Perspectives on Servant Leadership and Its Associations With Follower Behaviors and Experiences: Three Studies Considering Context and Causality

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MANUSCRIPTS INCLUDED IN THIS DISSERTATION

This dissertation is based on three studies that have been published in international peer-reviewed scientific journals. The studies differ slightly from the published manuscripts in their formatting to better fit the outline of this dissertation, but their content has not been changed.

The included studies are the following:

Study 1: Schowalter, A. F., & Volmer, J. (2024). Servant and crisis manager? The association of servant leadership with followers' adaptivity and proactivity. *Journal of Leadership & Organizational Studies, 31*(4), 433–452. https://doi.org/10.1177/15480518241287647

Study 2: Schowalter, A. F., & Volmer, J. (2025). Trajectories and associations of perceived servant leadership and teacher exhaustion during the first months of a crisis. *Occupational Health Science*, *9*, 57–88. https://doi.org/10.1007/s41542-024-00206-x

Study 3: Schowalter, A. F., & Volmer, J. (2023). Are the effects of servant leadership only spurious? The state of research on the causal effects of servant leadership, recommendations, and an illustrative experiment. *The Leadership Quarterly, 34*(6)*,* Article 101722. https://doi.org/10.1016/j.leaqua.2023.101722

SUMMARY

In recent years, there has been increasing interest in the concept of servant leadership, as studies have shown a large variety of positive results. This dissertation aims to enhance the understanding of the relationship between servant leadership and follower behaviors and experiences. To this end, I present three empirical articles that focus on the associations of servant leadership with follower performance and well-being and the methods used to examine the leadership construct as an explanatory variable. Because research on servant leadership has been conducted mostly without contextualization, Studies 1 and 2 explore whether servant leadership is also beneficial in the still underresearched crisis context. Specifically, Study 1 investigates the associations between servant leadership perceptions and followers' performance (i.e., adaptivity and proactivity) and delves into mediating mechanisms between the constructs. Study 2 takes a dynamic perspective and focuses on the trajectories of and relationship between servant leadership perceptions and follower well-being (i.e., exhaustion) during a crisis. These longitudinal studies have several strengths—however, they should not be causally interpreted. As this is an issue that relates to many studies on servant leadership (and leadership in general), Study 3 deals with the question of whether the effects of servant leadership determined in research so far are robust and what can be done to conduct causally identified studies.

Studies 1 and 2 are based on a longitudinal survey among teachers in a German private school association ($N = 129$) with four measurement points approximately two months apart. Data collection was conducted during the first eight months of the COVID-19 crisis; the first measurement started in March 2020, when the first measures such as curfews were taken. Still, the two studies are independent as they only overlap regarding perceived servant leadership as an explanatory variable. The path model in Study 1 showed that servant leadership perceptions were related to both followers' adaptivity and proactivity via basic

psychological need satisfaction. There were no direct relationships between servant leadership perceptions and follower adaptivity or proactivity, and there was no *in*direct association with adaptivity via procedural justice. The mediating relationship between servant leadership perceptions and proactivity was negative. The study indicates that followers' needs should not be overlooked in the crisis context to help them cope with crises and that servant leadership is an appropriate means to achieve this goal. At the same time, Study 1 points to the potential negative effects of servant leadership on proactivity via procedural justice in certain circumstances.

Based on conservation of resources theory, Study 2 examined the development of the association between servant leadership perceptions and exhaustion during the first eight months of a crisis. Using latent growth curve modeling, the results showed that servant leadership perceptions were both inter- and intraindividually related to followers' exhaustion. Between-person, a higher level of servant leadership perceptions was associated with a lower level of exhaustion. Within-person, a greater decrease (increase) in servant leadership perceptions was related to a greater increase (decrease) in exhaustion. Additionally, the univariate trajectories of the constructs yielded that servant leadership perceptions decreased over the study period. The decrease slowed from T1 to T3 before servant leadership perceptions increased again between T3 and T4. Teachers' exhaustion did not increase on average during the first eight months of the crisis. The trajectories of and associations between the constructs are thus complex and can vary over time. Furthermore, the findings suggest that servant leadership is appropriate for reducing the negative effects of crises on followers' exhaustion.

Study 3 investigated the current state of research regarding causality in the field of servant (and authentic) leadership and provides recommendations on how causally identified studies on these leader behaviors can be conducted to enable researchers to meaningfully

inform science and policy. First, endogeneity bias and issues in experimental design are discussed as central problems that can prevent causal inferences from studies on the effects of servant leadership. Then, the current state of research on servant and authentic leadership as explanatory variables is summarized through systematic reviews. The results indicate that the lack of causal examinations is highly prevalent. As guidance in this regard, two ways in which causal research on the effect of servant leadership (perceptions) could be cleanly conducted are described: well-designed randomized experiments and instrumental variable regression. To illustrate the recommendations, an exemplary experiment was conducted using manipulated leader behavior as an instrument for follower perceptions. In this randomized lab experiment, the effect of a combined stewardship and authenticity manipulation, as well as the perceptions thereof, on individual task performance were examined. The experiment did not reveal an effect of either combined stewardship and authenticity behavior or perceptions thereof on performance.

In summary, this dissertation provides first evidence that servant leadership can be beneficial in the crisis context but that it can also have unintended negative effects. Additionally, pitfalls in servant leadership research that severely limit the validity of empirical studies in the field are pointed out. To support the conduction of solid, causally identified research, recommendations to improve research are provided, along with an illustrative experiment. In this way, this dissertation contributes to the state of research on servant leadership in context and over time as well as on its associations with follower performance and well-being and the potential underlying mediating mechanisms of these relationships. Additionally, the presented roadmap can help advance research on servant leadership with robust studies.

CONTRIBUTION TO THE MANUSCRIPTS

Study 1

I developed the theoretical background and the hypotheses and planned the study in consultation with Judith Volmer. I conducted the study, analyzed the data, and wrote the first draft of the manuscript. Judith Volmer provided feedback on earlier versions of the manuscript; I revised earlier versions of the manuscript; both authors read the final version and agreed to the published version of the manuscript.

Study 2

I developed the theoretical background and the hypotheses and planned the study in consultation with Judith Volmer. I conducted the study, analyzed the data, and wrote the first draft of the manuscript. Judith Volmer provided feedback on earlier versions of the manuscript; I revised earlier versions of the manuscript; both authors read the final version and agreed to the published version of the manuscript.

Study 3

I developed the theoretical background and the hypotheses and planned the systematic reviews and the experimental studies in consultation with Judith Volmer. I conducted the systematic reviews and the experimental studies, analyzed the data, and wrote a first draft of the manuscript. Judith Volmer provided feedback on earlier versions of the manuscript; I revised earlier versions of the manuscript; both authors read the final version and agreed to the submitted version of the manuscript.

CHAPTER I

GENERAL INTRODUCTION

"Leadership is not about being in charge.

Leadership is about taking care of those in your charge."

—Sinek (2015)

This quote aptly reflects the essence of servant leadership, a leadership approach that emphasizes prioritizing the needs and interests of others over self-interest (Eva et al., 2019). The construct was introduced by Robert K. Greenleaf in the 1970s, inspired by Hermann Hesse's literary work *Journey to the East* (Greenleaf, 1970, 1977). In this narrative, the character Leo, through his role as a humble and wise servant, provides the other group members with the opportunity to grow and develop. When Leo disappears, it becomes clear that he was not merely a servant but the true leader of the group. Greenleaf proposed that, analogous to Leo, who was initially perceived as a servant, a leader should be servant first. The popular press quickly picked up on this leadership concept, but it was only after the turn of the millennium that it attracted the broader interest of empirical researchers in the fields of management and psychology (Parris & Peachey, 2013). In recent years, there has been a rising trend in publications on servant leadership. In the Web of Science Core Collection, the search term "servant leader*" shows that the number of publications rose from one publication in 1991 almost exponentially to 170 publications in 2022.[1] One reason for the little research interest in the beginning was probably that servant leadership was not conceptualized as a testable construct but more as a way of life (Parris & Peachey, 2013). Additionally, "the natural feeling that one wants to serve, to serve *first*" as the precondition for a servant leader (Greenleaf, 2002, p. 27) primarily focused on leaders' character instead of their behavior. However, in the last 20 years, the concept stimulated the development of a

[1] Selecting *All Databases* instead of *Web of Science Core Collection* even shows a rising trend from one publication in 1979 to 341 publications in 2022.

broad array of definitions and conceptualizations (Sun et al., 2023). In a recent systematic review, the core of these definitions was worked out and brought down to a common denominator (Eva et al., 2019). Based on this comprehensive work, servant leaders are defined as motivated to serve: They perceive their employees as individuals whom they are responsible for and whom they want to help grow and develop. Additionally, servant leaders first focus on others in the organization and beyond, instead of on themselves.

Associations of servant leadership with various constructs have already been examined, such as followers' psychological well-being (e.g., Gotsis & Grimani, 2016), collaboration (e.g., Garber et al., 2009), and individual (e.g., Liden et al., 2008), team (e.g., Sousa & van Dierendonck, 2017), and organizational performance (e.g., Choudhary et al., 2013). The evidence for these associations has also been underscored by meta-analyses which show that servant leadership is the only leadership construct that is associated with positive attitudes and behavior over and above transformational leadership (e.g., Hoch et al., 2018). Despite this promising evidence on its associations with desirable follower behaviors and experiences, there remain numerous open research questions with respect to servant leadership that I aim to shed more light on.

First, an important and still highly fragmentary research field is the consideration of servant leadership (and leadership in general) in context (Johns, 2024). Including context in research is crucial for identifying theoretical boundary conditions of leadership constructs, deriving practice-oriented and relevant implications, and integrating seemingly heterogeneous research findings (Johns, 2018). Nevertheless, contextual effects are frequently disregarded or considered merely as artifacts (e.g., statistically controlling for them; Johns, 2024; Liden & Antonakis, 2009; Oc, 2018). In the crisis context, leadership appears to be especially important (Rudolph et al., 2021; Waldman et al., 2001), and leadership behavior and its effects could differ between crisis and non-crisis contexts (Rudolph et al., 2021). In particular,

in light of the recent COVID-19 crisis, researchers have raised the question of whether existing leadership constructs, which were developed before the crisis, remain applicable or should be adjusted or discarded (e.g., Harris & Jones, 2020; A. Newman et al., 2022; Rudolph et al., 2021; Seaton et al., 2021). Servant leadership could be a particularly suitable leadership construct for the crisis context as it integrates both more directive and more communal behaviors, which are both necessary in the crisis context (Kniffin et al., 2021; Krause et al., 2024; Vaziri et al., 2020). Despite this, there is a scarcity of research on leadership in crisis situations (Bajaba et al., 2021; Collins et al., 2023; Y. L. Wu et al., 2021), especially regarding the relationship between servant leadership and its outcomes (Zada et al., 2022). Therefore, in Studies 1 and 2, I examined the associations between servant leadership and several relevant follower behaviors and experiences (i.e., adaptivity, proactivity, and exhaustion) in the crisis context. Additionally, these studies focus on the specific occupational context of teachers, as schools, like other organizations, are affected by crises (Thornton, 2021); yet, there is limited research on how to successfully lead through crises in this setting (Harris & Jones, 2020).

Second, previous research has identified two key performance indicators that can help employees successfully navigate through uncertain contexts and sustain their health and well-being: adaptivity and proactivity (Cangiano et al., 2019; Griffin et al., 2007; M. Zhou & Lin, 2016). However, in addition to limited evidence on the association between servant leadership and followers' adaptivity and proactivity, the mechanisms by which servant leadership is associated with these constructs are not well understood. Understanding the specific mechanisms can help distinguish servant leadership from other leadership constructs, which is an important endeavor as the many contemporary leadership constructs are highly correlated and, thus, potentially redundant (Banks et al., 2016, 2018). Furthermore, knowledge of mediating mechanisms allows us to better understand what determines how effective servant

leadership is concerning various outcomes. Therefore, Study 1 investigates two competing mechanisms (i.e., basic psychological need satisfaction and procedural justice) in the association between servant leadership and followers' performance.

Third, exhaustion can have far-reaching consequences for individuals (e.g., turnover; Wright & Cropanzano, 1998) and others in their environment (e.g., through a higher risk of abusive supervision; Lam et al., 2017). In crisis contexts, individuals are particularly at risk of exhaustion (LeNoble et al., 2023), making it crucial to understand how exhaustion develops over time and how it can be reduced. Leadership has already been found to be a key factor for the health and well-being of followers (e.g., Sonnentag et al., 2023), and servant leadership, with its focus on individual followers (Eva et al., 2019), may be particularly promising in this context. However, it remains unclear how (servant) leadership and well-being are related, especially from a dynamic process perspective (Inceoglu et al., 2018). Therefore, Study 2 explores the trajectories of and the relationships between servant leadership and exhaustion using a latent growth curve modeling (LGCM) approach with four measurement times. To draw conclusions about the trajectories as well as the inter- and intraindividual relationships, conservation of resources theory is applied.

Fourth, the majority of existing research on servant leadership is cross-sectional (Eva et al., 2019). This approach has two significant limitations. First, it leads to a particularly high risk of common method bias (P. M. Podsakoff et al., 2012). Second, it precludes modeling the temporal order of the investigated variables and their relationships (Maxwell et al., 2011; Zapf et al., 1996). To address these methodological concerns, I adopted a longitudinal design in Studies 1 and 2 during the initial months of a crisis (i.e., the COVID-19 crisis). The frequent use of cross-sectional designs also has the consequence that most studies treat (servant) leadership as a static between-person phenomenon (Eva et al., 2019; McClean et al., 2019) and do not consider the relationship between leadership and follower behavior and

experiences as a process (Inceoglu et al., 2018). This issue is concerning because leadership theories are typically formulated as within-person theories (Eva et al., 2019; McClean et al., 2019). As the dynamic nature of leadership necessitates a longitudinal within-person perspective to draw inferences about the development of the investigated constructs and their associations over time, an LGCM approach was employed in Study 2.

Due to the unpredictable nature of crises and practical as well as ethical challenges of experimentally inducing them, only associations can be established, whereas causal effects can hardly be determined (e.g., due to common method bias or other endogeneity problems; Antonakis et al., 2010). However, if the research is not causally identified, the estimated effects could be smaller, larger, insignificant, or even in a different direction than the true effects, potentially leading to wrong implications for science and policy (Alvesson, 2020; T. Fischer & Dietz, 2020). In reflecting on how I could causally identify the relationships between servant leadership and follower outcomes, it became apparent that only few causally identified studies on servant leadership generally exist. Consequently, as the fifth contribution, Study 3 elucidates methodological issues that can render study results on servant leadership as an explanatory variable not causally interpretable. These issues pertain to the distinction between leadership behavior and perceptions thereof, and why it is problematic when servant leadership is measured through questionnaires, despite the objective being to investigate servant leadership *behavior*. In this context, the problem of endogeneity is also explicated, as well as why causal inference may be compromised even in randomized experiments.

Sixth, to ascertain the prevalence of these issues regarding endogeneity and experimental design in servant leadership research, I conducted a systematic literature review in Study 3. The review encompasses studies utilizing servant leadership as an explanatory variable, which were published between 2018 and 2022 (following up on the review by Eva et

al., 2019). In contrast to previous reviews of servant leadership, this review focuses on the methodological issues that have been worked out. Given that servant leadership encompasses a dimension of authenticity (van Dierendonck & Nuijten, 2011), and thus overlaps with authentic leadership, an analogous review of authentic leadership was conducted (beyond the review by Gardner et al., 2011).

Seventh, to address the methodological issues, recommendations are provided in Study 3 on how to conduct more rigorous studies on the causal effects of servant leadership and perceptions thereof (i.e., sound randomized experiments and instrumental variable regression). Finally, to illustrate these recommendations, I implement a randomized experiment investigating the combination of two dimensions of servant leadership (i.e., stewardship and authenticity) as an explanatory variable. The randomly assigned manipulation is additionally utilized to demonstrate the application of the instrumental variable approach. The latter can be employed to examine whether measured servant leadership (or its subdimensions) is endogenous and to address potential endogeneity issues (cf. Sajons, 2020).

In the following, I first explain the construct of servant leadership in more detail. The subsequent chapter introduces Studies 1 and 2, which focus on servant leadership in the crisis context, longitudinally investigating the associations between servant leadership and follower performance and well-being. After presenting these studies, I discuss the limitations regarding causality in Studies 1 and 2 and introduce Study 3. In this third study, I examine the state of research regarding causal effects of servant (and authentic) leadership, provide recommendations on how to improve research, and illustrate the recommendations with a randomized experiment and an instrumental variable approach. Finally, I summarize all results, discuss the studies jointly, delineate further pitfalls in servant leadership research, and derive opportunities for future research.

The Construct of Servant Leadership

Based on different conceptualizations and measures of servant leadership, Eva et al. (2019) developed a condensed definition of servant leadership as "an (1) other-oriented approach to leadership (2) manifested through one-on-one prioritizing of follower individual needs and interests, (3) and outward reorienting of their concern for self towards concern for others within the organization and the larger community" (p. 114). Three scales are particularly recommended for measuring the construct based on their theoretical foundation and their psychometric quality (Eva et al., 2019): The servant leadership measure by Liden et al. (2008), the Servant Leadership Behavior Scale by Sendjaya et al. (2008), and the Servant Leadership Survey by van Dierendonck & Nuijten (2011). All of them have strengths and limitations as they include certain aspects that others do not include (Eva et al., 2019; Sun et al., 2023). For instance, contrary to the other two recommended scales, the servant leadership measure by Liden et al. (2008) explicitly contains leaders' conceptual skills whereas the Servant Leadership Behavior Scale includes a spiritual dimension. The Servant Leadership Survey, by contrast, is the only measure that also comprises a task focus, holding followers accountable for their performance (Eva et al., 2019). While servant leaders consistently exhibit empathy and acceptance of their followers, they simultaneously recognize the need for improvement and therefore occasionally reject certain aspects of their followers' efforts or performance as inadequate (Greenleaf, 2002). Thus, servant leaders holistically focus on both followers and performance by being people-centered while not ignoring performance expectations (Eva et al., 2019; van Dierendonck & Nuijten, 2011) so that accountability is a central part of servant leadership. This part of servant leadership is also likely to be an important dimension with regard to follower performance (which I examine in Study 1). Based on these considerations, I used van Dierendonck and Nuijten's (2011) conceptualization for this dissertation. According to their conceptualization, servant

leadership encompasses eight dimensions: *Empowerment* involves motivating followers to take initiative and build self-confidence by focusing on their personal growth. *Accountability* involves setting clear expectations and boundaries and holding individuals responsible for their performance. *Standing back* means recognizing the contribution of others and sharing credit for completed tasks. *Humility* entails acknowledging one's strengths and limitations and seeking the help of others to overcome the latter. *Authenticity* refers to a leader's ability to be genuine and transparent about their emotions and motivations. *Courage* involves questioning old approaches and trying out new ones, and being willing to face challenges in line with one's values. *Forgiveness* describes accepting others despite mistakes and not seeking revenge. Finally, *stewardship* refers to acting as a role model and taking responsibility for the organization beyond one's personal interests.

In light of the constantly increasing number of leadership constructs, recent meta-analyses examined the explained variance of servant leadership compared to other leadership constructs. They found that servant leadership was associated with positive work-related constructs over and above other leadership constructs, such as transformational, authentic, or ethical leadership (e.g., Eva et al., 2019; Hoch et al., 2018; A. Lee, Lyubovnikova, et al., 2020; Parris & Peachey, 2013). Despite these findings, several researchers have argued that these contemporary leadership theories may (at least in part) measure a single overarching leadership construct and hence be redundant (Banks et al., 2018; Hoch et al., 2018). Therefore, in Study 3, I address the differentiation between servant leadership and charismatic, transformational as well as authentic leadership. In the final chapter of this dissertation, I highlight some further pitfalls (adding to Study 3) in (servant) leadership research that should be considered to improve the conceptualization and measurement of servant leadership and to address construct redundancy issues.

CHAPTER II

SERVANT LEADERSHIP AND CONTEXT

Leadership is always embedded in a certain context and thus, does not occur in a vacuum. Instead, the effect of leadership can vary depending on the context (Oc, 2018; Osborn et al., 2002). Fiedler's (1967) contingency theory was the first theory adverting to the importance of context in the leadership field (Liden & Antonakis, 2009; Oc, 2018). Since some previous attempts and calls (e.g., Johns, 2006), organizational research has made some progress, and interest in context effects is rising (Johns, 2017, 2024); however, there are still many gaps in knowledge due to failing to recognize or appreciate the influence of context (Johns, 2024; A. Lee et al., 2022; Oc, 2018). Context can be defined as "situational opportunities and constraints that affect the occurrence and meaning of organizational behavior as well as functional relationships between variables" (Johns, 2006, p. 386). Context variables can directly influence organizational behavior or interact with study variables (Johns, 2017). With regard to leadership, context can affect which leadership behavior is shown as well as which one is effective (Liden & Antonakis, 2009). It can act as a main effect that impacts leadership directly or indirectly, as a moderator for the relationship between leadership and other variables, as an outcome of leadership, or as a constant background factor that influences inferences about associations between leadership and other variables (Johns, 2024). For instance, a sudden shift to a remote context, such as during the COVID-19 crisis, could make it more difficult to effectively implement servant leadership behavior. Concerning constant background factors, servant leadership could align better with expected or preferred leadership behavior in certain occupational fields than in others, leading to differences in the associations between servant leadership and outcomes between occupational fields. Thus, reporting and modeling context is necessary to interpret study results correctly, resolve inconsistencies between studies, and integrate findings. Additionally,

understanding context helps to derive valid practical implications (Johns, 2006, 2017, 2024). Not accounting for context is problematic as it can affect base rates or lead to range restrictions in studied variables so that actual effects cannot be revealed. Instead, the findings could be insignificant or apply only to a limited range of the variables (Johns, 2017). Context could even change the signs of associations or the causal direction of effects (Johns, 2006). Therefore, disregarding context may even be one of the causes of the *replication crisis* (Johns, 2017). Another problematic approach results from the fact that researchers often try to generalize their findings and therefore, statistically control for contextual variables (e.g., for tenure or industry) when estimating effects. This approach treats potential context effects as artifacts (Oc, 2018), which presumes that the influence of the control variable is equivalent for all its levels although different relationships could exist (Johns, 2006). As a better approach, also because context effects are often overlooked when not explicitly stated, Johns (2006) suggests that researchers should report the context information of their studies that might impact their results or could be relevant for others (e.g., when conducting a meta-analysis). Further, he recommends to include several dependent variables to deeper understand the influence of context and to discuss the study results against the contextual background (Johns, 2006, 2024).

To facilitate the inclusion of context in research, a framework was developed, classifying context into *omnibus* and *discrete contexts* (Johns, 2006). The omnibus context is rather broad and distal, whereas the more proximal discrete context is embedded in the omnibus context and includes specific context variables that impact behavior or attitudes. The discrete contextual variables or their interactions can also be seen as mediating the effects of the omnibus context. Omnibus contexts should be included using detailed descriptions, clarifying who and what was examined and when, where, and why the study was conducted

(Johns, 2017). The crisis context can be categorized as such an omnibus context (Johns, 2024).

As a result of the prevailing disregard for context in leadership research, contemporary leadership theories, including servant leadership, have primarily been formulated without thorough consideration of context. Some subsequent researchers have occasionally incorporated contextual nuances (mostly operationalized as moderators) when investigating these theories, but the scope of investigated contextual variables remains very limited (Eva et al., 2019; Johns, 2024). In the following, I provide a concise summary of the research on servant leadership in specific contexts.

In 2013, the first systematic review of servant leadership in organizational contexts was provided (Parris & Peachey, 2013). The authors included 39 empirical studies and found that servant leadership had been investigated in 11 countries (with the majority using US samples) and in various organizational settings, with the educational context having the highest occurrence (44%). The authors concluded that servant leadership seemed to be accepted and applied across these contexts, but the meaning of the construct differed between countries. Regarding cultures, a later meta-analysis found no differences between Chinese and Anglo-Saxon samples in the association between servant leadership and follower attitudes and behavior such as job performance or creative behavior (McCune Stein et al., 2020). Another meta-analysis (A. Lee, Legood, et al., 2020) investigated the relationship between servant leadership and creativity and innovation and indicated that the associations did not depend on the industrial setting (i.e., knowledge intensity). However, follower gender moderated the association with creativity, and power distance moderated the relationship with innovation. Additionally, some primary studies indicate that the associations between servant leadership and follower outcomes can vary based on work climate (H. Zhang et al., 2012), the level of

organizational structure (Eva et al., 2018; Neubert et al., 2016), or the organizational strategy (Eva et al., 2018).

In summary, the research on servant leadership in context is still in its early stages. While some studies have already been conducted on servant leadership in various contexts, there is a significant need for further research, especially in the context of crisis. In Studies 1 and 2, I focus on this specific context.

The Crisis Context

Organizations are hit by crises from time to time, such as product failures, reputation crises, or more globally, the financial crisis or the COVID-19 crisis, which must be overcome by leaders and followers to maintain their own health and performance and ensure the survival of the organization. Many researchers claim that the number of such crises is increasing in the present time (Collins et al., 2023; James et al., 2011; S. Y. Lee et al., 2021)[1], making it even more essential to explore what helps employees thrive despite such challenging circumstances. Organizational crises can be defined as "events that are perceived by leaders and organizational stakeholders as unexpected, highly salient, and potentially disruptive" (Y. L. Wu et al., 2021, p. 2). This definition is explained in greater detail in Study 1, along with a discussion of why the COVID-19 crisis can be deemed a crisis. As previously stated, according to Johns' framework, crises can be categorized into the omnibus context, especially relating to the *when* of the context (Johns, 2006; Oc, 2018). Crises have the potential to change leadership behavior and perceptions (Oc, 2018; Rudolph et al., 2021), so that leadership can either be classified as an outcome variable, influenced by omnibus or discrete contexts, or as a discrete context variable itself as it is a specific situational variable that can affect other outcome variables. In my studies, I take both views. On the one hand, I

[1] I am not aware of any comprehensive and thorough investigation undertaken to determine the prevalence of crises. Thus, the assertion put forth by these researchers should be considered a claim rather than a verified fact.

investigate how servant leadership develops in the first months of a crisis and, thus, how it is influenced by an omnibus crisis context (Study 2). On the other hand, I examine if followers differ in their behavior or well-being in this (omnibus) crisis context, given a (more or less pronounced) discrete servant leadership context (Studies 1 and 2).

Aims and Outline of Studies 1 and 2

Crises present individuals with numerous challenges. Specifically, during the COVID-19 crisis, employees were confronted with many changes such as physical distancing, curfews, reduced working hours, or mandatory working from home, which put employees at social-psychological, economic, and health-related risks (Kniffin et al., 2021). Given these challenges, and to be prepared for future crises, it is important to explore how negative consequences for employees can be mitigated. Thus, in Studies 1 and 2, my goal was to investigate whether servant leadership can help followers foster their performance and well-being. To achieve this aim, I conducted a longitudinal study with four measurement points over the first eight months of the COVID-19 crisis to find out more about the associations between servant leadership and followers' behaviors and experiences. Based on self-determination and organizational justice theories, in Study 1, I investigated whether perceived servant leadership is positively associated with teachers' adaptivity and proactivity, and whether basic psychological need satisfaction and procedural justice mediate these relationships. In Study 2, I drew on conservation of resources theory to examine the trajectories of and the longitudinal, dynamic associations between servant leadership and teacher exhaustion during the first eight months of the crisis.

CHAPTER III

SERVANT AND CRISIS MANAGER?

THE ASSOCIATION OF SERVANT LEADERSHIP WITH FOLLOWERS' ADAPTIVITY AND PROACTIVITY (STUDY 1)

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Abstract

Crisis situations require employees to be adaptive and proactive in order to be successfully managed. Because servant leaders focus on serving their followers, they should be able to fulfill their followers' needs and respond appropriately to situations that cause uncertainty, thereby helping them manage crises. Against this backdrop, we investigated whether the perception of servant leadership can support follower adaptivity and proactivity in a crisis context. Additionally, we examined two potential mediating processes to explain these relationships (i.e., followers' basic psychological need satisfaction and procedural justice perceptions). Using a longitudinal study with three measurement points between March 2020 (at the beginning of the COVID-19 crisis) and October 2020, we surveyed 129 teachers employed at several schools in a private school association in Germany. In line with our hypotheses, the results of the path analysis showed that servant leadership perceptions were positively associated with both mediators. The relationships between servant leadership and followers' proactivity and adaptivity were mediated by basic need satisfaction. However,

contrary to our assumptions, we found no direct associations between servant leadership and follower behavior, no indirect relationship between servant leadership and adaptivity via procedural justice, and even a negative indirect relationship between servant leadership and proactive behavior via procedural justice. Based on our findings, we discuss the potential benefits and negative implications of servant leadership in the crisis context.

Keywords: crisis, servant leadership, performance, basic psychological need satisfaction, procedural justice

Introduction

A crisis can generally be described as an unexpected and highly salient event that can be disruptive from the perspective of leaders and organizational stakeholders (Y. L. Wu et al., 2021). The global financial crisis, the European sovereign debt crisis, and the COVID-19 crisis are just a few well-known examples of recent crises. Because of their destructive potential, successful navigation through such crises is crucial. Previous research has identified two key aspects that help individuals adjust to work-related changes: adaptivity and proactivity. Adaptivity is needed to develop personally in response to new demands, and may involve modifying one's skills or values to reach this goal. Conversely, proactivity is required to align one's role requirements with individual needs, abilities, and identity, for example, by changing methods or materials (Nicholson, 1984; Zacher & Rudolph, 2022). The two constructs are not only important performance indicators in times of uncertainty (Griffin et al., 2007) but can also foster employees' health and well-being (Cangiano et al., 2019; Chen et al., 2021; M. Zhou & Lin, 2016). Nevertheless, it remains unclear how adaptivity and proactivity can be promoted among employees in a crisis context.

Leadership behaviors and perceptions thereof[1] have already been found to be positively associated with employee performance and well-being (Avolio et al., 2009; Inceoglu et al., 2018); in uncertain times, these associations are even stronger than under conditions of certainty (Rudolph et al., 2021; Waldman et al., 2001). One possible reason for the more substantial effects of leadership in uncertain contexts is that employees are likely to seek additional resources, such as more guidance and support, from their leaders (Rowley et al., 2021; Rudolph et al., 2021; Waldman et al., 2001; Wee & Fehr, 2021). Nevertheless, the state of research on leadership during crises is highly controversial. Some researchers have found that directive leadership behavior is more pronounced during a crisis (Garretsen et al., 2024) and can be beneficial, for instance, by reducing complexity (Krause et al., 2024). However, there is also evidence that supervisor support, compassion (Vaziri et al., 2020), and other communal values and traits such as attentive communication styles are essential in the crisis context (Kniffin et al., 2021) as these empathetic leader behaviors can help alleviate employees' concerns and anxieties.

