiences during team formation. My thesis highlights how both forms of narcissism may lead to undesirable social outcomes.

Keywords: Status; Status disagreement; Narcissism; Small groups

Summary for Lay Audience

Upward-status disagreement describes a situation in which two team members both believe they rank higher than each other in status. Such disagreement over status can occur frequently and undermine team performance, yet we know little about the factors contributing to it. This study examined how two dimensions of narcissism, namely admiration and rivalry, may uniquely contribute to the occurrence of upward-status disagreement across a team's lifecycle. Entailing distinctive status attainment strategy and social consequences, admiration and rivalry reflect the agentic and antagonistic aspects of narcissism respectively. To better understand the effect of narcissism on upward-status disagreement, distinctive status perception tendencies and status dynamics associated with each dimension of narcissism were also investigated.

To evaluate the effect of narcissism on upward-status disagreement across time, I collected data from student project teams at Western University. Data were collected at four time points while students worked virtually on their projects for four months. Team members' ratings and rankings of their own and each other's status were assessed three times: during initial group interaction, in the middle of the term, and before the project deadline.

Narcissism and other demographic information were assessed before team formation.

Overall, people higher in narcissistic admiration accurately perceived their own and others' status and did not obtain particularly high or low status. However, these people were involved in more upward-status disagreement during initial group interaction and when the project deadline approached compared to those lower in narcissistic admiration. People higher in narcissistic rivalry persistently underestimated others' status and occupied low

status. They also experienced more upward-status disagreement during initial group interaction compared to those lower in this trait. This research provides insight into a contributing factor of upward-status disagreement and furthers our understanding of the unique perception tendency and status trajectories associated with each dimension of narcissism.

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How Narcissism Relates to Social Rank Dynamics in Teams

Status hierarchy is a fundamental social structure that naturally emerges within groups and is relevant to group functioning (Kilduff et al., 2016; Magee & Galinsky, 2008). Status hierarchy refers to the rank ordering of individuals according to their afforded respect, admiration, and voluntary deference. A reason that hierarchy is ubiquitous and emerges quickly might be that it facilitates group success in many ways, including fulfilling group members' psychological needs, encouraging group members' contributions, creating complementary psychological processes for leaders and followers, providing order and organization, reducing conflicts, and increasing voluntary cooperation (Halevy et al., 2011; Magee & Galinsky, 2008). Despite scholars emphasizing the potential value of hierarchy, meta-analytic evidence shows that the positive effects of hierarchy do not always manifest (Greer et al., 2018). Hierarchy may sometimes hinder team effectiveness by reducing trust and coordination, increasing competition, and impeding communication (Anderson & Brown, 2010).

A key moderator of the impact of hierarchy on group is the perception of hierarchy legitimacy – the belief that a hierarchy is appropriate, proper, and just (Halevy et al., 2011; Tyler, 2006). When someone perceives a hierarchy as illegitimate, they will be motivated to challenge high-ranking individuals and become less cooperative, ultimately reducing the functionality of a hierarchy (Halevy et al., 2011). Status hierarchies are formed based on voluntary respect, admiration, and deference, which should reflect high legitimacy and high consensus among group members regarding each other's status. Although group members tend to achieve sufficient consensus around status to allow meaningful status hierarchies to

form, disagreements regarding who ranks where in status (i.e., status disagreement) still occur frequently (Kilduff et al., 2016; Yu & Kilduff, 2020). More importantly, an upward-status disagreement (i.e., two individuals who both believe they outrank one another, hereafter referred to as *USD*) is the most prevalent type of status disagreement in task-oriented groups and is uniquely detrimental to group performance due to it discouraging group members' contributions (Kilduff et al., 2016). Despite the prevalence of this harmful type of status disagreement in groups, little is known about the factors contributing to USD, let alone how these factors contribute to the temporal dynamics of USD. To address these looming questions, this research investigated status disagreements in task-oriented groups, with a specific focus on USD. More specifically, I examined how individual differences in grandiose narcissism may contribute to the prevalence of such disagreements in project teams. To gain a more comprehensive understanding of the relation between narcissism and USD, the current thesis employed a longitudinal design to track the self- and peer-ratings of status in groups across time to capture the potential changes in this relation.

Defining Status and Status Disagreements

Status is conferred respect, admiration, and voluntary deference (Anderson et al., 2015). It is an inherently relational construct as status conferral requires an interpersonal context. For clarity purposes, relative status rank (hereafter referred to as relative status) refers to the relative position of an individual in the status hierarchy based on the amount of respect, admiration, and voluntary deference a person is afforded. Absolute status level (hereafter referred to as absolute status) refers to the amount of respect, admiration, and voluntary deference group members confer to an individual. Whereas the relative status has a

zero-sum quality (i.e., a person's increase in rank order results in another member's decrease in rank order), absolute status does not necessarily follow this pattern. Thus, high absolute status (i.e., receiving high ratings in status) does not always equate to higher relative status as relative status depends on the status afforded to other group members.

Status is conferred based on a valued social dimension, such as physical and social dominance, skills, knowledge, generosity, and wealth and education (Magee & Galinsky, 2008; Mattan et al., 2017). To confer status to another, one needs to identify valued social dimensions, decide on cues that are relevant to such dimensions (e.g., age, functional background, personality), and be able to observe these cues. All of these processes are subjective in nature, thus creating the potential for disparate perceptions of status. Kilduff et al. (2016) identified three types of status disagreements that can occur between two team members: upward (i.e., two members both believe they outrank one another), downward (i.e., two members both believe they rank lower than one another), and third-party disagreement (i.e., two members disagree about where does a third member rank). Among these three types of status disagreements, USDs were most frequently observed (Kilduff et al. 2016). As it pertains to why this form of status disagreement is more common, a possible explanation is the widespread desire for high social rank. High social rank conveys benefits including autonomy, positive self-views, a sense of control, and access to resources (Mitchell et al., 2020). Thus, individuals might be encouraged to hold an inflated perception of their status to benefit from a positive, though potentially unrealistic, self-image (Taylor & Brown, 1988).

An USD can easily occur when one or both members of a dyad overestimate their own relative status. For example, imagine Alan, Bella, and Chris form a group and are asked

to rank each other's status. If Bella and Chris both rank Alan at the bottom of the hierarchy (i.e., 3rd), but Alan ranks himself at the top of the hierarchy (i.e., 1st), Alan is over-ranking himself relative to the group consensus. As a result, Alan would get involved in USDs with Bella and Chris, as Alan ranked himself above Bella and Chris, but Bella and Chris also ranked themselves above Alan.

Two cognitive processes might contribute to one's overestimation of their own relative status: 1) status self-enhancement and 2) other-status derogation. Status self-enhancement refers to perceiving oneself as possessing higher absolute status than other group members perceive. In contrast, other-status derogation refers to perceiving others as possessing lower absolute status than other group members. Both cognitive processes could lead one to overestimate their own relative status and get involved in USDs with those who possess more absolute status and thus deserve higher relative status.

Although research shows that people are generally accurate in perceiving their own and others' absolute status (e.g., Anderson et al., 2008; Anderson et al., 2001; Anderson et al., 2006), there is evidence suggesting large individual differences (Kilduff et al., 2016; Yu & Kilduff, 2020). A question that naturally arises is what personal characteristics might contribute to this individual variation? One potential answer is a person's level of narcissism.

Narcissism, Self-enhancement, and Other-derogation

Narcissism is a broad and multidimensional construct, which can refer to grandiose narcissism and vulnerable narcissism. As this study focuses on grandiose narcissism, I use the term narcissism to imply grandiose narcissism. Moreover, I use the term narcissist(s) to refer to people who score relatively high on the narcissism scale rather than people who are

clinically diagnosed with narcissistic personality disorder. The defining characteristic of narcissism is a strong sense of superiority and entitlement (Brummelman et al., 2018).

Narcissism can be considered as a mechanism to obtain and maintain a grandiose and superior self-image (Morf et al., 2011). To achieve this goal, self-enhancement and other-derogation – the two cognitive processes contributing to USDs – are both frequently used.

Self-enhancement is a desire to exaggerate the positivity and minimize the negativity of one's self-image (Leary, 2007). The relation between narcissism and self-enhancement is well established. Morf et al. (2011) even called narcissism “the self-enhancer personality”. Indeed, numerous studies have demonstrated narcissists' tendency to self-enhance their performance and status (Anderson et al., 2008; Benson et al., 2016; John & Robins, 1994). Moreover, narcissists seem to be immune to disconfirming evidence (Robins, & John, 1997), potentially because they tend to take personal credit for successes and blame others for failures (Carlson & Khafagy, 2018). Maintaining a positive self-image is a universal desire, yet narcissists are particularly likely to self-enhance. Although Anderson et al. (2008) suggest that self-enhancement usually comes with social punishment, such as being disliked by groups, narcissists might be less concerned about such costs. Narcissists might be more willing to sacrifice relationships for status than others because they have a stronger status than affiliation motive (Grapsas et al., 2020; Li & Benson, 2022). For the same reason, narcissists tend to self-enhance characteristics related to agentic goals (e.g., power and status) more than communal goals (e.g., affiliation and closeness; Grijalva & Zhang, 2016). Thus, status, as a typical indicator of agentic achievement, should be a main target of self-enhancement.

Other-derogation is another tool that narcissists employ to maintain a grandiose self. Other-derogation might be especially helpful in defending against negative evaluations. Research indicates that narcissists tend to devalue others when their self-image is threatened. For example, narcissists privately rated those who outperformed them more negatively on personality ratings (Morf & Rhodewalt, 1993). Similarly, after receiving negative feedback, narcissists rated the evaluators as less competent and likeable and perceived the evaluation technique as less diagnostic (Kernis & Sun, 1994). Although researchers have not specifically examined narcissists' tendency to derogate others' *status*, Benson et al. (2016) found that narcissists only perceived a role assignment procedure to be more accurate when assigned a high-status role compared to a low-status role. These findings demonstrate that narcissists care deeply about their status and are willing to twist reality to align with their desire for status. Thus, narcissists are expected to derogate others' status, especially when they do not actually attain high absolute status. As status is central to narcissists' self-image, derogating others' status in situations where they do not attain high absolute status would at least help them obtain a higher (self-perceived) *relative status*, which, in turn, serves to maintain a grandiose self.

Given research providing support for a link between narcissists' tendency to self-enhance and derogate others, can we thus predict that narcissists are more likely to get involved in USDs? Unfortunately, several questions still await to be addressed. First, studies measuring the relation of narcissism with self-enhancement and other-derogation have measured narcissism with the Narcissistic Personality Inventory (NPI; Raskin & Hall, 1979), which treats narcissism as a unitary construct. The narcissistic admiration and rivalry concept

(NARC), however, parses narcissism into narcissistic admiration (i.e., the agentic aspect) and narcissistic rivalry (i.e., the antagonistic aspect), each of which activates disparate behavioural patterns and entails different social consequences (Back et al., 2013). The NARC was developed to help reconcile an array of seemingly paradoxical findings regarding the positive and negative social consequences tied to narcissism. The two dimensions of narcissism may have different, even contradictory, relations to USD. Second, the extent to which narcissists' self-enhancing or other-derogating tendency leads to USDs depends on the absolute level of attained status. If narcissists indeed possess a high level of absolute status, their self-enhancing or other-derogating tendency would not necessarily lead to USDs. Third, it is important to consider the length of group interaction when discussing the relation between narcissism and USD. Studies suggest that narcissists' peer-rated absolute status and their self-enhancing tendency may change over time (e.g., Carlson & DesJardins, 2015; Leckelt et al., 2015; Paulhus; 1998). Therefore, the narcissism-USD relation might not be static. To unwind the relation between narcissism and USD, it is important to discuss the relation between USD and each dimension of narcissism, while considering narcissists' absolute status trajectory over time.

The NARC divides narcissism into two dimensions based on distinct strategies oriented toward the overarching goal of maintaining a grandiose self: through assertive self-enhancement of positive self-views (i.e., narcissistic admiration) and antagonistic self-protection to defend oneself against negative self-views (narcissistic rivalry; Back et al., 2013). Although both dimensions have a similar level of desire for status, they differ in the strategies used to pursue status and have divergent associations with peer-rated absolute

status and self-reported absolute status (Zeigler-Hill et al., 2019).

How Narcissistic Admiration Relates to Status Over Time

Narcissists' self-enhancing behaviours are mainly associated with narcissistic admiration, which reflects the possession of grandiose fantasies and perceptions of uniqueness, both of which especially encourage self-enhancement (Back et al., 2013). The relation between narcissistic admiration and the tendency to self-enhance one's status has not been specifically examined. Benson and Giacomini (2020), however, found that narcissistic admiration was strongly positively related to self-perceived status, suggesting that people higher in this trait feel very positively about their status. Moreover, past findings with the NPI offer supportive evidence for the positive relation between narcissistic admiration and the status self-enhancement tendency (Anderson et al., 2008; Carlson & DesJardins, 2015), as the NPI emphasizes the assertive aspects (i.e., narcissistic admiration) of narcissism (Back et al., 2013; Krizan, & Herlache, 2018). Narcissistic admiration was found to be unrelated to the tendency of other-devaluation (Back et al., 2013). Therefore, narcissistic admiration is expected to be positively associated with status self-enhancement but unrelated to other-status derogation.

Although individuals higher in narcissistic admiration are expected to self-enhance their status during the early phases of social acquaintance, it is not clear whether they would do so persistently over time. Research reveals conflicting evidence regarding narcissists' self-enhancement over time. Carlson and DesJardins (2015) found that although narcissists self-enhanced their status at the beginning of group involvement, they accurately perceived their loss of status over time and did not demonstrate status self-enhancement after seven weeks of

group interaction. In contrast to Carlson and DesJardins' findings, however, Paulhus (1988) found that narcissists' self-enhancement tendency became salient as the length of group interaction increased. As an explanation for Paulhus' results, research indicates that narcissists recognize that others do not view them as positively as they do, but nevertheless maintain a grandiose self-view, suggesting their perception of disconfirming evidence does not necessarily reduce their self-enhancing tendency (Carlson et al., 2011). Due to the inconsistency of evidence and the absence of theory on this particular issue, there is no clear basis for a prediction regarding the relation between narcissistic admiration and status self-enhancement in the long term. Thus, I only proposed a hypothesis regarding their relation during initial group interaction:

Hypothesis 1: Narcissistic admiration will be positively related to status self-enhancement at the beginning of group involvement.

Although narcissistic admiration may relate to status self-enhancement at the beginning of group involvement, it also tends to predict attainment of absolute status during initial social interactions. Individuals higher in narcissistic admiration are skilled at making positive first impressions – they tend to be viewed as extraverted, assertive, sociable, attractive, and competent in short-term acquaintance (Back et al., 2013). Moreover, their behaviours align with people's perceptions of prototypical leaders (e.g., being socially dominant, being extraverted, and possessing high self-esteem; Grijalva, 2015). As a result, narcissistic admiration tends to relate to leadership emergence and status attainment at the beginning of social interactions. However, many studies suggest that narcissists tend to experience a decrease in absolute status and popularity over time as people become more

acquainted and are confronted with their exploitative and self-interested tendencies (Back et al., 2010; Carlson & DesJardins, 2015; Leckelt et al., 2015; Paulhus, 1998). Most of the studies demonstrating the waning pattern of narcissists' absolute status measured narcissism with the NPI. I assume their results apply to narcissistic admiration due to the NPI's emphasis on the agentic aspect of narcissism (Back et al., 2013; Krizan, & Herlache, 2018). As such, the following hypothesis regarding the relation between narcissistic admiration and peer-rated absolute status was put forth:

Hypothesis 2: Narcissistic admiration will be positively related to peer-rated absolute status initially, but this relation will become weaker over time.

Considering the relations between narcissistic admiration, peer-rated absolute status, and status-enhancement enables predictions about the relation between narcissistic admiration and USD. Although narcissistic admiration is expected to be positively related to status self-enhancement, it may not lead to the occurrence of USD initially as narcissistic admiration tends to predict high absolute status at the beginning. For example, consider a situation wherein Alan, Bella, and Chris are teammates. Each member's absolute status will be measured using a rating scale whereby 1 indicates low absolute status and 10 indicates high absolute status. Each member's relative status will be measured using a rank-order measure, with 1 indicating the highest rank and 3 indicating the lowest rank. Imagine Alan and his friends are asked to rate each member's absolute status then provide each member's relative status. Alan, Bella, and Chris received ratings of 7, 6, and 5 respectively for absolute status. If Alan – who happens to be narcissistic – self-enhances by self-reporting an absolute status of 10, he would believe he deserves the highest relative status and also rank himself

first. Despite inflating his own score, Alan would not get involved in USD as he would be ranked first according to his group members' ratings of absolute status (i.e., score of 7; see Table 1).

Table 1

Status Ratings and Status Ranks Provided by Alan and His Peers

Name	Absolute Status Ratings Provided by Alan	Status Rank Provided by Alan	Average Absolute Status Ratings Provided by Peers	Average Status Rank Provided by Peers
Alan	10	1	7	1
Bella	6	2	6	2
Chris	5	3	5	3

What is more of interest is whether admiration would positively predict the occurrence of USD over time. As narcissistic admiration is expected to relate to a decrease in absolute status over time, whether this trait predicts USDs would depend upon its relation with the status self-enhancement tendency as time proceeds. If individuals higher in narcissistic admiration accurately perceive their own and others' absolute status after their absolute status wanes, there would be a reduced likelihood of them getting involved in USDs. If they continue to self-enhance their status, however, they may get involved in USDs with those who hold higher absolute status than they do. To demonstrate this using Alan and his friends, imagine Alan's absolute status rating drops from 7 to 4, and the absolute status ratings of Alan, Bella, and Chris become 4, 6 and 5, respectively. If Alan accurately perceives his absolute status, he would rank himself last in the status hierarchy and would not get involved in any USD. However, if Alan continues to self-enhance and gives himself an absolute status rating of 10, he would incorrectly rank himself first in the hierarchy. As a result, Alan may get involved in USDs with Bella and Chris, as Bella and Chris would likely rank themselves above Alan based on their perception of Alan's absolute status. As research

on the relation between narcissistic admiration and status self-enhancement tendency over time has produced inconsistent evidence (e.g., Carlson & DesJardins, 2015; Grijalva & Zhang, 2016; Paulhus, 1998), I do not have a specific hypothesis for the association between narcissism and the occurrence of USDs over time, but will evaluate this research question for exploratory purposes.

How Narcissistic Rivalry Relates to Status Over Time

Narcissists' tendency to devalue others is mainly attributed to narcissistic rivalry. Back et al. (2013) found that narcissistic rivalry reflects the tendency to devalue others. Specifically, people who score high on narcissistic rivalry perceived others as more aggressive and untrustworthy (Back et al., 2013). Literature examining the relation between narcissistic rivalry and status self-enhancement is scarce. However, narcissistic rivalry is related to lower self-perceived status than narcissistic admiration (Zeigler-Hill et al., 2019), suggesting that individuals higher in narcissistic rivalry are cognizant of their lack of status. As described in the status pursuit in narcissism model, narcissistic individuals who encounter difficulties in pursuing status are likely to resort to other-derogation instead of status self-enhancement (Grapsas et al., 2020). The relation between narcissistic rivalry and other-status derogation is also expected to be stable over time. Other-derogation is a strategy used to defend against negative self-views and maintain a grandiose self. As individuals higher in narcissistic rivalry are expected to consistently lack status throughout a group's life cycle – which will be explained later – they are expected to continue using this strategy to protect their grandiose self. Thus, the following hypothesis was proposed:

Hypothesis 3: Narcissistic rivalry will be positively related to other-status derogation across all time points.

Unlike narcissistic admiration that often relates to social potency, narcissistic rivalry is linked to strategies that characterize “unsuccessful narcissists” (Sachse, 2019). People higher in narcissistic rivalry are typically disliked and viewed as untrustworthy, revengeful, low in empathy, and low in forgiveness (Back et al., 2013). As a result, they are unlikely to be recognized or afforded high status by their peers even during initial interactions. As time proceeds, the effect of narcissistic rivalry is expected to be stronger, causing their absolute status to decline further. Supportive of this prediction, narcissistic rivalry was more negatively related to popularity as interaction increases (Leckelt et al., 2015). Moreover, Carlson and DesJardins (2015) demonstrated that the relation between absolute status and the exploitative/entitlement facet of the NPI – a facet of the NPI that overlaps with rivalry – also became more negative over time. Thus, the following hypothesis regarding the relation between narcissistic rivalry and absolute status is proposed:

Hypothesis 4: Narcissistic rivalry will be negatively related to peer-rated absolute status initially, and this negative relation will become stronger over time.

The incompetence in obtaining high absolute status, combined with the tendency to devalue others, would likely cause group members higher in narcissistic rivalry to get involved in USDs from the beginning of the interaction. Over time, these people are expected to experience more USDs as their peer-rated absolute status is expected to become lower and their other status-derogation tendency is expected to stay stable. Thus, I predicted the following:

Hypothesis 5a: Narcissistic rivalry will increase the likelihood of being involved in at least one USD across all time points.

Hypothesis 5b: Narcissistic rivalry will increase the number of USDs team members get involved in at the beginning of group involvement, and it will increase the number of USDs team members get involved in even further over time.

Overview of Research

Despite the suggested prevalence of USD and its negative impact on team performance (Kilduff et al., 2016), few studies have examined the factors contributing to USD, let alone whether these factors would persistently contribute to the occurrence of USD across time. To gain insight into the role of narcissism in shaping status dynamics within teams, this study examined how narcissism relates to perceiving the status of others, gaining and losing status across time, and the occurrence of USD across a team's lifecycle. As the two dimensions of narcissism (narcissistic admiration and narcissistic rivalry) are associated with unique characteristics and consequences (e.g., Back et al., 2013), and how narcissists perceive their own status – and are perceived by others – may vary over time (e.g., Carlson & DesJardins, 2015), this study assessed the status dynamics unique to each form of narcissism. This study was pre-registered and deposited on the Open Science Framework: <https://osf.io/uszx5>.