Servant leadership may be a solution to reconcile these controversial findings. Research on change management has shown that servant leadership is positively associated with employees' coping with change (e.g., Sousa & van Dierendonck, 2014). As crisis management can be classified as a type of change management (Howes et al., 2021; van Wart & Kapucu, 2011), this research can be drawn upon. However, it remains unclear whether servant leadership benefits employees' adaptivity and proactivity specifically in a crisis context, and if so, how this association can be explained. We propose that servant leadership may foster these behaviors through two key mediators: basic psychological need satisfaction and procedural justice. First, according to self-determination theory (Deci & Ryan, 2000),

[1] Questionnaire measures of servant leadership represent raters' interpretation of the leadership behavior instead of leadership *behavior* itself (Schowalter & Volmer, 2023). Therefore, to be precise, we use the term servant leadership *perceptions* throughout the article.

individuals possess three innate psychological needs: autonomy, competence, and relatedness. The satisfaction of these needs is essential for fostering motivation, improving performance, and enhancing well-being. Even in times of crisis, the satisfaction of followers' basic psychological needs has been shown to play a crucial role in ensuring their well-being and performance (Šakan et al., 2020; Vermote et al., 2022). Servant leaders, with their focus on follower well-being and support, are particularly adept at recognizing and addressing these needs. During a crisis, servant leaders can ensure that followers understand the purpose and value of specific actions, thereby fostering autonomy satisfaction. They also nurture a sense of community and mutual support, meeting the need for relatedness. Furthermore, servant leaders provide guidance and resources to help employees develop the skills required to tackle crisis challenges, promoting competence satisfaction (Vermote et al., 2022). As followers' basic needs are satisfied, they are likely empowered to respond proactively and adaptively to the crisis (Gagné et al., 2022). The positive association between servant leadership and followers' basic need satisfaction (Chiniara & Bentein, 2016) as well as the positive association between servant leadership and employees' adaptivity and proactivity, mediated by intrinsic motivation, has already been found in the non-crisis context (Bande et al., 2016), providing first evidence for the postulated associations.

Second, procedural justice, which refers to the perceived fairness of processes used to determine outcome allocations, including workload distribution or task assignment (Colquitt, 2001; Thibaut & Walker, 1975), plays a crucial role in crises. Crises can elicit strong emotions and uncertainty, potentially leading to feelings of anger and resentment (Coombs & Holladay, 2005; Mitroff et al., 1988). Such reactions can hinder organizational learning and impede effective crisis management (Bundy et al., 2017). However, servant leaders, with their focus on employee well-being and clear communication, are well positioned to address these concerns. By ensuring clear and understandable procedures and involving employees in decision-making processes, servant leaders can mitigate the negative effects of a crisis, reduce

feelings of anger and resentment, and promote procedural justice. These procedural justice perceptions can enhance employees' adaptivity and proactivity. Supporting this reasoning, previous research in the non-crisis context has shown that servant leadership and procedural justice (Qiu & Dooley, 2022) as well as procedural justice and proactive behavior (Crawshaw et al., 2012) are positively associated and that procedural justice mediates the association between servant leadership and organizational commitment (Kauppila et al., 2022).

In summary, we propose that servant leadership perceptions are positively associated with employee adaptivity and proactivity in crisis contexts through the mediating mechanisms of basic need satisfaction and procedural justice. By addressing employees' psychological needs and ensuring fairness and transparency in crisis management, servant leaders can play a vital role in helping organizations navigate and thrive during crises. Thus, our study makes several contributions to current research. First, research on effective leadership during crises is still underdeveloped (Bajaba et al., 2021; Collins et al., 2023; Y. L. Wu et al., 2021), particularly regarding the effectiveness of servant leadership (Zada et al., 2022). Therefore, we follow previous calls to extend knowledge on the role of leaders in different change and crisis contexts (Howes et al., 2021; Y. L. Wu et al., 2021) by examining positive leadership (i.e., servant leadership) in the context of a global crisis event (James et al., 2011). Although some researchers have claimed that existing leadership models (prior to the crisis) are no longer appropriate in the face of the recent global COVID-19 crisis and need to be completely rethought (e.g., Harris & Jones, 2020; Rudolph et al., 2021), it is important to investigate (the value of) existing constructs, such as servant leadership, in the crisis context before discarding them (A. Newman et al., 2022; Seaton et al., 2021). This approach is also essential from a practical perspective because a positive impact of servant leadership not only in non-crisis contexts (see, e.g., Eva et al., 2019, for an overview) but also in crisis contexts would be highly beneficial for organizations: Selecting leaders based on their servant leadership behaviors and training them to apply this leadership style would then also prepare

organizations for future crises (A. Newman et al., 2022). Thus, our study adds to the currently still fragmentary research on leadership in the crisis context.

Second, we shed light on the underlying mechanisms of the relationship between servant leadership and employees' adaptivity and proactivity by considering two mediators (i.e., procedural justice and basic need satisfaction). Investigating the two competing mediators helps us gain knowledge on which mediators are relevant in how servant leadership affects outcomes (Eva et al., 2019). Third, most studies on servant leadership, both in general (Eva et al., 2019) and among the few existing studies conducted in the crisis context, are cross-sectional survey studies (e.g., Ruiz-Palomino et al., 2022; Zada et al., 2022; as an exception, see J. Hu et al., 2020). We help mitigate the inherent methodological concerns by longitudinally examining the associations of servant leadership with employee attitudes and behavior using a three-wave study design over seven months. By temporally separating predictor, mediator, and outcome variables, temporal precedence can be modeled (Maxwell et al., 2011; Zapf et al., 1996) and common method bias can be reduced (P. M. Podsakoff et al., 2012). Furthermore, it is often only possible to gather retrospective data on crises, because the latter cannot be planned or predicted (Collins et al., 2023; James et al., 2011). Instead of relying on archival or retrospective data (which could, e.g., be affected by hindsight biases; Tourish, 2020), we contribute to the current research by using real-time data beginning with the start of a crisis (i.e., the COVID-19 crisis) in 2020.

Theoretical Background

Organizational Crises

A recent review (Y. L. Wu et al., 2021) of the major crisis definitions in the existing literature identified three specific characteristics that differentiate organizational crises from other business problems. First, a crisis is unexpected. Owing to its rarity or abnormality, organizations and leaders are not prepared for it and are not experienced in managing it. For instance, pandemics, environmental disasters, or financial crises have a lower probability of

occurrence than other adverse organizational events, such as human error or technical malfunction. The second characteristic of a crisis, salience, encompasses two aspects: (a) the impact is perceived as significant, and (b) the response is perceived as urgent. Thus, a crisis is appraised as significantly threatening an organization's resources and survival. Third, a crisis can profoundly negatively affect organizations and their internal or external stakeholders. For instance, the spread of COVID-19 led to a crisis, hitting the global workforce unexpectedly and hard (Collins et al., 2023; J. Wu et al., 2021), and the resulting curfews, social distancing rules, and further measures to contain infections caused fundamental changes in working conditions, such as organizational procedures or stakeholder relations (Kim et al., 2021; Y. L. Wu et al., 2021). In Germany, most, if not all, occupational groups were affected by such changes, such as the sudden transition to work from home and online communication (Kim et al., 2021; Kniffin et al., 2021; Zacher & Rudolph, 2022). Teachers, for example, had to teach their courses online instead of face-to-face in their classrooms (Bush, 2021).[2] The COVID-19 crisis elicited a high level of uncertainty, anxiety, reduced well-being, and loneliness (Carnevale & Hatak, 2020; J. Hu et al., 2020; Lian et al., 2022), thus, negatively impacting stakeholders. Given the high probability of encountering crises in today's dynamic working world (Collins et al., 2023), it is essential to investigate the factors that enable employees to thrive in such contexts (A. Newman et al., 2022).

The (more comprehensive) change management research can inform the crisis context; especially if a crisis not only comprises short-term reactions but endures over a more extended period, thus involving different types of change (van Wart & Kapucu, 2011; e.g., in the case of COVID-19). *Change* can be defined as "any adjustment or alteration in the organization that has the potential to influence the organization's stakeholders' physical or

[2] In-person instruction had been the norm in German schools until then (Hilger et al., 2021); therefore, fulfilling school attendance in Germany before the pandemic meant attending school in person. This principle of in-person instruction was temporarily suspended during the declared epidemic emergency.

psychological experience" (Oreg et al., 2013, p. 4). Nevertheless, although crisis and change contexts in organizations share similarities, it is still unclear whether the leadership competencies required for planned change projects are equally adequate to manage crises, so they must be explicitly studied.

The Servant Leader as Crisis Manager

According to a recent review of crisis leadership (Riggio & Newstead, 2023), five competencies are essential for leaders to successfully manage crises. First, leaders need sensemaking skills to quickly understand the situation, interpret new information, and make informed decisions based on evolving circumstances, ultimately facilitating a shared understanding and collective action. Second, decision making is required during crises, as leaders must make rapid and considerate decisions based on the best available information, taking into account the perspectives of various stakeholders and the consequences of their decisions. Effective decision-making involves seeking advice, analyzing situations from multiple angles, and ultimately selecting courses of action that serve the common good. Third, communication is vital for crisis leaders as it enables the exchange of information, creation of shared meaning, and fostering trust among stakeholders. Effective communication in times of crisis involves clear, frequent, and empathetic messaging that acknowledges the realities of the situation while instilling hope and reassurance. Leaders must be visible, promptly address the crisis, listen to stakeholders, and disseminate information widely to facilitate sensemaking, decision acceptance, and collective action. Therefore, communication is also a prerequisite for the other leadership functions. Fourth, effective crisis leadership entails coordinating resources through task delegation and the facilitation of teamwork. Leaders must be able to align various groups to work towards a common goal, collaborate with external partners, and cultivate trust and resilience within teams to optimize performance during challenging circumstances. Finally, facilitating learning involves leveraging crises as opportunities for organizational growth and development both during and after a crisis.

Leaders should focus on extracting valuable lessons from crises, fostering a culture of continuous learning, and reframing challenges as opportunities for improvement.

In line with Riggio and Newstead (2023), another review (Collins et al., 2023) further highlights the importance of communication and sensemaking, especially in the context of external and unintentional crises such as the COVID-19 crisis. Additionally, researchers recommend that leaders provide tangible resources (e.g., information about working from home or access to training) and psychological resources (e.g., feedback and support) to help employees overcome the uncertainties associated with the crisis (Kniffin et al., 2021). Servant leadership contains several of the aforementioned aspects and encompasses additional behaviors demonstrated as beneficial during crises and changes in the literature (e.g., stakeholder focus, sensemaking, empowerment, helpful support; Gau & van Dierendonck, 2011; Sheng et al., 2024; Sousa & van Dierendonck, 2021; van Dierendonck & Nuijten, 2011; van Dierendonck & Sousa, 2016); therefore, it could be an appropriate leadership style in the crisis context.

Over the past two decades, an extensive range of definitions and conceptualizations of servant leadership have been established by researchers. To create a concise definition that encompasses the fundamental elements of servant leadership, an extensive review was carried out, which led to the following definition (Eva et al., 2019): Servant leaders orient themselves toward others, prioritize individual followers' needs and interests, and care more about others in the organization and wider society than about themselves. By being personally attentive and placing changes in a larger context that extends beyond the organization, servant leaders can enhance the meaning of changes, serving important needs during change (van Dierendonck & Sousa, 2016) and crises. Additionally, they regard their employees as unique, so that they can respond to their individual needs and support them in their personal situations (Eva et al., 2019). As servant leaders should be open to change recipients' feedback, the reasons for negative reactions can be identified and handled positively and advantageously, so

servant leadership could be especially effective in dealing with resistance to change (Oreg & Berson, 2019). Initial empirical, cross-sectional evidence in the context of change suggests that servant leadership is positively associated with commitment to change (Kool & van Dierendonck, 2012) and follower engagement during a merger process (Sousa & van Dierendonck, 2014). Initial cross-sectional studies also indicate that servant leadership is beneficial for a range of outcomes in the crisis context, including task performance (Zada et al., 2022), innovative behavior (Jin et al., 2021), work-life balance (Lamprinou et al., 2021), and psychological well-being (Ma et al., 2021).

To successfully manage changing conditions and be effective in uncertain environments, employees also need adaptivity and proactivity (Griffin et al., 2007). These two constructs encompass different aspects of dealing with change. *Adaptivity* is the extent to which employees cope with, constructively react to, and support changes in work roles or a work system (Griffin et al., 2007). Other researchers described it as "an individual's ability, skill, disposition, willingness, and/or motivation, to change or fit different task, social, and environmental features" (Ployhart & Bliese, 2006, p. 13). Adaptivity focuses on individuals' effective adaptation to work despite changing circumstances due to a crisis, for example, by changing their frame of reference or developing new skills (Zacher & Rudolph, 2022). *Proactivity*, on the other hand, can be described as taking self-guided action to anticipate and initiate changes in work roles or a work system (Griffin et al., 2007). It is self-initiated, future-oriented, and aims to change and improve oneself or the current situation (Parker et al., 2006). Proactivity is required to adjust role requirements to one own's needs, capabilities, and identity, for example, by adapting goals or methods, and is thus an important resource during crises (W. Hu et al., 2022; Ramos-Pla et al., 2021). In the following, we explain why servant leadership could be appropriate for fostering these two constructs in a crisis context.

Servant leadership and adaptivity. Servant leadership seems especially useful in fostering adaptivity as it considers followers' needs while supporting their growth and success

(Bande et al., 2016). Servant leaders do not try to force their employees but to persuade and convince them to follow their decisions (van Dierendonck, 2011). Through their employee focus, they are also likely to provide the necessary job resources and develop the required personal resources to enable employees to adapt to uncertain environments (van Dierendonck & Sousa, 2016). In the non-crisis context, first empirical evidence indicates that servant leaders can motivate adaptive employee behavior. A cross-sectional study found a positive direct association between servant leadership and adaptive behavior (Bande et al., 2016), and the results of other longitudinal research showed an indirect relationship between the two constructs (Kaltiainen & Hakanen, 2020; Kaya & Karatepe, 2020). Additionally, in a longitudinal study, leader visioning, a part of the stewardship dimension of servant leadership (van Dierendonck & Nuijten, 2011), was positively related to adaptive and proactive behavior (Griffin et al., 2010). Therefore, we state:

Hypothesis 1. Perceived servant leadership is positively associated with follower adaptivity.

Servant leadership and proactivity. We propose that servant leadership can foster employee proactivity because servant leaders support their employees by bringing their strengths into action and helping them grow and develop. Through their strong conceptual skills, servant leaders emphasize clarity if there are problems and provide strategic direction so that followers know where to go and how to succeed (Liden et al., 2008), which can help them be proactive. Empowerment, a dimension of servant leadership, even explicitly aims to motivate employees to be self-confident and proactive (van Dierendonck, 2011; van Dierendonck & Nuijten, 2011). There is first cross-sectional evidence of an indirect effect of servant leadership on proactivity in the non-crisis context (Bande et al., 2016; Luo & Zheng, 2018). Other research found proactive work behavior as a mediator in the positive association between servant leadership and individual performance (Varela et al., 2019).

Hypothesis 2. Perceived servant leadership is positively associated with follower proactivity.

Mediation by basic psychological need satisfaction. According to self-determination theory (Deci & Ryan, 2000), individuals have three basic psychological needs (i.e., autonomy, competence, and relatedness) that are innate rather than acquired. These basic needs must be fulfilled to achieve autonomous (i.e., intrinsic and internalized) motivation, optimal performance, and well-being (Deci et al., 2017). Meta-analytic evidence supports the positive associations between basic need satisfaction and follower behavior and experiences (van den Broeck et al., 2016). Also during the recent COVID-19 crisis, basic need satisfaction was found to be vital for maintaining mental health (Vermote et al., 2022), well-being (Šakan et al., 2020), and job performance (Bakker et al., 2023). Employees' basic need satisfaction and the resulting higher sense of self-determination can then lead to increased proactive and adaptive behavior (Gagné et al., 2022; C.-H. Wu & Parker, 2017). As a result, it is essential to ensure the satisfaction of employees' basic psychological needs to help them effectively manage crises. In the following section, we will discuss the relationships between the three needs and servant leadership.

Self-determination theory defines *autonomy* as a "subjective experience of psychological freedom and choice during activity engagement" (van den Broeck et al., 2010, p. 982). During a crisis, there is a high probability that measures must be implemented that employees would not choose voluntarily. For example, during the COVID-19 crisis, work in many areas had to be digitally implemented. Such measures can lead to employees feeling restricted in their autonomy and demotivated to deal effectively with the changes. However, under the condition that they understand the purpose and value of the changes, they can still feel to be willingly acting and experience autonomy (Soenens et al., 2007; van den Broeck et al., 2010). This notion fits the approach of servant leaders, who try to convince their followers instead of imposing tasks or decisions on them (van Dierendonck, 2011). Likewise, the

servant leadership dimension of accountability, for instance, should enhance the feeling of autonomy as the leader gives responsibility to followers (van Dierendonck & Nuijten, 2011). Individuals experience *competence* if they can fully use and extend their skills and feel effective in interacting with their environment (van den Broeck et al., 2010; Vermote et al., 2022). Competence satisfaction helps them deal with complex and changing environments (van den Broeck et al., 2010). During crisis, the capacity to experience competence can be restricted, for example, due to excessive demands. By investing in followers' growth and success, servant leaders provide opportunities to develop their skills and help them reach their career goals (Liden et al., 2008). Thus, servant leaders may fulfill individuals' need for competence, as found in a cross-sectional study (Chiniara & Bentein, 2016). The need for *relatedness* means that individuals desire to belong to others and experience mutual care (Vermote et al., 2022). It can initiate an internalization process of work-related aspects, such as requests or rules (Chiniara & Bentein, 2016; Deci & Ryan, 2000). However, during crisis, this need can easily be frustrated, for example, through curfews and social distancing in the case of the COVID-19 crisis. Servant leaders focus on their followers' well-being and are likely to build trustful relationships with them (Ehrhart, 2004; Schaubroeck et al., 2011) and foster a climate of community and mutual support (Vermote et al., 2022), thus satisfying followers' need for relatedness.

The satisfaction of the three basic needs can lead to an intrinsic motivation to effectively cope with a crisis, supporting proactivity and adaptivity (Gagné et al., 2022). Employees who experience sufficient autonomy, feel competent, and have their need for relatedness satisfied are empowered to develop the necessary skills or adjust their environment. There is already empirical evidence for the mediating role of basic need satisfaction in the relationship between servant leadership and organizational outcomes, such as organizational commitment and work engagement (van Dierendonck et al., 2014) and organizational citizenship behavior and employee task performance (Chiniara & Bentein,

2016). Other studies have also shown that intrinsic motivation, operationalized as, amongst others, autonomy, mediated the association between servant leadership and followers' proactivity (Bande et al., 2016; Luo & Zheng, 2018). In this study, we replicate and extend these findings in a crisis context and using a longitudinal design.

Hypothesis 3. Perceived servant leadership is positively associated with followers' basic psychological need satisfaction.

Hypothesis 4. Basic psychological need satisfaction positively mediates the relationship between perceived servant leadership and follower (a) adaptivity and (b) proactivity.

Mediation by procedural justice. In addition to self-determination theory, we consider organizational justice theory as a further explanation for the association between servant leadership and adaptivity and proactivity. Procedural justice is defined as perceived fairness in the procedures involved in determining outcome allocations, such as workload distribution or task assignment (Colquitt, 2001; Thibaut & Walker, 1975). To evaluate the fairness of these procedures, criteria such as consistency, unbiasedness, accuracy, correctability, representativeness, and ethicality can be assessed (Leventhal, 1980).

During times of crisis, individuals may experience intense emotions and uncertainty, leading to feelings of anxiety, helplessness, and despair due to their inability to control the situation (James et al., 2011). Crises can also evoke feelings of anger and resentment (Coombs & Holladay, 2005; Mitroff et al., 1988), particularly if individuals perceive a disconnection or disagreement with crisis management strategies and procedures. Effective crisis management requires leaders to exhibit adeptness in decision-making and resource mobilization, necessitating the execution and delegation of a variety of tasks (Williams et al., 2017). Servant leaders, with their focus on follower well-being, can identify sources of ambiguity and incomprehensibility. By considering their employees' voices and transparently communicating procedures, they can mitigate negative emotional responses and feelings of

helplessness among their followers. Allowing individuals to express their opinions and participate in decision-making can fulfill their desire for information and control over outcomes (Thibaut & Walker, 1975).

In line with this reasoning, research on organizational change has shown that procedural justice serves as a valuable resource for employees by ensuring that their opinions are considered and that they have access to relevant information. This empowers employees to protect their resources, adjust to changes, and manage distress (K. Lee et al., 2017). Moreover, studies have demonstrated a connection between perceived fairness and reduced threat appraisal (Fugate et al., 2012). Procedural justice can also strengthen employees' affiliation with the organization, increasing their inclination to support changes (K. Lee et al., 2017; Michel et al., 2010; Oreg & van Dam, 2009). When employees perceive high procedural justice, they are more likely to accept changes, more willing to help the organization to which they belong, and less likely to resist change (Bernerth et al., 2007; Oreg et al., 2011; Tyler & De Cremer, 2005). Consequently, procedural justice is likely to enable employees to adapt to crises and proactively engage with the challenges at hand. Procedural justice thus emerges as a mediating variable between servant leadership and employees' adaptivity and proactivity during crises.

Several studies have provided evidence that servant leadership is positively associated with procedural fairness (Burton et al., 2017; J. C. Peng et al., 2016; Shim et al., 2016). For example, one study (Ehrhart, 2004) found a positive association between servant leadership and procedural justice, beyond the contribution of transformational leadership and leader–member exchange (LMX). Additionally, procedural fairness has been empirically linked to proactive behavior in a non-crisis context (Crawshaw et al., 2012). With regard to the proposed mediation, there is cross-sectional evidence that servant leadership is associated with commitment to change, sequentially mediated by organizational justice and optimism (Kool & van Dierendonck, 2012); servant leadership even had a larger association with

organizational justice than leaders' contingent reward behavior. Furthermore, a recent meta-analysis showed that procedural fairness partially mediates the relationship between servant leadership and organizational citizenship behavior, voice behavior, and counterproductive behavior (A. Lee, Lyubovnikova, et al., 2020). This previous research suggests that servant leadership may also be conducive to adaptivity and proactivity, mediated by procedural justice. Therefore, we hypothesize that:

Hypothesis 5. Perceived servant leadership is positively associated with perceived procedural justice.

Hypothesis 6. Procedural justice positively mediates the relationship between perceived servant leadership and follower (a) adaptivity and (b) proactivity.

Method

Sample and Procedure

Our longitudinal study was conducted in the context of the COVID-19 crisis in a German private school association comprising 118 schools, between March (directly after the start of the first lockdown due to the spread of COVID-19) and October 2020 as part of a larger data collection project. Teachers were surveyed at three measurement points, approximately two months apart; two were before and one after the summer break. As school vacations in Germany vary depending on the federal states, we adjusted the survey periods to the federal states, respectively. In March 2020, the school association's secretary general invited the principals via e-mail. In addition, a letter with posters and flyers was sent to each school. Twenty-five principals registered to participate in the study together with their schools. As soon as they registered, they received an invitation e-mail with a link to forward to their staff. The teachers could register with their e-mail addresses and were then individually invited to complete the questionnaires. Participation was voluntary and e-mail addresses were stored separately from the survey data to maintain anonymity. At the end of the last survey, all respondents had the opportunity to participate in a raffle of approximately

70 prizes sponsored by various companies, such as books and board games. In addition, feedback on the results was provided to school principals (if desired) after the completion of the survey if 10 or more teachers (to ensure anonymity) at their school had participated. If the staff consisted of fewer than 10 teachers, teachers' consent was necessary to receive feedback.

We included teachers who had participated in at least one of the three surveys in the final sample. One school was removed from the sample because of a change of the principal, and three teachers indicated that their direct leader had changed. Finally, data from 129 teachers from 22 schools (on average, 9.60 teachers per school, MIN = 1, MAX = 17, *SD* = 4.49) were used for this study. On average, 27.61 teachers (*SD* = 20.76) worked at the schools. Because five teachers requested to be included after the first measurement time (T1), these individuals were not yet part of the sample at T1.[3] Thus, the sample sizes were *n* = 124 at T1, *n* = 81 at Time 2 (T2; 65.3% response rate relative to T1), and *n* = 69 at Time 3 (T3; 55.6% response rate relative to T1). Similar retention rates have been observed in previous longitudinal field studies (Goodman & Blum, 1996; Gustavson et al., 2012). The respondents and non-respondents at T2 did not differ in age, gender, tenure at school, school size, or any key variables measured at T1. The respondents and non-respondents at T3 did not differ in their tenure of working together with their direct leader or key variables measured at T1 or T2, except that T3 respondents reported lower basic psychological need satisfaction (t = 2.133, df = 72.474, p = .036; mean for T3 respondents: 6.31, *SD* = 0.87; mean for T3 non-respondents: 6.63, *SD* = 0.49). Thus, the findings are unlikely to be explained by participant dropout.

In the final sample, the mean age was 43.73 years (*SD* = 10.23); 28.7% were female and 18.6% were male (52.7% did not indicate gender). On average, the teachers worked at

[3] The analyses were also conducted with the smaller sample size of 124 participants, and the same conclusions were reached as with the full sample. The total of 129 participants was included in our study because the estimation of missing values is a more effective and less biased method of dealing with missing data than listwise deletion (Enders, 2022), and a larger sample size leads to greater statistical power in model estimation.

their schools for 9.08 years (*SD* = 6.55) and with their supervisors for 6.00 years (*SD* = 4.71). All measures were answered by the teachers. All but four teachers who identified the assistant principal as their manager reported the principal as their manager. At T1, servant leadership perceptions, adaptivity, and proactivity were measured. At T2, we collected data on basic psychological need satisfaction, procedural justice, and demographics. At T3, the participants responded to questions on their adaptivity and proactivity again.

Measures

Servant leadership. We measured servant leadership perceptions using the German translation of the 18-item short version of the Servant Leadership Scale (Pircher Verdorfer & Peus, 2014; van Dierendonck et al., 2017). All items, for example, "My manager encourages me to use my talents", were answered on a 5-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*). The internal consistency of the scale was Cronbach's α = .86.

Basic psychological need satisfaction. To measure basic psychological need satisfaction, we used the nine German need satisfaction items from the Balanced Measure of Psychological Needs (BMPN; Neubauer & Voss, 2016; Sheldon & Hilpert, 2012). The Likert scale ranged from 1 (*not at all*) to 7 (*completely*); an example item is "I felt a sense of contact with people who care for me, and whom I care for". The internal consistency of the scale was α = .77.

Procedural justice. We used the German version of the procedural justice scale by Colquitt (2001; Maier et al., 2007). The seven items were introduced with "The following questions refer to the processes and procedures that occurred in the last month and directly affected you (e.g., workload, task distribution)" and were rated on a 5-point Likert scale (1 = *not at all/almost never* to 5 = *completely/often*). One item was "To what extent have you had influence over the outcome (e.g., workload, task distribution) arrived at by those procedures?". The internal consistency was α = .84.

Adaptivity and proactivity. We used Griffin et al.'s (2007) work role performance scale to collect data on individual-level adaptivity and proactivity. The three *adaptivity* items were translated and back-translated to ensure linguistic equivalence between the measure's English and German versions (Brislin, 1986). For *proactivity*, we used the German translation by Brosi et al. (2018). Participants rated the statements, for instance, "I adapted well to changes in my core tasks" (adaptivity), on a 5-point Likert scale (1 = *very little* to 5 = *a great deal*). At T1, Cronbach's alpha was .75 (adaptivity), and .85 (proactivity); at T3, it was .62, and .88, respectively.

Demographic variables. We asked the participants to provide their weekly teaching load and tenure with their leader at T2, as well as their age, gender, and tenure at the school at T3 (to keep the workload lower at T1). Additionally, we recorded the number of teachers working at the respective school.

Analyses

We used path analysis, including servant leadership, adaptivity, and proactivity at T1 as predictors, procedural justice and basic need satisfaction as mediators, and proactivity and adaptivity at T3 as outcomes. The two mediators were allowed to correlate. We calculated bias-corrected bootstrap confidence intervals (N = 10,000; MacKinnon et al., 2004) and used full-information likelihood to account for missing values. As we were not interested in differences between the schools, we did not apply multilevel modeling but cluster-robust standard errors to account for school affiliation, using the type = complex command in Mplus (McNeish et al., 2017; ICC1 was .14 for servant leadership perceptions).

Results

Confirmatory factor analyses were performed before conducting the analyses (see Supplementary Material). Table 3.1 provides means, standard deviations, and correlations between the variables. Descriptively, both the means of adaptivity and proactivity were higher at T1 than at T3 (adaptivity: 4.05 vs. 3.87; proactivity: 3.67 vs. 3.45). Perceived servant

Table 3.1

Descriptives and Correlations Between the Study Variables

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12
1. Servant leadership (T1)	3.99	0.50												
2. Basic need satisfaction (T2)	6.40	0.78	.28**											
3. Procedural justice (T2)	3.93	0.66	.49***	.44***										
4. Adaptivity (T1)	4.05	0.69	.27**	.24*	.07									
5. Proactivity (T1)	3.67	0.86	.14	.36***	.05	.49***								
6. Adaptivity (T3)	3.87	0.57	.17	.49***	.09	.49***	.45***							
7. Proactivity (T3)	3.45	0.89	−.07	.41***	−.13	.40***	.57***	.57***						
8. Gender [a]	0.61	0.49	−.03	.13	.03	.29*	.15	.09	.10					
9. Age	43.73	10.23	−.07	.07	.09	.04	.04	.05	−.03	.12				
10. Tenure at school	9.08	6.55	−.14	−.13	−.07	−.03	−.16	−.12	−.18	.22	.45***			
11. Tenure with leader	6.00	4.71	−.16	−.07	−.10	.11	−.17	.07	−.03	.16	.33*	.57***		
12. Teaching load per week [b]	20.21	6.59	−.14	−.10	−.18	−.04	.06	−.12	−.08	−.40**	−.10	.04	.17	
13. *N* teachers at school [c]	27.61	20.76	−.02	.01	−.02	.22*	.04	.36***	.20	−.17	.12	.08	.28**	.13

Note. $N = 129$. Correlation coefficients are based on full information maximum likelihood estimation in Mplus. T1 = Measurement Time 1. T2 = Measurement Time 2. T3 = Measurement Time 3.

[a] 0 = male, 1 = female. [b] In lessons per week. [c] Number of teachers working at the school.

* $p < .05$. ** $p < .01$. *** $p < .001$.

leadership was significantly correlated with basic need satisfaction ($r = .28^{**}$), procedural justice ($r = .49^{**}$), and adaptivity at T1 ($r = .27^{**}$), but not with adaptivity at T3 or proactivity at T1 or T3. Basic need satisfaction was positively correlated with adaptivity ($r_{T1} = .24^{*}$, $r_{T3} = .49^{***}$) and proactivity ($r_{T1} = .36^{***}$, $r_{T3} = .41^{***}$), whereas procedural justice was not significantly correlated with these constructs.

To test our hypotheses, we conducted a path analysis, including adaptivity and proactivity at T1 as control variables. The descriptive variables only correlated significantly with each other but not with the study variables, except for the number of teachers working at the schools. Thus, this variable was included as an additional control variable (additional analyses showed that inclusion or exclusion of the number of teachers working at the school as a control variable did not change the interpretation of the results). In Hypothesis 1 (H1) and H2, we stated a positive association between perceived servant leadership and adaptivity and proactivity. Contradicting the two hypotheses, perceived servant leadership was not directly associated with the outcomes.