Method

Participants

Data were collected from first-year engineering students at Western University over four time points. Students were randomly assigned to groups of four to seven members in

September 2020 and re-assigned to new groups of the same size in January 2021 to work on their course projects.¹ Time point 1 consisted of 596 participants (73.66% male, 1.01% other/unspecified, $M_{\text{age}} = 18.07$, $SD_{\text{age}} = 0.89$) in 131 groups with an average size of 4.59 members. Time point 2 consisted of 531 participants (65% male, 21.47% other/unspecified, $M_{\text{age}} = 18.07$, $SD_{\text{age}} = 0.93$) in 127 groups with an average size of 4.21 members. Time point 3 consisted of 572 participants (65.38% male, 15.04% other/unspecified, $M_{\text{age}} = 18.07$, $SD_{\text{age}} = 0.93$) in 126 groups with an average size of 4.59 members. Time point 4 consisted of 554 participants (66% male, 16.97% other/unspecified, $M_{\text{age}} = 18.05$, $SD_{\text{age}} = 0.89$) in 127 groups with an average size of 4.42 members. The number of participants retained across different analyses is described in the results. Consent was collected at the beginning of each survey and students received course credit for participation.

Procedure

Participants were assigned to teams in the fall semester (i.e., September 2020) and re-assigned to new teams in the winter semester (i.e., January 2021). Participants remained in each group for 12 weeks to work on group projects. Due to the impact of the Covid-19 pandemic, studios remained in-person but were virtually mediated in the fall term (September to December 2020). This means meetings were in-person but physically-distanced, and group members worked on group projects collaboratively using Microsoft Teams. Studios became completely virtual in the winter term (January to April 2021), such that group members were not physically present in the same room and all group meetings and group work were done virtually.

¹ Group re-assignment was a course-based decision rather than a request made by the researchers.

The current thesis is part of a large-scale study being conducted at four time points (i.e., T1, T2, T3, and T4) via online questionnaires. T1 occurred in October 2020 and measured a range of individual differences, including narcissism. T2, T3, and T4 took place on January 28th, March 7th, and April 11th, 2021 respectively. Acquaintance level was measured at T2, approximately two weeks after new groups were created. Absolute status and relative status were assessed at T2-T4, along with measures of group experiences unrelated to the current thesis (e.g., team conflict, team coordination, team potency).

Measures

Narcissistic Admiration and Narcissistic Rivalry

Narcissistic admiration and narcissistic rivalry were measured with the Narcissistic Admiration and Rivalry Questionnaire (NARQ; Back et al., 2013; Appendix B). The NARQ contains nine items assessing narcissistic admiration (e.g., “I show others how special I am”; $\alpha = .78$) and nine items assessing narcissistic rivalry (e.g., “I secretly take pleasure in the failure of my rivals”; $\alpha = .76$). Participants rated their agreement with each statement on a 6-point scale (1 = strongly disagree, 6 = strongly agree). Admiration scores and rivalry scores were obtained by averaging the scores on each subscale.

Acquaintance Measure

To control for acquaintance level, participants were asked to answer “yes” or “no” to the question “Did you know [partner name] before the start of this semester?” (Appendix C). If participants answered “yes”, they were then asked to rate “How acquainted are you with [partner name]?” on a scale of 1 (not at all) to 6 (very much). How well a person was known by their group members was indicated by the average acquaintance score assigned to them.

Those who answered “no” to the question “Did you know [partner name] before the start of this semester?” were considered giving an acquaintance score of 0 to the target member.

Absolute Status

Absolute status rating items were developed based on Anderson et al.’s (2015) definition of status (i.e., status is an individual’s afforded respect, admiration, and voluntary deference; Appendix D). Participants’ absolute status was measured in a round-robin manner whereby each member rated themselves and every other member in the group, with a 6-point scale (1 = not at all, 6 = very much). Participants’ self-rated absolute status was assessed with the following wording: “I have high status (i.e., influential, respected, and admired) in our team”. Alternative wording was used for peer-rated absolute status: “[partner name] has high status (i.e., influential, respected, and admired) in our team”. Participants rated their own and group members’ status on a single item to address the concern that the three attributes included in the status definition are not individually sufficient in defining status.

Relative Status

Relative status was assessed by instructing participants to “rank from 1 to 6 who has the highest status on your team, including yourself (1 being the highest, 6 being the lowest)” (if the group consists of six members), and status was explained as “who is most influential, respected, and admired on your team” (Appendix E). Group members’ ranks were indicative of their relative status. A study examining status disagreement (i.e., Kilduff et al., 2016) used leadership as a proxy for status. However, I chose to operationalize status in a way that is more consistent with its conceptualization in the literature.

Analysis

Calculation of Status Disagreements

The number of USDs that each group member was involved in was computed by comparing where individuals rank themselves and their teammates at the dyadic level. An USD occurs when two group members both outrank each other. For example, if Alan ranks himself first and ranks Bella second, but Bella ranks herself first and ranks Alan third, then Alan and Bella are both involved in one USD. To calculate the number of USDs each group member experienced, at least three group members must have provided and received status ranks to/from each other.

An Overview of the Social Relations Model (SRM)

The SRM (Back & Kenny, 2010) was used to gain insight into how narcissism was linked to self- and other-perceptions of absolute status. The SRM allowed me to examine narcissists' status rating tendency (i.e., status self-enhancement and other-status derogation; Hypotheses 1 and 3) and their peer-rated absolute status at each time point (Hypotheses 2 and 4) by analyzing group members' round-robin absolute status ratings, which is described below.

The SRM decomposes peer ratings of absolute status in a team context into three components: the target effect (i.e., the way that someone is consistently rated by others), the perceiver effect (i.e., the way that someone consistently rates others), and the relationship effect (i.e., the way that someone uniquely rates a person relative to others in the group; Back & Kenny, 2010). In the context of the proposed study, using Alan and his friends as an example, Alan would have a high target effect if his group members all rate him higher in absolute status. Alan would have a high perceiver effect if he is a more lenient rater than

other group members. The extent to which Alan uniquely rates Bella higher (or lower) in absolute status compared to others is the relationship effect. The SRM analyses were conducted using the TripleR package in R using the multiple group option (Schönbrodt et al., 2012). TripleR partitions the round-robin ratings into distinct sources of variance (i.e., target variance, perceiver variance, and relationship and error variance). A breakdown of the variance was illustrated in Table 2 (e.g., 14.1% of overall variance at T2 was attributed to target, 61.9% attributed to perceiver, 23.9% attributed to a combination of the unique relationship between target and perceiver and random variation by chance). I was then able to extract a score representing each person's target effect and perceiver effect based on the target and perceiver variance. This study mainly focused on the target effect, perceiver effect, and self-enhancement index (calculated based on the target and perceiver effect), and assessed their relation to narcissism.

Table 2

Variance Decomposition of Status Ratings at Each Time-Point

	T2	T3	T4
Target Variance	14.1%	23.5%	26%
Perceiver Variance	61.9%	46.9%	38%
Relationship and Error Variance	23.9%	29.5%	36%

To deal with missing data, the TripleR first deleted rows and columns that contain less than a minimum number of data points (i.e., minData). minData were set to 2 for this study, meaning that each group member has to receive and provide at least two ratings from/for others. After deletion, the missing values were imputed based on the respective row and column means. Target variance, perceiver variance, and their corresponding effects were calculated based on the imputed data set.

How Narcissism Relates to Status Self-Enhancement and Other-Status

Derogation. To examine Hypothesis 1, a status self-enhancement index was computed using a SRM-based measurement of self-enhancement developed by Kwan et al. (2004). According to the SRM, a person's positive self-rating of absolute status might be due to 1) this person's general tendency to perceive everyone (including themselves) positively (i.e., perceiver effect), 2) their tendency to elicit a high absolute status rating (i.e., target effect), and/or 3) their overly positive view of their absolute status (i.e., status self-enhancement). Therefore, the SRM-based self-enhancement index for each individual is computed by subtracting individuals' target effects and perceiver effects from their self-ratings. Narcissists' status self-enhancement tendency was assessed by correlating self-enhancement scores with narcissistic admiration and rivalry. Hypothesis 1 would be supported if narcissistic admiration was positively related to the status self-enhancement index at T2 (i.e., two weeks after group formation in the winter term).

Narcissists' other-status derogation tendency was assessed by examining the perceiver effects provided by TripleR. Hypothesis 3 proposed that individuals higher in narcissistic rivalry would derogate others' status across all time points. To test this hypothesis, I regressed individuals' perceiver effects of status on their scores on each type of narcissism. Hypothesis 3 would be supported if narcissistic rivalry was negatively related to perceiver effects of status at T2, T3, and T4.

How Narcissism Relates to Peer Ratings of Absolute Status Across Time. To track individuals' changes in absolute status (i.e., Hypotheses 2 and 4), latent growth modelling (LGM) was conducted using Mplus 8.4 (Muthén & Muthén, 1998-2017). This analysis included participants who completed the narcissism measure at T1 and completed the

absolute status measure at least once. Missing data resulted from not completing the absolute status measure at all three time points were handled using maximum likelihood estimation.

LGM is a framework used to estimate growth trajectories. In the current study, LGM estimated the overall change trajectory of group members' absolute status by assessing the change trajectory for each individual over three time points and then taking the average of these trajectories. The SRM was used to extract target effects of absolute status, which were entered as the criterion variable. Target effects of absolute status refer to the extent to which each individual elicits higher (or lower) ratings on peer-rated absolute status.

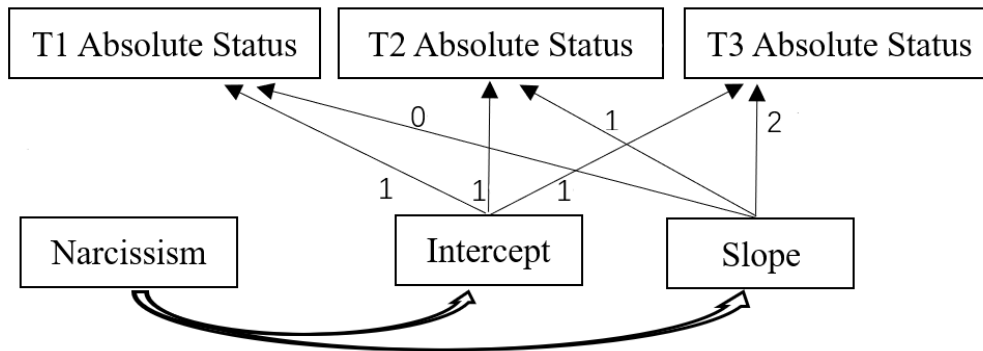
LGM produces an intercept growth factor and a slope growth factor for absolute status. Within Mplus, the coefficients of the intercept growth factor were fixed at 1 for all time points to reflect initial levels of absolute status, and the time scores for the slope growth factor (i.e., T2, T3, and T4) were fixed at 0, 1, 2 to model a linear change from the initial time point. The intercept growth factor indicates participants' target effects of absolute status when time is zero; thus, in the context of this study, the intercept growth factor reflects participants' target effects of absolute status at T2, or in other words, two weeks after group formation in the winter term. The slope growth factor indicates the linear change of participants' target effects of absolute status over time.

To assess the impact of narcissism on participants' initial absolute status and the rate of change in absolute status over time, narcissistic admiration and narcissistic rivalry were then entered as time-invariant predictors (see Figure 1). Time-invariant predictors reflect characteristics that differ between individuals and remain stable over time. The impact of narcissism on participants' initial levels of absolute status and changes over time were

determined by regressing the intercept and slope growth factor on narcissism scores.