Supporting H3, we found a positive association between perceived servant leadership and basic need satisfaction (est. = 0.497, *SE* = 0.197, 95% CI [0.209, 0.991]). We also identified a positive indirect relationship between perceived servant leadership and adaptivity (est. = 0.154, *SE* = 0.083, 95% CI [0.043, 0.382]) as well as proactivity (est. = 0.207, *SE* = 0.096, 95% CI [0.086, 0.522]) through basic need satisfaction. Thus, both H4a and H4b were supported. Consistent with H5, there was a positive association between perceived servant leadership and procedural justice (est. = 0.642, *SE* = 0.134, 95% CI [0.395, 0.915]). However, contradicting H6a, we did not find that procedural justice mediated the relationship between perceived servant leadership and adaptivity (est. = −0.086, *SE* = 0.085, 95% CI [−0.268, 0.064]). The mediating path between perceived servant leadership and proactivity via procedural justice was significant but in a negative direction (est. = −0.258, *SE* = 0.112,

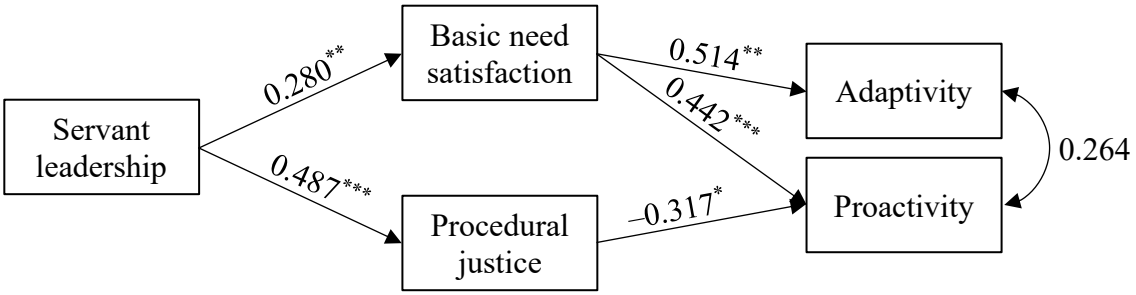
Table 3.2
Unstandardized Results of the Path Analysis

Outcome	Basic need satisfaction			Procedural justice			Adaptivity (T3)			Proactivity (T3)		
Variable	est.	*SE*	95% CI	est.	*SE*	95% CI	est.	*SE*	95% CI	est.	*SE*	95% CI
Direct effect												
Servant leadership	0.497*	0.197	[0.209, 0.991]	0.642***	0.134	[0.395, 0.915]	0.023	0.222	[−0.259, 0.594]	−0.102	0.213	[−0.570, 0.272]
Basic need satisfaction							0.310**	0.099	[0.090, 0.482]	0.416**	0.128	[0.149, 0.674]
Procedural justice							−0.134	0.126	[−0.373, 0.113]	−0.402*	0.160	[−0.674, −0.118]
Adaptivity (T1)							0.254*	0.116	[0.007, 0.475]			
Proactivity (T1)										0.441**	0.136	[0.214, 0.757]
N teachers at school [a]							0.007	0.005	[–0.002, 0.011]	0.006	0.008	[–0.011, 0.024]
Indirect effect of servant leadership via												
Basic need satisfaction							0.154†	0.083	[0.043, 0.382]	0.207*	0.096	[0.086, 0.522]
Procedural justice							−0.086	0.085	[−0.268, 0.064]	−0.258*	0.112	[−0.519, −0.109]

Note. $N = 129$. Bootstrap sample size = 10,000. T1 = Measurement Time 1. T3 = Measurement Time 3.
[a] Number of teachers working at the school.
† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

95% CI [−0.519, −0.109]). Therefore, H6b was not supported. The model explained 42.8% of the variance in adaptivity and 40.4% of the variance in proactivity. The unstandardized results are presented in Table 3.2 and the standardized results are shown in Figure 3.1.

Figure 3.1
Standardized Results of the Path Analysis Model of Associations Between Servant Leadership and Followers' Adaptivity and Proactivity



Note. $N = 129$. Only significant paths are displayed.
$^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Discussion

Leadership has been claimed to be an essential parameter in navigating organizations through crises (Gray et al., 2023; Rudolph et al., 2021; Waldman et al., 2001). Nevertheless, from a research perspective, the leadership characteristics necessary during crises are still unclear. Servant leaders cannot only provide direction but also focus on their followers. Therefore, they likely provide helpful (in contrast to unhelpful) support during crises (Gray et al., 2023), helping their employees cope with uncertainties and difficulties related to the crisis and maintain their performance. Consequently, we investigated whether servant leadership can foster teacher adaptivity and proactivity during a crisis and considered basic psychological need satisfaction and procedural justice as mediators. To our knowledge, this is the first study to investigate the proposed relationships longitudinally and in a crisis context, collecting real-time data over several months during the crisis instead of relying on retrospective reports. Our results partly confirm our hypotheses, showing a positive

association between perceived servant leadership and both mediators as well as a mediation of the relationship between perceived servant leadership and proactive and adaptive behavior via basic need satisfaction. However, contradicting our assumptions, we found no direct associations between perceived servant leadership and follower behavior, no indirect relationship between perceived servant leadership and adaptivity via procedural justice, and even a negative relationship between perceived servant leadership and proactive behavior via procedural justice.

Theoretical Implications

Our study empirically supports previous suggestions of a positive association between servant leadership and basic psychological need satisfaction in crisis contexts (e.g., Gagné et al., 2022). By empirically investigating these associations within the crisis context and leveraging a longitudinal design, this research enhances previous studies in other contexts (e.g., Chiniara & Bentein, 2016; van Dierendonck et al., 2014). Consistent with other findings in the crisis context that basic need satisfaction plays a critical role in mental health and job performance (Bakker et al., 2023; Vermote et al., 2022), our results indicate that basic need satisfaction is positively associated with teachers' adaptivity and proactivity. The importance of basic need satisfaction during the COVID-19 crisis may be attributed to several factors, including reduced contact with colleagues and leaders, which likely undermined feelings of relatedness; disruptions in daily routines and heightened demands, which may have diminished feelings of competence; and regulatory measures such as distancing rules and remote work, which likely compromised autonomy satisfaction (cf. Šakan et al., 2020; Vermote et al., 2022). Therefore, even during crises, it is crucial to meet employees' personal needs for competence, relatedness, and autonomy to motivate and empower employees, facilitating their adaptive and proactive responses to crises. Because of its strong focus on

followers and their well-being, servant leadership appears particularly suited for achieving this goal.

As hypothesized, servant leadership was positively associated with our second mediator, procedural justice, extending findings from non-crisis contexts (e.g., Burton et al., 2017; Qiu & Dooley, 2022). However, the further results regarding procedural justice were somewhat surprising. Despite previously established positive relationships between procedural justice and employee proactivity (Crawshaw et al., 2012) and other desirable behaviors and experiences (e.g., commitment to change; Fedor et al., 2006) in different contexts, our findings indicated a negative indirect link between servant leadership and teacher proactivity via procedural justice. This suggests that, in certain circumstances, procedural justice may be negatively associated with proactivity. It is possible that leaders, recognizing their followers' difficulties and considering their opinions, devised comprehensible solutions, implemented them fairly, and communicated them clearly to their team (e.g., providing appropriate software and exchange of teaching material). Consequently, their followers may have chosen to adopt these solutions, reducing the need for proactive behavior. In times of high strain, individuals are likely to preserve their already threatened or decreased resources and well-being instead of investing resources in proactive behavior (cf. Schmitt et al., 2016). Thus, the higher workload during the crisis may have caused teachers to focus on keeping the school running rather than initiating further improvement. This also corresponds to the finding that despite positive long-term effects, proactivity can negatively affect well-being in the short term (Fay & Hüttges, 2017). It is also possible that the teachers may have perceived their own improvements to their work as a natural part of their job rather than as proactive behavior, particularly if they perceived the processes as fair. They may have been proactive in their work, but because the crisis required continuous adjustments, they may not have perceived themselves as proactive but rather as making efforts to fulfill their job

responsibilities effectively despite adverse circumstances. Some researchers have even argued that behavior during a pandemic crisis is only reactive and not proactive (Howes et al., 2021). Therefore, it would be interesting to use different observational methods to explore proactivity in a crisis context and examine employees' perceptions of their actions.

Additionally, we did not find an indirect association between servant leadership and adaptivity through procedural justice. These results contradict previous findings in other contexts showing indirect associations of servant leadership and adaptivity-related constructs, such as commitment to change (Kool & van Dierendonck, 2012). The non-significant result could stem from insufficient power and requires further investigation with a larger sample size (the resulting power was .41; see Supplementary Material). Nonetheless, it is plausible that no indirect relationship exists. Crises require swift decision-making, and leaders have to provide guidance (van Wart & Kapucu, 2011). At the same time, decisions are not always within the leader's control (e.g., COVID-19 affected not only the organization but society as a whole), so employees may feel compelled to adapt, regardless of their perceptions of procedural fairness. Significance and urgency are two characteristics of crises (Y. L. Wu et al., 2021); it is possible that these context factors reduced the association between servant leadership and employee behavior. Another possible explanation is that procedural justice may not be directly related with adaptivity but there may be mediating mechanisms, such as optimism (Kool & van Dierendonck, 2012) or organizational identification (Michel et al., 2010), which should be investigated in the future.

Our study found no direct relationship between servant leadership and either adaptivity or proactivity. Previous research in non-crisis contexts has shown inconsistent findings, with some studies identifying direct associations between servant leadership and adaptive behavior (Bande et al., 2016; Kaya & Karatepe, 2020), whereas other studies found only indirect relationships mediated by constructs such as work engagement (Kaltiainen &

Hakanen, 2020). The two studies that found direct associations were cross-sectional (Bande et al., 2016) or featured a shorter time lag of only two months between measurements (Kaya & Karatepe, 2020), compared to the longer timeframe in our study. The study with full mediation had a longer time lag of 18 months between measurement points (Kaltiainen & Hakanen, 2020). For servant leadership and proactivity, two studies also found direct associations (Luo & Zheng, 2018; Varela et al., 2019) and one found only indirect associations (Bande et al., 2016). All of these studies were merely cross-sectional studies conducted in non-crisis contexts. In addition to potential effects of the time lag between measurement points, the lack of direct effects could be attributed to teachers' relatively high autonomy in managing their classes, so that the relationship between servant leadership and adaptivity and proactivity may operate only indirectly through motivational factors (such as basic need satisfaction). Future research should examine these relationships in various contexts, including crisis versus non-crisis contexts and different occupational groups, and with different time lags to gain a better understanding of the dynamics at play.

The positive associations between servant leadership and proactivity and adaptivity via basic psychological need satisfaction indicate that servant leadership could help reconcile the ongoing debate about leadership during crises. Some scholars argue that decisiveness should take precedence over inclusiveness in crisis situations (van Wart & Kapucu, 2011). Similarly, there is evidence that more directive leader behavior is displayed and can be beneficial in such a context (Garretsen et al., 2024; Krause et al., 2024). Our findings indicate that directive behavior alone is not sufficient. Instead, supportive leadership behaviors are also required to satisfy employees' basic psychological needs (C.-H. Wu & Parker, 2017), which, in turn, can foster employees' adaptivity and proactivity (Gagné et al., 2022). Servant leaders integrate both more directive and more supportive leadership behaviors by providing direction and

caring about their followers' well-being (Liden et al., 2008; van Dierendonck & Nuijten, 2011), both of which are needed during crises.

However, it is important to recognize that servant leadership can also be related to reduced proactive behavior in the crisis context. This complexity highlights the need for a nuanced examination of potential mediators for the effects of servant leadership. By doing so, we might achieve a more comprehensive and differentiated understanding of servant leadership, enabling us to determine which explanations are most suitable and, by including several mediators simultaneously, which effects are dominant (Eva et al., 2019). Such insights can guide the refinement of the servant leadership construct, helping to mitigate potential undesired effects or find appropriate interventions to alleviate them.

Additionally, these findings highlight the necessity to account for contextual factors in leadership research (cf. Johns, 2024). Although the COVID-19 crisis involved several types of change over an extended period, our study indicates that insights from the change management literature cannot be directly applied to crisis contexts. While a positive relationship between servant leadership and follower performance, mediated by basic need satisfaction, was observed across both change and crisis contexts, the results concerning the second mediator, procedural justice perceptions, differed. Previous studies in change contexts have found associations between perceived justice and favorable employee experiences and behaviors, such as reduced threat appraisal (Fugate et al., 2012), acceptance of, readiness for, and commitment to change (Bernerth et al., 2007; Michel et al., 2010; Oreg et al., 2011). Therefore, one might expect a positive relationship between procedural justice and employee adaptivity and proactivity. However, our study in the crisis context found no such (i.e., for adaptivity) or even negative (i.e., for proactivity) relationships during crisis. This discrepancy indicates that contextual factors merit further investigation.

Because our results indicate that servant leadership can be beneficial also in the crisis context, it seems unnecessary or even inappropriate to completely reinvent existing leadership constructs (such as servant leadership) for crisis contexts, as some scholars have argued, particularly in the wake of the recent COVID-19 crisis (e.g., Harris & Jones, 2020; Rudolph et al., 2021). Instead, we recommend that researchers continue to investigate which leadership constructs that have been found to be beneficial in non-crisis contexts (e.g., servant leadership or transformational leadership) can also be effectively applied in crisis situations (A. Newman et al., 2022; Seaton et al., 2021). Research should then delve deeper and determine whether adjustments to certain aspects of these leadership styles are needed in crisis contexts.

Practical Implications

Implications for organizations. The way leaders manage crises significantly impacts employees and other stakeholders. Therefore, leaders need to be well trained to successfully and healthily guide their employees through crises (James et al., 2011). Our findings suggest that organizations should select leaders based on their servant leadership behaviors and train them accordingly to be prepared for future crises (Eva et al., 2019; for servant leadership training, see Lohrey & Guillaume, 2015), as this leadership style is associated with followers' basic need satisfaction and ultimately higher follower proactivity and adaptivity. Servant leadership can also benefit employees and organizations in non-crisis contexts (Eva et al., 2019), so this investment can pay off in multiple ways. In addition to promoting servant leadership, organizations should create further opportunities to satisfy employees' basic needs during crises. This could involve offering short training sessions (e.g., for remote teaching) to address the need for competence; fostering team cohesion (e.g., by creating attractive opportunities for informal interaction, such as regular virtual coffee breaks) to meet the need for relatedness; or encouraging individuals to incorporate basic psychological need-satisfying

activities into their daily lives (see Behzadnia & FatahModares, 2020, for examples of such activities).

Implications for leaders. Servant leaders can meet the needs of their followers in crisis contexts as they focus on them individually (Eva et al., 2019). During a crisis, they should ensure that their followers understand the rationale and importance of certain actions, thereby fostering autonomy satisfaction. Additionally, they can build trustful relationships and foster a sense of community and mutual support (e.g., by maintaining regular contact even during curfews or by establishing regular virtual exchange formats among colleagues), which addresses the need for relatedness. Furthermore, servant leaders can provide guidance and resources to help employees develop the necessary skills to meet the challenges posed by the crisis (e.g., by encouraging knowledge sharing among employees or by coaching followers to support them in their individual situations), which promotes competence satisfaction (Vermote et al., 2022). It is also important for leaders to be aware that higher perceptions of procedural justice may be associated with lower proactivity. Therefore, leaders should adjust their expectations of proactivity and try to support it in other ways if proactivity is to be increased (e.g., by satisfying basic psychological needs).

Limitations

Owing to the high workload during the crisis (Harris & Jones, 2020), our sample size was relatively small. Consequently, particularly the path from servant leadership to adaptivity via procedural justice should be re-examined with a sufficiently large sample in future research. Furthermore, we surveyed only teachers from a German private school association. Whereas studying leadership behavior and its outcomes at schools during crises is an important endeavor, as there have been no guidelines thus far for school leaders regarding leader behavior during disruptive times (Harris & Jones, 2020), the extent to which the results can be generalized to public schools and other organizations remains unclear. Like

enterprises, schools are concerned with frequent change interventions and principal leadership plays a critical role in successfully managing these changes (Beycioglu & Kondakci, 2014) as well as crises (Thornton, 2021). Nonetheless, the effects of leadership may vary across different organizational contexts depending on their unique characteristics and features. For instance, teachers have a high degree of autonomy (e.g., in their teaching methods) and school leadership primarily affects teachers through framework conditions (e.g., setting guidelines for curricula). During the COVID-19 crisis, teachers' autonomy may have further increased due to remote teaching and the concomitant higher degree of freedom in organizing their workdays (Hilger et al., 2021). However, this high degree of freedom could also have led to stress and overextension when having to create digital teaching materials and conduct virtual lessons (Chan et al., 2021; Hilger et al., 2021). A first study on autonomy during the COVID-19 crisis showed decreased autonomy (Hilger et al., 2021); however, more complex temporal patterns have been observed (Syrek et al., 2022).

Additionally, there is evidence of reduced social support during the crisis compared to before it (Hilger et al., 2021). One possible reason for this is that face-to-face contact between school leaders, teachers, students, and parents was the norm before the COVID-19 crisis. The crisis-related measures suddenly made personal contact impossible, requiring school leaders to be creative in maintaining communication (e.g., sending videos or calling staff via phone; Thornton, 2021). Consequently, roles and relationships between the groups may have changed (cf. Dasborough & Scandura, 2022). Autonomy and relationship dynamics as well as their changes during the crisis could not be explicitly investigated in our study. In future studies, these aspects should be considered to create greater comparability between organizational contexts and to better understand the dynamics of specific crisis contexts.

It is essential to incorporate context into research to determine the theoretical boundary conditions of variables, derive relevant implications, and integrate seemingly

heterogeneous research findings (Johns, 2018). However, as we examined our research questions only in the crisis context, we could not compare the results with those in non-crisis contexts. Therefore, it would be valuable to conduct the same longitudinal study with a similar sample (i.e., in the same country and industry) in the non-crisis context and determine differences in the associations. Finally, as we used only one method (questionnaires) and one source (teachers), the estimates could be biased (Antonakis et al., 2010). To minimize this risk, we introduced a temporal separation between the surveys (P. M. Podsakoff et al., 2012) and controlled for proactivity and adaptivity at T1. However, we cannot draw causal inferences based on our longitudinal design, as leaders and followers can influence each other simultaneously (Güntner et al., 2020). Additionally, servant leadership perceptions are influenced not only by leader behavior, but also by followers' interpretations thereof (Hansbrough et al., 2015). Future research should thus use experiments or instrumental variable estimation to determine the causal effects of servant leadership behavior and perceptions (Schowalter & Volmer, 2023).

Although the confirmatory factor analysis indicated an acceptable fit, the reliability of the adaptivity scale was relatively low at T3 (Cronbach's $\alpha = .62$). This finding may be attributed to the nature of the scale items: while two of the three items focus on adapting to or coping with changes, the third item also involves learning new skills to adapt to changes. The lower inter-item correlation for the latter item may reflect this distinction. During the COVID-19 crisis, teachers likely faced a steep learning curve at the beginning, as they were required to fundamentally alter their teaching methods and acquire numerous new skills. However, as the crisis progressed, the need for learning new skills diminished, but the teachers still had to adapt to constantly changing circumstances. This shift may have led to more varied responses on the scale items, resulting in decreased internal consistency. Future research should explore the performance of the adaptivity scale across different contexts and examine how its internal

consistency changes over time. Potential adjustments to the scale may be necessary based on these findings.

Future Research

An interesting way forward would be to investigate other mediating and moderating variables in the association between servant leadership and employee proactivity and adaptivity. Based on stress research, stress triggered by a crisis can drain cognitive resources and lead to emotional exhaustion. Consequently, employees' work engagement and proactivity may decrease (Liu et al., 2021). Servant leadership may reduce followers' stress and exhaustion (Mun et al., 2022; Schowalter & Volmer, 2025), thus positively affecting proactivity. Similar associations have been found for task performance as an outcome (Kaltiainen & Hakanen, 2020). In addition, a moderating factor for the influence of servant leadership could be a leader's team size because the leader is probably unable to respond sufficiently to everyone individually once a certain number of subordinates has been reached. In the crisis and change context, resistance to change (Oreg, 2003) could also be a moderator worth investigating. Furthermore, it is likely that, especially during a crisis, not everyone agrees equally with the actions taken; opinions may also differ from those of the leader. This (dis)agreement could affect the association between leadership behavior and employee outcomes. In addition, recent research has found that a fit between needed and received leadership is most beneficial for employees; the amount of needed leadership can vary within individuals, depending on aspects such as the experience of stressors or uncertainty (Tepper et al., 2018). Researchers could thus focus on investigating followers' needs and expectations regarding leadership behavior and the effects of their fit with received servant leadership.

Another important area for future research is to dive deeper into different crisis contexts to determine whether different associations exist depending on the trigger or locus (e.g., internal or external crisis origin), controllability (intentional or unintentional; Coombs &

Holladay, 1996), and the impact or scope of the crisis (James et al., 2011). Different leadership behaviors may be appropriate, depending on the specific crisis type (Collins et al., 2023; Coombs & Holladay, 1996). It is noteworthy that, in the studied context (i.e., the COVID-19 crisis), supervisors' autonomy was limited because many regulations were imposed by the government. Thus, it would be valuable to explore whether the investigated associations differ between an externally and unintentionally caused and highly comprehensive crisis, such as the COVID-19 crisis, and an internally caused crisis within a specific organization or sector. A further avenue for future research is the examination of crises over time, whether different leadership behaviors are necessary depending on the duration of the crisis, and how required leadership behaviors change.

In this study, we examined servant leadership as a comprehensive leadership construct that focuses on both followers and performance. Future investigations should investigate additional leadership constructs, such as transformational leadership, to explore possible variations in results and assess whether servant leadership uniquely contributes to explaining variance in investigated constructs, as demonstrated for non-crisis settings (e.g., Hoch et al., 2018). Examining multiple leadership constructs within the same study would facilitate a deeper understanding of their commonalities, elucidate which specific characteristics are most essential, and discern whether observed associations merely stem from the shared positivity inherent in these leadership constructs. This approach aligns with ongoing discussions regarding the potential redundancy of constructs in leadership research (e.g., Banks et al., 2018) and contributes to our comprehension of effective leadership in both crisis and non-crisis situations.

In the context studied, leaders had to suddenly coordinate a distributed workforce (Amis & Janz, 2020), which was certainly a challenge. Future research could shift the focus away from employees and investigate what happens to leaders during crises (Collins et al.,

2023; Kirchner et al., 2021). Servant leadership behavior is potentially more resource-depleting than less employee-focused leadership styles, even in a non-crisis context (Lan et al., 2023; Liao et al., 2021). Related to this, it is essential to advance the initial available research on aspects that help replenish servant leaders' resources, such as psychological meaningfulness and followers' sense of responsibility or support (Lan et al., 2023; D. Zhou et al., 2020). Finally, it is likely that not only leadership contributes to the effective management of crises. Rather, there are other influencing factors such as HR policies including training and upskilling, technical equipment, autonomy, and other resources, as well as job insecurity, which could be studied further in future research (e.g., Rudolph et al., 2021).

The descriptive analysis revealed that both adaptivity and proactivity levels were higher at T1 compared to T3. One possible explanation for this trend is that employees initially exhibited heightened levels of adaptivity and proactivity as they responded to the rapid and significant changes brought about by the crisis. Over time, however, dealing with these changes may have become more routine, leading to a decrease in the demands for adaptivity and proactivity, as employees developed the necessary skills and coping mechanisms. Future research should investigate the trajectories of these constructs throughout crises to gain a deeper understanding of the factors contributing to existing changes and develop measures that optimally support employees during prolonged periods of uncertainty.

Conclusion

Crises can cause abrupt changes that leaders and employees must adapt to and embrace proactively. This reality in today's dynamic world has elevated crisis and change management to essential leadership competencies (Buffone, 2021; Harris & Jones, 2020). Our longitudinal real-time study indicates that servant leadership can help employees deal with upcoming crises. However, it is essential to recognize that servant leadership can influence follower behavior through various mechanisms. Therefore, further research is necessary to

examine potential adverse effects. As organizations continue to navigate a rapidly evolving landscape, understanding the nuanced impact of servant leadership remains a pivotal avenue for exploration in the pursuit of effective leadership strategies.

Ethics Approval

The study was approved by the local Ethical Review Board (2022-06/25, University of Bamberg).

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Supplementary Material

Confirmatory Factor Analyses

Prior to hypothesis testing, we conducted confirmatory factor analyses (CFA) with maximum likelihood estimation with robust (Huber-White) standard errors (MLR) for the constructs at each measurement point. At T1, servant leadership, adaptivity, and proactivity were included. The three-factor model showed a better fit (CFI = 0.703, TLI = 0.671, SRMR = 0.100, χ^2 = 551.651, *df* = 249, $p < .001$) than the one-factor model (CFI = 0. 463, TLI = 0.412, SRMR = 0.134, χ^2 = 799.596, *df* = 252, $p < .001$; $\Delta\chi^2$ = 102.05, *df* = 3, $p < .001$) and a two-factor model with adaptivity and proactivity as one factor (CFI = 0.657, TLI = 0.623, SRMR = 0.108, χ^2 = 600.652, *df* = 251, $p < .001$; $\Delta\chi^2$ = 30.096, *df* = 2, $p < .001$). Examining the modification indices, we found several item pairs with correlated errors, a common observation in social sciences (Byrne, 1998; Cole et al., 2007). Following recommendations to model the residual correlations justified by the research design (Cole et al., 2007), we included the residual correlations between the items of the different servant leadership dimensions. This procedure significantly improved the model fit (CFI = 0.901, TLI = 0.877, SRMR = 0.083, χ^2 = 322.968, *df* = 222, $p < .001$; $\Delta\chi^2$ = 230.36, *df* = 27, $p < .001$), although the χ^2-value was still significant, which could potentially lead to biases (Antonakis, 2017).

At T2, we included basic need satisfaction and procedural justice. The two-factor model (CFI = 0.563, TLI = 0.491, SRMR = 0.120, χ^2 = 286.619, *df* = 103, $p < .001$) had a better fit than the one-factor model (CFI = 0.489, TLI = 0.410, SRMR = 0.160, χ^2 = 319.032, *df* = 104, $p < .001$; $\Delta\chi^2$ = 5.512, *df* = 1, $p < .05$), however, the fit was not adequate. Including the residual correlations between the items of each of the three basic needs (Cole et al., 2007) led to an improved model fit (CFI = 0.773, TLI = 0.710, SRMR = 0.112, χ^2 = 189.445, *df* = 94, $p < .001$; $\Delta\chi^2$ = 79.915, *df* = 9, $p < .001$). For adequate model fit, it was also necessary to include residual covariances between two basic need satisfaction items from different

dimensions and correlations between Item 2 of the procedural justice scale and three other items of the same scale (CFI = 0.904, TLI = 0.872, SRMR = 0.098, $\chi^2 = 130.331$, $df = 90$, $p < .01$; $\Delta\chi^2 = 175.600$, $df = 4$, $p < .001$).

At T3, we included participants' adaptivity and proactivity. A bifactor model (CFI = 0.950, TLI = 0.748, SRMR = 0.083, $\chi^2 = 11.350$, $df = 3$, $p = .01$) had the best fit compared to the one-factor model (CFI = 0.857, TLI = 0.761, SRMR = 0.091, $\chi^2 = 32.746$, $df = 9$, $p < .001$; $\Delta\chi^2 = 21.392$, $df = 6$, $p < .001$) and the two-factor model (CFI = 0.816, TLI = 0.655, SRMR = 0.072, $\chi^2 = 38.455$, $df = 8$, $p < .001$; $\Delta\chi^2 = 29.467$, $df = 5$, $p < .001$).

Post-Hoc Power Analysis for the Non-Significant Indirect Effect

To check the reliability of the results pertaining to the non-significant indirect effect of servant leadership on adaptivity via procedural justice, a post-hoc Monte Carlo power analysis was conducted (Schoemann et al., 2017). The resulting power was .41, which is below the recommended threshold of .80 (Arend & Schäfer, 2019). Therefore, it is uncertain whether the non-significant finding represents the true value or is caused by an insufficient sample size.

CHAPTER IV

TRAJECTORIES AND ASSOCIATIONS OF PERCEIVED SERVANT LEADERSHIP AND TEACHER EXHAUSTION DURING THE FIRST MONTHS OF A CRISIS (STUDY 2)

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Abstract

Organizational crises carry a high risk of reducing well-being and health among employees, such as increased exhaustion. Teachers are particularly vulnerable to exhaustion; thus, it is important to explore how exhaustion can be reduced among them in a crisis context. In this paper, we regard servant leadership as a resource-providing leadership style to mitigate the adverse impacts of a crisis situation on teachers' exhaustion. We surveyed 129 teachers working at several schools in a German private school association at four measurement points between March and November 2020, beginning with the first measures taken in response to the spread of COVID-19. Using latent growth curve modeling, we investigated the trajectories of perceived servant leadership and employees' exhaustion and their associations. For both teacher exhaustion and servant leadership, growth models with unspecified growth patterns showed the best fit. Perceived servant leadership decreased over time before increasing

slightly again during the last measurement period. We did not find a general increase in teacher exhaustion. Consistent with our hypotheses, the results indicated a negative interindividual and intraindividual association between servant leadership and teacher exhaustion. Teachers who perceived higher levels of servant leadership reported lower levels of exhaustion, and the stronger servant leadership decreased, the stronger exhaustion increased over time. Our study extends previous research by providing a dynamic, longitudinal view of servant leadership and exhaustion in a crisis context.

Keywords: servant leadership, exhaustion, crisis, conservation of resources theory, latent growth curve modeling, COVID-19

Introduction

Exhaustion, a key component of burnout (Demerouti et al., 2001; Maslach & Jackson, 1981), affects individuals' health and numerous work-related variables, such as job performance and turnover (Wright & Cropanzano, 1998). According to conservation of resources (COR) theory (Hobfoll, 1989), stress and exhaustion can emerge when individuals experience actual or potential resource loss. When individuals are exhausted, the probability that they cannot compensate or prevent further resource depletion increases, resulting in the risk of loss spirals (Hobfoll et al., 2018; Trougakos et al., 2015). In addition to these primarily individual consequences, individuals' exhaustion may seriously impact others around them, for instance, by increasing the likelihood of abusive behavior towards subordinates (Lam et al., 2017) or higher potential for conflicts between teachers and students (Whitaker et al., 2015). Crisis contexts are particularly critical regarding exhaustion as they provide additional risk factors that harm individuals' well-being (LeNoble et al., 2023; Sonnentag et al., 2023).

Given the negative consequences of exhaustion (e.g., Jonsdottir et al., 2017; Salvagioni et al., 2017; Wright & Cropanzano, 1998), it is crucial to understand how the construct develops over time in crisis contexts to intervene and alleviate the risk of

exhaustion. However, most research on exhaustion thus far has been cross-sectional, treating it as a static construct and making it impossible to draw conclusions about potentially complex intraindividual changes in exhaustion over time (Inceoglu et al., 2018). We address this gap in the literature by employing latent growth curve modeling (LGCM) with four measurement points in the first eight months of a crisis to investigate the trajectory of exhaustion among teachers, who are particularly susceptible to experiencing exhaustion due to the demanding nature of their work (Madigan et al., 2023).

According to COR theory, the prevention or reduction of exhaustion is contingent on the provision of resources that help individuals build new resources, maintain existing ones, and compensate for losses (Hobfoll et al., 2018). Leadership has been identified as a key factor that influences the health and well-being of followers (Inceoglu et al., 2018; Kuoppala et al., 2008; Sonnentag et al., 2023), and its significance is even amplified during crises (Riggio & Newstead, 2023; Rudolph et al., 2021; Waldman et al., 2001). Particularly servant leadership is a promising leadership construct for enhancing follower well-being, as servant leaders prioritize and care for their individual followers (Eva et al., 2019). Servant leaders can provide valuable resources, such as supervisor support, which help prevent or alleviate exhaustion (cf. Tang et al., 2016; H. Wu et al., 2020).

Despite its high relevance, only few studies have investigated the trajectories of and relationship between servant leadership and exhaustion in stable contexts (A. C. Peng et al., 2023; Y. Zhang et al., 2021), and even fewer in crisis situations. This scarcity of research in crisis contexts can be attributed to the predominant focus on how leaders can sustain organizational survival, rather than addressing the well-being of individual followers (Gray et al., 2023). Furthermore, the servant leadership construct, like many other commonly studied leadership theories, was primarily developed for stable environments (Riggio & Newstead, 2023). Thus, considering the likelihood that most organizational leaders will face crises

during their careers (Reid, 2022; Riggio & Newstead, 2023), it is imperative to determine whether servant leadership is also effective in crisis situations and whether it can alleviate follower exhaustion, in order to be prepared for potential future crises.

Additionally, prior research has mostly failed to consider the relationship between leadership and well-being as a process (Inceoglu et al., 2018), also because leadership has mostly been treated as a static between-person phenomenon, although it has been originally formulated as a within-person theory (Eva et al., 2019; McClean et al., 2019). To address these important but understudied issues, we follow previous claims and take a dynamic perspective on leadership (McClean et al., 2019), follower well-being, and their associations over time (Inceoglu et al., 2018), particularly in the context of crises. Our LGCM approach enables us to examine the trajectories of the constructs and potential differences in within- and between-person associations between servant leadership and follower exhaustion.

Our study makes several important contributions to current research. First, by collecting data at four measurement points over the first eight months of the COVID-19 crisis, we shed light on the shape of the intraindividual trajectories of both servant leadership perceptions and teacher exhaustion in a crisis context. Second, our study examines the dynamic association between these constructs, considering their inter- and intraindividual relationships. This approach allows for a more comprehensive understanding of the evolving nature of the association over time. Third, we focus on the distinct context of teaching during the COVID-19 crisis. Although schools, like other organizations, are affected by crises (Thornton, 2021), there has been little research on what constitutes successful leadership in disruptive times in such contexts (Harris & Jones, 2020). Due to the unique characteristics of different organizational contexts, the effects of leadership may vary. Our study's specific focus captures the unique challenges and dynamics among school teachers during a crisis, providing insights that are distinct from other studies using more varied samples and contexts.

Finally, we apply COR theory in a longitudinal framework and use the theory to explain the trajectories and associations at both the within- and between-person levels.

Theoretical Background

The Crisis Context

A crisis can be described as an unforeseen event that has high salience and the potential to disrupt organizations and their members (Y. L. Wu et al., 2021). One such crisis was the COVID-19 crisis (Collins et al., 2023). In March 2020, Germany implemented measures such as curfews and social distancing rules to curb the spread of COVID-19, resulting in significant alterations to working conditions (Zacher & Rudolph, 2022). As part of this, all German schools were closed, forcing teachers and students to transition from face-to-face instruction to remote learning. As schools were not prepared for such changes, there was mostly no digital infrastructure, and educational materials were delivered through a variety of means including online platforms, email, and mail. The frequency of interaction between teachers and students varied depending on the teachers' familiarity with using information and communication technology for educational purposes (König et al., 2020). In April, some schools resumed in-classroom instructions for students who were graduating and those whose parents held essential jobs, with a reduced number of students per group and a focus on core subjects. However, the majority of teaching still took place remotely due to the strict hygiene regulations that were in place. During the subsequent weeks, instruction was provided through shared classes, distance teaching, or in-person teaching, always while adhering to strict hygiene guidelines. In addition, there was no obligation for teachers to attend classes in person, and the classrooms were partly not large enough to adhere to social distancing guidelines, meaning that not all students were able to return to in-person instruction. Some schools reopened in June without social distancing measures in place. After the summer break, tests were administered, and there were guidelines for the threshold values

at which classes had to be placed in quarantine or entire schools had to be closed. From October onwards, there were again temporary school closures throughout the country. From November, hybrid or alternating forms of teaching took place, whereby classes were divided and groups alternated between on-site and remote instruction. In December, teachers were also allowed to conduct coronavirus testing. The measures taken varied regionally and institutionally, as the education system is managed by the 16 German federal states. Due to the decisions being dependent on the current situation, there was a high degree of uncertainty for teachers throughout the year (Hilger et al., 2021), which contributed to a high risk of exhaustion.

Exhaustion During Crisis

Exhaustion is "a consequence of intensive physical, affective and cognitive strain, that is, as a long-term consequence of prolonged exposure to certain job demands" (Demerouti et al., 2010, p. 210). As an aspect of followers' well-being, it is important to consider exhaustion in its own right "as an end goal rather than merely as a means to higher performance" (Inceoglu et al., 2018, p. 189). It can be detrimental not only to the individual (e.g., in the form of lower job satisfaction; Skaalvik & Skaalvik, 2011), but also to others (e.g., followers). For instance, daily exhaustion is related to lower interpersonal citizenship behaviors (Trougakos et al., 2015), and teacher exhaustion is associated with more conflict in teacher–children relationships (Whitaker et al., 2015). Even under non-crisis circumstances, teachers are exposed to a particularly large number of stressors inherent in their profession (e.g., student misbehavior, excessive workload, or limited resources and support), with a high potential to lead to stress and exhaustion (S. Johnson et al., 2005; Skaalvik & Skaalvik, 2016). A crisis context entails additional risk factors that can enhance the likelihood of experiencing exhaustion, such as insecurity, anxiety, and loneliness (Bäuerle et al., 2020; Gilmer et al., 2023; Kunzler et al., 2021; LeNoble et al., 2023). For instance, during the COVID-19 crisis,

there was continuous uncertainty about how working conditions would change in the following weeks, such as how teaching would have to be conducted (in the classroom, remotely, or hybrid). The associations between these risk factors and individuals' exhaustion can be explained by COR theory. The theory suggests that people strive to acquire, protect, and maintain resources that help them achieve their goals (Hobfoll, 1989). An actual or potential loss of resources can cause stress and initiate a loss spiral, as the ability to maintain or gain resources decreases when fewer resources are available to counteract the loss or replace lost resources. The increased resource depletion during a crisis can thus result in exhaustion (Halbesleben et al., 2014). As the latter is a strain that can lead to further resource depletion (Hobfoll et al., 2018), it is likely that exhaustion rises during the initial phase of a crisis. In line with this reasoning, meta-analyses have found a positive association between a lack of job resources and high demands and exhaustion (Crawford et al., 2010; Lesener et al., 2019). Further meta-analytic evidence indicates reciprocal relationships between exhaustion and job stressors, with strain having a stronger effect on job stressors than vice versa (Guthier et al., 2020). This finding of mutual aggravation is consistent with the loss cycle proposed in COR theory. The increase in exhaustion can also be derived from other theories. In terms of effort–recovery processes (Meijman & Mulder, 1998), the longer the crisis lasts, the greater the burden may be because individuals are unable to recover from, among others, constant uncertainty, leading to accumulating stress, fewer resources, and eventually increasing exhaustion. Additionally, teachers are likely to have chosen their jobs based on certain characteristics that have changed as a result of the crisis. The teachers may feel that they cannot meet their students' needs, so perceived person–job fit may decline, leading to increased exhaustion (cf. Mulki et al., 2006). In line with this reasoning, first empirical evidence in the crisis context shows that the COVID-19 crisis was associated with increased exhaustion among followers, also specifically among teachers (Sokal et al., 2020). However,

most research on exhaustion in the crisis context thus far has been conducted cross-sectionally (e.g., Gilmer et al., 2023; LeNoble et al., 2023; Oksanen et al., 2022; Pöysä et al., 2021). Other studies compared exhaustion before and after the beginning of the crisis (Oksanen et al., 2021) or investigated only linear change (Freeman et al., 2021; Sokal et al., 2020), not allowing for the investigation of dynamic trajectories.

However, COR theory also posits that individuals can adapt to stressors over time so that resources can be optimally invested (Hobfoll et al., 2018). Consequently, teachers could adapt to the regulations over time and learn to cope with the situation, helping them protect and optimally allocate their resources. Furthermore, the crisis not only conveyed negative aspects; remote teaching could have also led to certain areas of relief for teachers (Hilger et al., 2021). For instance, some work demands may have been reduced or removed, such as the requirement to continuously regulate one's emotions in the presence of students (Sutton et al., 2009) or managing misbehavior among students (Aldrup et al., 2018). Additionally, teachers may have gained more flexibility in how and when to communicate with their students (Hilger et al., 2021). Thus, it is possible that exhaustion does not simply increase but rather that a more complex trajectory exists. Therefore, our study contributes to the limited body of research on the trajectory of exhaustion during crises by applying LGCM over four measurement times during the first eight months of the COVID-19 crisis, investigating the following research question:

Research Question 1. How does teachers' exhaustion develop during the first eight months of the crisis?

Servant Leadership During Crisis

Servant leaders can be described as dedicated to serving others and prioritizing the needs of their followers. These leaders recognize their followers' individuality and take responsibility for their well-being. Furthermore, servant leaders prioritize the welfare of

others in the organization and beyond above their own interests (Eva et al., 2019). In contrast to transformational leadership and other conventional leadership models, servant leaders not only focus on task completion and goal attainment but also on the needs and well-being of their employees and other stakeholders (Schowalter & Volmer, 2023).

Leader behavior is not static but can be influenced by environmental changes (McClean et al., 2019), especially in crisis contexts. In times of crisis, leaders are often required to take on additional tasks and make quick decisions, which can lead to increased pressure and workload, making it more difficult for leaders to adequately care for their followers (Upadyaya et al., 2021). During the COVID-19 crisis, the implementation of servant leadership may additionally have been hindered by the reduced and primarily remote contact with teachers, as well as other challenges faced by leaders, such as anxiety and fear about the spread of the virus (Reid, 2022; Upadyaya et al., 2021). In line with COR theory, it is more difficult for leaders to care adequately for their followers in the face of threatened or exhausted resources and increased stress (Harms et al., 2017; Lam et al., 2017; Sherf et al., 2019), such as during a crisis. Thus, followers' perceptions of servant leadership are likely to decrease during the first months of a crisis. This theoretical consideration is corroborated by meta-analytic evidence showing that stress and depleted executive resources are associated with lower levels of positive leadership (Harms et al., 2017).

Over time, however, leaders may have adapted to the circumstances and found ways to overcome communication obstacles (Thornton, 2021). Occasionally, regulations were relaxed, allowing for face-to-face contact again. Furthermore, principals may have made preparations over the summer break that facilitated work in the new school year. Additionally, the needs for leadership behavior may have changed during the crisis; for instance, calm and decisive communication may have been particularly important at the beginning of the crisis, whereas the importance of reminding followers of the schools' visions and values increased as the

crisis progressed (Mutch, 2015). Consequently, it may well be that the trajectory of servant leadership perceptions does not follow a linear pattern but rather exhibits a more complex one, such as an initial decline and then an increase again. Because it is still unclear how servant leadership perceptions change during a crisis, we explored the following research question:

Research Question 2. How do servant leadership perceptions develop during the first eight months of the crisis?

The Association Between Servant Leadership and Exhaustion

COR theory suggests that individuals with limited resources are more susceptible to resource loss and less likely to acquire new resources. Therefore, the provision of resources becomes particularly crucial in contexts with high potential for resource loss, such as during a crisis (Hobfoll et al., 2018). This notion is consistent with prior research emphasizing the critical role of leadership in crisis situations (Rowley et al., 2021; Rudolph et al., 2021; Waldman et al., 2001; Wee & Fehr, 2021). The literature highlights several aspects of successful crisis leadership, such as effective communication and sensemaking (Collins et al., 2023) and providing tangible and psychological resources to aid their followers in coping with uncertainties during the crisis (Kniffin et al., 2021). Servant leaders focus on their employees first so that they can provide important resources such as helpful support (Sheng et al., 2024), which aids followers in maintaining their well-being during crises. Another recent review of crisis leadership (Riggio & Newstead, 2023) delineates five key competencies for successful crisis management: sensemaking, decision-making, coordinating teamwork, facilitating learning, and communicating. Servant leaders have strong conceptual and sensemaking skills (Liden et al., 2015; van Dierendonck & Sousa, 2016), and consider the perspectives of various stakeholders (Eva et al., 2019). Through their humility and authenticity, they are able to seek advice and analyze situations from multiple angles (van

Dierendonck & Nuijten, 2011). Additionally, they act in a socially responsible manner and make decisions to serve the common good (A. Lee, Lyubovnikova, et al., 2020). Servant leaders should also be effective communicators, as they listen to their followers and other stakeholders, provide direction, and empower their employees (Gau & van Dierendonck, 2011; Sousa & van Dierendonck, 2014; van Dierendonck & Nuijten, 2011). These abilities and behaviors also help them coordinate and facilitate teamwork and reframe challenges during crises as opportunities for continuous learning, development, and improvement. The motivation to serve and focus on their followers first, before organizational tasks and goals, distinguishes servant leadership from other leadership styles such as transformational and charismatic leadership, as well as authentic, ethical, or empowering leadership (Eva et al., 2019; A. Lee, Lyubovnikova, et al., 2020; Lemoine et al., 2019; Schowalter & Volmer, 2023; van Dierendonck, 2011; van Dierendonck & Nuijten, 2011). As servant leaders' primary goal is to serve their followers, they have "an unconditional concern for [their followers'] well-being" (Stone et al., 2004, p. 355). This focus on followers' well-being makes servant leadership particularly relevant in the context of individual exhaustion during a crisis. Also meta-analytically, servant leadership was found to be associated with positive work-related constructs over and above other leadership constructs, such as transformational, authentic, and ethical leadership (e.g., Eva et al., 2019; Hoch et al., 2018; Lee et al., 2020; Parris & Peachey, 2013). Thus, we assume that servant leadership is an appropriate leadership style in a crisis context.

Drawing on COR theory, servant leaders can promote employee well-being by reducing unnecessary stress during a crisis through the removal of obstacles (e.g., by the rapid provision of communication tools during a lockdown) or by directly providing resources (e.g., emotional support) to compensate for acute resource losses or offer resources to gain new ones. In addition, they can create conditions that support resource acquisition, such as

facilitating exchanges between team members. These measures may also prevent employees from resource loss spirals, which can increase in magnitude if employees lack the resources to counteract them. Furthermore, the provision of resources can also initiate gain circles in the long term (Hobfoll et al., 2018). In this way, servant leaders can also help their followers gain stable resources, such as resilience (Cai et al., 2023), in the long term, which protect them from resource loss and support recovery from resource depletion.

Between-Person Relationship Between Servant Leadership and Exhaustion

According to COR theory, supporting individuals in acquiring resources and removing factors that deplete resources can result in lower stress and strain levels, which, in turn, fosters followers' well-being and effectiveness (Hobfoll et al., 2018; Inceoglu et al., 2018). Thus, followers with a servant leader should be better equipped to deal with crisis contexts and experience less exhaustion than employees with less servant leaders. Corroborating our theoretical considerations, first studies in the non-crisis context have found negative associations between servant leadership perceptions and employee exhaustion (Rivkin et al., 2014; Tang et al., 2016; Upadyaya & Salmela-Aro, 2020), including a meta-analysis of four studies ($\bar{r} = -.23$, Zhang et al., 2021).

In a crisis context, also several studies have examined the between-person relationship between servant leadership and burnout or exhaustion and found negative associations. One cross-sectional study investigated the association between servant leadership and exhaustion among employees of the Turkish governmental disaster management agency in the wake of an earthquake in Turkey in 2023 (Yikilmaz et al., 2024). Other studies were conducted in the context of COVID-19. One cross-sectional study among Greek employees in various occupations explored the association between servant leadership and burnout (Lamprinou et al., 2021). Another study among Pakistani nurses with three measurement points within 20 days (collecting each of the three measured constructs at only one measurement point) also

found a negative association between servant leadership and burnout (Ma et al., 2021). Two cross-sectional studies investigated the association between servant leadership and exhaustion among nurses (Du et al., 2024) and employees in the catering, hotel, and tourism industries in China (Cai et al., 2023). A cross-sectional study among Chinese healthcare workers found a buffering effect of servant leadership on the association between hindrance stressors and exhaustion (H. Wang et al., 2022). Replicating these between-person findings in the crisis context among German teachers, with a more rigorous design and over a longer time period, we state:

Hypothesis 1. The interindividual levels of servant leadership perceptions and exhaustion are negatively associated.

Within-person Relationship Between Servant Leadership and Exhaustion

Like any other leadership style, servant leadership and perceptions thereof are not constant but can fluctuate (McClean et al., 2019) depending on various aspects, such as the leaders' or followers' workload or level of pressure, as well as the frequency of their interactions. As a result, followers may not consistently receive the same level of support that helps them counteract threatening or actual resource losses. For instance, a follower may experience varying degrees of support and resource provision from their leader at different points in time. When the leader exhibits heightened levels of servant leadership, the follower is likely to experience reduced stress and lower levels of exhaustion. Conversely, during periods when the leader's support is less pronounced, the follower may face higher levels of stress and increased exhaustion. Thus, variations in servant leadership should be associated with parallel changes in exhaustion levels.

Although most studies explain within-person associations, in which processes are theorized as unfolding over time and reflecting changes (cf. Gabriel et al., 2019), we could identify only one study in which these dynamics have actually been tested with within-person

methodology. The study (Kaltiainen & Hakanen, 2020) was conducted in the organizational change context and found a negative within-person association between changes in servant leadership perceptions and changes in employee burnout among Finnish employees in the public sector at two measurement points separated by 18 months. We extend this research by examining the intraindividual relationship between the trajectories of servant leadership perceptions and exhaustion among teachers in the crisis context using four measurement points within the first eight months of a crisis. Our design allows us to understand the temporal dynamics of this relationship more deeply (Gabriel et al., 2019; McCormick et al., 2020).

Hypothesis 2. The intraindividual trajectories of servant leadership perceptions and employee exhaustion are related over the first eight months of a crisis, such that a stronger decrease (increase) in servant leadership is associated with a stronger increase (decrease) in exhaustion.

Method

Sample and Procedure

Our longitudinal study was conducted from March 2020 (directly after the first lockdown had started) to November 2020 in a German private school association comprising 118 schools. The study was part of a larger data collection effort and involved surveying teachers at four measurement points. The approximately two-month interval between the measurement points ensured that changes in the investigated constructs could occur. In addition, the intervals were chosen so that the survey periods were as evenly spaced as possible between vacations, while covering the regular school routine and avoiding particularly quiet periods (e.g., just before the summer break) or particularly busy periods (e.g., during the preparation of school reports or at the start of school immediately after the summer break). Two of these measurement points were conducted before the summer break,

while the other two were conducted afterwards. Given that school vacations vary across the federal states, we adjusted the survey periods accordingly. In March 2020, the secretary general of the school association sent an e-mail invitation to the school principals. Additionally, letters with posters and flyers were mailed to each school. Twenty-five principals enrolled their schools to be part of the study. Once registered, the principals were sent an e-mail invitation with a link to share with their staff. Teachers were asked to register using their e-mail addresses, and were then contacted individually to complete the surveys. Participation was voluntary and e-mail addresses were kept separate from the survey data to maintain anonymity. At the end of the final survey, all participants had the opportunity to participate in a raffle of approximately 70 prizes donated by various companies, including books and board games. In addition, principals were offered feedback on the results upon completion of the final survey if at least 10 teachers (to maintain anonymity) at their school had participated. For schools with fewer than 10 teachers, teacher consent was required to receive feedback. Informed consent to participate was obtained from all individuals included in the study.

Teachers who participated in at least one of the four surveys were included in the final sample, excluding one school that underwent a change of the principal, and three teachers who reported that their direct leader had changed. In total, data from 129 teachers from 22 schools (average of 9.60 teachers per school, MIN = 1, MAX = 17, *SD* = 4.49) were used. Five teachers asked to register for participation after the first measurement time (T1), meaning that these individuals were not yet included in the sample at T1.[1] The resulting sample sizes were thus *n* = 124 at T1, *n* = 81 at Time 2 (T2; 65.3% response rate compared to

[1] We also conducted all analyses with the smaller sample size of 124 participants and obtained the same inferences as with the full sample. Estimating missing values is generally recommended as a more effective approach to dealing with missing data than listwise deletion, as it results in less biased estimates (for further discussion, see Enders, 2022). Additionally, a larger sample size increases the statistical power of model estimation. Therefore, we included all 129 participants in our study.

T1), n = 69 at Time 3 (T3; 55.6% response rate compared to T1), and n = 65 at Time 4 (T4; 52.4% response rate compared to T1). Comparable response rates have been reported in previous longitudinal field studies (Goodman & Blum, 1996; Gustavson et al., 2012). The average number of teachers working at the schools was 27.61 (SD = 20.76). To check for systematic drop-out effects, we compared the main characteristics of respondents and non-respondents at T2, T3, and T4, respectively. They did not differ significantly in terms of age, gender, tenure at school, duration of collaboration with the leader, experience as a teacher, teaching load per week, frequency of contact with the leader, school size or type, servant leadership, or exhaustion. Therefore, participant attrition did not appear to be influenced by participants' demographics or substantive variables of the study.

The final sample consisted of participants with an average age of 43.73 years (SD = 10.23). The gender distribution was 28.7% female and 18.6% male (52.7% did not indicate gender). The average tenure teachers had worked at their school was 9.08 years (SD = 6.55) and the average duration of collaboration with their leader was 6.00 years (SD = 4.71).

Measures

We collected data on perceived servant leadership and exhaustion at all measurement points and all measures were answered by the teachers.

Servant Leadership

Servant leadership was measured using the 18-item short version of the Servant Leadership Scale (van Dierendonck et al., 2017), translated into German and validated by Pircher Verdorfer and Peus (2014). The items were rated on a 5-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*). An example item is "My manager encourages me to use my talents". The internal consistency of the scale ranged from Cronbach's $\alpha = .84$ to $\alpha = .87$.

Exhaustion

Exhaustion was measured using the corresponding eight-item subscale of the Oldenburg Burnout Inventory (OLBI; Bakker et al., 2004; Demerouti et al., 2003). The Likert scale ranged from 1 = *totally disagree* to 4 = *totally agree*; an example item is "After my work, I usually felt worn out and weary". The internal consistency of the scale ranged from $\alpha = .88$ to $\alpha = .89$.

Demographic Variables

At each measurement time, participants were asked to report the frequency of contact with their direct leader on a 6-point Likert scale (1 = *more rarely*, 2 = *up to several times a month*, 3 = *up to once a week*, 4 = *up to several times a week*, 5 = *up to once a day*, 6 = *several times a day*). Additionally, they were asked for their weekly teaching load at T2 and T3, as well as their age, gender, tenure at school, and experience as a teacher at T3 (to keep the workload lower at T1 and T2). We also recorded whether the teachers worked at a secondary school, and the number of teachers working at the schools.

Analyses

To examine the growth trajectories, we calculated latent growth curve models (LGCM) using Mplus Version 8.8 (Muthén & Muthén, 1998–2017). Missing values were estimated using full information maximum likelihood (FIML). To account for non-normality in the data, we used maximum likelihood estimation with robust standard errors (MLR; Shi et al., 2021). First, we calculated univariate LGCMs for exhaustion and perceived servant leadership to explore our two research questions. To this end, we compared different models (i.e., intercept-only, linear, quadratic, and one with an unspecified growth pattern) and compared their fit indices to determine the best model. The intercept-only model includes only an intercept factor and no slope factor; in other words, it assumes no change. To represent the intervals between the measurement points as accurately as possible (they were

not exactly of the same length because of vacation periods), we set the time scores for the slope factor in the linear model to 0, 2, 4.5, and 6. The first value was set to zero to define the intercept growth factor as the initial status factor. The quadratic growth model included the intercept and slope factor of the linear model, and a quadratic slope factor (squared time scores of the linear slope factor). In the model with an unspecified growth pattern, the first and second scores were fixed at 0 and 2, respectively, whereas the remaining two scores were estimated freely. The slope factor mean in this model thus represents the average rate of change per scale point between T1 and T2 (Geiser, 2021). To assess model fit, we used the chi-square statistic (χ^2), root mean square error of approximation (RMSEA), comparative fit index (CFI), Tucker-Lewis index (TLI), and standardized root mean residual (SRMR; e.g., L. Hu & Bentler, 1999). The models were compared based on the Akaike information criterion (AIC), Bayesian information criterion (BIC), and sample size adjusted BIC (SSABIC), for which smaller values indicate better fit.

Subsequently, we estimated bivariate growth curves (Preacher et al., 2008) to evaluate whether the intercepts and trajectories of servant leadership and exhaustion were associated. We regressed the intercept of exhaustion on the intercept of servant leadership (to test Hypothesis 1), and the slope of exhaustion on the slope of servant leadership (to test Hypothesis 2). The intercept and slope of exhaustion as well as of servant leadership were allowed to correlate, respectively.

Results

Descriptives

The means, standard deviations, and correlations among the variables are shown in Table 4.1. The mean of servant leadership perceptions was 3.99 (*SD* = 0.50) at T1, 3.91 (*SD* = 0.51) at T2, 3.80 (*SD* = 0.49) at T3, and 3.85 (*SD* = 0.49) at T4. In contrast, the mean of exhaustion was 2.21 (*SD* = 0.60) at T1, 2.23 (*SD* = 0.61) at T2, 2.37 (*SD* = 0.57) at T3, and

Table 4.1

Descriptives and Correlations Between the Study Variables

Variable	*M*	*SD*	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1. Servant leadership (T1)	3.99	0.50	.80***	.69***	.77***	–.22*	–.25*	–.36**	–.32**	.09	–.04	–.05	–.09	–.01	–.03	.02	.13	–.08	–.09	.02	–.02	.03
2. Servant leadership (T2)	3.91	0.51		.77***	.84***	–.20*	–.24*	–.28*	–.27*	.01	–.01	–.11	–.21	–.10	–.23*	–.14	.07	–.08	–.03	.12	.01	.07
3. Servant leadership (T3)	3.80	0.49			.84***	–.10	.00	–.07	–.03	.13	–.16	–.16	–.13	–.11	–.19	–.13	.05	.02	.09	.18	.01	.01
4. Servant leadership (T4)	3.85	0.49				–.13	–.13	–.17	–.17	.10	–.05	–.10	–.13	–.05	–.22*	–.10	.12	.02	.07	.21	–.07	–.06
5. Exhaustion (T1)	2.21	0.60					.65***	.42***	.59***	–.13	–.07	.03	.05	.01	.11	.04	.02	.15	.06	.05	–.07	–.03
6. Exhaustion (T2)	2.23	0.61						.52***	.69***	.02	–.19	.09	.15	–.12	.03	–.06	–.02	.08	–.07	–.14	–.12	–.15
7. Exhaustion (T3)	2.37	0.57							.75***	.05	–.16	–.19	–.06	–.20	–.08	–.09	–.05	–.15	.05	–.07	–.30**	–.11
8. Exhaustion (T4)	2.34	0.52								–.11	–.15	–.06	–.03	–.09	.02	–.05	–.03	.06	.08	–.14	–.13	–.17
9. Gender [a]	0.61	0.49									.15	.13	.05	.24	–.35**	–.31*	–.01	–.21	–.08	.16	–.25	–.39***
10. Age	43.73	10.23										.46***	.30*	.74***	–.10	–.11	–.00	–.13	–.07	–.08	.08	.01
11. Tenure at school	9.08	6.55											.60***	.75***	.09	.04	–.21*	.02	–.19	–.19	.07	–.18
12. Collaboration with leader	6.00	4.71												.46***	.16	.09	.04	–.12	–.14	–.11	.30**	.04
13. Experience as a teacher	12.33	7.27													.05	.00	–.08	.02	.06	–.04	.11	–.19
14. Teaching load (T2) [b]	20.21	6.59														.95***	.05	.03	.08	–.11	.03	.03
15. Teaching load (T3) [b]	20.78	7.19															.03	.04	.04	.00	.05	.09
16. Contact with leader (T1)	4.01	1.17																.15	.36***	.23*	–.17	–.21
17. Contact with leader (T2)	3.93	1.52																	.40**	.32*	–.07	–.01
18. Contact with leader (T3)	4.80	1.09																		.64***	–.14	–.06
19. Contact with leader (T4)	4.39	1.26																			–.23	–.07
20. N teachers at school [c]	27.61	20.76																				.54***
21. Secondary school [d]	0.61	0.49																				

Note. $N = 129$. Correlation coefficients are based on full information maximum likelihood estimation in Mplus. T1 = Measurement Time 1. T2 = Measurement Time 2. T3 = Measurement Time 3. T4 = Measurement Time 4. Contact with leader = frequency of contact between participants and their leaders (1 = more rarely, 2 = up to several times a month, 3 = up to once a week, 4 = up to several times a week, 5 = up to once a day, 6 = several times a day).

[a] 0 = male, 1 = female. [b] In lessons (45 min) per week. [c] Number of teachers working at the school. [d] 0 = not working at a secondary school, 1 = working at a secondary school.

* $p < .05$. ** $p < .01$. *** $p < .001$.

2.34 (*SD* = 0.52) at T4. Servant leadership perceptions measured at T1 were significantly negatively correlated with exhaustion at all four time points. The correlations between servant leadership perceptions and exhaustion at T1 ($r = –.22$) and T2 ($r = –.25$) were small (Cohen, 1992), whereas they were medium for exhaustion at T3 ($r = –.36$) and T4 ($r = –.32$). Similarly, servant leadership perceptions at T2 and exhaustion at T2 ($r = –.24$), T3 ($r = –.28$), and T4 ($r = –.27$) showed significant and small negative correlations. The correlations between servant leadership and exhaustion at T3 and T4 were not significant.

Univariate Growth Curves

Exhaustion

To answer Research Question 1, we modeled univariate growth curves. As Table 4.2 shows, the model with an unspecified growth pattern fit the data well ($\chi^2(3) = 0.992$, $p = .803$, RMSEA = 0, CFI = 1, TLI = 1, SRMR = .047) and the AIC, BIC, and SSABIC values were smallest for this model compared to the other models, so we selected the model with an unspecified growth pattern. The mean intercept of this model and its variance were significant (intercept = 2.219, $p = .000$; var = 0.251, $p = .000$), meaning that there were significant between-person differences in the level of exhaustion. The mean slope and its variance were not significant (slope = 0.021, $p = .229$; var = 0.005, $p = .608$), indicating that exhaustion did not change, on average, over time. The correlation between the mean intercept and slope was significant ($r = –0.466$, $p = .010$), indicating that individuals with a higher initial level of exhaustion had a smaller increase in exhaustion.[2] The slope factors were not significant, with $slope_1 = 0$ (fixed), $slope_2 = 2$ (fixed), $slope_3 = 6.311$, $p = .237$, and $slope_4 = 4.187$, $p = .116$.