Figure 1

Conducting LGM using Mplus 8.4



Hypothesis 2 (i.e., narcissistic admiration will be positively related to peer-rated absolute status initially, but this relation will become weaker over time) would be supported if narcissistic admiration is positively correlated to the intercept but negatively correlated to the slope growth factor. Hypothesis 4 (i.e., narcissistic rivalry will be negatively related to peer-rated absolute status initially, and this negative relation will become stronger over time) would be supported if narcissistic rivalry is negatively related to both the intercept and the slope growth factor.

How Narcissism Relates to Status Disagreements

A zero-inflated Poisson regression was conducted to assess the relation between narcissism and USD at each time point (i.e., Hypothesis 5a). The zero-inflated Poisson regression is suitable when count data (i.e., frequency of status disagreement) contains substantial zero counts. According to pilot data from 2018-2019, many teams experienced zero USD. Thus, I expected an excess of zero counts in the data in 2020-2021. For this analysis, the number of USDs experienced by each individual were entered as the criterion variable, narcissistic admiration and rivalry scores were entered as the predictor variables,

and the number of potential USDs that each participant can experience were entered as a control variable to account for group size differences (i.e., the upper limit of status disagreements is determined by the number of dyads in the group). The zero-inflated Poisson regression produces a regression coefficient and a latent class coefficient. The latent class coefficient indicates whether narcissistic admiration and narcissistic rivalry predict the likelihood that a group member will experience zero USD at each time point. The regression coefficient indicates the degree to which narcissistic admiration and narcissistic rivalry predict the number of USDs individuals experience at each time point. Hypothesis 5a (i.e., narcissistic rivalry will increase the likelihood of being involved in at least one USD across all time points) would be supported if there is a negative latent class coefficient at each time point, which suggests that a person is less likely to experience zero USD as their narcissistic rivalry level increases.

To examine the change in the number of USDs that individuals get involved in over time (i.e., Hypothesis 5b), LGM were conducted again with T2, T3, and T4 fixed at 0, 1, 2, narcissism entered as the time-invariant predictor variable, and the number of USDs that each individual experiences entered as the criterion variable. Participants included in this analysis satisfied two conditions: 1) they completed the narcissism measure at T1, and 2) the number of USDs they got involved in was able to be computed for at least one time point. Missing data (i.e., missing value on the number of USDs one experiences at one or two of the time points) were handled using maximum likelihood estimation. Hypothesis 5b (i.e., narcissistic rivalry will increase the number of USDs team members get involved in at the beginning of group involvement, and it will increase the number of USDs team members get involved in

even further over time) would be supported if narcissistic rivalry is positively related to both the intercept and the slope growth factor.

Testing the Robustness of the Models

As gender has been found to predict both narcissism and peer-rated absolute status (e.g., Berger et al., 1972; Grijalva et al., 2015), I included gender as a covariate when examining the relation of narcissism with status self-enhancement, other status derogation, peer-rated absolute status, and USDs to control for the confounding effect of gender. In addition to gender, work experience and acquaintance level were also included as covariates when examining the relation between narcissism and peer-rated absolute status. Work experience was included because it may entail competence, which can in turn predict absolute status. Acquaintance level was controlled because the effect that narcissism has on peer-rated absolute status may diminish as group members become acquainted.

Results

Zero-order correlations and descriptive statistics, including means and standard deviations, are displayed in Table 3. Perceiver and target effects of status were moderately or highly negatively skewed at all time points (perceiver: T2 = -1.03, T3 = -0.84, T4 = -0.99; target: T2 = -0.87, T3 = -1.27, T4 = -1.41). The number of USDs each member experiences was moderately or highly positively skewed at all time points (T2 = 1.17, T3 = 0.99, T4 = 1.22). Also, the strength of correlation between narcissistic admiration and narcissistic rivalry as well as the mean levels of the two dimensions of narcissism were comparable to previous research conducted with student samples (e.g., Benson et al., 2019; Grove et al., 2019; Leckelt et al., 2015). In addition, participants who completed the questionnaire at the first

time point and those who completed the questionnaire at the following time points did not differ significantly in terms of key personal attributes (e.g., narcissism level, work experience), thus reducing the likelihood of attrition bias.

Table 3*Zero-Order Correlations and Descriptive Statistics*

	Adm	Riv	P_T2	P_T3	P_T4	T_T2	T_T3	T_T4	SE_T2	SE_T3	SE_T4	USD_T2	USD_T3	USD_T4
Adm	-													
Riv	.36***	-												
P_T2	.09	-.16**	-											
P_T3	-.02	-.20***	.55***	-										
P_T4	-.01	-.14**	.48***	.63***	-									
T_T2	.07	-.04	.42***	.22***	.30***	-								
T_T3	-0.01	-.15**	.18***	.31***	.26***	.65***	-							
T_T4	.01	-.14**	.27***	.24***	.42***	.63***	.76***	-						
SE_T2	.02	.02	-.23***	-.13*	-.08	-.38***	-.22***	-.23***	-					
SE_T3	.07	.08	-.10	-.23***	-.19***	-.22***	-.49***	-.32***	.44***	-				
SE_T4	.06	.14**	-.11*	-.14**	-.30***	-.21***	-.33***	-.49***	.38***	.52***	-			
USD_T2	.18***	.11*	-.02	-.08	-.12*	-.21***	-.29***	-.24***	.12*	.22***	.12**	-		
USD_T3	.05	.02	-.01	-.02	-.02	-.18***	-.18***	-.14**	.06	.16***	.07	.47***	-	
USD_T4	.10*	.02	.03	.00	-.04	-.12*	-.18***	-.17***	.17**	.14**	.13**	.47***	.51***	-
Mean	3.52	2.18	4.79	4.94	4.98	4.79	4.94	4.98	0.00	0.00	0.00	0.70	0.84	0.82
SD	0.81	0.80	1.02	0.92	0.90	0.73	0.76	0.83	0.77	0.81	0.84	0.85	0.94	0.95

Note. *Adm* = narcissistic admiration; *Riv* = narcissistic admiration; *P_T2* = perceiver effects of status at time point 2; *P_T3* = perceiver effects of status at time point 3; *P_T4* = perceiver effects of status at time point 4; *T_T2* = target effects of status at time point 2; *T_T3* = target effects of status at time point 3; *T_T4* = target effects of status at time point 4; *SE_T2* = status self-enhancement at time point 2; *SE_T3* = status self-enhancement at time point 3; *SE_T4* = status self-enhancement at time point 4; *USD_T2* = the number of upward status disagreements one gets involved in at time point 2; *USD_T3* = the number of upward status disagreements one get involved in at time point 3; *USD_T4* = the number of upward status disagreements one gets involved in at time point 4. * $p < .05$, ** $p < .01$, *** $p < .001$.

How Narcissism Relates to Status Self-Enhancement at Each Time point

Regression analyses were conducted in Mplus 8.4 (Muthén & Muthén, 1998-2017) to examine Hypothesis 1. Team membership was controlled using the type = complex function. Results were presented in Table 4. Failing to support the hypothesis, narcissistic admiration was not significantly related to status self-enhancement at any time point. The results remained non-significant when gender was controlled. Surprisingly, narcissistic rivalry was significantly and positively associated with status self-enhancement at time point 4, which remained significant when gender was controlled. When including both narcissism admiration and narcissistic rivalry as predictors using multiple regression (i.e., residualized associations), only narcissistic rivalry was positively and significantly associated with status self-enhancement at T4.

Table 4*Time-Point Specific Estimates of Narcissism Predicting Status Self-enhancement*

	Status Self-enhancement														
	Model 1a-1c ^a			Model 2a-2c ^b			Model 3a-3c ^c			Model 4a-4c ^b			Model 5a-5c ^b		
	T2	T3	T4	T2	T3	T4	T2	T3	T4	T2	T3	T4	T2	T3	T4
	<i>b</i> (<i>SE</i>)	<i>b</i> (<i>SE</i>)	<i>b</i> (<i>SE</i>)	<i>b</i> (<i>SE</i>)	<i>b</i> (<i>SE</i>)	<i>b</i> (<i>SE</i>)	<i>b</i> (<i>SE</i>)	<i>b</i> (<i>SE</i>)	<i>b</i> (<i>SE</i>)	<i>b</i> (<i>SE</i>)	<i>b</i> (<i>SE</i>)	<i>b</i> (<i>SE</i>)	<i>b</i> (<i>SE</i>)	<i>b</i> (<i>SE</i>)	<i>b</i> (<i>SE</i>)
<i>p</i>	<i>p</i>	<i>p</i>	<i>p</i>	<i>p</i>	<i>p</i>	<i>p</i>	<i>p</i>	<i>p</i>	<i>p</i>	<i>p</i>	<i>p</i>	<i>p</i>	<i>p</i>	<i>p</i>	
Adm	-0.01 (0.04) .763 ^a	0.04 (0.04) .285 ^a	0.03 (0.04) .413 ^a	0.01 (0.05) .768 ^b	0.08 (0.05) .095 ^b	0.07 (0.04) .102 ^b							0.00 (0.05) .947 ^b	0.06 (0.05) .241 ^b	0.02 (0.05) .690 ^b
Riv							-0.03 (0.04) .534 ^c	0.02 (0.04) .669 ^c	0.10 (0.05) .038^c	0.04 (0.06) .455 ^b	0.07 (0.04) .088 ^b	0.16 (0.06) .008^b	0.04 (0.06) .512 ^b	0.05 (0.05) .264 ^b	0.15 (0.06) .018^b
Gender				0.03 (0.08) .665 ^b	0.02 (0.06) .789 ^b	0.02 (0.08) .790 ^b				0.04 (0.08) .583 ^b	0.03 (0.06) .674 ^b	0.05 (0.08) .526 ^b			

Note. $N^a = 630$, $N^b = 521$, $N^c = 631$; b = unstandardized regression coefficient; SE = standard error; $T2$ = time point 2; $T3$ = time point 3; $T4$ = time point 4. Adm = narcissistic admiration; Riv = narcissistic rivalry. Each column represents a separate model. Significant results are bolded.

How Narcissism Relates to Status Self-Enhancement across Time

To explore the effects of narcissism on the initial tendency of status self-enhancement and changes in status self-enhancement across time, latent growth curve analyses were performed. First, narcissistic admiration was entered as a predictor of self-enhancement, $\chi^2(2) = 1.265, p = .531$; CFI = 1.000; RMSEA = .000; SRMR = .009. Narcissistic admiration did not predict the initial level of status self-enhancement ($b = 0.02, SE = 0.05, p = .603$) or changes in self-enhancement ($b = 0.03, SE = 0.03, p = .339$).

Next, narcissistic rivalry was specified as the predictor of self-enhancement, $\chi^2(2) = 0.484, p = .785$; CFI = 1.000; RMSEA = .000; SRMR = .006. Narcissistic rivalry did not predict the initial level of status self-enhancement ($b = 0.03, SE = 0.05, p = .565$) or changes in status self-enhancement ($b = 0.06, SE = 0.03, p = .059$).

Finally, residualized associations were tested, with both dimensions of narcissism entered as predictors of self-enhancement, $\chi^2(3) = 1.851, p = .583$; CFI = 1.000; RMSEA = .000; SRMR = .009. Neither narcissistic admiration nor narcissistic rivalry had a significant association with the initial level of status self-enhancement (narcissistic admiration: $b = 0.02, SE = 0.05, p = .748$; narcissistic rivalry: $b = 0.02, SE = 0.05, p = .668$) or changes in status self-enhancement (narcissistic admiration: $b = 0.01, SE = 0.03, p = .794$; narcissistic rivalry: $b = 0.06, SE = 0.03, p = .072$).