[2] The mean of exhaustion ranged from 2.21 to 2.37 (standard deviations between .52 and .61) at the four measurement points, the median ranged between 2.25 and 2.38, and the mode between 2.00 and 2.38. Thus, the values did not correspond to the extreme value, and only a small percentage of participants selected the highest score (ranging from 0.0% to 19.4%), which was lower than the recommended 20% (L. Wang et al., 2008). Therefore, we do not assume a ceiling effect.

Table 4.2
Univariate Latent Growth Curve Models for Exhaustion

	Intercept-only	Linear[a]	Quadratic[b]	Unspecified growth pattern
AIC	439.365	449.239	–	436.046
BIC	456.140	466.014	–	466.800
SSABIC	437.170	447.044	–	432.022
χ^2 (*df*)	14.639† (8)	24.429** (8)	–	0.992 (3)
RMSEA	0.083	0.130	–	0
CFI	0.943	0.858	–	1
TLI	0.957	0.894	–	1
SRMR	0.106	0.173	–	0.047
Intercept mean	2.276***	2.222***	–	2.219***
Slope mean	–	0.019	–	0.021
Intercept variance	0.202***	5.354***	–	0.251***
Slope variance	–	1.137	–	0.005

Note. N = 121. AIC = Akaike information criterion; BIC = Bayesian information criterion; SSABIC = sample size adjusted BIC; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual; TLI = Tucker-Lewis index.
[a] The residuals were restricted to zero due to a non-positive definite residual covariance matrix. [b] Could not be calculated as the residual and the latent variable covariance matrices were not positive definite.
$^{\dagger}p < .10$. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Perceived Servant Leadership

Regarding the trajectory of perceived servant leadership, again, the model with an unspecified growth pattern fit the data well ($\chi^2(3) = 1.903$, $p = .593$, RMSEA = 0, CFI = 1, TLI = 1, SRMR = .096; see Table 4.3). We acknowledge that the BIC favored the linear model compared to the model with an unspecified growth pattern, but both the AIC and SSABIC favored the model with an unspecified growth pattern; therefore, we selected this model. The mean intercept and its variance were significant (intercept = 3.979, $p = .000$; var = 0.226, $p = .000$), as was the mean slope (slope = –0.044, $p = .014$) but not the slope variance (var = 0.007, $p = .478$). Thus, the participants differed significantly in their level of perceived servant leadership. Perceived servant leadership decreased, on average, across the four measurement points, and the participants did not differ in their slope factors. The intercept and slope means were not significantly correlated ($r = –.344$, $p = .145$), meaning that

the level of perceived servant leadership was not associated with change in the construct over time. Both freely estimated slope factors were significant ($slope_1 = 0$ (fixed); $slope_2 = 2$ (fixed); $slope_3 = 3.498$, $p = .014$; $slope_4 = 2.810$, $p = .001$). The slope factors indicated that between T1 and T3 and between T1 and T4, the decrease in servant leadership was lower than that implied by a linear model with the model's slope mean. Using the estimated means (T1–T4: 3.979, 3.891, 3.825, 3.855) and the time intervals reflecting the measurement times (i.e., 0, 2, 4.5, 6), we also computed the mean slope factors between T2 and T3 (slope = –0.026) and between T3 and T4 (slope = 0.020). Thus, in response to Research Question 2, we found that after a weakening decrease from T1 to T3, servant leadership perceptions increased again between T3 and T4.

Table 4.3
Univariate Latent Growth Curve Models for Servant Leadership

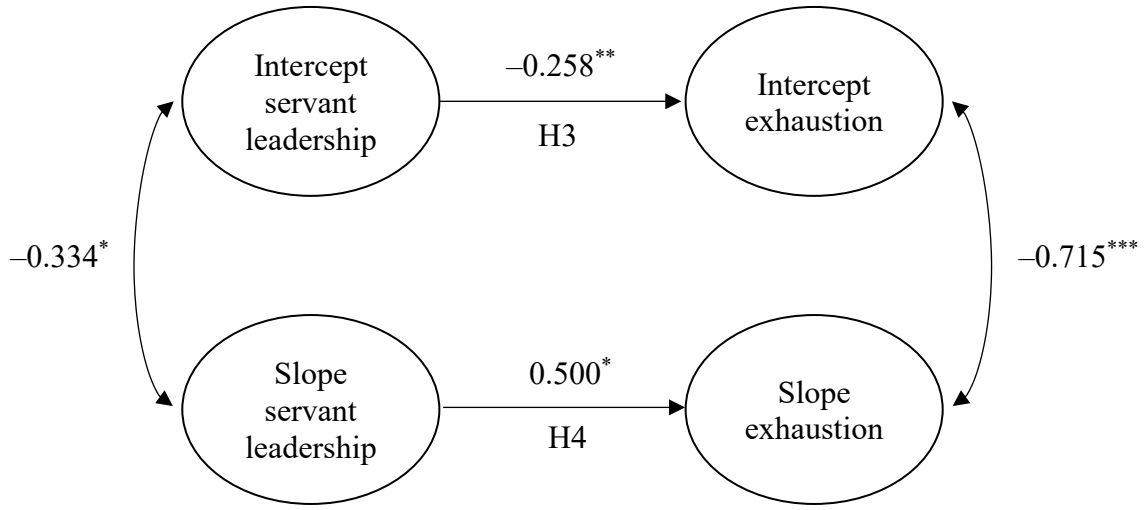
	Intercept-only	Linear	Quadratic[a]	Unspecified growth pattern
AIC	276.722	267.705	–	264.741
BIC	293.881	293.443	–	296.199
SSABIC	274.905	264.979	–	261.410
χ^2 (*df*)	24.661** (8)	9.659 (5)	–	1.903 (3)
RMSEA	0.127	0.085	–	0
CFI	0.932	0.981	–	1
TLI	0.949	0.977	–	1
SRMR	0.220	0.141	–	0.096
Intercept mean	3.907***	3.960***	–	3.979***
Slope mean	–	–0.019**	–	–0.044*
Intercept variance	0.196***	0.196***	–	0.226***
Slope variance	–	0.001	–	0.007

Note. $N = 129$. AIC = Akaike information criterion; BIC = Bayesian information criterion; SSABIC = sample size adjusted BIC; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual; TLI = Tucker-Lewis index.
[a] Could not be calculated as the residual and the latent variable covariance matrices were not positive definite.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Bivariate Growth Curve

Subsequently, we investigated the associations between servant leadership and exhaustion using bivariate LGCMs. The bivariate LGCM fit the data well ($\chi^2(20) = 9.260$, $p = .980$), RMSEA = 0, CFI = 1, SRMR = .081). The intercept of servant leadership was negatively and significantly associated with the intercept of exhaustion ($\beta = –0.258$, $SE = 0.086$, $p = .003$), suggesting that interindividually, higher servant leadership was associated with lower exhaustion, which supported Hypothesis 1. The slope of servant leadership was also significantly related to that of exhaustion ($\beta = 0.500$, $SE = 0.198$, $p = .012$). Given that the mean slope for servant leadership was negative and the mean slope (intercept) for exhaustion was positive, this result indicates that the greater the decrease in servant leadership, the greater the increase in exhaustion. This significant within-person relationship between servant leadership and exhaustion supported Hypothesis 2 (see Figure 4.1).

Figure 4.1
Standardized Results of the Bivariate Model



Note. $N = 129$.
$^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Additional Analyses

We conducted the analyses again using the complex command in Mplus to account for potential misspecifications due to school affiliation.[3] The univariate models as well as the bivariate one yielded the same inferences as those without the complex command. Thus, we report only the conventional standard errors (cf. Antonakis et al., 2021).

Discussion

Crisis situations can be very challenging and lead to resource depletion, which can result in increased stress and eventually exhaustion. The latter can have a negative impact not only on oneself (e.g., Jonsdottir et al., 2017; Salvagioni et al., 2017) but also on others (e.g., Trougakos et al., 2015). Given the high probability that leaders and followers will face crises during their careers (Riggio & Newstead, 2023), it is important to investigate the development of follower exhaustion and how it can be kept low or reduced in crisis situations. Leadership has already been linked with employee well-being (Inceoglu et al., 2018), and has been found to be even more essential during crises than in non-crisis contexts (Rudolph et al., 2021). Therefore, we explored the trajectories of perceptions of servant leadership as a resource-providing leadership style and exhaustion among teachers (a particularly vulnerable professional group; Madigan et al., 2023) during a crisis as well as the association between the two constructs. A particular strength of our study is that we conducted a real-time longitudinal investigation with four measurement points during the first eight months of the COVID-19 crisis, instead of relying on retrospective data. In this way, we make an important contribution to the still very limited body of research on the dynamics of leadership behavior (McClean et al., 2019), as well as the association between leadership and employee well-being (Inceoglu et al., 2018), especially in the crisis context. Additionally, by studying a specific sample of teachers in the context of the COVID-19 crisis, we followed previous calls

[3] We did not use multilevel modeling because we were not interested in differences between the schools, and the number of clusters (n = 22) was rather small (McNeish et al., 2017).

to incorporate context into research (Johns, 2006, 2024). Despite the potential of context to influence the occurrence and effects of variables and the relationships between them, it is often disregarded in research (Johns, 2024; Liden & Antonakis, 2009; Oc, 2018). Rather than treating context as an artifact (e.g., by controlling for contextual variables when estimating effects; Oc, 2018), explicitly studying specific contexts, as in our study, helps correctly interpret research findings, derive practice-oriented and relevant implications, and also integrate seemingly heterogeneous research findings, for example, in reviews and meta-analyses (Johns, 2018).

Regarding the univariate trajectories of the constructs, servant leadership perceptions decreased over the study period. However, the decrease was not linear, but slowed from T1 to T3 before servant leadership perceptions increased again between T3 and T4. For teachers' exhaustion also, a non-linear trajectory fit best, but the construct did not increase or decrease on average during the first eight months of the crisis. Consistent with our hypotheses, we found a negative inter- and intraindividual association between servant leadership and exhaustion. Specifically, teachers who perceived higher levels of servant leadership reported lower levels of exhaustion, and a greater decrease (increase) in servant leadership perceptions was related to a greater increase (decrease) in exhaustion.

Theoretical Implications

Our findings provide evidence that COR theory can be a fruitful approach to make predictions about the trajectories of servant leadership and employee exhaustion as well as their inter- and intraindividual relationships in longitudinal settings, which we explain in the following. On average, servant leadership perceptions decreased during the study period. More detailed analyses showed that the decrease in servant leadership perceptions weakened over the course of the crisis and finally increased again. Reasons for the initial decrease in servant leadership perceptions may be that the leaders were very busy at the beginning of the

crisis, adjusting themselves and their schools to the new situation, for example, by creating the necessary technical conditions for teaching. In line with COR theory, the leaders' resources may have been exhausted by the higher workload and other challenges during the COVID-19 crisis, such as anxiety and fear concerning the spread of COVID-19 (Reid, 2022; Upadyaya et al., 2021), reducing their capacity to show positive leadership (Harms et al., 2017). Additionally, the COVID-19 measures, such as reduced and mainly remote contact, may have limited leaders' possibilities to show servant leadership. Over time, the situation may have eased, as key requirements were increasingly met to continue workflows in the best possible way despite the adverse conditions, and, as predicted by COR theory (Hobfoll et al., 2018), leaders may have learned to adapt in order to best invest their resources. Consequently, the leaders may have been gradually able to restore their resources and return to a stronger focus on their followers, so that the decline in servant leadership perceptions slowed and eventually began to reverse. Our finding sheds light on the trajectory of servant leadership over the course of a crisis and supports previous claims that leadership should not only be considered static (McClean et al., 2019)—indicating the crucial importance of longitudinal studies in leadership research.

The on average stable level of employee exhaustion in our study is somewhat surprising, as several studies have indicated that the COVID-19 crisis involved numerous risk factors (Gilmer et al., 2023; LeNoble et al., 2023) and was associated with increased exhaustion (Freeman et al., 2021; Sokal et al., 2020). Like the hypothesized increase in exhaustion during the first months of a crisis, the nonexistent growth in our study can be explained by COR theory, as Hobfoll et al. (2018) suggested that individuals may adapt to stressors over time, utilizing their resources more efficiently. Thus, individuals may learn how to implement and handle changes (e.g., remote teaching) so that the exhaustion that exists at the beginning of a crisis does not increase further. This adaptation process could offset

resource-draining factors. Future studies should identify the conditions under which these two predictions are more pronounced, respectively. It is plausible, that the relative weights of the two mechanisms change over time. For example, the habituation effect may become increasingly salient as a crisis persists. Another reason for exhaustion remaining constant could be the relatively high level of servant leadership found at the beginning of the crisis (the estimated mean at T1 was 3.979 on a 5-point Likert scale): This could indicate that servant leadership had already been high before the crisis and that the employees had acquired numerous resources and set resource gain spirals in motion before the crisis started, protecting them against resource losses. Such acquired resources could include peer support and the exchange of teaching materials as well as personal resources such as resilience.

An interesting counterintuitive aspect is that individuals with higher initial levels of exhaustion had lower increases in exhaustion. This finding contradicts COR theory, which states that with fewer resources, the likelihood of resource loss increases, which can reinforce loss spirals (Hobfoll et al., 2018). There are several possible explanations for this finding that merit further investigation. Individuals who were already more exhausted may have received more support, leading to a smaller increase in exhaustion over time. This aligns with the fact that servant leaders respond to and care for their employees individually. Additionally, it could be that less exhausted individuals were more engaged in ensuring that the schools were able to manage crisis-related changes effectively, resulting in a greater increase in exhaustion.

Not only did we replicate the interindividual negative relationship between servant leadership and follower exhaustion in the teaching and crisis context, but we also found that increases (decreases) in servant leadership are associated with decreases (increases) in exhaustion intraindividually. To date, this has only been examined in one study in a change context, with only two measurement points and over a longer period of time (18 months; Kaltiainen & Hakanen, 2020), although most researchers base their rationale on within-person

theory (Gabriel et al., 2019). Thus, following previous calls (Inceoglu et al., 2018), we extended these findings with a more dynamic view of the associations between servant leadership and follower exhaustion within a shorter time frame and in the teaching context. Our results support our explanation from the COR perspective that servant leaders can provide resources, such as exchange of teaching materials or social support, that help protect or gain resources or compensate for resource loss. This notion is also consistent with a previous suggestion that servant leadership may be particularly suited to providing meaningful social support (Gray et al., 2023). The results also indicated that the associations did not differ at the within-person and between-person levels, demonstrating homology (Gabriel et al., 2019; McCormick et al., 2020). Future research should investigate whether the same mechanisms are at work on the between- and within-person level (McCormick et al., 2020).

Descriptively, only servant leadership at T1 and T2 was found to be correlated with exhaustion at all measurement points. This finding suggests that servant leadership perceptions may have been particularly relevant at the beginning of the crisis, indicating that adequate preparation in advance of the crisis is crucial. During the crisis, teachers may have adapted better (in line with COR theory) and perhaps organized themselves more effectively, leading to leadership perceptions no longer having strong immediate effects on their well-being. Future research could employ latent change score models to determine leading and lagged relationships and their changes over time (McArdle, 2009). Additionally, investigating how long servant leadership takes to produce effects and exploring the potential negative effects of servant leadership on followers' well-being (cf. A. C. Peng et al., 2023) would be valuable. For instance, at the beginning of the crisis, supportive behavior might have been more prominent, but later on, the focus might have shifted to serving others, potentially leading to more pressure on teachers to care for their students. Future studies could examine

the emphases and interactions of the different servant leadership dimensions as well as possible changes in the mediating mechanisms over time.

Future Research

One avenue for future research is to delve deeper into the trajectory of servant leadership perceptions and examine potential antecedents that help explain the decrease in servant leadership perceptions in the first months of a crisis, as well as factors that help initiate the recovery process in servant leadership perceptions. In this way, aspects, such as specific resources to support leaders (e.g., initiating opportunities for exchange between leaders, fostering mutual support among them), can be worked out that can mitigate the decline of servant leadership perceptions in the first months of a crisis. Additionally, the size of the correlations between servant leadership and exhaustion suggests that further predictors and moderators, such as other leadership styles or personal characteristics of teachers (e.g., resilience), should be investigated, which could contribute to the explanation of variance in changes in exhaustion.

Second, following previous claims that the link between leadership and well-being is still under-researched (Inceoglu et al., 2018), mediating and moderating factors in the association between servant leadership and exhaustion could be explored. For example, it would be insightful to determine whether the relationships between servant leadership and follower exhaustion during a crisis are also present when followers have a low tolerance for uncertainty, or whether servant leadership may even be particularly beneficial in such situations.

Third, with four measurement points separated by time lags of approximately two months, our study contributes to a better understanding of the temporal dynamics of servant leadership and exhaustion. However, future research with varying timeframes is required to develop a solid comprehension of these dynamics and their implications (Guthier et al., 2020).

In addition to the overall questions of how stable servant leadership is and over what time period variation occurs (Ellis et al., 2019; Kelemen et al., 2020; McClean et al., 2019), there are further avenues for exploration in the realm of temporal dynamics. One such area of interest is the evaluation of servant leadership. Servant leadership encompasses a range of characteristics, such as the general motivation to lead and authenticity (van Dierendonck & Nuijten, 2011), which cannot be assessed through individual situations or behaviors but rather represent a more comprehensive evaluation. As a result, it is possible that high variability in leader behavior may not lead to high variability in ratings of servant leadership, but rather to low ratings of servant leadership. Future research should therefore investigate which aspects of servant leadership are more stable and which are more prone to fluctuation (cf. Gabriel et al., 2019) and how these aspects influence overall ratings of servant leadership. The second field concerns the effects of variability in servant leadership behavior. Given a high variability in servant leadership behaviors, employees may not be able to predict their leaders' behavior, which may be perceived as a demand or threat. Accordingly, there is evidence that followers usually prefer stable leader behavior (R. E. Johnson et al., 2012; Matta et al., 2017; Volmer et al., 2023; Winkler et al., 2015). Future research could thus use growth mixture modeling (Wickrama et al., 2022) or continuous time modeling (Rauvola et al., 2021) to examine whether different trajectories of servant leadership, such as high variability or stability at different levels, are differentially related to changes in exhaustion.

Fourth, it would be valuable to explore servant leadership perceptions and the levels of exhaustion experienced by participants also prior to a crisis. This would allow us to determine whether servant leadership was particularly high at the outset of the crisis, for instance, because leaders addressed their teachers' concerns to a particularly high extent, so that perceptions initially increased at the beginning of the crisis and only returned to their initial level as the crisis progressed. Conversely, it could also be the case that the contact restrictions

initially made effective leadership behavior more challenging, resulting in servant leadership being lower at the first measurement point than before the crisis.

Lastly, some criticism of leadership research suggests that positive leadership behaviors always result in positive outcomes (Alvesson, 2020; T. Fischer & Sitkin, 2023). However, the different correlations between the constructs at different measurement times in our study do not support the view that the findings are merely the result of a combination of a positive leadership style and a negative outcome. In addition, meta-analyses have shown that servant leadership can explain variance in follower behavior and experiences beyond other leadership styles (e.g., Hoch et al., 2018). Nevertheless, the conceptualization of servant leadership (as well as other common leadership constructs) needs improvement to avoid spurious effects that are based solely on the positivity of the construct. For instance, the conceptualization and instruments should be revised to avoid conflating behavioral descriptions with raters' evaluations (T. Fischer & Dietz, 2020; T. Fischer & Sitkin, 2023). Additionally, future research should also consider other leadership constructs (e.g., transformational or empowering leadership) to determine if servant leadership has a unique contribution to explaining variance in exhaustion.

Limitations

There are some limitations that should be mentioned before deriving practical implications. First, our survey was conducted among teachers from a private school association in Germany during the COVID-19 crisis. Consequently, the generalizability of our findings to other contexts might be constrained. Thus, our findings should be validated using different samples. Second, as we were interested in teachers' experiences during the crisis, we employed only their evaluations, resulting in potential biases (P. M. Podsakoff et al., 2012). However, self-reports are sometimes the most suitable approach for investigating specific research questions (Gabriel et al., 2019). In the case of exhaustion, the teachers were the most

knowledgeable source for assessing their own well-being. Additionally, the impact of leadership behavior on follower outcomes largely depends on how employees perceive it (Bono et al., 2012).

Third, despite employing a longitudinal design, we cannot exclude the existence of omitted variables that potentially affected the associations between the constructs and led to endogeneity (e.g., leadership needs or negative affectivity; Sajons, 2020). To rule out endogeneity, all potential third variables would have to be identified and included in the model. As this is practically not feasible, corrective actions would be necessary, such as instrumental variable estimation using experimentally randomized instrumental variables (Schowalter & Volmer, 2023). However, by definition, the studied crisis context occurred unexpectedly, affected *all* participants, and required many resources from the teachers. Therefore, it was not possible to implement a (quasi-)experimental design (e.g., with randomized assignment to servant leadership training) to apply corrective approaches. Thus, our findings cannot be interpreted causally and should be further examined using experimental or instrumental variable approaches to establish robust causal inferences (Schowalter & Volmer, 2023). Fourth, owing to the crisis and associated workload, our sample size was limited. Although the sample size was generally large enough for our analyses (P. J. Curran et al., 2010), it is still possible that the power was too low to detect an average course of exhaustion. Therefore, it is useful to replicate our study in different crisis contexts using larger samples. In addition, it is not uncommon for participants to drop out over the course of longitudinal studies (Goodman & Blum, 1996). In our study, we did not observe systematic drop-out effects and used FIML to handle missing data. This method allows the use of all available data, resulting in more reliable and valid results than traditional methods that discard incomplete cases (D. A. Newman, 2003). However, limited data at later time points may affect the certainty of the growth trajectory estimates. Future research should

aim to collect more complete data at later time points to validate the trajectories identified in our study.

Practical Implications

Our study indicates that servant leadership is negatively associated with employee exhaustion during crises. The finding that changes in servant leadership perceptions are related to changes in exhaustion implies that it is not enough to be perceived as a servant leader in principle, but that this perception is subject to fluctuations that are related to exhaustion. Consequently, leaders should continually prioritize the needs of their followers over organizational goals and demonstrate servant behavior during crises. This involves taking responsibility for their followers' well-being, providing resources (such as helpful support), removing obstacles (such as communication barriers during a lockdown), listening carefully, communicating effectively, and providing direction, despite the additional tasks and increased pressure that leaders may experience during crises.

Organizations should therefore select their leaders on the basis of their servant leadership behavior and provide them with the necessary training to be prepared for future crises (cf. McCormick et al., 2020). This is particularly recommended because servant leadership has been shown to have positive effects also in non-crisis contexts (Eva et al., 2019). Through servant leadership training, leaders can be equipped to set the course already before and during the first months of a crisis. These first few months can be critical, as they often have the highest potential for resource loss (in the case of COVID-19, e.g., due to a sudden transition to remote work and reduced contact with colleagues). Therefore, it is essential that leaders support employees in acquiring new resources before and during a crisis (especially during the first months; e.g., by facilitating the exchange of teaching materials between team members), which helps protect against and compensate for resource loss.

Furthermore, it is important that organizations support their leaders so that their resources are not depleted, but that they can uphold their servant leadership behaviors in the crisis context. One possibility is to build up leaders' social capital, for instance, by connecting school leaders from different schools and fostering mutual support as well as improving collaboration with school associations or districts (Beausaert et al., 2023; Reid, 2022). Additionally, demands can be reduced and tasks restructured, for example, by sharing job responsibilities in an administrative team (Beausaert et al., 2016). Finally, leaders' personal resources can be fostered using coaching and mentoring (Upadyaya et al., 2021) or training focusing on self-care and mental health (Reid, 2022).

The absence of increased exhaustion among teachers during the crisis may suggest that they not only faced a threat of resource depletion but that the circumstances, such as remote teaching, also had resource-strengthening effects, such as the reduced need to manage their emotions in front of students (Hilger et al., 2021). Effective leadership and coaching can help direct teachers' focus on these resources, which can facilitate their ability to cope with the crisis and reduce exhaustion.

Conclusion

Because leaders and followers in all professional fields are likely to face crises during their careers, it is critical to understand how to minimize the negative impact of such crises on well-being. We conducted a real-time, four-wave study that provides a dynamic perspective on servant leadership and teacher exhaustion, revealing that the trajectories of and associations between the constructs are more complex than linear models can capture. Our findings suggest that servant leadership is appropriate for reducing the negative effects of crises on teacher exhaustion. Thus, given the multiple positive effects that servant leadership can have in both crisis and non-crisis contexts, it is advisable to train and support leaders to use this leadership style to be prepared for future crises.

Ethical Approval

The study was approved by the local Ethical Review Board (2022–06/25, University of Bamberg).

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CHAPTER V

SERVANT LEADERSHIP AND CAUSALITY

In summary, Studies 1 and 2 suggest that servant leadership can be beneficial in a crisis context, both for followers' performance (i.e., adaptivity and proactivity) via basic psychological need satisfaction, and their well-being (i.e., exhaustion). In addition, Study 1 indicates that servant leadership can also be negatively associated with followers' proactivity through procedural justice perceptions. The two studies are based on a longitudinal survey design with three and four measurement points. The longitudinal nature of these designs allows for the statistical control of preceding levels of the outcome variables to reduce common method bias (P. M. Podsakoff et al., 2012) and to model the temporal order of the variables and their associations (Maxwell et al., 2011; Zapf et al., 1996). Thus, such longitudinal designs permit steps toward establishing causality that are not possible in cross-sectional studies (Hill et al., 2021).

However, according to Kenny (1979), three conditions must be fulfilled to justify causal relationships. First, the predictor (e.g., servant leadership perceptions) and outcome variables (e.g., proactivity, adaptivity, or exhaustion) must be related; second, the predictor must temporally precede the outcome; and third, the relationship between the predictor and the outcome must not be explained by other variables, which are not accounted for in the research model (i.e., omitted variables). If omitted variables exist that explain variance in both the predictor and the outcome, the predictor is *endogenous* so that the estimated effect could be biased and is therefore not causally interpretable (Kennedy, 2008). Thus, although the longitudinal Studies 1 and 2 have clear advantages over cross-sectional studies and bring us closer to causality, the studies cannot completely satisfy the preconditions for causal inferences due to the potential influence of unobserved confounding variables or simultaneity (i.e., reverse causality) issues (Bellemare et al., 2017). Therefore, the studies do not permit

causal conclusions to be drawn. The lack of causal identification is not unique to these two studies but is typical of many studies in psychology, management, and beyond (Antonakis et al., 2010; Bellemare et al., 2017; Hill et al., 2021). Accordingly, also specifically in servant leadership research, researchers have claimed a lack of causal studies (Eva et al., 2019; A. Lee, Lyubovnikova, et al., 2020). The inability to draw causal conclusions is concerning because causality serves as the basis for valid inferences. Only when findings are causally established can the consequences of changed conditions be accurately predicted (Angrist & Pischke, 2009) and correct conclusions be drawn for both science and policy, which is essential for correct theory development and the recommendation of effective policy interventions (Alvesson, 2020; T. Fischer & Dietz, 2020).

Aims and Outline of Study 3

Proceeding from these concerns regarding causality in previous studies on servant leadership as an explanatory variable (including Studies 1 and 2), in Study 3, I focus on which problems can cause a lack of causal interpretability and how research on servant leadership could be improved. To this end, I identified common problems in servant leadership research and conducted two systematic methodological reviews of the state of research regarding these issues: one for servant and the other for authentic leadership, the latter being relevant due to its overlap with the authenticity dimension of servant leadership. Additionally, I developed recommendations on how the current state of research could be improved. To illustrate the recommendations, I conducted an experiment testing the effect of a combination of two dimensions of servant leadership (i.e., stewardship and authenticity) on performance and applied instrumental variable regression to test the effect of servant leadership perceptions on the same outcome.

CHAPTER VI

ARE THE EFFECTS OF SERVANT LEADERSHIP ONLY SPURIOUS? THE STATE OF RESEARCH ON THE CAUSAL EFFECTS OF SERVANT LEADERSHIP, RECOMMENDATIONS, AND AN ILLUSTRATIVE EXPERIMENT (STUDY 3)

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Abstract

Causality is essential in informing science and policy. In the present study, we investigate the current state of research regarding causality in the field of servant (and authentic) leadership and provide recommendations on how causally identified studies can be conducted. After explaining the methodological problems that potentially prevent causal inferences (i.e., endogeneity bias and issues in experimental design), we provide two systematic literature reviews of servant and authentic leadership showing that these problems remain very prevalent. We then discuss two solutions on how causal effects of servant leadership or perceptions thereof can be established: randomized experiments and instrumental variable regression. To illustrate our recommendations, we report an experiment on the effect of a combination of two servant leadership dimensions (i.e., stewardship and authenticity) on follower performance and also investigate the effect of combined stewardship and authenticity *perceptions* using instrumental variable regression. The results do not indicate that combined stewardship and authenticity *behavior* or *perceptions* affect follower performance. Our study

can serve as a roadmap, especially for servant leadership researchers, to address potential endogeneity and conduct causally identified research.

*Keywords: s*ervant leadership, authentic leadership, systematic review, experiment, instrumental variable estimation

Introduction

The concept of servant leadership, as introduced by Greenleaf (1977), has received increasing interest in recent years (Gardner et al., 2020). Servant leaders can be characterized as being other-oriented and motivated to serve. They recognize each follower as unique, treat them accordingly as individuals entrusted to them, and care more about others in the organization and beyond than about themselves (Eva et al., 2019). As one of the most popular leadership theories in recent years (Banks et al., 2018; Gardner et al., 2020), servant leadership has been associated with numerous positive work-related behaviors and attitudes, such as performance, citizenship behaviors, and organizational commitment. Research indicates that servant leadership co-varies with several work-related behaviors and attitudes even beyond other leadership concepts, such as authentic, ethical, and transformational leadership (e.g., Eva et al., 2019; Hoch et al., 2018; A. Lee, Lyubovnikova, et al., 2020; Parris & Peachey, 2013). However, to date, most investigations of servant leadership as an explanatory variable are not causally identified (Eva et al., 2019; A. Lee, Lyubovnikova, et al., 2020). This lack of causal research is concerning because the existing findings could be spurious (Antonakis et al., 2010) and thus do not allow us to draw reliable scientific or policy implications (Alvesson, 2020; T. Fischer & Dietz, 2020).