How Narcissistic Admiration Relates to Peer Ratings of Absolute Status

To examine Hypothesis 2, latent growth curve analyses were performed to assess how narcissistic admiration relates to the initial level and changes in peer ratings of absolute status over time. I first examined the zero-order associations, with narcissistic admiration entered as the predictor of target effects of status, $\chi^2(2) = 8.848, p = .012$; CFI = 0.976; RMSEA = .081; SRMR = .036. Failing to support Hypothesis 2, narcissistic admiration was not significantly related to the initial level of target effects of status ($b = 0.05, SE = 0.04, p = .178$) or changes

in such target effects over time ($b = -0.03$, $SE = 0.02$, $p = .150$).

Additional exploratory models were tested to determine if inclusion of additional variables altered the pattern of results. A similar pattern was observed when adding gender, work experience, and acquaintance level as covariates, $\chi^2(5) = 18.482$, $p = .002$; CFI = 0.971; RMSEA = .072; SRMR = .023. That is, narcissistic admiration was not significantly related to the initial level of target effects of status ($b = 0.04$, $SE = 0.04$, $p = .254$) or changes in such target effects over time ($b = -0.03$, $SE = 0.02$, $p = .211$). The residualized effect of narcissistic admiration was explored by including narcissistic rivalry as a covariate, $\chi^2(3) = 10.688$, $p = .014$; CFI = 0.978; RMSEA = .070; SRMR = .032. Once again, the pattern of results remained non-significant (intercept factor: $b = 0.09$, $SE = 0.05$, $p = .058$, slope factor: $b = -0.02$, $SE = 0.02$, $p = .485$).

To further explore the data, time point specific correlations between narcissistic admiration and absolute status were also assessed. Narcissistic admiration was not significantly related to absolute status at any time point (T2: $b = 0.06$, $SE = 0.03$, $p = .064$; T3: $b = -0.02$, $SE = 0.03$, $p = .504$; T4: $b = 0.00$, $SE = 0.03$, $p = .959$). The results remained non-significant when gender, work experience, and acquaintance level were entered as covariates (T2: $b = 0.06$, $SE = 0.05$, $p = .166$; T3: $b = -0.03$, $SE = 0.04$, $p = .488$; T4: $b = 0.01$, $SE = 0.05$, $p = .875$). As well, the test returned non-significant results when narcissistic rivalry was controlled (T2: $b = 0.09$, $SE = 0.05$, $p = .080$; T3: $b = 0.04$, $SE = 0.04$, $p = .300$; T4: $b = 0.07$, $SE = 0.04$, $p = .110$). Overall, it is evident that narcissistic admiration is not associated with peer-ratings of status across any of the time points.

How Narcissism Relates to Other-status Derogation at Each Time Point

To examine Hypothesis 3, regression analyses were conducted in Mplus 8.4 (Muthén & Muthén, 1998-2017). Team membership was controlled using the `type = complex` function. Results were presented in Table 5. Supportive of Hypothesis 3, narcissistic rivalry was

negatively and significantly related to perceiver effects of status across all time points. The results remained significant when gender was controlled. The relation between narcissistic admiration and perceiver effects of status was also explored. As expected, narcissistic admiration was not significantly related to perceiver effects of status at any time point. The results remained consistent when gender was controlled. Residualized associations were explored to account for the correlation between narcissistic admiration and narcissistic rivalry. The residualized relations between narcissistic rivalry and perceiver effects of status remained negative and significant at all time points. Surprisingly, the residualized relation between narcissistic admiration and perceiver effects of status was also significant, yet in the positive direction, at T2. However, as narcissistic admiration and rivalry tend to be moderately correlated, residualized results should be interpreted with caution (Vize et al., 2018).

Table 5*Time-Point Specific Estimates of Narcissism Predicting Other-status Derogation*

	Other-status Derogation														
	Model 1a-1c			Model 2a-2c			Model 3a-3c			Model 4a-4c			Model 5a-5c		
	T2	T3	T4	T2	T3	T4	T2	T3	T4	T2	T3	T4	T2	T3	T4
	<i>b (SE)</i>	<i>b (SE)</i>	<i>b (SE)</i>	<i>b (SE)</i>	<i>b (SE)</i>	<i>b (SE)</i>	<i>b (SE)</i>	<i>b (SE)</i>	<i>b (SE)</i>	<i>b (SE)</i>	<i>b (SE)</i>	<i>b (SE)</i>	<i>b (SE)</i>	<i>b (SE)</i>	<i>b (SE)</i>
<i>p</i>	<i>p</i>	<i>p</i>	<i>p</i>	<i>p</i>	<i>p</i>	<i>p</i>	<i>p</i>	<i>p</i>	<i>p</i>	<i>p</i>	<i>p</i>	<i>p</i>	<i>p</i>	<i>p</i>	
Riv	-0.14 (0.04) < .001 ^a	-0.14 (0.03) < .001 ^a	-0.12 (0.03) < .001 ^a	-0.22 (0.05) < .001 ^b	-0.23 (0.05) < .001 ^b	0.19 (0.05) < .001 ^b							-0.31 (0.06) < .001 ^b	-0.25 (0.05) < .001 ^b	-0.20 (0.05) < .001 ^b
Adm							0.07 (0.04) .073 ^c	-0.02 (0.03) .575 ^c	-0.02 (0.03) .463 ^c	0.11 (0.06) .070 ^b	-0.03 (0.05) .581 ^b	-0.03 (0.05) .460 ^b	0.23 (0.06) < .001 ^b	0.06 (0.05) .240 ^b	0.04 (0.05) .400 ^b
Gen der				-0.05 (0.11) .665 ^b	-0.08 (0.08) .328 ^b	-0.06 (0.09) .516 ^b				0.03 (0.11) .787 ^b	-0.02 (0.08) .774 ^b	-0.02 (0.10) .856 ^b			

Note. $N^a = 631$, $N^b = 521$, $N^c = 632$; b = unstandardized regression coefficient; SE = standard error; $T2$ = time point 2; $T3$ = time point 3; $T4$ = time

point 4. *Adm* = narcissistic admiration; *Riv* = narcissistic rivalry. Each column represents a separate model. Significant results are bolded.

How Narcissism Relates to Other-status Derogation across Time

To explore the relation between narcissism and other-status derogation across time, latent growth curve analyses were performed to examine the effects of narcissism on the initial tendency of other status-derogation and changes in other status-derogation.

Narcissistic rivalry was entered as the predictor of perceiver effects of status, $\chi^2(2) = 3.786, p = .151$; CFI = 0.995; RMSEA = .041; SRMR = .014. Narcissistic rivalry significantly and negatively predicted the intercept factor ($b = -0.23, SE = 0.05, p = <.001$) but did not predict the slope factor ($b = 0.02, SE = 0.05, p = .053$), suggesting that narcissistic rivalry accounted for raters' initial tendency to provide low status ratings but did not account for increasingly harsh ratings across time. The effect of narcissistic rivalry on initial perceiver effects of status remained significant when gender was included as a covariate, $\chi^2(3) = 3.996, p = .262$; CFI = 0.997; RMSEA = .025; SRMR = .012 ($b = -0.24, SE = 0.05, p < .002$).

In a separate model, narcissistic admiration was entered as a predictor of perceiver effects of status, $\chi^2(2) = 5.872, p = .053$; CFI = 0.988; RMSEA = .061; SRMR = .023. Narcissistic admiration did not predict the intercept factor ($b = 0.08, SE = 0.06, p = .191$) but significantly and negatively predicted the slope factor ($b = -0.06, SE = 0.03, p = .033$). This suggests that narcissistic admiration was not associated with raters' initial rating tendency but predicted increasingly harsh ratings across time. The effect of narcissistic admiration on changes of perceiver effects of status remained significant when controlling for gender, $\chi^2(3) = 6.268, p = .099$; CFI = 0.990; RMSEA = .046; SRMR = .021 ($b = -0.06, SE = 0.03, p < .031$).

Residualized associations were then tested, with both dimensions of narcissism entered as predictors of perceiver effects of status, $\chi^2(3) = 6.768, p = .080$; CFI = 0.990; RMSEA = .049; SRMR = .023. Narcissistic admiration positively predicted the intercept factor ($b = 0.19, SE = 0.06, p = .002$) and negatively predicted the slope factor ($b = -0.08, SE$

= 0.03, $p = .008$), suggesting that narcissistic admiration predicted a tendency to provide high status ratings to others at the beginning but also predicted a decrease in the tendency to be lenient over time. Narcissistic rivalry significantly and negatively predicted the intercept factor ($b = -0.30$, $SE = 0.05$, $p < .001$) but not the slope factor ($b = 0.05$, $SE = 0.03$, $p = .087$), suggesting that narcissistic rivalry contributed to an initial tendency to provide low status ratings but had no effect on changes in rating tendency.

How Narcissistic Rivalry Relates to Peer Ratings of Absolute Status

To examine Hypothesis 4, latent growth curve analyses were performed to assess how narcissistic rivalry relates to the initial level and changes in peer ratings of absolute status over time. First, narcissistic rivalry was entered as the predictor of target status, $\chi^2 (2) = 6.525$, $p = .038$; CFI = 0.985; RMSEA = .066; SRMR = .022. Partially supportive of Hypothesis 4, rivalry did not significantly predict the initial level of target effects of status ($b = -0.05$, $SE = 0.04$, $p = .198$) but predicted a decrease of target effects of status over time ($b = -0.05$, $SE = -0.02$, $p = .022$). The pattern of results remained consistent when controlling for gender, work experience, and acquaintance level, $\chi^2 (5) = 13.469$, $p = .019$; CFI = 0.982; RMSEA = .057; SRMR = .015, such that narcissistic rivalry was not significantly related to the initial level of target effects of status ($b = -0.03$, $SE = 0.04$, $p = .467$) but predicted declines in target effects of status over time ($b = -0.05$, $SE = 0.02$, $p = .025$). Finally, the residualized effect of narcissistic rivalry was explored by entering narcissistic admiration and rivalry as simultaneous predictors of target effects of status, $\chi^2 (3) = 10.688$, $p = .014$; CFI = 0.978; RMSEA = .070; SRMR = .032. No residualized effect returned significant (intercept factor: $b = -0.09$, $SE = 0.05$, $p = .067$, slope factor: $b = -0.04$, $SE = 0.02$, $p = .061$).

To better interpret the results, time point specific correlations between narcissistic rivalry and absolute status were also assessed. The results revealed that narcissistic rivalry was negatively related to absolute status at all time points, but the results were only

significant at T3 and T4 (T2: $b = -0.03$, $SE = 0.03$, $p = .373$; T3: $b = -0.09$, $SE = 0.03$, $p = .007$; T4: $b = -0.10$, $SE = 0.04$, $p = .010$). The results pattern remained the same when gender, work experience, and acquaintance level were entered as covariates (T2: $b = 0.00$, $SE = 0.04$, $p = .956$; T3: $b = -0.11$, $SE = 0.05$, $p = .017$; T4: $b = -0.11$, $SE = 0.05$, $p = .036$). When narcissistic admiration was controlled, the results were also significant at T3 and T4 (T2: $b = -0.08$, $SE = 0.05$, $p = .129$; T3: $b = -0.16$, $SE = 0.05$, $p = .004$; T4: $b = 0.17$, $SE = 0.05$, $p = .001$).