Our study adds value to current research on servant leadership in several ways. First, we outline methodological problems that can threaten causality in the field of servant leadership. Because researchers frequently use servant leadership *perceptions* to estimate the effects of servant leadership on outcomes, we explain the difference between servant

leadership behavior and perceptions thereof and why it is problematic to use questionnaires to measure servant leadership when in fact aiming to study servant leadership *behavior*. We then address how endogeneity can bias the estimated effects of servant leadership (perceptions)[1] and how, even in randomized experiments, problems can arise that prevent causal inferences. Second, we conduct a systematic literature review of studies using servant leadership as an explanatory variable focusing on research since 2018 (i.e., beyond the latest review by Eva et al., 2019). In this review, we specifically focus on issues regarding endogeneity and experimental design. Additionally, we undertake an analogous systematic review of the research on the effects of authentic leadership (following up on Gardner et al., 2011) because this other popular positive leadership construct overlaps with the authenticity dimension of servant leadership. Third, we provide recommendations on how researchers can investigate the causal effects of servant leadership (perceptions) more rigorously. Our recommendations focus on how to conduct sound randomized experiments and apply instrumental variable regression. Finally, we implement our recommendations in an exemplary experimental investigation of the causal effect of two dimensions of servant leadership (i.e., combined stewardship and authenticity) on performance. Thereby, we also show how an instrumental variable approach can be used to determine whether perceptions of servant leadership (or its subdimensions) are endogenous and to tackle potential endogeneity problems. Overall, we aim to add to the growing body of reliable leadership research holding profound scientific and policy implications.

In the following, we start by defining and distinguishing servant leadership from other positive leadership styles (i.e., transformational, charismatic, and authentic leadership), followed by a description of methodological problems that can prevent causal conclusions from studies on the effects of servant (and authentic) leadership.

[1] In the following, we use *servant leadership (perceptions)* to refer to both servant leadership *behavior* and *perceptions* explicitly.

Servant Leadership

Servant leadership is described as a holistic leadership approach that combines both task and people focus by being people-centered without ignoring performance expectations (Eva et al., 2019; van Dierendonck & Nuijten, 2011). One of the recommended measures of servant leadership (Eva et al., 2019) is the Servant Leadership Survey by van Dierendonck and Nuijten (2011), which comprises eight dimensions: (1) *Empowerment* aims at motivating followers to be proactive and self-confident and focuses on followers' personal development; (2) *accountability* means that followers know their boundaries and targeted expectations, and are made responsible for their performance; (3) *standing back* describes the extent to which a leader acknowledges others' contributions and shares credit for successfully accomplished tasks; (4) *humility* refers to the leader's ability to put their own accomplishments and capacities in an appropriate perspective, knowing their own strengths and limitations as well as seeking others' contributions to overcome the latter; (5) *authenticity* is the degree to which a leader is true to themselves and shows their true emotions and motivations; (6) *courage* describes the attitude of questioning old approaches and trying out new ones, and willingly facing challenges in line with their own beliefs and values; (7) *forgiveness* means that one accepts others despite mistakes and wrongdoings and without seeking revenge; and (8) *stewardship* concerns acting as a role model and taking responsibility for the organization beyond genuine self-interest.

Recent years have seen criticism of several leadership theories (e.g., servant leadership, transformational leadership, ethical leadership, and authentic leadership) regarding potential overlaps of different leadership constructs, and it has been argued that they may, in part, just measure an overarching positive leadership construct (e.g., Banks et al., 2018; Hoch et al., 2018). Servant leadership shares with transformational and charismatic leadership, for instance, the aspect of having a vision, which is part of the inspirational motivation subscale

of charismatic and transformational leadership (Banks et al., 2017; Bass, 1999), as well as the stewardship dimension of servant leadership (van Dierendonck & Nuijten, 2011). However, there are also differences between servant leadership and these two other leadership constructs. In contrast to servant leadership, transformational and charismatic leadership do not include humility, authenticity, or forgiveness (Pircher Verdorfer & Peus, 2014). Unique to servant leadership is also the focus on benefitting multiple stakeholders, as covered in the dimension of *stewardship* (Anderson & Sun, 2017; Eva et al., 2019; A. Lee, Lyubovnikova, et al., 2020; Lemoine et al., 2019; van Dierendonck & Nuijten, 2011). The term stakeholder subsumes a wide variety of individuals and groups, from followers to the organization to the general social world, also referred to as the common good (Eva et al., 2019; Pircher Verdorfer & Peus, 2014; van Dierendonck & Nuijten, 2011). Thus, whereas transformational and charismatic leaders predominantly focus on organizational goals, servant leaders place their employees' needs before organizational goals, fulfill their social responsibility, and focus on the good of the whole (van Dierendonck & Nuijten, 2011).

Likewise, authentic leadership shows some similarities but also differences with servant leadership. According to the most commonly used definition (T. Fischer & Sitkin, 2023), authentic leadership "draws upon and promotes both positive psychological capacities and a positive ethical climate, to foster greater self-awareness, an internalized moral perspective, balanced processing of information, and relational transparency on the part of leaders working with followers, fostering positive self-development" (Walumbwa et al., 2008, p. 94). Servant leadership shares with authentic leadership the view that leaders should be authentic and true in their interactions (Eva et al., 2019). Thus, the two servant leadership dimensions of authenticity and humility overlap with authentic leadership (A. Lee, Lyubovnikova, et al., 2020). Particularly similar to the *authenticity* dimension of servant

leadership is the sub-dimension relational transparency of authentic leadership, which is defined as sharing one's true self, thoughts, and emotions with others (Banks et al., 2016).

However, the mindset underlying authentic and servant leadership is different (Eva et al., 2019): "[S]ervant leaders are authentic not for the sake of being authentic, but because they are driven either by a sense of higher calling or inner conviction to serve and make a positive difference for others" (p. 113), which is not part of the authentic leadership framework. Furthermore, humility is only partly captured in authentic leadership because authentic leadership does not include giving room to others and being willing to stand back (A. Lee, Lyubovnikova, et al., 2020). In addition, unlike servant leadership, authentic leadership does not encompass task focus (Banks et al., 2018) or the stakeholder focus mentioned above (Anderson & Sun, 2017; Eva et al., 2019; A. Lee, Lyubovnikova, et al., 2020; Lemoine et al., 2019; van Dierendonck & Nuijten, 2011). Servant leadership is thus more comprehensive and broader than authentic leadership.

Methodological Problems in Servant Leadership Research

Research on the effects of servant leadership, which does not allow for causal conclusions, can entail misdirection in science and policy implications (Alvesson, 2020; T. Fischer & Dietz, 2020). For instance, its findings could lead to the assumption that there was a positive effect of servant leadership when in fact, there is none (or vice versa). Consequently, researchers may build false theory or wrongly suggest ineffective policy interventions. Therefore, it is important to be aware of the methodological problems that impede causal interpretation and to address them adequately. After first highlighting the differentiation between servant leadership *behavior* and *perceptions*, we explain the methodological problems triggered by the use of questionnaire measures of servant leadership to explore its effects and then consider the limitations of measuring servant leadership more generally (also via non-questionnaire methods). Finally, we discuss methodological problems

inherent in current experimental research that impede the causal interpretation of the effects of servant leadership manipulations.

The Difference Between Servant Leadership Behavior and Perceptions

Existing theories of servant leadership (e.g., Eva et al., 2019; van Dierendonck & Nuijten, 2011) outline the ideal behaviors of servant leaders, such as the acknowledgment of followers' contributions, assuming that engagement in these ideal behaviors of servant leadership predicts numerous positive outcomes (e.g., work performance). However, researchers often do not measure leaders' behavior but only followers' *perceptions* thereof, representing individuals' unique interpretations and perspectives of a leader, not necessarily being shared by other followers or not even reflective of the leader's true behaviors (Hansbrough et al., 2015).

Both servant leadership behavior and its perceptions are worth studying: On the one hand, investigating the effects of actual servant leader *behavior* is necessary to build valid theory around it, allowing the development of effective leadership development interventions (Hansbrough et al., 2015). On the other hand, studying the effect of servant leadership *perceptions* can help us to understand the influencing process of servant leadership (Antonakis et al., 2012), in that follower behavior may be driven primarily by followers' perceptions of leader behavior rather than the behavior itself (Bono et al., 2012). Bono et al. (2012) even claim that the *perceptions* of leader behavior are likely to be "the best predictor of an employee's motivation, attitude, and behavior (including job performance)" (p. 142). Perceptions may thus have incremental predictive validity, even when they do not (fully) reflect the leader's behavior (the leader's behavior, however, will often be an important predictor of these perceptions). In other words, for the resulting follower attitudes and behaviors, it may ultimately be irrelevant to what extent the perceptions result from the objective observation of leadership behavior or from systematic biases in attention and recall

(Bono et al., 2012). Thus, for theory development and the interpretation of results regarding the influencing processes between leaders and followers, it is crucial to comprehend how and why raters develop their interpretations (Hansbrough et al., 2015), how they process information and retrieve memories, how these processes affect their ratings of leader behavior (Marchiondo et al., 2015), and how these ratings finally impact the outcomes of interest. To sum up, the study of servant leadership behavior and perceptions thereof serves different purposes, so researchers should carefully reflect on which construct (i.e., servant leadership behavior or perceptions) they want to examine with their research question and design their study accordingly.

Problems of Questionnaire Measures of Servant Leadership

In research on the effects of servant leadership, researchers have mostly used questionnaires to measure the leadership construct (Eva et al., 2019), which entails several problems. One problem is that questionnaire measures capture not only leader behavior. Instead, such ratings also capture individual perceptions and measurement errors—equally or even more than actual leadership behavior (G. Wang et al., 2019). More precisely, perceptions, and thus also questionnaire measures, may be impacted by factors such as raters' individual differences (e.g., the Big 5, affectivity), individual psychological processes (e.g., stereotype activation and use, perceived similarity), and contextual factors (e.g., leader's gender, followers' cultural background; for a detailed overview of influencing factors, see Hansbrough et al., 2015). Moreover, the research method (e.g., type of questionnaire, raters' or researchers' information processing) can influence ratings and cause biases (Hansbrough et al., 2015). Leadership questionnaires (such as the Servant Leadership Scale; van Dierendonck & Nuijten, 2011) are mostly retrospective reports that ask for previous leadership behavior (T. Fischer et al., 2017) so that ratings can be affected, for instance, by social desirability, knowledge of previous performance (i.e., performance cue effects), or even expectations of

future behavior (T. Fischer et al., 2017). Other potentially distorting factors are selective attention and inaccuracies in memory (G. Wang et al., 2019), preventing raters from making accurate ratings or behavioral descriptions due to a lack of information (Hansbrough et al., 2015). In addition, often no time period is specified for the assessment of leadership behavior, and temporal relations can thus not be interpreted (T. Fischer et al., 2017), which can also threaten causality. These biases may occur independently of whether the raters are followers, observers, or leaders themselves. Furthermore, certain aspects of servant leadership are particularly difficult for followers to assess (e.g., the leader's true feelings). Yet, even if servant leadership is accurately measured (e.g., by objective observation or artificial intelligence), research using such measures as predictor variables is threatened by endogeneity (Antonakis et al., 2010), a severe problem endangering the determination of causality, as we outline in the following section.

The Problem of Endogeneity When Servant Leadership as a Predictor Is Measured

According to Antonakis et al. (2014), bias in estimates due to endogeneity "is one of the biggest methodological problems in management and psychology research today" (p. 156). To find the true causal effects of servant leadership (perceptions), three conditions must be met (Kenny, 1979): First, the predictor (i.e., servant leadership behavior or perceptions) must precede the outcome (e.g., performance) temporally. Second, servant leadership (perceptions) and the outcome must co-vary significantly. Third, the relationship between servant leadership (perceptions) and the outcome cannot be explained by other factors. The third condition is violated when there are factors that explain variance in servant leadership (perceptions) and the outcome, which are unmeasured or unaccounted for in the empirical model (so-called "omitted variables"; Sajons, 2020). Servant leadership (perceptions) are then *endogenous*, which means that they correlate with the outcome equation's error term (Kennedy, 2008). Endogeneity renders the estimated effect of servant leadership (perceptions)

on the outcome inconsistent, and as the sample size grows, the coefficient will not converge to the true value. Instead, the estimated effect (as well as the simple correlation between servant leadership behavior or perceptions and the outcome) can be smaller, larger, or even in a direction different from the true effect (Antonakis et al., 2010). Predictors are *exogenous* if they are experimentally manipulated, vary randomly in nature, or are unaffected by any other unmodeled variable that also correlates with the dependent variable of interest (Antonakis et al., 2014). In questionnaire research (or in experiments when the predictor is measured), however, the third condition is unlikely to be met, and the estimated effect of the explanatory variable is thus potentially biased (Sajons, 2020). Servant leadership and its perceptions do not vary randomly in organizations; thus, when the constructs are used as explanatory variables, they are threatened by endogeneity because they may be influenced by the same aspects as the outcomes to be predicted (e.g., performance; Antonakis et al., 2010; Sajons, 2020). The following section gives examples of potentially omitted variables in this context.

First, all aspects potentially influencing perceptions and questionnaire measures can be omitted variables (Sajons, 2020), for instance, rater traits (Bono et al., 2012). For example, it could be the case that followers scoring high on agreeableness rate their leader more leniently (Bernardin et al., 2000). At the same time, followers' agreeableness may influence the outcome: Agreeable individuals may work harder to support their leaders. As a result, when agreeableness is omitted from the model, servant leadership perceptions would potentially be endogenous, and the correlations between servant leadership perceptions and outcomes may not reflect true causal effects (Hansbrough et al., 2015). Moreover, using the same source to measure servant leadership perceptions as well as its potential outcomes increases the probability that participants will respond consistently to the measures (Alvesson, 2020; P. M. Podsakoff et al., 2012). The resulting shared variance between the measured variables can then again lead to endogeneity. Omitted variable bias can also result from raters' socially

desirable responding or their response tendencies, such as acquiescence or extreme responding (P. M. Podsakoff et al., 2012). Furthermore, using the same elicitation technique to measure servant leadership and its hypothesized outcomes can lead to omitted variable bias. For example, shared scale properties (e.g., scale type or number of scale points), item characteristics (e.g., wording or clarity), or aspects of the measurement context (e.g., construct order in the survey or the medium used, such as face-to-face interviews or online questionnaires) can influence ratings and thus the resulting associations (P. M. Podsakoff et al., 2003, 2012). In the case of potentially endogenous predictor variables, including a latent method factor does not help because the direction of the biasing effects is unknown, and it is also insufficient to just measure predictor and outcome at different time points or from different sources to remedy the bias (Antonakis et al., 2010).

Importantly, even if the measurement of servant leadership was flawless and not affected by the described omitted variables, endogeneity could occur—due to simultaneity. Consider a follower who is highly motivated and performs well. Therefore, her leader is satisfied with her and empowers her more than other colleagues who do not perform as well. The leader may indeed show more servant leadership behavior, and the employee may perform better, but there is no single causal direction. Instead, the explanatory variable servant leadership and the dependent variable performance may mutually influence each other, rendering servant leadership endogenous: A leader engages in servant leadership behaviors and, as a result, employees perform well. However, when employees show good performance, the leader may also exhibit more servant leadership behaviors. Not accounting for these simultaneous influences between leaders and followers may lead to biased estimates of the effect of servant leadership (perceptions) on outcomes (see Güntner et al., 2020 for details on simultaneity bias).

Problems in Experimental Design

Experiments are referred to as the gold standard for countering endogeneity and establishing causality (Antonakis et al., 2010). However, in the implementation of experiments, several sources of error should be considered to avoid wrong conclusions regarding the effects of servant leadership.

Making the Experimental Manipulation Salient

The experimental manipulation of servant leadership can reveal critical information about the hypotheses, resulting in the risk of demand effects because the participants try to make sense of the provided cues (e.g., instructions; Zizzo, 2010). It is then unclear if the results reflect the true effect of leadership behavior or if participants rated or behaved as they thought they were expected to by the researchers (Khademi et al., 2021; Lonati et al., 2018). The vignette approach is especially problematic in this regard. Often, one must explicitly name the manipulated variable or parts thereof (e.g., leader or leadership) in the vignette. For example, in one experiment, part of the vignette manipulating servant leadership is "The team consists of the team leader—Alex and three team members—you, Chris, and Casey" (J. Hu et al., 2020, p. 1233). Subsequently, Alex's behavior is described in more detail. The vignette may not necessarily reveal what leadership style is being manipulated, yet, the study purpose may become obvious via the salience of the description (e.g., when the vignette says, "Alex has **never** checked in with each of you […]. Alex refused to let you handle the situation in your own way"; J. Hu et al., 2020, p. 1233, emphasis in original).

Non-Consequential Outcomes

Another problem endangering causality in lab experiments is non-consequential outcomes (Lonati et al., 2018), meaning that the predicted outcomes are not connected to any real consequences or proper incentives. Researchers often use self-reports, hypothetical choice scenarios, or questionnaires and thus conduct "hypothetical studies" instead of eliciting

actual behaviors (Lonati et al., 2018, p. 21). For instance, in one experiment (J. Wu et al., 2021), participants should read a scenario describing high or low servant leadership and rate how likely they were to engage in serving behaviors themselves. In the case of such non-consequential outcomes, people can again easily adapt their behaviors or ratings in line with demand effects or social desirability, resulting in unrealistic outcomes (Antonakis, 2017; Khademi et al., 2021; Lonati et al., 2018). In the just-described experiment, it remains thus unclear how individuals would actually behave because the ratings had no consequences. In reality, however, engaging in servant behaviors could well be costly in terms of time and energy.

Inappropriate Counterfactual Groups

Often, experiments do not include appropriate counterfactual groups but make unfair comparisons (Antonakis, 2017). For example, when vignettes describe a servant leader in the treatment group, the control group is often not neutral but delineates a leader who is the opposite of a servant leader (e.g., J. Wu et al., 2021). In intervention studies, an unfair comparison can also be caused by the control group receiving no intervention and thus no attention (Antonakis, 2017). Such unfair comparisons leave unclear whether the reason for any resulting effects is an effect of the servant leadership condition, an effect of the counterfactual condition, or even just different demand effects in opposite directions (Lonati et al., 2018).

In-Sample Manipulation Checks

Manipulation checks can be necessary to confirm that the treatment conditions actually manipulate the construct—here servant leadership—as intended (Hauser et al., 2018; P. M. Podsakoff & Podsakoff, 2019) and to determine the strength of the manipulation (Ejelöv & Luke, 2020). They can also strengthen construct validity by showing that the manipulation only affects the hypothesized variables but not other unintended ones (Ejelöv &

Luke, 2020). However, if performed within the experiment, manipulation checks can lead to demand effects (Khademi et al., 2021; Lonati et al., 2018) or constitute interventions themselves (Hauser et al., 2018). Both choices, doing them before and after measuring the dependent variable(s), pose potential problems. The first case may reveal to participants that the study is about servant leadership (or at least different leadership styles), potentially leading to demand effects (P. M. Podsakoff & Podsakoff, 2019). Yet, when measuring servant leadership after the dependent variable, participants may, for example, rate the items consistently with their prior choices or behaviors (Lonati et al., 2018), or the effects of the manipulation might have already faded (P. M. Podsakoff & Podsakoff, 2019).

Examining Servant Leadership Only as Aggregate Construct

Moreover, the criticism has been made that as most studies have examined servant leadership as an aggregate construct, it is not possible to disentangle the effects of the individual dimensions of servant leadership (A. Lee, Lyubovnikova, et al., 2020). However, only by examining the individual dimensions of a leadership style (alone or in combination) is it possible to determine whether the dimensions are differentially important for the effects of this particular leadership style and whether they act only in combination or independently of one another (Cianci et al., 2014). It could be the case, for example, that accountability only unfolds its full benefits when combined with empowerment because the latter may enable employees to shoulder their responsibility more effectively.

Measured Explanatory Variables

There is also a risk of endogeneity in experimental research when explanatory variables (independent variables, mediators, or moderators; e.g., servant leadership perceptions) are measured (rather than manipulated; Sajons, 2020). As described in our section on endogeneity, the ratings are likely not only influenced by the manipulation being studied but also by other aspects such as individual differences or contextual factors. If these

aspects also correlate with the outcome but are not accounted for in the model, the measured explanatory variable becomes endogenous. In this case, it makes no difference if there is also a separate manipulated predictor (e.g., servant leadership behavior), and correction procedures are necessary to estimate the causal effects correctly (Sajons, 2020). For example, in an experiment manipulating different leadership styles (i.e., servant vs. transformational leadership) and organizational uncertainty via vignettes, both the hypothesized mediators (i.e., need satisfaction and organizational effectiveness) and the postulated outcome (i.e., organizational commitment) were measured using five-point Likert scales (van Dierendonck et al., 2014). According to the researchers, the mediation analysis results confirmed the concerning hypotheses. However, the found associations could simply be driven by omitted variables, biasing the estimated coefficients.

Systematic Review of Servant Leadership as an Explanatory Variable

To take stock of the methods used in research to examine the effects of servant leadership, we conducted a systematic review of studies employing servant leadership as an explanatory variable. We built on earlier research that reviewed and *meta*-analyzed servant leadership research between 1998 and 2018 (Eva et al., 2019). The authors included 285 published and unpublished articles and found only three experiments among them; none allowed for clear causal and policy-informing conclusions. The experiment by van Dierendonck et al. (2014) was the only one manipulating servant leadership directly. It comprised two vignette studies where participants were asked to put themselves in the situation of an employee via written scenarios describing an organizational context and leader behavior. As typical for vignette studies (Lonati et al., 2018), the outcomes were non-consequential questionnaire measures. Moreover, the mediating effects were calculated using simple mediation analysis (Preacher & Hayes, 2008), not accounting for potential endogeneity. In the second experiment (Neill et al., 2007), a training intervention was

conducted, but without a manipulation check and a control group. It is thus unclear whether the positive effects can be attributed to this specific training (rather than any other leadership training). Finally, in the third experiment (Gillet et al., 2011), there was no direct manipulation or measurement of servant leadership. Regarding the 159 correlative field studies they found, Eva et al. (2019) stated that none of the studies had investigated reverse causation or addressed endogeneity.

Sample and Coding

To determine whether research has improved since the latest review of servant leadership (Eva et al., 2019) and how articles fared regarding the specific issues of endogeneity and experimental design previously discussed, we searched for all articles in Web of Science published in the top 30 journals according to the Clarivate Journal Citation Reports (Web of Science) in each of the four categories business, ethics, management, and applied psychology, which contained the search string "servant leader*" in title or abstract, excluding reviews, beginning from 2018 (see S1 in the online supplemental material for the search query; date of search: April 14, 2022). Our search yielded 56 results (see Appendix A for a list of relevant journals). To assess the reliability of the coding, a graduate research assistant was trained in the coding system following Sajons (2020) and Lonati et al. (2018; see Supplemental Material S1). The first author and the research assistant initially extracted the relevant features from a sample of 10 randomly chosen articles. Two articles did not contain primary studies or used a different leadership concept (e.g., environmentally-specific or green servant leadership) as an explanatory variable and, thus, did not fulfill the inclusion criteria. In the other eight articles, 11 studies were coded using the coding scheme. The differences between the codings of the first author and the second coder were discussed. They then independently excluded all articles of the remaining 46 articles that did not fulfill the inclusion criteria (10 articles and one study of an included article). Six additional articles were

excluded because they had already been included in Eva et al. (2019). The research assistant excluded the same studies as the first author; thus, 35 studies published in 30 articles were coded (see Supplemental Material S1 for the PRISMA flow diagram). The resulting inter-rater agreement between the first author and the research assistant for the 805 events (35 studies, 23 categories) was "almost perfect", with Cohen's $\kappa = .97$ ($p = .000$; Landis & Koch, 1977).

Results

Table 6.1 shows the results of our review. We found that servant leadership was used mostly as a simple independent variable (35 studies; 76.1%), followed by as a moderator (10 studies; 21.7%) and a mediator (seven studies; 15.2%). Of these studies, five (10.9%) included it as both a simple independent variable and a mediator and one (2.2%) as both a simple independent variable and a moderator. In 41 studies (89.1%), servant leadership was measured by questionnaires, whereby three (7.3%) of the 41 concerned studies used self-perceptions of the leader (the others used follower perceptions). All these studies were threatened by endogeneity due to omitted variables. However, all the studies interpreted their results causally, and none of the studies applied an instrumental variable approach to account for potential endogeneity. In 34 studies (82.9%), the authors acknowledged that the results could not actually be causally interpreted. Only five studies used experiments to investigate servant leadership *behaviors*, all of which were non-consequential lab studies that used vignettes and manipulated servant leadership as an aggregate construct. All five experiments included counterfactual groups, which, however, only described the opposite of a servant leader, thus missing a neutral comparison group. Whereas all studies included manipulation checks, only in one experiment (20%), it was conducted as a pilot study with a different sample. Of the other four experiments using manipulation checks in-sample, two (50%) conducted them before and two after the dependent variable. In conclusion, in servant

Table 6.1
Systematic Review of Studies using Servant Leadership as Explanatory Variable

	Servant leadership as			Possible endogeneity due to omitted variables	Causal interpretation (implicit or explicit)	Acknowledgement that results cannot be interpreted causally [a]	Instrumental variable estimation	Questionnaire [b]		Experiment
	Simple independent variable	Mediator	Moderator					Employee perceptions	Leader perceptions	
Yes	35	7	10	41	46	34	0	38	3	5
No	11	39	36	5	0	7	46	3	38	41
Yes (%)	76.1	15.2	21.7	89.1	100	82.9	0	92.7	7.3	10.9

Note. $N = 46$ included studies.
[a] Refers only to the 41 studies with possible endogeneity due to omitted variables. [b] Refers only to the 41 studies using questionnaires to measure servant leadership. [c] Refers only to the five experiments manipulating servant leadership. [d] Refers only to the five laboratory experiments. [e] Refers only to the five experiments with counterfactual group(s). [f] Refers only to the five experiments with manipulation check. [g] Refers only to the four experiments with a manipulation check done in-sample. Two of the four experiments (both in the article by J. Hu et al., 2020) did not indicate if the manipulation check was conducted before or after the dependent variables; thus, we contacted the authors and added the information based thereon.

Table 6.1 *(continued)*

	Experiments [c]											
	Field experiment	Lab experiment	Vignette	Manipulation as aggregate construct	Consequential outcome [d]	Counter-factual group	Counterfactual group [e]			Manipulation check	Manipulation check [f]	
							Opposite	Different leadership style	Neutral		Out of sample	Before dependent variable [g]
Yes	0	5	5	5	0	5	5	0	0	5	1	2
No	5	0	0	0	5	0	0	5	5	0	4	2
Yes (%)	0	100	100	100	0	100	100	0	0	100	20	50

leadership research, the problems of potential endogeneity and issues in experimental design are still not adequately addressed.

Systematic Review of Authentic Leadership as an Explanatory Variable

Additionally, we reviewed research on authentic leadership as an explanatory variable, again focusing on methodological aspects. Research on authentic leadership has been reviewed up to 2010 (Gardner et al., 2011), yielding 25 empirical publications, including 16 quantitative studies. All but one of these quantitative studies used survey methods, whereas the remaining one used interviews[2] to derive leadership scores. Because no causal conclusions could be drawn from the studies covered in this earlier review, we reviewed research that went beyond (starting from 2011) to determine the current status of the literature.

Sample and Coding

We used the same search string and coding scheme as for the review of servant leadership, except for the leadership construct (i.e., authentic leader*) and the search date (starting from 2011; date of search: April 14, 2022), yielding 74 articles (Appendix B depicts the relevant journals). Two had been retracted by the respective journals due to methodological shortcomings and were thus directly excluded from the review. As in the systematic review of servant leadership, the first author and the graduate research assistant independently coded the articles. First, they excluded all articles that did not contain any primary study, used a different concept (e.g., leader humility or shared authentic leadership), or did not investigate authentic leadership as an explanatory variable. Each coder excluded two studies the other coder included; the discussion showed that these studies were also relevant, so they were kept. A total of 42 articles (containing 47 studies) were included in our analyses (see Supplemental Material S1 for the PRISMA flow diagram). The interrater

[2] The researchers transcribed the interviews and assigned scores to them for their quantitative analyses.

agreement for the 1081 coding events (47 studies, 23 categories) was “almost perfect”, with Cohen’s κ = .88 (p = .000; Landis & Koch, 1977).

Results

The results of the review are shown in Table 6.2. They closely mirrored those of our servant leadership review, showing that most of the studies (42 of the included 47; 89.4%) investigated authentic leadership as a simple independent variable, followed by using it as a mediator (five studies; 10.6%) and as a moderator (five studies; 10.6%). Of the 47 studies, three (6.4%) included authentic leadership as both a simple independent and a mediating variable and two (4.3%) as a simple independent and a moderating variable. In most studies (40; 85.1%), authentic leadership was measured via questionnaires rather than being experimentally manipulated, whereby 34 studies (85%) used followers’ perceptions and six studies (15%) leaders’ self-perceptions of authentic leadership. All researchers interpreted their results causally, and all non-experimental studies were threatened by endogeneity, but none used instrumental variable estimation. However, the majority (34 studies; 85%) acknowledged that the estimate of authentic leadership could not be interpreted causally. In six of the seven experimental studies examining authentic leadership *behavior* (85.7%), non-consequential lab experiments using vignettes were conducted. Most of the studies used similar vignettes based on Cianci et al. (2014), describing the leaders’ intentions and behaviors (cf. T. Fischer & Sitkin, 2023). The seventh was a field experiment that used authentic leadership training in a small pilot study (Malloy & Kavussanu, 2021). All but one experiment (85.7%) manipulated authentic leadership as an aggregate construct. Counterfactual groups were included in all experiments; five (71.4%) studies used vignettes describing the opposite of authentic leadership, five (71.4%) had some kind of a neutral group (however, implemented as no information about the leadership style in the lab experiments or no training in the case of the field experiment, possibly causing asymmetric demand effects

Table 6.2
Systematic Review of Studies Using Authentic Leadership as Explanatory Variable

	Authentic leadership as			Possible endogeneity due to omitted variables	Causal interpretation (implicit or explicit)	Acknowledgement that results cannot be interpreted causally [a]	Instrumental variable estimation	Questionnaire [b]		Experiment
	Simple independent variable	Mediator	Moderator					Employee perceptions	Leader perceptions	
Yes	42	5	5	40	47	34	0	34	6	7
No	5	42	42	7	0	6	47	6	34	40
Yes (%)	89.4	10.6	10.6	85.1	100	85.0	0	85.0	15.0	14.9

Note. $N = 47$ included studies.
[a] Refers only to the 40 studies with possible endogeneity due to omitted variables. [b] Refers only to the 40 studies using questionnaires to measure authentic leadership. [c] Refers only to the seven experiments manipulating authentic leadership. [d] Refers only to the six laboratory experiments. [e] Refers only to the seven experiments with counterfactual group(s). [f] Refers only to the seven experiments with manipulation check. [g] Refers only to the six experiments with a manipulation check done out-of-sample.