How Narcissism Relates to USD at Each Time Point

To evaluate Hypothesis 5a, zero-inflated Poisson regression analyses were performed at each time point as planned. However, unexpected errors were encountered in the results for latent class coefficients, potentially due to lacking a unique data-generating process that produces either zeros or numbers greater than zero. Therefore, I was unable to examine Hypothesis 5a as specified in the pre-registration plan. Instead, regular Poisson regression analyses were performed to investigate the relation between narcissism and USD at each time point (see Table 6).

In Model 1a to 1c, narcissistic rivalry was entered as the predictor, the number of potential USDs one may get involved in based on their number of teammate was entered as the control variable, and the number of USDs one experiences was entered as the criterion. Partially supportive of Hypothesis 5a, narcissistic rivalry significantly and positively predicted the number of USDs one experiences at time point 2 but not at time point 3 and 4. Moreover, the relation between narcissistic rivalry and the number of USDs one experiences at time point 2 became non-significant when gender was controlled ($b = 0.14$, $SE = 0.07$, $p = .053$).

The relation between narcissistic admiration and USD was explored in the second Model 2a to 2c. Unexpectedly, narcissistic admiration significantly and positively predicted

the number of USDs one experiences at time point 2 and time point 4. The relation between narcissistic admiration and the number of USDs one experiences remained significant at T3 ($b = 0.27, SE = 0.07, p < .001$) and T4 ($b = 0.16, SE = 0.06, p = .007$) when gender was controlled.

Residualized associations were explored in Model 3a to 3c, where both narcissistic admiration and rivalry were entered as the predictors and the number of potential USDs one may get involved in was entered as the control variable. The results indicated that only narcissistic admiration significantly and positively predicted the number of USDs one experiences at time point 2.

Table 6*Poisson Regression Analyses for Narcissistic Admiration and Rivalry Predicting USD at Each Time Point*

	USD								
	Model 1a-1c			Model 2a-2c			Model 3a-3c		
	T2	T3	T4	T1	T2	T3	T1	T2	T3
	<i>b (SE) p</i>	<i>b (SE) p</i>	<i>b (SE) p</i>	<i>b (SE) p</i>	<i>b (SE) p</i>	<i>b (SE) p</i>	<i>b (SE) p</i>	<i>b (SE) p</i>	<i>b (SE) p</i>
Riv	0.17 (0.07) .021 ^a	0.03 (0.07) .617 ^b	0.08 (0.08) .293 ^c				0.06 (0.07) .388 ^d	0.00 (0.07) .990 ^e	0.16 (0.06) .007 ^f
Adm				0.28 (0.07) <.001 ^d	0.09 (0.06) .143 ^e	0.17 (0.06) .005 ^f	0.25 (0.07) <.001 ^d	0.09 (0.06) .154 ^e	0.16 (0.07) .829 ^f
<i>PotUSD</i>	0.27 (0.07) <.001 ^a	0.27 (0.08) <.001 ^b	0.35 (0.9) <.001 ^c	0.28 (0.07) <.001 ^d	0.28 (0.08) <.001 ^e	0.35 (0.09) <.001 ^f	0.28 (0.07) <.001 ^d	0.28 (0.08) <.001 ^e	0.36 (0.09) <.001 ^f

Note. $N^a = 466$, $N^b = 496$, $N^c = 488$, $N^d = 465$, $N^e = 495$, $N^f = 487$, $k^{abde} = 125$, $k^{cf} = 126$; b = unstandardized regression coefficient; SE = standard error; Adm = narcissistic admiration; Riv = narcissistic rivalry; $PotUSD$ = the number of potential upward status disagreements one may get involved in (values differ at different time point); $T2$ = time point 2; $T3$ = time point 3; $T4$ = time point 4. Each column is a separate model. Significant results are bolded.

How Narcissism Relates to USD across Time

To examine Hypothesis 5b, latent growth curve analyses was performed to assess whether narcissism predicts the number of USDs group members experience across time. Narcissistic rivalry was first entered as the time-invariant predictor, the number of potential USDs one may experience at time point 2, 3, and 4 were entered as time-varying covariates, $\chi^2(8) = 3.409, p = .906$; CFI = 1.000; RMSEA = .000; SRMR = .025. Failing to support Hypothesis 5b, narcissistic rivalry did not predict the initial number of USDs one experiences ($b = 0.08, SE = 0.06, p = .135$) or changes in the number of USDs experienced over time ($b = -0.02, SE = 0.03, p = .464$). The results remained similar when controlling for gender, $\chi^2(9) = 3.500, p = .910$; CFI = 1.000; RMSEA = .000; SRMR = .022 (intercept factor: $b = 0.07, SE = 0.06, p = .227$; slope factor: $b = -0.02, SE = 0.03, p = .496$).

The effect of narcissistic admiration was explored in a separate model, with narcissistic admiration entered as the time-invariant predictor and the number of potential USDs one may experience at time point 2, 3, and 4 entered as time-varying covariates, $\chi^2(8) = 4.404, p = .819$; CFI = 1.000; RMSEA = .000; SRMR = .025. Narcissistic admiration significantly predicted the initial number of USDs one experiences ($b = 0.12, SE = 0.05, p = .017$). However, narcissistic admiration did not predict changes in the number of USDs one experiences over time ($b = 0.02, SE = 0.03, p = .507$). The effect of narcissistic admiration on initial number of USDs one experiences remained significant when gender was controlled in the model, $\chi^2(9) = 4.651, p = .864$; CFI = 1.000; RMSEA = .000; SRMR = .023 ($b = 0.12, SE = 0.05, p < .027$).

Residualized associations were then tested, where both narcissistic admiration and rivalry were entered as time-invariant predictors, the number of potential USDs one may experience at time point 2, 3, and 4 were entered as time-varying covariates, $\chi^2(9) = 4.852, p = .832$; CFI = 1.000; RMSEA = .000; SRMR = .025. The results indicated that narcissistic

admiration significantly predicted the initial number of USDs one experiences ($b = 0.11$, $SE = 0.05$, $p = .031$) but not changes in the number of USDs one experiences over time ($b = 0.03$, $SE = 0.03$, $p = .298$). Narcissistic rivalry did not predict the initial number of USDs one experiences ($b = 0.04$, $SE = 0.06$, $p = .453$) or changes in the number of USDs one experiences over time ($b = -0.03$, $SE = 0.03$, $p = .268$).

Discussion

The situation in which two group members both believe they outrank each other (i.e., USD) is frequently observed in groups, and this type of disagreement is detrimental to team performance (Kilduff et al., 2016). Drawing from the NARC (Back et al., 2013), this study examined how narcissistic admiration and narcissistic rivalry distinctively predicted group members' tendency to get involved in USDs, and how one's obtained level of absolute status along with perceptions of their own and others' absolute status contributed to this process. By conducting a longitudinal study with virtually-mediated student project teams, I found that people higher in narcissistic rivalry tend to devalue others' absolute status and experience a decline in absolute status across time. Although narcissistic rivalry was not related to the initial level or changes in the number of USDs one experiences when examined using latent growth analyses, time point specific analyses revealed that narcissistic rivalry predicted the number of USDs one experiences at the beginning of group interaction. Surprisingly, narcissistic admiration also predicted the number of USDs one experiences at the beginning of group interaction and when the deadline of the team project approached, despite that individuals higher in narcissistic admiration did not demonstrate any tendency to over or underestimate their own or others' absolute status and did not receive particularly high or low absolute status.

How Narcissistic Admiration Relates to Status Perceptions and Status Dynamics

How Narcissistic Admiration Relates to Status Perceptions

Although self-enhancement is a core feature of narcissistic admiration (Back et al., 2013), this study did not find a significant relation between narcissistic admiration and status self-enhancement at any time point, thus failing to support Hypothesis 1. This indicates that despite their motivation to achieve and maintain a grandiose self-view, people higher in narcissistic admiration did not overestimate their own status at any stage of team interaction. This result contradicts what was expected based on previous findings (e.g., Anderson et al., 2008; Back et al., 2013; Carlson & DesJardins, 2015). One explanation might be that the student sample in this study has relatively low levels of narcissistic admiration. However, as none of the studies that explicitly measured the association between narcissism and self-enhancement employed the NARC, this explanation cannot be validated due to an inability to compare the relative level of narcissistic admiration across samples. Another possibility is that the self-enhancing nature of individuals higher in narcissistic admiration would only manifest in specific contexts. For example, they may only self-enhance their status in competitive environments in which they can better demonstrate their grandiosity or receive tangible benefits due to holding high status. The engineering teams in this study, which are presumably highly egalitarian, may not motivate them to self-enhance their status. This result opens the possibility that the theorized cognitive process related to narcissistic admiration do not apply universally but is only observed in specific situations (e.g., competitive environments).

The relation between admiration and perception of other people's status was also explored. As expected, people higher in narcissistic admiration did not perceive others' absolute status in an overall negative or positive manner. It is worth noting that the association between narcissistic admiration and perceiver effects of status was positive and significant during initial group interaction (i.e., T2) when narcissistic rivalry was controlled, suggesting that individuals higher in narcissistic admiration demonstrated an initial tendency

to perceive others more positively than the group consensus. However, residualized effects should be interpreted with caution as the two dimensions of narcissism are significantly correlated (Vize et al., 2018). Overall, people higher in narcissistic admiration did not rely on devaluating others to achieve and maintain a grandiose self-view. This finding is consistent with previous research suggesting that narcissistic admiration does not activate a tendency to devalue others (Back et al., 2013).

How Narcissistic Admiration Relates to Absolute Status

Failing to support Hypothesis 2, latent growth modelling revealed that narcissistic admiration was not related to peer-rated absolute status during initial interaction or changes in absolute status over time. To better understand the relation between narcissistic admiration and peer-rated absolute status, time-point specific analyses were also conducted. Again, the results suggest that people higher in narcissistic admiration did not obtain particularly high or low status at any point during team interaction.

As many studies have demonstrated the success of those higher in narcissistic admiration in making positive first impressions and obtaining leadership positions in short-term acquaintance (e.g., Back et al., 2013; Grijalva, 2015), the lack of association between narcissism and status attainment during initial interaction was unexpected. One explanation is that as teams were fully virtually mediated in the winter semester, the visibility and effects of status cues might have been impacted. Virtual mediation could interfere with status differentiation by blocking the transmission of status cues. Although group members frequently interacted via video calls, which enables the delivery of both virtual and verbal information, certain status cues, such as eye contact, could hardly be transmitted. Moreover, Driskell et al., (2003) argued that the effects of status cues might be dampened in a virtual environment, which could further impede status differentiation. One of the reasons that people higher in narcissistic admiration tend to be afforded high status is that their behaviours

align with prototypical leaders. If behavioural cues are blocked or have less impact in virtual interactions, those higher in narcissistic admiration may lose their advantage in status competition. Another possibility is that as engineering students tend to take a pragmatic approach when learning new things or solving problems (Cruz et al., 2021; Lee & Sidhu., 2015), they may put more emphasis on actual ideas, knowledge, and skills when affording status. People with high levels of narcissistic admiration, who often acquire status due to behavioural resemblance with prototypical leaders without necessarily being more competent, therefore, might fail to obtain high status.

How Narcissistic Admiration Relates to USDs

Despite the finding that individuals higher in narcissistic admiration did not self-enhance their own or derogate others' absolute status and did not obtain particularly high or low absolute status, they experienced more USDs during the phase of initial group member interactions (i.e., T2) and when the deadline of the group project approached (i.e., T4). Consistent with the time-point specific analyses, latent growth analyses also suggested that narcissistic admiration was positively related to the initial number of USDs one experiences.

A potential explanation is that people higher in narcissistic admiration got involved in USDs in ambiguous situations. An ambiguous situation arises when an individual possesses the same amount of absolute status as one or more other group members. In this case, ranking themselves or the other person first would both make sense. The results of this study suggest that instead of being humble, people higher in narcissistic admiration may self-enhance their status rank and consistently rank themselves above others in such situations. Thus, they are more likely to get involved in USDs. This explains why narcissistic admiration predicted USDs during initial group interaction – due to a lack of knowledge of each other's skills and competence, group members might have afforded an equal amount of absolute status to each member. The reason that narcissistic admiration also predicted USDs at the end of the term

might be that the deadline for the major projects was getting close. As many crucial group decisions were made during that time, the desire for status might be strengthened and any underlying status discontent might be intensified. As a result, those higher in narcissistic admiration might be more motivated to rank themselves above other group members who held similar absolute status as them.

These results challenge the view that narcissistic admiration tends to predict positive social outcomes (at least during initial interactions) and that negative social outcomes related to narcissism are mainly attributed to the rivalry aspect of it. As USDs are more consequential to the success of a group rather than an individual, the results of this study suggest that the positive social outcomes predicted by narcissistic admiration might be limited to those that are relevant to one's personal success. Indeed, narcissists tend to place their own needs above others' needs (Grijalva et al., 2015). A closer examination of the theorized positive social outcomes related to narcissistic admiration also reveals that these outcomes are generally relate to individual rather than collective success (e.g., leadership, status, influence; Back et al., 2013; Grijalva, 2015). As a result, this finding encourages a more scrutinized evaluation of the adaptivity and positive effects of narcissistic admiration.

How Narcissistic Rivalry Relates to Status Perceptions and Status Dynamics

How Narcissistic Rivalry Relates to Status Perceptions

Supportive of Hypothesis 3, narcissistic rivalry reflected a tendency to derogate others' absolute status across all time points. Latent growth analysis also revealed that people higher in narcissistic rivalry devalued others' status at the beginning of group interaction and this tendency remained stable over time. Narcissistic rivalry was found to reflect a tendency to derogate others' personality, competence, and general likeability (Kernis & Sun, 1994; Morf & Rhodewalt, 1993). This finding extends previous findings by demonstrating that people higher in narcissistic rivalry may also devalue other agentic characteristics (e.g.,

status) of others. Being and knowing that they are unsuccessful in obtaining status, those higher in narcissistic rivalry may derogate others' absolute status out of self-protection. That is, derogating others' absolute status provides a cognition that, "although I occupy low status, so do others", thus helps protect a grandiose self-view. This finding lends support to the NARC (Back et al., 2013), which suggests that narcissistic rivalry activates a set of antagonistic self-protective behaviours.

The perception tendency related to narcissistic rivalry when perceiving one's own status was also explored. Surprisingly, individuals higher in narcissistic rivalry were found to self-enhance their status when the project deadline approached (i.e., T4). This suggests that the tendency to self-enhance may not be solely related to narcissistic admiration. However, while individuals higher in narcissistic admiration may use self-enhancement as a strategy to promote social success, those higher in narcissistic rivalry may use it to defend against social failure. As demonstrated in this study, people higher in narcissistic rivalry occupied low absolute status. Previous research also found that people higher in narcissistic rivalry tend to be cognizant of their social failure (Zeigler-Hill et al., 2019). As such, status self-enhancement demonstrated by those higher in narcissistic rivalry is more likely a form of self-protection as opposed to self-promotion.

How Narcissistic Rivalry Relates to Absolute Status

Partially supportive of H4, narcissistic rivalry did not predict absolute status initially but predicted a decrease in absolute status over time. Consistent with the results of the latent curve analyses, time-point specific analyses revealed that narcissistic rivalry was not related to peer-rated absolute status during initial group interaction (i.e., T2), but was negatively related to peer-rated absolute status in the middle and at the end of the term (i.e., T3 and T4). The results suggest that the undesirable characteristics of narcissistic rivalry (e.g., aggressiveness) may not be revealed during the initial phases of group interaction. However,

as interaction increases, group members tend to recognize the exploitative nature of those higher in narcissistic rivalry and become unwilling to afford them status. This result aligns with Leckelt et al.'s (2015) finding that the negative effects of narcissistic rivalry tend to increase over time. In addition, as only narcissistic rivalry, but not narcissistic admiration, predicted group members' decrease in absolute status, narcissists' loss of absolute status over time and failure to maintain positive social outcomes in general might be more relevant to the increasing effect of narcissistic rivalry as opposed to the decreasing effect of narcissistic admiration.

How Narcissistic Rivalry Relates to USDs

Although latent growth analyses did not find an association between narcissistic rivalry and the initial level of USD one experiences, narcissistic rivalry predicted the number of USDs one experiences at the beginning of group interaction (i.e., T2) when examined using time point specific regression analysis, providing some support to Hypothesis 5a. It is noteworthy that narcissistic rivalry predicted the tendency to perceive others negatively but did not predict low peer-rated absolute status at this stage of group interaction. What seems to be counter-intuitive was that narcissistic rivalry did not predict the number of USDs one experiences in the middle of the term or close to the end of the term, despite that narcissistic rivalry predicted a tendency to devalue others' absolute status and a tendency to receive low absolute status. Latent growth analyses also failed to find significant associations between narcissistic rivalry and the initial number of USDs one experiences or changes in the number of USDs experienced over time. Thus, Hypothesis 5b was unsupported.

An explanation for the result might be that during initial team interaction, individuals higher in narcissistic rivalry did not have particularly high or low absolute status. Given their tendency to devalue others' absolute status levels, they might have ranked themselves above those who possess similar levels or even slightly higher levels of absolute status, exposing

them to a higher chance of getting involved in USDs. As time proceeds, however, the absolute status of those higher in narcissistic rivalry decreased and the difference in their own and their teammates' absolute status might become more significant, making it harder to distort the true relative status ranks.

The finding that those higher in narcissistic rivalry might be more likely to get involved in USDs with their immediate competitors reflects similar themes as previous studies suggesting that people are least likely to assist group members who are most similar to them in status (e.g., Doyle et al., 2016; Menon et al., 2006). That is, status competition – whether it is reflected through cognitively disagreeing about others' relative status or behaviourally undermining others' status – is most salient among immediate competitors, presumably because they represent the greatest threat (Pettit & Marr, 2020). Moreover, the results suggest that compared to perceiving group members' absolute status, people higher in narcissistic rivalry seem to be more accurate in perceiving group members' relative position in a status hierarchy. While previous research has built the link between narcissistic rivalry and the devaluation of others (Back et al., 2013), this result extends previous findings by suggesting that such devaluation tendency may unequally impact the accuracy of perceiving others' absolute levels of an attribute and perceiving others' relative standing on a target dimension. This sensitivity to others' relative position potentially stems from narcissists' particularly strong desire for superiority and getting ahead (e.g., Grapsas et al., 2020).

Implications for the NARC

The current study first lends support to the NARC by demonstrating that narcissistic admiration and narcissistic rivalry entail distinctive status perception tendencies and different status trajectories. An interesting observation, however, is that the theorized processes and effects of narcissistic admiration (i.e., self-enhancement and status attainment) are largely unsupported or even counter to expectations, presumably due to the impact of a non-

competitive, virtual environment and the characteristics of other group members.

Nevertheless, under the influence of the same contextual factors, the hypothesized processes and effects of narcissistic rivalry (i.e., other devaluation and a lack of status) are generally supported. According to the trait activation theory (Tett & Burnett, 2003), a personality trait would only be activated when a relevant situation is present. The results of this study suggest that, compared to narcissistic rivalry, the activation of narcissistic admiration may require more specific situations. Moreover, the display of the positive effects of narcissistic admiration on social outcomes might be more dependent on the characteristics of the group they are in and the characteristics of other group members. In sum, this study demonstrates how context might be particularly critical to the expression of narcissistic admiration and its related social outcomes, and draws more attention to the role that context plays when examining the manifestation and effects of different dimensions of narcissism.

Implications to Status Measures

A unique feature of this study is that status was assessed with both absolute and relative measures (i.e., an absolute rating scale and a relative status rank). As absolute status ratings can be used to derive status ranks, previous studies have sometimes used absolute measures to assess both absolute status level and relative status rank. Despite the versatility of absolute status measures, the two measures are different in nature and may be uniquely suitable for investigating different research questions.

When providing status ratings to a target individual, no reference to other group members is made. Thus, it is possible for all group members to hold high levels of respect, admiration, and voluntary deference and receive high status ratings. As a result, absolute status measures reflect the non-zero-sum nature of status and are ideal when the focus is on the absolute level of status one is afforded in the group.

Relative status ranking, on the other hand, emphasizes the zero-sum nature of one's

position in a status hierarchy and makes social comparison more salient. As a result, relative status measures are suitable for research questions that specifically focus on status ranking, such as the cognitive processes involved in making status ranking and the consequences of disagreement in perceived status rank. Moreover, in the context of this study, people higher in narcissistic admiration did not overrate their own status or underrate their group members' status with a rating scale, yet nevertheless got involved in USDs when measured using a relative rank. This suggests that compared to an absolute measure, a relative measure may be more likely to activate narcissists' self-enhancing tendency. Therefore, relative measures might be more sensitive to status consequences (e.g., status disagreement) in a competitive environment where individuals are more ready or inclined to make comparisons.

The nature and implications of different status measures have not been extensively discussed in the literature. By demonstrating how absolute and relative status measures can be uniquely applied to different research questions to increase alignment between conceptualization and operationalization of status, this study invites more discussion on the evaluation and selection of status measures.

Practical Implications

The results of this study also have practical implications. We know that the situation in which two group members both believe they rank higher in status may impair group performance by discouraging group members' participation, yet do not know ways to prevent the occurrence of such status disagreement. By demonstrating that people higher in either dimension of narcissism are more likely to get involved in disagreement regarding their relative standing in a status hierarchy, this research provides practitioners with the opportunity to avoid such situations. Although previous studies have mainly emphasized the undesirable characteristics and negative social consequences associated with narcissistic rivalry (e.g., Back et al., 2013; Lange et al., 2016; Wurst et al., 2017), this study suggests that

narcissistic admiration may also bring detrimental effects to groups. As such, practitioners may want to be cautious about hiring people higher on either dimension of narcissism and assigning them to teams. In addition, when people higher in narcissism are assigned to teams, practitioners may want to provide team members with sufficient time and opportunities to interact with each other. As status disagreement is highly anticipated when team members possess high levels of narcissism, allowing sufficient time for status conflicts to occur early during group interaction may help members clarify the status hierarchy and thus reduce future conflict (Bendersky & Hvas, 2017). Practitioners are also recommended to avoid having team members working under high pressure as high pressure may intensify any underlying discontent with the current status hierarchy and thus encourage disagreements regarding who occupies high status.