Table 6.2 *(continued)*

	Experiments [c]											
	Field experiment	Lab experiment	Vignette	Manipulation as aggregate construct	Consequential outcome [d]	Counter-factual group	Counterfactual group [e]			Manipulation check	Manipulation check [f]	
							Opposite	Different leadership style	Neutral		Out of sample	Before dependent variable [g]
Yes	1	6	6	6	0	7	5	2	5	7	1	2
No	6	1	1	1	6	0	2	5	2	0	6	4
Yes (%)	14.3	85.7	85.7	85.7	0	100	71.4	28.6	71.4	100	14.3	33.3

compared to the authentic leadership condition), and only two (also) used a different positive leadership style as benchmark (28.6%). Likewise, all experiments included manipulation checks. The majority was conducted in-sample (85.7%), mostly after the dependent variable (four of the six studies; 66.7%). Only one manipulation check (14.3%) was conducted out-of-sample as an expert rating. The field experiment (Malloy & Kavussanu, 2021) seemed to be the most rigorous study; however, no causal conclusion could be derived from this study either due to, among other reasons, the small sample size (N = 18 sports coaches) and potential demand effects (i.e., in the first questionnaire before the training, coaches and athletes were asked about their authentic leadership perceptions; prior to the first survey, coaches were informed that there would be an intervention group and a control group without any intervention).

In summary, based on the existing literature and our systematic literature reviews, we cannot conclude that servant or authentic leadership positively affect performance or any other outcome (neither do we have evidence for a null or negative effect—we just do not yet have any conclusive evidence based on prior study designs).

Recommendations for the Causal Examination of the Effects of Servant Leadership (Perceptions)

Considering the lack of causally identified studies, we suggest two approaches that servant leadership researchers can use to truly explore the effects of servant leadership as well as of follower perceptions thereof: (1) carefully designed randomized experiments and (2) instrumental variable estimation.

Improving Experimental Design

Manipulating servant leadership in a randomized experiment is the best way to estimate its causal effects. When servant leadership behavior is manipulated, it is by design exogenous, and we can observe a counterfactual (i.e., a control group; Antonakis et al., 2010,

2014). However, several aspects should be considered when planning and conducting experiments to be able to draw valid conclusions.

Reducing the Salience of the Experimental Manipulation

Experiments should be as realistic as possible, ideally even implemented as field experiments (Antonakis, 2017; see Antonakis et al., 2022 as well as Fest et al., 2021 as examples of how other leadership styles can be manipulated in the field). To enhance realism and reduce demand effects by potentially making the study purpose apparent, experimental manipulations could be done via video materials, actors, or virtual reality (Antonakis, 2017; Lonati et al., 2018; N. P. Podsakoff et al., 2013). One way of implementation is that an actor explains (the purpose of) the subsequent task, showing aspects of servant leadership or neutral behavior according to the experimental condition. Such a design makes the manipulation more subtle and the situation feel more natural to participants, reducing the risk of revealing the hypotheses.

Consequential Outcomes

When researchers intend to measure participants' behavior and choices as outcomes (as opposed to, for example, emotions, perceptions, or beliefs), they should connect them to real consequences to reduce demand and social desirability effects (Lonati et al., 2018), reduce careless responding (Arthur et al., 2021), and improve the ecological validity of the findings (Antonakis, 2017). Behaviors become costly to participants when the behavior that would be consistent with demands and social desirability is not the one that the participants prefer, as when participants can only increase their own profit if they behave differently than they think is expected of them (Lonati et al., 2018). Consequential outcomes can be implemented, for example, by linking participants' performance or decisions directly to monetary incentives. Such incentives can motivate, promote attention, and contribute to clarifying the decision situation in the experiment (Antonakis, 2017; Hertwig & Ortmann,

2001). Providing an excellent opportunity for consequential outcomes, field experiments are again ideally suited here (e.g., because individuals have to fulfill their work tasks, related choices are naturally consequential; Lonati et al., 2018). The incentives do not need to be financial—other extrinsic motivators, intrinsic motivators, social structures, or psychological rewards can bring about consequences that are adequate for the research question and the experimental task (Cerasoli et al., 2014; Lonati et al., 2018). As consequential tasks, researchers have used, for example, an incentivized lottery task to measure risk-taking (Khademi et al., 2021) or stuffing envelopes for a fundraising campaign to measure performance in a field experiment (Antonakis et al., 2022).

Appropriate Counterfactual Groups

Importantly, to observe a fair counterfactual, the control group should represent a baseline of the manipulated construct (or different degrees of the treatment) and be completely equal to the treatment group with regard to any demand effects (Lonati et al., 2018). Optimally, the control group is neutral (not the opposite of servant leadership!), differing only in servant leadership behavior but not in other aspects of the manipulation (e.g., in how motivating the conditions are; see Meslec et al., 2020 for an example of a neutral speech as the control group in an investigation of the effects of charismatic leadership). Care should be taken in this way to prevent comparisons that mix treatment and asymmetric demand effects (Lonati et al., 2018).

Out-of-Sample Manipulation Checks

To avoid potential problems of in-sample manipulation checks, such as demand effects or effects that have already faded, researchers should, whenever possible, use separate pilot tests to check whether their manipulation of servant leadership works (Ejelöv & Luke, 2020; Khademi et al., 2021). Importantly, the sample in the pilot tests should be sufficiently large and comparable to that in the following experiment (Ejelöv & Luke, 2020; see also Zizzo,

2010 for further suggestions to reduce demand effects in general). Thus, researchers should already use an employee sample with comparable characteristics in the pilot test if such a sample is also intended for the main experiment (instead of, e.g., collecting student data in the pilot test and employee data in the main experiment). Regarding sample size, a sample size of at least 50 participants per condition is recommended to ensure successful randomization (Lonati et al., 2018; dependent on the specifications of the experiment, the required sample size may be larger to achieve sufficient power).

Examining the Dimensions of Servant Leadership and Their Combinations

In line with previous research (A. Lee, Lyubovnikova, et al., 2020), our systematic review found that researchers examined servant leadership only as an aggregate construct instead of investigating its dimensions. However, examining individual servant leadership dimensions separately or in various combinations would be very informative because doing so would make it possible to determine whether servant leadership hinges on certain dimensions or whether different combinations have differential effects on outcomes (Cianci et al., 2014; A. Lee, Lyubovnikova, et al., 2020). It is important to note that examining single dimensions or combinations of them does, however, not allow us to draw conclusions regarding the effects of the servant leadership construct as a whole but only regarding the impact of the examined dimensions and their combinations. Therefore, both types of investigations, studying servant leadership dimensionally and as an aggregate construct, are necessary to inform servant leadership research.

Instrumental Variable Estimation

In some situations, researchers intend or even have to estimate the causal effect of servant leadership *perceptions* or measured servant leadership *behavior*, either because manipulating a leadership style such as servant leadership is not feasible (e.g., due to legal reasons) or because they are genuinely interested in examining how follower perceptions

affect follower behaviors. Servant leadership perceptions are not directly manipulable (even in experiments) but can only be measured (Sajons, 2020). Yet, if their effect on the outcome is to be estimated correctly, servant leadership (perceptions) would have to be exogenous. Ensuring exogeneity would require the inclusion of all potential third variables (e.g., agreeableness) linked to both servant leadership (perceptions) and the outcome, as described above. Otherwise, the relationship between the two variables could be due to these third variables. The problem is that it is largely impossible to identify and include all potential third variables, so corrective actions are necessary to address potential endogeneity. One promising approach is instrumental variable estimation (Angrist & Pischke, 2009; P. M. Podsakoff et al., 2012), which is "probably the most useful and most-used method to ensure consistency of estimates threatened by endogeneity" (Antonakis et al., 2010, p. 1100). In addition, if causal mediation is to be tested and the mediator is measured, the method is appropriate for correcting for potential endogeneity in the mediator (Sajons, 2020). The idea behind instrumental variable regression is that only the portion of the variance in the potentially endogenous explanatory variable (in our case, servant leadership or perceptions thereof) that is not correlated with the error term of the outcome (i.e., the exogenous part) is used to estimate its effect on the outcome (Kennedy, 2008; Sajons, 2020). To this end, at least one other variable (i.e., an instrument) must be found that predicts variation in servant leadership (perceptions), affects the outcome via no other channel, and is itself not affected by omitted variables impacting servant leadership (perceptions) and the outcome (Sajons, 2020).

Instrumental variable regression is executed in two steps (Angrist & Pischke, 2009): In the first-stage regression, the explanatory variable (i.e., measured servant leadership behavior or perceptions) is regressed on the instrument. In the second-stage regression, the dependent variable (e.g., performance) is regressed on the predicted values of servant leadership (perceptions). In this way, only the exogenous part of the variation in servant leadership

(perceptions) is included in the equation.[3] As needed, control variables can be added by including them in both equations (Angrist & Pischke, 2009; Sajons, 2020). For a valid instrumental variable, three conditions must be fulfilled: relevance, (as if) randomness, and the exclusion restriction (Bastardoz et al., 2023). *Relevance* (or instrument *strength*) implies that the instrument (e.g., a randomly assigned servant leadership manipulation) and the potentially endogenous explanatory variable (e.g., servant leadership perceptions) must be significantly correlated. For this condition to be valid, the *F*-statistic of the instrument (or, if a set of instruments is used, their joint *F*-statistic) must exceed a specific critical value by J. H. Stock and Yogo (2005; Bastardoz et al., 2023).

To meet the *(as if) random* condition, the instrument must not correlate with omitted variables that influence servant leadership (perceptions) and the outcome (and thus the outcome equation's error term; Wooldridge, 2010). This prerequisite cannot be tested because the error term of the outcome equation is unknown; therefore, researchers must provide a convincing theoretical explanation of why the selected instrument should fulfill this condition (Bastardoz et al., 2023). Consequently, measured instrumental variables should be used very cautiously, whereas experimentally manipulated and randomly assigned instruments (e.g., randomly assigned servant leadership training) have the advantage that this condition should be met per definition (Sajons, 2020).

The third condition is the *exclusion restriction*: When the explanatory variable is regressed on the instrument, the instrument is not allowed to influence the outcome other than through the instrumented explanatory variable (Angrist & Pischke, 2009; Sajons, 2020). Suppose that researchers intend to investigate the effect of servant leadership perceptions on performance. The instrument is only permitted to affect performance via servant leadership perceptions and not directly or via different channels (such as justice perceptions or sympathy

[3] Importantly, the two steps should not be done by hand but via statistical software to obtain correct standard errors (Angrist & Pischke, 2009).

towards the leader). If the model is overidentified (i.e., there are more instruments than endogenous instrumented variables) and a theoretically robust justification can be provided that at least one of the instruments meets the (as if) random and exclusion restriction conditions, the exclusion restriction can be tested empirically via an overidentification test (e.g., the Hansen-Sargan test; Hansen, 1982; Sajons, 2020; Sargan, 1958). If none of the instruments meets the (as if) random condition and the exclusion restriction, a violation of the exclusion restriction cannot be reliably detected. Thus, researchers should always additionally make a strong logical or theoretical case for why the chosen instruments are expected to meet the exclusion restriction (Antonakis et al., 2010; Bastardoz et al., 2023; Kennedy, 2008; Wulff et al., 2023). If the exclusion restriction is not fulfilled, but the instrument is exogenous, the reduced-form regression from the outcome on the instrument can still be estimated (Sajons, 2020). The reduced form can also be interesting if, for instance, the effect of a servant leadership intervention is examined. Although the mechanism may not be known, knowing the effect of such an intervention can still meaningfully inform practice. Yet, to estimate the effect of potentially endogenous measured servant leadership (perceptions), it is crucial that all three conditions for a valid instrument are satisfied; otherwise, the estimates may be even more biased than the estimates of a conventional regression (Bastardoz et al., 2023).

It can be very challenging to find instruments that are strongly associated with the potentially endogenous predictor, for example, servant leadership perceptions or measured servant leadership behavior, but not with the equation's error term (P. M. Podsakoff et al., 2012). Sajons (2020) proposed using an experimentally randomized instrumental variable approach, which means that a randomly assigned manipulation is used as an instrument (e.g., exposing participants to a servant vs. a neutral leader or conducting a randomly assigned servant leadership training). The rationale is that the manipulation is exogenous via randomization and can be designed so that it strongly affects the measured explanatory

variable but should conceptually not have any other direct or indirect effect on the outcome variable, thus fulfilling the three described conditions of (as if) randomness, strength, and the exclusion restriction. Additionally, this method can be applied in field and laboratory experiments.

Experiment

To demonstrate empirically how our recommendations can be implemented, we conducted a randomized online experiment investigating the impact of a combination of two servant leadership dimensions (i.e., stewardship and authenticity) on individual task performance. We designed our experiment so that we were able to investigate two key hypotheses. The first hypothesis concerns the manipulated dimensions of servant leadership *behavior* and their effects on cognitive performance.

> *Hypothesis 1.* Individuals exposed to a speech containing the combined stewardship and authenticity manipulation will show higher performance than those exposed to a neutral speech.

Second, we studied the effect of followers' combined stewardship and authenticity *perceptions* on performance. From a theoretical standpoint, again, note that follower perceptions could either be a hypothesized mediator between leader behavior and follower outcomes or serve as an own explanatory variable of interest.

> *Hypothesis 2.* Individuals who perceive their leader to be higher on combined stewardship and authenticity will show higher performance.

In this section, we briefly describe the implementation of our recommendations regarding causal research in our study. First, to manipulate leadership behavior, we avoided using vignettes but instead manipulated the subdimensions of servant leadership via videos with a combined stewardship and authenticity speech or a neutral speech, allowing us to increase realism and reduce potential demand effects by keeping the manipulation less salient.

Second, to further reduce the chance that participants could guess the study purpose, we performed the manipulation check separately in a pre-study, using a reasonably large sample with the same characteristics as in the main study. Additionally, in the main experiment, we asked the participants about their leadership perceptions *after* the performance task. By placing the questionnaire after the outcome, we ensured obfuscation of the research question and again mitigated the risk of demand effects (Ejelöv & Luke, 2020; Neider & Schriesheim, 2011). Third, to increase the validity of our findings and further decrease the risk of demand and social desirability effects, we used a consequential outcome: With a cognitive performance task (i.e., decoding letters; Meslec et al., 2020) as a behavioral measure of followers' performance, we captured real behavior instead of only intentions and motivated participants with a real outcome (i.e., donations to a charity organization) depending on their performance. Furthermore, we show how a combination of two servant leadership dimensions can be investigated to initiate the process of shedding more light on which dimensions or combinations of dimensions are essential to the effects of servant leadership. To this end, we focused on two defining aspects of servant leadership: stewardship and authenticity (van Dierendonck & Nuijten, 2011), which can be manipulated cleanly within a video speech owing to their non-interactivity. Finally, because *perceptions* of these leader behaviors are potentially endogenous, we generated an experimentally randomized instrumental variable (ERIV; Sajons, 2020) and employed instrumental variable regression.

Before performing the main experiment, we first conducted a pre-study and an objective discriminant manipulation check to test our newly developed material. Creating our own study material was necessary because we did not find any existing manipulations of servant leadership or the two dimensions besides written vignettes that described leaders from a third-person point of view. For the objective discriminant manipulation check, the speeches were coded regarding charismatic leadership tactics (Antonakis et al., 2011) to confirm that

we did not also manipulate the competing construct of charismatic leadership.[4] In the pre-study, we examined how participants perceived the leadership manipulation and probed the strength of our manipulation as a potential instrumental variable, given that this study is the first to use an instrumental variable approach in the context of servant leadership. Furthermore, we used the pre-study to derive estimates for our power analysis to determine the appropriate sample size for the main experiment. Finally, we investigated whether our leadership manipulation also influenced *perceptions* of charismatic leadership as a subjective discriminant manipulation check. Investigating not only the construct of interest but also competing constructs (in our case, charismatic leadership) that could potentially be manipulated at the same time is a recommended practice to assess construct confounding (Ejelöv & Luke, 2020). This discriminant manipulation check was also important with regard to our manipulation as an instrumental variable: Given that the exclusion restriction is not empirically testable for a single instrument (Sajons, 2020), a non-significant effect of our manipulation on the competing construct of charismatic leadership would strengthen our argument that the instrument does not affect performance via other channels, and the exclusion restriction is thus more likely to be satisfied.

In the following, we start by describing the experimental setup and measures for the pre-study and the main experiment at a time. Subsequently, we present the objective discriminant manipulation check and then separately discuss the empirical results of the pre-study and the main experiment.

Experimental Setting and Procedure

In both the pre-study and the main experiment, we first obtained participants' consent and elicited their age and gender to obtain representative quotas. Participants were then

[4] Conducting an objective pretest of our manipulation regarding stewardship and authenticity would have also been desirable. However, that was not possible because no objectively codable behavioral manipulation has been suggested so far for servant leadership (and thus neither for the two manipulated dimensions).

introduced to their task (i.e., decrypting letters) in writing. Following calls to design realistic experiments (Antonakis, 2017), we did not embed the experimental task in a fictitious story. Instead, we informed participants that they were participating in a scientific study and that we would make a real donation of 0.03 British pounds (GBP) for each correctly solved task to World Vision, a non-profit relief, development, and advocacy organization. We were truthful to the participants and did not use any deception in the pre-study or the main experiment (Antonakis, 2017; Ortmann & Hertwig, 2001).

After the basic instructions, we exposed the participants to one of two videos (i.e., combined authenticity and stewardship speech vs. neutral speech). In the main experiment, they subsequently started working on the real-effort task for 15 min. As a quality check, we then asked participants whether they had been able to listen to the sound of the video and had them answer questions about their authenticity and stewardship perceptions (of the speaker in the video), their charismatic leadership perceptions (including an attention check item), and their agreeableness (as a potentially important control variable). We placed all items after the task to avoid any cues possibly revealing the purpose of the study. In the pre-study, the sequence was reversed so that participants answered the questionnaires before working on the task for 7 min. By reversing the order, we ensured that participants could not adapt their leadership perceptions (which were of main interest in this pre-study) to be consistent with their task performance and that the effect of the manipulation had not already faded by the time they answered the questionnaires. Finally, we included two comprehension check items and collected data on participants' level of education. We included the comprehension checks after the manipulation to ensure that the participants watched the respective video instead of simultaneously doing something else or using a bot to complete the survey. The question of whether they could hear the video's sound could only be asked after the video, and the attention check item had to be placed reasonably between the questionnaire items (and thus

after the manipulation). Although that may have been ideal, we abstained from quality checks before the manipulation using, for instance, another video unrelated to the manipulation (cf. Varaine, 2023) to avoid overburdening the participants, given that the study was already relatively time-consuming compared to other online studies.

Leadership Manipulation

Participants were randomly assigned to one of two video speeches (i.e., the combined authenticity and stewardship condition or neutral condition) of equivalent length (491 and 480 words, respectively) delivered by a professional actor. Videos have already been used in several studies on transformational, charismatic, and transactional leadership to investigate the effects of leadership manipulations on participants' performance in individual tasks (e.g., Antonakis et al., 2022; Bono & Judge, 2003; Lyons & Schneider, 2009; Naidoo, 2016). We created the combined stewardship and authenticity speech based on the conceptualization by van Dierendonck and Nuijten (2011). In Appendix C, we indicate which parts of the combined stewardship and authenticity speech reflect the aspects of each of the two dimensions.[5] To ensure that the leader in our manipulation displayed believable emotions, we employed a professional actor, as recommended (Ladkin & Taylor, 2010).

The neutral speech builds on the standard speech used in a study on the effects of charismatic leadership (Meslec et al., 2020; based on Antonakis et al., 2022). In addition to adjusting it to fit the other charity, we adapted the speech in the following ways to establish a clearer distinction between this neutral condition and the two servant leadership dimensions: We removed the references to the importance of helping children because this resembles the stakeholder focus and the "strong sense of obligation for the common good" (Pircher

[5] The number of occurrences for the two categories is not exactly the same (authenticity: 5 occurrences, stewardship: 9). This difference is due to the fact that authenticity is not only expressed in the text but also in facial expression and gestures. Too many emotional expressions may at some point appear factitious and lead to an opposite effect regarding authenticity perceptions. Additionally, an earlier pretest showed that fewer occurrences were needed to manipulate authenticity than stewardship.

Verdorfer & Peus, 2014, p. 3) of stewardship. Moreover, we framed the description of the charity as less visionary and more abstract to avoid confounding with stewardship, which includes a long-term vision (van Dierendonck & Nuijten, 2011). For this purpose, we described the charity organization's fields of activity more factually in both speeches. Additionally, we ensured that both speeches were motivating (see Table 6.3 for the complete speeches).

The participants in our study were not only students but individuals of different ages (ranging from 18 to 64 years) and with different levels of education. The participants were similar to followers in the leadership literature because they temporarily adopted the leader's goals (Bastardoz & van Vugt, 2019), could actively shape their leadership perceptions (Shondrick & Lord, 2010), and our leadership manipulation could evoke attributes, behaviors, and processes concerning leadership behavior (Uhl-Bien et al., 2014).

Performance Task

To measure performance, we used the task by Meslec et al. (2020), where participants were asked to decrypt codes into meaningful English phrases. The decoding task requires concentration and effort (Meslec et al., 2020): To accomplish the task, individuals must analyze the encoded chunks, select the appropriate coding scheme, and decode letter by letter. We simplified the task to adapt it to the online setup and ensure a comparable difficulty of the codes. Participants were successively presented with 24 lines of code (in a randomized sequence) and different coding schemes. They first had to carefully examine the coding schemes and choose the appropriate one before decoding. To decrypt one line of code, up to three coding schemes could be necessary. For every correctly decrypted letter within the time limit, we donated 0.03 GBP to World Vision. It was not allowed to skip a code. Two of the original five coding schemes (i.e., original Schemes 2 and 4) were not appropriate for the online version of the task because participants could not take notes in the schemes, and the

Table 6.3
Leadership Speeches

Combined authenticity and stewardship	Neutral
Hi, my name is Kate, and I'm working with the research team that conducts this study. **I'm pleased that you are taking part in** our study project! In the next three minutes, my job is to inform you about the importance of your task.	Hi, my name is Kate, and I'm working with the research team that conducts this study. **Welcome to** our study project! In the next three minutes, my job is to inform you about the importance of your task **and how it is to be achieved.**
You already know your task: You are here to correctly decode as many letters as possible as quickly as possible. In this way, we will **not only** be able to contribute to current research **and thereby promote the well-being of the general public, but—and this is something that particularly excites me—we will also be able to do something good for people in need. I realize that you and I, as individuals, can't save the world. But we can still fulfil our social responsibilities and thus contribute to making the world a little better.**	**As you know, you are here to take part in a study.** You already know your task: You are here to correctly decode as many letters as possible. **And you are asked to do this as quickly as possible.** In this way, we **will be able to make a** contribut**ion** to **the** current **state of** research**. Are you ready to start? You'll be able to get started in just a moment.**
For every letter that you decode correctly, we will donate 3 pence to the child welfare organization World Vision.	For every letter that you decode correctly, we will donate 3 pence to the child welfare organization World Vision.
We have designed the study so that you**, as a participant, will benefit in two ways: Firstly, by being** rewarded directly by your panel provider **and secondly, by increasing the amount of funds donated to the charity.**	We have designed the study so that you **are, of course, also** rewarded directly by your panel provider **with your participation. The study in which you are participating today is part of a research project in the field of psychology; to be more specific, it** is part of a scientific paper in the field of industrial and organizational psychology.
This study is part of a scientific paper in the field of industrial and organizational psychology. **But we don't only want to increase the number of scientific papers. Rather, our vision is to contribute positively to the world of work in the long term through our research findings and to make a lasting positive difference to people in need. Therefore, we have linked your study participation to the donations.**	
It saddens me to see how many children have to suffer from poverty or the consequences of violence and war. Thus, as already mentioned, the donations will benefit World Vision. The focus of this child welfare organization is to help the most vulnerable	As already mentioned, the donations will benefit World Vision. **I would like to give you a brief insight into the charity.** The focus of this child welfare organization is to

children overcome poverty and lead them to living more fulfilling lives. Through targeted capacity building, the organization supports children, families, and their communities in the fight against poverty and injustice.	help the most vulnerable children overcome poverty and lead them to living more fulfilling lives. Through targeted capacity building, the organization supports children, families, and their communities all around the world in the fight against poverty and injustice.
Our small research team could not achieve our vision on its own—which is to carry out research projects needed to contribute positively to the world of work and make a positive difference to people in need. For that, we need your help.	**But for now, let's move on to your task. I would also like to explain the task requirements to you.**
And remember: The more letters you decode, the more money is raised for World Vision. Together, we can truly make a difference when everyone uses their strengths for the welfare of the whole.	**As already mentioned, your task is to correctly decrypt as many letters as possible. You will have a set amount of time to complete your task. Thus, you won't have the time to dawdle–instead, you should work very quickly and with great concentration.**
So please follow the instructions you've received **for this decoding task** very carefully. You have already read some information and will be provided with more details in a moment. Next to the encrypted phrases, we will present different decoding schemes to you.	**During the decoding task,** please follow the instructions you've received**. Make sure that you follow them** very carefully. You have already read some information and will be provided with more details in a moment. Next to the encrypted phrases, we will present different decoding schemes to you.
Look carefully at each of the schemes **and** choose the one that best matches each of the encrypted words, respectively.	**Firstly,** look carefully at each of the schemes. **Second, after familiarizing yourself with the schemes,** choose the one that best matches each of the encrypted words, respectively. **Finally, you are required to write the solution into the corresponding input field; you will find this field below each of the phrases. All right, so that sounds quite simple, doesn't it? Maybe, but it is trickier than you might think. However, I'm confident that you can do it. But we've had enough talking now, that's all I have to say. Let's get started.**
Thank you very much for listening. You can go ahead and start the task right now.	Thank you very much for listening. You can go ahead and start the task right now.
(491 words)	(480 words)

Note. The identical parts are in regular font, the different parts are highlighted in bold.

schemes were too demanding to be applied just on the screen. These schemes would thus not have been suitable for our aim to capture effort rather than intelligence. Therefore, we used only three of the five coding schemes. We changed the codes (which were based on the not-used schemes) according to the schemes used, improved the display of the codes encrypted with Scheme 3 (placing hyphens between groups of letters), and replaced a very complicated word to achieve a difficulty similar to the other codes. One sample code is "Nccrgvgr sbe rkcrevrapr", with the solution "Appetite for experience". The original duration of the task was 30 min (Meslec et al., 2020). Because we simplified the task for online format, we adjusted the duration to 15 minutes, also based on the pre-study.

The Combined Stewardship and Authenticity Manipulation as Instrumental Variable

Instrumental variables must be relevant, (as if) random, and fulfill the exclusion restriction (Bastardoz et al., 2023). Because we manipulated combined stewardship and authenticity through our videos, the leadership manipulation was truly random by design. Regarding the relevance condition, our instrument is a theoretical cause of servant leadership perceptions. Regarding the exclusion restriction, one could make a potential argument for other channels than combined stewardship and authenticity perceptions through which our leadership manipulation may influence the outcome, such as the leader in our manipulation also being perceived as more charismatic. As a check that we did not also manipulate similar but unintended constructs, we conducted an objective discriminant manipulation check investigating whether the number of charismatic leadership tactics was comparable in both speeches. Additionally, we collected data on charismatic leadership *perceptions* in both the pre-study and the main experiment to examine whether there were differences in perceptions of charismatic leadership between the two conditions (stewardship and authenticity vs. neutral). Moreover, to avoid any differences between the groups regarding their

understanding of the performance task, the instructions for the task were also presented in a written format.

Measures

In the following, we present the measures used in the pre-study and the main experiment. Before calculating the reliability estimates, we conducted confirmatory factor analyses (CFA). We used robust standard errors for the main experiment to account for nonnormality.

Combined Stewardship and Authenticity Perceptions

Participants rated four items measuring perceptions of authenticity and three items measuring perceptions of stewardship from the Servant Leadership Scale (van Dierendonck & Nuijten, 2011). We adapted the items to fit the experimental context (i.e., instead of *manager,* we used the name of the actress; instead of *staff,* we used *study participants*; we deleted *often* in the second authenticity item). An example item for authenticity is "Kate is touched by the things she sees happening around her", and for stewardship "Kate emphasizes the societal responsibility of our work". The items were rated on a six-point Likert scale ranging from 1 = *strongly disagree* to 6 = *strongly agree*.

In the pre-study, the bifactor model ($\chi^2 = 14.47$, $df = 7$, $p = .043$) fit the data better than the one-factor model ($\Delta\chi^2 = 51.99$, $df = 7$, $p = .000$) or the model with two correlated factors ($\Delta\chi^2 = 27.88$, $df = 6$, $p = .000$). We acknowledge that the χ^2-value of the model with two correlated factors was still significant, and that the χ^2-difference test might not be trustworthy because the compared models failed their respective χ^2-tests of fit (Yuan & Bentler, 2004). In the main experiment as well, the model with two correlated factors ($\chi^2 = 58.93$, $df = 13$, $p = .000$) showed a better fit than the one-factor model ($\Delta\chi^2 = 29.47$, $df = 1$, $p = .000$). Different from the pre-study, the bifactor model was rejected due to a negative error covariance. Again, the χ^2-value was still significant for the model with two correlated factors and the χ^2-

difference test might not be reliable. Considering the bifactorial or hierarchical structure, we calculated omega-hierarchical as an indicator of reliability (Flora, 2020), $\omega_h = 0.82$ (for the pre-study) and $\omega_h = 0.77$ (for the main experiment).

Charismatic Leadership Perceptions

Perceptions of charismatic leadership were measured as in (Antonakis et al., 2022) using the idealized influence and inspirational motivation subscales of the Multifactor Leadership Questionnaire (MLQ; Bass & Avolio, 1995). The 12 items were rated on a five-point Likert scale from 1 = *not at all* to 5 = *frequently, if not always.* An example item is "Talks optimistically about the future".

Again, we calculated a one-factor, two-factor, and a bifactor model. In the pre-study, the bifactor model was not identified, and the chi-square difference test between the one-factor and two-factor model was not significant ($\Delta\chi^2 = 0.78$, $df = 1$, $p = .376$). Thus, we selected the one-factor model ($\chi^2 = 125.17$, $df = 54$, $p = .000$). Because the modification indices indicated that several item pairs had correlated errors, which is commonly observed in the social sciences (Byrne, 1998; Cole et al., 2007), we followed recommendations to model the residual correlations justified by the research design (Cole et al., 2007). Including the residual correlations between four items focusing strongly on the impression of the rater (e.g., if the leader elicits pride in the rater) resulted in a better model fit ($\chi^2 = 70.75$, $df = 48$, $p = .018$; $\Delta\chi^2 = 54.42$, $df = 6$, $p = .000$), though we acknowledge that the χ^2-value was still significant. For the main experiment, the difference between the one-factor and the two-factor model was again not significant ($\Delta\chi^2 = 0.50$, $df = 1$, $p = .482$), but the bifactor model showed a better fit than the one-factor model ($\Delta\chi^2 = 115.67$, $df = 12$, $p = .000$, with $\chi^2 = 128.50$, $df = 42$, $p = .000$). The χ^2-value was still significant, and because of the misspecifications in the models, the χ^2-difference test might not be trustworthy for both the pre-study and the main

experiment. The reliability was McDonald's $\omega = .91$ for the pre-study and $\omega_h = .93$ for the main experiment.

Agreeableness

To measure agreeableness, participants rated 10 items from the 50-item International Personality Item Pool (IPIP; Goldberg, 1999) on a five-point Likert scale ranging from 1 = *strongly disagree* to 6 = *strongly agree.* An example item is "am interested in people".