Limitations and Future Directions

The first limitation of this study is that the project teams being examined consisted of a specific demographic in a specific setting (i.e., virtual teams consisted of first-year engineering students). The use of student teams may restrict the generalizability of current results to workgroups. Moreover, studies suggested that narcissism levels might be higher in certain academic programs or occupations than in others (e.g., Bucknall et al., 2015; Westerman et al., 2012). As a result, the relation between narcissism and USD might be more pronounced in certain groups in which individuals have higher levels of narcissism; whereas such relation may be attenuated in groups in which individuals have relatively low levels of narcissism. Thus, the results of this study may be constrained to a specific type of group. Future studies are encouraged to replicate this study with other demographics. Furthermore, the teams in this study did not have a formal leadership structure. As hierarchies provide order and are self-reinforcing (Magee & Galinsky, 2008), groups in which leadership is formally selected or appointed may experience fewer USDs. Future studies are recommended

to replicate this study in teams involving formal leadership structures to examine whether narcissism remains a predictor of USDs in such situations. Finally, future research may consider replicating this study in in-person teams. Team members might be able to form more accurate perceptions of each other's status with richer status cues in in-person teams. As a result, status trajectories and individuals' experience of USDs might be different.

A second limitation of this study is that ties were not allowed in status ranking, such that participants were forced to provide a different ranking for each member. The forced ranking method was chosen as it was previously used in Kilduff et al.'s (2016) study. However, this method might upwardly bias the number of USDs that each individual experience. Future studies may consider investigating USDs while allowing ties in status ranking. As it is possible for multiple group members to hold the same level of absolute status, allowing for ties in status ranking may render a more accurate reflection of group members' perceived status hierarchies.

To address whether USDs produced by forced status ranking are meaningful, future studies are encouraged to examine the effect of such USDs on group functioning. To date, Kilduff et al.'s (2016) study is the only one that provided evidence for the detrimental effect of USDs on team performance – even though the USDs in their study might be an exaggerated result of forced ranking. Future studies are encouraged to replicate this result and further examine whether USDs occurred at different stages of team interaction are equally detrimental to team performance. For example, if status disagreements that occur early in team interaction encourage status differentiation and help clarify the status hierarchy, group performance may benefit from reduced status conflict in the future (Bendersky & Hays, 2017).

Researchers are also encouraged to explore other consequences of USDs both at the group level and at the individual level. At the group level, researchers may examine the effect

of group-level USD (i.e., the number of USDs experienced by a group) on group-level variables (e.g., team performance, team cohesiveness). At the individual level, researchers may investigate how experiencing USDs impacts group members' personal outcomes (e.g., identification with the group, personal satisfaction). Moreover, it is worthwhile to examine how individual-level consequences get transferred to the group level. Specifically, would more USDs cause more harm to a group, or would the occurrence of a single USD be sufficient to disrupt group functioning.

The last direction for future research is to examine whether status disagreement and status dissensus provide unique value in predicting variables of interest (e.g., team performance). Status disagreement is defined as disagreement regarding one another's rank order of status (Kilduff et al., 2016), and the computation of which requires assessing each group member's relative status rank. Status dissensus, being the opposite of status consensus, refers to the extent to which group members disagree about each other's absolute status. Status dissensus might be determined by the amount of variation in absolute status ratings. Due to limited research on status disagreement, the implications of the two concepts have not been compared. Such comparison would be valuable as it would inform researchers on the best approach to study the effect of disparate perceptions of status.

Conclusion

In this study, I examined the distinctive impact of narcissistic admiration and narcissistic rivalry on the number of USDs group members experience across time. Narcissistic rivalry was associated with a persistent tendency to devalue others' absolute status, and it predicted a decrease in status over time. However, narcissistic rivalry only predicted the number of USDs one experiences at the beginning of team interaction. Narcissistic admiration was not associated with a tendency to over or underestimate their own and their group members' absolute status, and it was not associated with higher or lower

levels of peer-rated absolute status. Nevertheless, narcissistic admiration predicted the number of USDs one experiences at the beginning of team interaction and at the end of the school semester, when the project deadline approached. The results of this study challenge the view that narcissistic admiration tends to be unequivocally related to social success (e.g., influence and status) and that the negative social consequences related to narcissism are mainly attributed to narcissistic rivalry. Moving forward, researchers are encouraged to replicate this study with other demographics and using teams with different structures and characteristics, examine the existence of USD with different measures of status, further evaluate the consequences of USDs both at the group and individual level, and investigate the unique implications of status disagreement and status dissensus.

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Appendix A

Demographics Questionnaire

1. How old are you (in years)? _____

2. Gender (Please select a response):

Male

Female

You don't have an option that applies to me. I identify as (please specify): _____

4. What is your ethnic identity? If more than one category applies, please select all that apply.

_____ Aboriginal/Native

_____ Asian

_____ Black

_____ East Indian

_____ Hispanic

_____ Middle Eastern

_____ White

_____ Multiple or You don't have an option that applies to me (please specify below)

5. Is English your first language?

Yes [] No []

6. In total, how many months of lifetime work experience do you have?

Months: _____

Appendix B

Narcissistic Admiration and Rivalry Questionnaire (Back et al., 2013)

Narcissistic Admiration and Rivalry Questionnaire

Instructions: Please indicate how much the following statements apply to you.

1. I am great.	1	2	3	4	5	6
Strongly Disagree						Strongly Agree
2. I will someday be famous	1	2	3	4	5	6
Strongly Disagree						Strongly Agree
3. I show others how special I am.	1	2	3	4	5	6
Strongly Disagree						Strongly Agree
4. I react annoyed if another person steals the show from me.	1	2	3	4	5	6
Strongly Disagree						Strongly Agree
5. I enjoy my successes very much.	1	2	3	4	5	6
Strongly Disagree						Strongly Agree
6. I secretly take pleasure in the failure of my rivals.	1	2	3	4	5	6
Strongly Disagree						Strongly Agree
7. Most of the time I am able to draw people's attention to myself in conversations.	1	2	3	4	5	6
Strongly Disagree						Strongly Agree
8. I deserve to be seen as a great personality.	1	2	3	4	5	6
Strongly Disagree						Strongly Agree
9. I want my rivals to fail.	1	2	3	4	5	6
Strongly Disagree						Strongly Agree
10. I enjoy it when another person is inferior to me.	1	2	3	4	5	6

Strongly Disagree						Strongly Agree
11. I often get annoyed when I am criticized.						
1	2	3	4	5		6
Strongly Disagree						Strongly Agree
12. I can barely stand it if another person is at the center of events.						
1	2	3	4	5		6
Strongly Disagree						Strongly Agree
13. Most people won't achieve anything.						
1	2	3	4	5		6
Strongly Disagree						Strongly Agree
14. Other people are worth nothing.						
1	2	3	4	5		6
Strongly Disagree						Strongly Agree
15. Being a very special person gives me a lot of strength.						
1	2	3	4	5		6
Strongly Disagree						Strongly Agree
16. I manage to be the center of attention with my outstanding contributions.						
1	2	3	4	5		6
Strongly Disagree						Strongly Agree
17. Most people are somehow losers.						
1	2	3	4	5		6
Strongly Disagree						Strongly Agree
18. Mostly, I am very adept at dealing with other people.						
1	2	3	4	5		6
Strongly Disagree						Strongly Agree

Appendix C

Acquaintance Questionnaire (created by Group Experiences Laboratory, i.e., GEL, 2020)

Instruction: Please complete the following questions for **each member of your team**. The name of the team member you are rating will appear in the question, at which time you will indicate the extent to which each statement accurately describes that particular person by selecting the appropriate number from the scale provided. This process will be repeated for each member of your team.

Please indicate whether you had met any of your team members before the start of the current semester.

Did you know [partner name] before the start of this semester?

a) No.

b) Yes.

[If yes, then using display logic, the next item will be displayed]

How acquainted are you with [partner name]? (1 = not at all, 6 = very much)

Appendix D

Status Conferral (GEL, 2019)

Instruction: Please complete the following questions for **each member of your team**. The name of the team member you are rating will appear in the question, at which time you will indicate the extent to which each statement accurately describes that particular person by selecting the appropriate number from the scale provided. This process will be repeated for each member of your team.

	Not at all 1	2	3	4	5	Very much 6
[partner name] has high status (i.e., influential, respected, and admired) in our team						
I have high status (i.e., influential, respected, and admired) in our team						

Appendix E

Peer Status Rankings (GEL, 2019)

***Number of names and ratings depends on number of group members

Instructions: Status means who is most influential, respected, and admired on your team. For

this question, please rank from 1 to 6 who has the highest status on your team, including

yourself (1 being the highest, 6 being the lowest)

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Appendix F

Ethics Approval



Date: 27 October 2021

To: Dr. Alex Benson

Project ID: 112318

Study Title: Understanding engineering project teams

Application Type: NMREB Amendment Form

Review Type: Delegated

Full Board Reporting Date: 05/Nov/2021

Date Approval Issued: 27/Oct/2021 11:00

REB Approval Expiry Date: 13/Aug/2022

Dear Dr. Alex Benson,

The Western University Non-Medical Research Ethics Board (NMREB) has reviewed and approved the WREM application form for the amendment, as of the date noted above.

REB members involved in the research project do not participate in the review, discussion or decision.

The Western University NMREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the Ontario Personal Health Information Protection Act (PHIPA, 2004), and the applicable laws and regulations of Ontario. Members of the NMREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB. The NMREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000941.

Please do not hesitate to contact us if you have any questions.

Sincerely,

Ms. Katelyn Harris , Research Ethics Officer on behalf of Dr. Randal Graham, NMREB Chair

Note: This correspondence includes an electronic signature (validation and approval via an online system that is compliant with all regulations).

Appendix G

TIANYUE XU

Honour Specialization B. A.

Department of Psychology

Western University

London, ON, Canada

EDUCATION

M.Sc. Psychology – Industrial/Organizational Psychology **In Progress (2022)**

Western University, London, ON, Canada

- Thesis: How Narcissism Relates to Social Rank Dynamics in Teams

Honors Specialization in Psychology **Sept. 2015 - Jun. 2020**

Western University, London, ON, Canada

- Thesis: Evaluating the Relation Between Narcissism and Upward-Status Disagreement

Chinese University of Hong Kong Summer Research **Jun. 2018 – Aug. 2018**

Chinese University of Hong Kong, Hong Kong, China

- International Summer Exchange Program

AWARDS, SCHOLARSHIPS, AND DISTINCTIONS

- Social Sciences and Humanities Research Council Scholarship (CGS-M) (2021-2022)
- Ontario Graduate Scholarship (2020-2021)
- Global and Intercultural Engagement Honour (2019)
- International Learning Award (2017)
- Dean's Honour List (2015-2020)
- Western Scholarship of Excellence (2015)

PUBLICATION

- **Xu, T.**, Evans, M. B., Benson, A. J. (under review). The nature of status: Navigating the diverse approaches to conceptualizing and measuring status.

RESEARCH EXPERIENCE

Goffin's Lab, Research Assistant **Jun. 2019 – Dec. 2019**

Western University, London, ON, Canada

Dr. Donald Saklofske's Lab, Research Assistant **Sept. 2018 – Nov. 2018**

Western University, London, ON, Canada

The Mood Research Lab, Research Assistant **Sept. 2017 – Apr. 2018**

Western University, London, ON, Canada

TEACHING EXPERIENCE

Teaching Assistant **Jan. 2021 – Dec. 2021**

Western University, London, ON, Canada

- Psychology 1000 – Introduction to Psychology
- Psychology 1002A – Introduction to Psychology as a Natural Science