In the pre-study, the model fit of the agreeableness scale was somewhat adequate ($\chi^2 = 91.22$, $df = 35$, $p = .000$). According to the modification indices, several item pairs had correlated errors. Thus, we modeled the residual correlations justified by the research design (Cole et al., 2007) by including the residual correlations between the negatively worded items. The model fit improved significantly ($\Delta\chi^2 = 25.99$, $df = 6$, $p = .000$, with $\chi^2 = 65.23$, $df = 29$, $p = .000$); yet, we acknowledge that the χ^2-value was still significant. In the main experiment, the model fit of the agreeableness scale showed a poor fit ($\chi^2 = 240.60$, $df = 35$, $p = .000$). Thus again, we included the residual correlations between the negatively worded items. Consequently, the model fit improved substantially ($\Delta\chi^2 = 95.84$, $df = 6$, $p = .000$, with $\chi^2 = 139.69$, $df = 29$, $p = .000$), though we acknowledge that the χ^2-value is significant. Again, the χ^2-difference test in the pre-study and the main experiment might not be reliable. McDonald's ω for the scale was .87 in the pre-study and .84 in the main experiment. In Appendix D, we provide more information on possible sources of misfit in the CFAs.

Demographic Variables and Quality Check Items

Regarding demographic variables, we asked participants about their age, gender, and education. After watching the video, we asked participants to indicate whether they could hear its sound. We added one instructed response item (cf. Meade & Craig, 2012) to check participants' attention and two comprehension check items regarding the content of the study and the leadership video. The latter two asked for the main purpose of the charity organization

and the amount of money donated per correctly decrypted letter (based on Meslec et al., 2020; see Supplemental Material S2 for the exact questions).

Objective Discriminant Manipulation Check

Following Antonakis et al.'s (2022) procedure, we had two graduate research assistants, who were unaware of the purpose of the study, independently code both speeches sentence by sentence (30 sentences in the servant leadership speech and 36 in the neutral speech) for the presence of charismatic leadership tactics (Antonakis et al., 2011) to show that the speeches did not also manipulate charismatic leadership. The coders coded the speeches in a different order. The agreement between the coders was "substantial" to "almost perfect", with Cohen's $\kappa = .91$ ($p = .000$; combined stewardship and authenticity speech) and .76 ($p = .000$; neutral speech; Landis & Koch, 1977). After individual coding, the coders discussed the differences until agreement (Tables S2.1 and S2.2 in the supplemental material show the final coding). The number of charismatic leadership tactics used proportional to the total number of sentences was 16.7% in the combined stewardship and authenticity speech (i.e., five occurrences over 30 sentences) and 19.4% in the neutral speech (seven occurrences over 36 sentences). As intended, the two-sample test for equality of proportions was not significant ($z = 0.291$, $p = .615$), indicating that the speeches did not manipulate charismatic leadership.

Pre-Study

Sample

In total, we aimed to recruit at least 100 individuals following Lonati et al. (2018), who recommend at least 50 individuals per condition in experimental studies for successful randomization. To obtain results as comparable as possible to the main experiment, we collected data via the same panel provider (i.e., Bilendi) and with the same sample characteristics. For the sample to be as representative as possible, we used quotas to

reproduce the distribution of age and gender in the working-age population in the UK (derived from the latest census). To ensure high data quality, we followed a multiple-hurdle approach with conservative cutoff values (Arthur et al., 2021; P. G. Curran, 2016); to be classified as an attentive responder, every hurdle had to be passed (Goldammer et al., 2020). Thus, participants who could not listen to the sound of the video or failed any of the attention or comprehension checks were automatically excluded during data collection (quality failure). Additionally, speedsters were automatically excluded during data collection. Participants were defined as speedsters if they had an average response time per item below two seconds (Bowling et al., 2023) on the three questionnaire pages measuring authenticity and stewardship, charismatic leadership, and agreeableness. In addition to earning donations for the charity organization, participants received the usual compensation from their panel provider.

Our final sample comprised 166 respondents (n = 83 in each of the two groups).[6] Their mean age was 44.38 years (SD = 11.86 with an equal gender distribution). Regarding the level of education, the majority had completed a university program (34.9% undergraduate, 21.1% postgraduate program), 27.1% had completed their A-levels or equivalent, 16.3% had accomplished a General Certificate of Secondary Education (GCSE) or equivalent, and one person (0.6%) had completed primary school. We donated 301.92 GBP to the charity organization, resulting from the sum of the correctly decoded letters of all respondents.

Analyses

Descriptives (i.e., means and standard deviations), correlations between the variables, and the (successful) randomization check are provided in Supplemental Material S2. All

[6] During data collection, 326 individuals were automatically excluded. The exclusion rates were similar between the experimental conditions. Except for a slightly higher exclusion of younger individuals, the results indicated no differences between the included and excluded individuals. We also explored possible differences between the conditions among the excluded participants and found no differences regarding the quality checks or demographic variables. Exclusion analyses are provided in Supplemental Material S2.

analyses were conducted with R. For the OLS regressions, we used robust standard errors employing the HC3 heteroskedasticity-consistent approach (as recommended by Hayes & Cai, 2007).

Subjective Manipulation Check and Instrument Relevance

To test whether our experimental manipulation significantly predicted combined stewardship and authenticity perceptions, we conducted an OLS regression with and without controls (i.e., agreeableness, age, gender, and level of education) to test the robustness of our results (see Table 6.4). The speeches significantly influenced stewardship and authenticity perceptions both with controls (coef. = 0.590, *SE* = 0.134, *p* = .000) and without controls (coef. = 0.530, *SE* = 0.133, *p* = .000). To check the relevance of our instrument (i.e., the leadership manipulation), we used the ivmodel package (Kang et al., 2020) and calculated the first-stage *F*-statistic of the excluded instruments using the 2SLS procedure with the

Table 6.4
Pre-Study: OLS Regression Results Predicting Combined Stewardship and Authenticity Perceptions

Variable	OLS 1			OLS 2		
	Coef.	*SE*	*p*	Coef.	*SE*	*p*
Stewardship & authenticity manipulation [a]	0.530***	0.133	.000	0.590***	0.134	.000
Agreeableness				0.192*	0.076	.012
Female [b]				0.134	0.139	.338
Age				−0.000	0.006	.962
Level of education (dummy variables) [c]						
A-levels or equivalent				0.031	0.212	.884
University undergraduate program				−0.297	0.217	.173
University postgraduate program				−0.183	0.212	.389
Constant	4.248***	0.102	.000	3.391***	0.533	.000

Note. $N = 166$. The estimates are unstandardized. OLS 1: $R^2 = .090$; adjusted $R^2 = .084$. OLS 2: $R^2 = .153$; adjusted $R^2 = .116$.
[a] 0 = neutral condition, 1 = combined stewardship and authenticity condition. [b] 0 = male, 1 = female.
[c] Primary school and GCSEs or equivalent were bundled (because there was only a single observation in the primary school category) and used as the reference category for dummy coding.
* $p < .05$. *** $p < .001$.

leadership manipulation as the instrument and combined stewardship and authenticity perceptions as the endogenous variable (i.e., the Wald test). For the model without control variables, the *F*-value was significant, $F(1, 164) = 16.15$ ($p = .000$), and well above the critical value of 8.96 (allowing for a 15% bias) and close to the strictest critical value of 16.38 (allowing for a 10% bias) by J. H. Stock and Yogo (2005), indicating the relevance of our instrument. Including the control variables showed an even stronger relevance of our instrument, $F(1, 158) = 20.19$ ($p = .000$), exceeding even the strictest critical value of 16.38 by J. H. Stock and Yogo (2005). Overall, we thus argue that our manipulation should be an appropriate instrument.

Subjective Discriminant Manipulation Check

We also regressed *charismatic* leadership perceptions on our manipulation (see Table 6.5) to obtain further support for the exclusion restriction. We found that only agreeableness was a significant predictor of charismatic leadership perceptions (coef. = 0.234, $SE = 0.075$, $p = .002$). Thus, whereas the speeches successfully manipulated combined stewardship and authenticity perceptions, they did not affect the discriminant construct of charismatic leadership perceptions (coef. = 0.181, $SE = 0.121$, $p = .137$). The difference between the regression coefficients of charismatic leadership perceptions and combined stewardship and authenticity perceptions on the manipulation was also statistically significant (Δcoef. = 0.409, $SE = 0.101$, $z = 4.035$, $p = .000$). A robustness check, including charismatic leadership perceptions as an additional control variable when predicting stewardship and authenticity perceptions showed that the manipulation still had a significant effect (coef. = 0.450, $SE = 0.100$, $p = .000$) and further supported our argument regarding the exclusion restriction.

Sample Size Calculation

To calculate the appropriate sample size, we used the IVsize function and conducted it for the 2SLS approach with and without control variables, a power of .90, and assuming a true

effect of half a standard deviation (coef. = 17.31). The resulting minimal sample size was $N = 589$ (without controls; with controls, the required sample size was smaller: $N = 465$). To further strengthen our experiment regarding power, we extended the time to work on the decoding task from 7 to 15 min to increase variance in the outcome.

Table 6.5
Pre-Study: OLS Regression Results Predicting Charismatic Leadership Perceptions

Variable	OLS 1			OLS 2		
	Coef.	*SE*	*p*	Coef.	*SE*	*p*
Stewardship & authenticity manipulation [a]	0.121	0.119	.311	0.181	0.121	.137
Agreeableness				0.234**	0.075	.002
Female [b]				0.069	0.123	.576
Age				−0.007	0.005	.179
Level of education (dummy variables) [c]						
A-levels or equivalent				0.094	0.190	.623
University undergraduate program				−0.106	0.199	.595
University postgraduate program				−0.003	0.183	.989
Constant	3.693***	0.085	.000	2.848***	0.490	.000

Note. $N = 166$. The estimates are unstandardized. OLS 1: $R^2 = .006$; adjusted $R^2 = .000$. OLS 2: $R^2 = .099$; adjusted $R^2 = .059$.
[a] 0 = neutral condition, 1 = combined stewardship and authenticity condition. [b] 0 = male, 1 = female.
[c] Primary school and GCSEs or equivalent were bundled (because there was only a single observation in the primary school category) and used as the reference category for dummy coding.
** $p < .01$. *** $p < .001$.

Main Experiment

Sample

Our final sample consisted of 595 participants (295 individuals in the combined stewardship and authenticity condition and 300 in the neutral condition) again via Bilendi with a UK sample and applying the same quality criteria. Individuals who could not listen to the video's audio or answered the attention check item incorrectly were again directly excluded as quality fails. In contrast to the pre-study, however, individuals who answered one or both comprehension checks incorrectly or had a too-short response time remained in the

study and were excluded by the authors only after data collection (i.e., before the analyses) owing to the requirements of the panel provider. Of the initial total sample of 1813 participants, 175 could not hear the sound of the video, 310 failed on the attention check item, 306 answered the question on the purpose of the organization incorrectly, 630 indicated an incorrect amount regarding the donation per letter, and 35 were flagged as speedsters. Thus, we excluded 1218 participants.[7]

In the final sample, the mean age was 48.12 years (*SD* = 11.70); 51.4% were male, 48.1% female, and 0.5% diverse. Regarding level of education, the majority had completed a university program (34.3% undergraduate, 14.5% postgraduate program), 27.7% had completed their A-levels or equivalent, 19.3% had accomplished GCSEs or equivalent, 3.9% had achieved a doctoral degree, and 0.3% had completed primary school. We donated 2321.79 GBP to World Vision for the correctly decoded letters in the performance task (plus 2057.82 GBP for the complete cases excluded after data collection).

Descriptives and Randomization Check

We calculated the means, standard deviations, and correlations of all studied variables (see Table 6.6). The mean performance in the combined stewardship and authenticity condition was 129.10 (*SD* = 71.66) and in the control condition 131.03 (*SD* = 68.67). To check the randomized group assignment, we regressed participants' gender, age, agreeableness, and whether they had a university degree on the manipulation. Because the size of the diverse category in gender included only three participants and was thus too small

[7] We conducted regression analyses to determine whether the experimental treatment, gender, age, or university degree were associated with exclusion. There were no associations between gender (male or female; coef. = 0.003, *SE* = 0.022, *p* = .896) or if participants held a university degree (coef. = –0.032, *SE* = 0.027, *p* = .243) and exclusion, but the exclusion rate was slightly higher in the neutral condition than in the combined stewardship and authenticity condition (coef. = –0.044, *SE* = 0.022, *p* = .049), and younger people were excluded slightly more often (coef. = –0.005, *SE* = 0.001, *p* = .000). We also explored possible differences between the conditions among the excluded participants and found no differences regarding the quality checks and university degree. However, a higher rate of participants in the neutral condition indicated that they could not hear the sound of the video (coef. = 0.065, *SE* = 0.021, *p* = .002), and the conditions differed regarding gender (coef. = 0.060, *SE* = 0.029, *p* = .039) and age (coef. = –1.331, *SE* = 0.677, *p* = .049; see Supplemental Material S2).

Table 6.6

Main Experiment: Means, Standard Deviations, and Correlations Between the Variables

Variable	*Mean*	*SD*	1	2	3	4	5	6	7
1. Stewardship & authenticity manipulation [a]	0.50	0.50							
2. Stewardship & authenticity perceptions	4.53	0.90	.30***						
3. Charismatic leadership perceptions	3.73	0.80	.13***	.75***					
4. Performance	130.07	70.12	−.01	−.06	−.07				
5. Agreeableness	4.67	0.81	.02	.25***	.34***	−.04			
6. Female [b]	0.48	0.50	.05	.03	.09*	.08	.26***		
7. Age	48.12	11.70	−.04	−.01	−.02	−.24***	.06	−.13**	
8. University degree [c]	0.53	0.50	−.03	−.18***	−.19***	.13**	−.02	.01	−.06

Note. N = 592–595. Three participants reported their gender to be diverse; to be able to calculate mean, standard deviation, and correlations concerning gender for this table, the descriptives of and all correlations with Female have a smaller sample size of n = 592 because the three respondents are not included in these values. For clarity, we dichotomized education.

[a] 0 = neutral condition, 1 = combined stewardship and authenticity condition. [b] 0 = male, 1 = female. [c] 0 = primary school, GCSEs or equivalent, or A-levels or equivalent, 1 = university undergraduate program, postgraduate program, or doctoral degree.

** $p < .01$. *** $p < .001$.

for multinomial logistic regression, we excluded this category from the randomization check. Our manipulation did not predict participants' gender (male or female; coef. = 0.054, *SE* = 0.041, *p* = .190), age (coef. = –0.859, *SE* = 0.961, *p* = .372), their agreeableness (coef. = 0.031, *SE* = 0.067, *p* = .642), or whether they had a university degree (coef. = –0.028, *SE* = 0.041, *p* = .491). Thus, we concluded that the randomization was successful. To increase the precision of our estimates, we still included the control variables in our analyses (the results without control variables can be found in Supplemental Material S2; the results were similar with the same implications).

Subjective Discriminant Manipulation Check

Again, we ran a regression of charismatic leadership perceptions on the manipulation of combined stewardship and authenticity (coef. = 0.193, *SE* = 0.062, *p* = .002; see Table 6.7).

Table 6.7
Main Experiment: OLS Regression Results Predicting Charismatic Leadership Perceptions

Variable	Coef.	*SE*	*p*
Stewardship & authenticity manipulation [a]	0.193**	0.062	.002
Agreeableness	0.334***	0.051	.000
Gender (dummy variables) [b]			
Female	−0.014	0.064	.825
Diverse	0.023	0.155	.884
Age	−0.003	0.003	.261
Level of education (dummy variables) [c]			
A-levels or equivalent	−0.015	0.088	.861
University undergraduate program	−0.277**	0.090	.002
University postgraduate program	−0.359**	0.109	.001
Doctoral degree	−0.358*	0.157	.023
Constant	2.397***	0.281	.000

Note. $N = 595$. The estimates are unstandardized. $R^2 = .167$; adjusted $R^2 = .154$.
[a] 0 = neutral condition, 1 = combined stewardship and authenticity condition. [b] Male is the reference category for dummy coding. [c] Primary school and GCSEs or equivalent were bundled (because there were only two observations in the primary school category) and used as the reference category for dummy coding.
* $p < .05$. ** $p < .01$. *** $p < .001$.

For this main study, the manipulation also predicted perceptions of charismatic leadership, albeit the effect was significantly weaker than the effect on combined stewardship and authenticity perceptions (Δcoef. = 0.332, *SE* = 0.049, *z* = 6.839, *p* = .000*;* see Table 6.8 for the regression results predicting combined stewardship and authenticity perceptions). As a robustness check, we also included the perceptions of charismatic leadership as control when predicting combined stewardship and authenticity perceptions and found that the manipulation still significantly predicted the latter (coef. = 0.371, *SE* = 0.049, *p* = .000).

Table 6.8
Main Experiment: OLS Regression Results Predicting Combined Stewardship and Authenticity Perceptions

Variable	Coef.	*SE*	*p*
Stewardship & authenticity manipulation [a]	0.526***	0.069	.000
Agreeableness	0.294***	0.058	.000
Gender (dummy variables) [b]			
Female	−0.099	0.071	.165
Diverse	−0.206	0.180	.253
Age	−0.003	0.003	.380
Level of education (dummy variables) [c]			
A-levels or equivalent	−0.081	0.101	.423
University undergraduate program	−0.313**	0.096	.001
University postgraduate program	−0.439***	0.126	.001
Doctoral degree	−0.455*	0.198	.022
Constant	3.288***	0.330	.000

Note. $N = 595$. The estimates are unstandardized. $R^2 = .187$; adjusted $R^2 = .175$.
[a] 0 = neutral condition, 1 = combined stewardship and authenticity condition. [b] Male is the reference category for dummy coding. [c] Primary school and GCSEs or equivalent were bundled (because there were only two observations in the primary school category) and used as reference category for dummy coding.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Analyses and Results

Hypothesis 1 stated that individuals exposed to the combined stewardship and authenticity manipulation would show higher performance than participants in the neutral

condition, that is, that followers react to leader *behavior* reflecting the two dimensions of servant leadership. The results of the respective OLS regression showed no significant effects of the combined stewardship and authenticity manipulation (coef. = −2.968, *SE* = 5.613, *p* = .597) on performance, thus not supporting Hypothesis 1 (see Table 6.9).

Table 6.9
Main Experiment: OLS Regression Results, Regressing Performance on the Manipulation

Variable	Coef.	*SE*	*p*
Stewardship & authenticity manipulation [a]	−2.968	5. 613	.597
Agreeableness	−3.387	3.843	.379
Gender (dummy variables) [b]			
Female	9.414	5.963	.115
Diverse	43.264	90.575	.633
Age	−1.247***	0.244	.000
Level of education (dummy variables) [c]			
A-levels or equivalent	8.903	7.735	.250
University undergraduate program	20.311**	7.784	.009
University postgraduate program	16.051	10.171	.115
Doctoral degree	46.314**	16.258	.005
Constant	189.066***	20.047	.000

Note. $N = 595$. The estimates are unstandardized. $R^2 = .081$; adjusted $R^2 = .067$.
[a] 0 = neutral condition, 1 = combined stewardship and authenticity condition. [b] Male is the reference category for dummy coding. [c] Primary school and GCSEs or equivalent were bundled (because there were only two observations in the primary school category) and used as the reference category for dummy coding.
** $p < .01$. *** $p < .001$.

Hypothesis 2 predicted that individuals who perceive their leader to be higher on combined stewardship and authenticity would show higher performance, that is, that followers react to their *perceptions* of leader behavior regarding the two dimensions of servant leadership. To examine this hypothesis, we applied 2SLS estimation, following Sajons' (2020) recommendations, using the Applied Econometrics with R (AER) package (Kleiber & Zeileis, 2008; AER is based on the same formulas as ivmodel; Kang et al., 2020).

As described above, our manipulation fulfilled the (as if) randomness condition of the instrument by design (and given that randomization worked) and should also satisfy the exclusion restriction. Instrument relevance was examined in the first-stage regression.

First, we entered our instrumental variable (i.e., the leadership manipulation) and the control variables (i.e., agreeableness, gender, age, and education) in the first-stage regression to predict the perceptions of combined stewardship and authenticity. The estimated effect of the manipulation on combined stewardship and authenticity perceptions was coef. = 0.526, *SE* = 0.068, *p* = .000. With *F*(1, 585) = 60.27, the first-stage *F*-statistic of the excluded instrument exceeded the strictest critical value of 16.38 (allowing for a 10% bias) by J. H. Stock and Yogo (2005), meaning that the relevance condition was fulfilled. We then proceeded with the second-stage regression to test Hypothesis 2 and regressed performance on the instrumented perceptions and control variables. The results did not support Hypothesis 2 (coef. = −5.645, *SE* = 10.505, *p* = .591; see Table 6.10). Including perceptions of charismatic leadership as a further control did not change the results or implications (coef. = −5.705, *SE* = 14.908, *p* = .702 for combined stewardship and authenticity perceptions; coef. = 0.163, *SE* = 12.961, *p* = .990 for charismatic leadership perceptions in the second-stage regression). To examine whether the combined stewardship and authenticity perceptions were endogenous, we compared the coefficient from the instrumental variable estimation to that obtained via OLS regression (coef. = −3.057, *SE* = 3.527, *p* = .386; see Table 6.10 for both the 2SLS and OLS results). The absolute value obtained by instrumental variable regression was substantially larger (1.847) than that estimated by OLS regression. The difference between the effect sizes suggests that the effects estimated by OLS regression could have led to biased results. To test the bias statistically, we performed a Wu-Hausman test for endogeneity (Hausman, 1978; D.-M. Wu, 1973). The endogeneity test was not significant, with *F*(1, 584) = 0.068, *p* = .795, providing no evidence that the combined

stewardship and authenticity perceptions were biased by endogeneity. Importantly, if the results of an endogeneity test are inconclusive, the instruments are relatively strong, and the predictor is theoretically endogenous, the consistent instrumental variable model should be preferred to the more efficient OLS model (Sajons, 2020).

Table 6.10
Main Experiment: OLS and 2SLS Regression Results for Performance, Regressed on Combined Stewardship and Authenticity Perceptions

Variable	Coef.	*SE*	*p*	Coef.	*SE*	*p*
	2SLS (R^2 = .081) [a]			OLS (R^2 = .082, adj. R^2 = .068)		
Stewardship & authenticity perceptions	−5.645	10.505	.591	−3.057	3.527	.386
Agreeableness	−1.726	4.985	.729	−2.495	3.939	.527
Gender (dummy variables) [b]						
Female	8.853	5.906	.134	9.048	5.951	.129
Diverse	42.100	60.212	.485	41.949	90.977	.645
Age	−1.263***	0.239	.000	−1.254***	0.244	.000
Level of education (dummy variables) [c]						
A-levels or equivalent	8.444	7.631	.269	8.723	7.753	.261
University undergraduate program	18.546*	8.446	.028	19.421*	7.869	.014
University postgraduate program	13.573	11.076	.221	14.803	10.322	.152
Doctoral degree	43.745**	16.283	.007	45.063**	16.353	.006
Constant	207.627***	41.393	.000	198.360***	24.233	.000

Note. N = 595. The reported standard errors are robust. 2SLS = Second-stage instrumental variable regression with the manipulation as the instrument and including agreeableness, gender, age, and education as controls. OLS = OLS regression including agreeableness, gender, age, and education as controls.
[a] R^2 for the 2SLS regression was calculated separately as the squared correlation coefficient between the predicted and the true value of performance (Bentler & Raykov, 2000; Sajons, 2020). [b] Male is the reference category for dummy coding. [c] Primary school and GCSEs or equivalent were bundled (because there were only two observations in the primary school category) and used as the reference category for dummy coding.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Discussion

In the present study, we investigated the current state of research regarding causality in the field of servant (and authentic) leadership and provided recommendations on how causally

identified studies on these leader behaviors can be conducted to enable researchers to meaningfully inform science and policy. First, we discussed central problems that can prevent causal inferences from studies on the effects of servant leadership (i.e., endogeneity bias and issues in experimental design). We then summarized the current state of research on servant and authentic leadership as explanatory variables and found that the lack of causal examinations persists. Our reviews indicated that whereas most researchers acknowledged that their empirical results could not be interpreted causally, they did not address this problem empirically. As guidance in this regard, we described two ways in which causal research on the effect of servant leadership (perceptions) could be cleanly conducted: well-designed randomized experiments and, when measured variables are to be used as explanatory variables, an instrumental variable approach. To illustrate our recommendations, we conducted an exemplary experiment using manipulated leader behavior as an instrument for follower perceptions. Our study can serve as a roadmap for researchers to investigate the causal effects of 1) servant leadership or its subdimensions as well as 2) followers' perceptions thereof. In particular, in our randomized lab experiment, we examined the effect of a combined stewardship and authenticity manipulation, as well as the perceptions thereof, on individual task performance. Regarding our hypotheses, we did not find an effect of either combined stewardship and authenticity *behavior* or *perceptions* on performance. One possible reason is that, despite its effectiveness shown in the manipulation check, the manipulation may have been too weak or needed more time to take full effect. However, it is also possible that (perceptions of) the two dimensions of stewardship and authenticity actually have no effect on individual task performance or are only effective jointly with other servant leadership dimensions. Finding no effects for the two dimensions emphasizes the need to conduct causally identified studies also for the whole servant leadership construct to confirm that associations found in prior studies were not just spurious.

The illustrative experiment had several strengths, following our recommendations. First, we did not use vignettes but videos to manipulate leadership behavior, which meant that we did not have to make the manipulated construct or parts thereof (i.e., leader or leadership) explicit. Second, we performed a separate pre-study with a reasonably large sample to test our manipulation and determine the sample size needed for the main study to achieve a high enough power. Third, we conducted the subjective and an objective manipulation check also for a competing construct (charismatic leadership) to provide further evidence that we did not also manipulate this similar construct. Fourth, we administered the questionnaires on leadership perceptions after the outcome. Moreover, we used a consequential behavioral outcome. All these aspects helped reduce potential demand and social desirability effects (e.g., Lonati et al., 2018). Moreover, we followed earlier calls (e.g., A. Lee, Lyubovnikova, et al., 2020) and investigated (a combination of) two servant leadership dimensions. Such an approach can help determine whether the potential effects of servant leadership can be attributed only to individual dimensions or to certain combinations of them or whether all dimensions are relevant to take effect. In addition, to show how the effect of measured variables, such as perceptions of leader behaviors, can be investigated, we applied an instrumental variable approach and used our manipulation as an experimentally randomized instrumental variable. Finally, we ensured high data quality by applying a strict multiple hurdle approach, including three attention and comprehension checks, each of which respondents needed to answer correctly (plus excluding speedsters and participants who were not able to listen to the videos).

Construct Overlap in Questionnaire Measures

Our manipulation significantly affected combined stewardship and authenticity perceptions as intended in both our pre-study and the main experiment. For the competing construct of charismatic leadership, our manipulation did—also as intended—not differ from

the control condition regarding the *objectively codable charismatic leadership tactics*. However, for *perceptions of charismatic leadership*, the results were more complex. Whereas our manipulation did not significantly affect those perceptions in our pre-study, it did in the main experiment based on a larger sample size (and, thus, a larger power). Even though the effects' sizes of the manipulation on the two perception measures still differed significantly in our main experiment, the positive and significant effect of our objectively neutral manipulation regarding charismatic leadership behavior on charismatic leadership perceptions is worrisome, as is the high correlation between the two leadership perception measures (r = .69 and r = .75) in line with previous research (e.g., Eva et al., 2019; Hoch et al., 2018). In part, the high correlations can be attributed to the overlap between the constructs (e.g., both include having a vision), pointing to the problem of construct redundancy in leadership research (Banks et al., 2016, 2018). Additionally, our differential findings for the objective and subjective discriminant manipulation check again highlight that questionnaire measures are not only influenced by leader behavior but may (at least in part) simply capture how likable a leader is (Einola & Alvesson, 2021; Hansbrough et al., 2015). Moreover, such measures can also be affected by other factors like selective attention or inaccuracies in memory (G. Wang et al., 2019). In purely questionnaire-based (non-experimental) research, these issues are likely even exacerbated because individuals have experienced various situations, and it is difficult to access and evaluate the specific information relevant to responding to the questionnaires correctly (T. Fischer et al., 2017; Hansbrough et al., 2015). Ratings of the potential outcomes are likely to be subjected to the same biases, posing a considerable risk of finding spurious effects (Banks et al., 2021). Our findings thus corroborate that the effects of actual servant leadership *behavior* cannot be determined via subjective questionnaires but that researchers should use experiments or, for instance, objective observation to measure servant leadership *behavior*. If researchers intend to study

the effects of servant leadership *perceptions*, the questionnaires must be designed very thoughtfully so that they indeed capture the desired construct (cf. T. Fischer & Sitkin, 2023). Additionally, corrective actions like an experimentally randomized instrumental variable approach are necessary to investigate the causal effects of *measured* servant leadership (whether measured via surveys, observation, or other means).

Challenges in Manipulating Servant Leadership Dimensions

Compared to other leadership styles, such as charismatic (Antonakis et al., 2011) and transformational (G. Stock et al., 2022) leadership, manipulating some aspects of servant and authentic leadership poses special challenges for researchers. For instance, leaders' *true* feelings and motivations (which are part of the authenticity dimension of servant leadership as well as of authentic leadership) cannot easily be manipulated (Alvesson & Einola, 2019). Using a professional actor, as in our study, may alleviate this concern to some extent because skilled actors are more likely to not fake their roles but feel them and behave as if their roles were reality (Ladkin & Taylor, 2010). A further difficulty concerns the interactive elements of servant leadership. Stewardship and authenticity are two defining dimensions we could manipulate via videos due to their non-interactivity. However, as a central part of servant leadership (Eva et al., 2018), the effect of its interactive elements should also be thoroughly investigated, presenting an even greater challenge to researchers. A promising way could be to conduct randomly assigned training affecting (versus not affecting) the intended dimensions and then take the random assignment to the training as an instrument for the subsequently observed leader behavior or follower perceptions thereof (see Antonakis et al., 2011 as an example of how this approach was adopted for charismatic leadership).

Limitations

To investigate combined stewardship and authenticity perceptions, we used only the items for the two corresponding dimensions of the Servant Leadership Scale (van

Dierendonck & Nuijten, 2011). In line with previous research that has already provided evidence for the dimensionality of the servant leadership construct (e.g., Pircher Verdorfer & Peus, 2014; van Dierendonck & Nuijten, 2011), our confirmatory factor analyses indicated that stewardship and authenticity could be treated as two dimensions. Still, it should be kept in mind that the resulting construct may be ambiguous because the measure has not been validated for combining single dimensions as may the overall servant leadership construct due to its multidimensionality (Edwards, 2011). Thus, in future research, the measures of single dimensions and their combinations should be validated.

The significant χ^2-values in our confirmatory factor analyses indicated that the models might not fit the data well. Significant χ^2-values are often observed (e.g., also in the validation study of the Servant Leadership Survey; van Dierendonck & Nuijten, 2011) but could potentially lead to biased estimates (Antonakis, 2017). Additionally, we followed recommendations to compare several theoretically plausible models and select the best-fitting model (R. Fischer & Karl, 2019). However, if the models to be compared are misspecified, the difference test may not be trustworthy (Yuan & Bentler, 2004). Thus, the measures should be improved in future research (Antonakis, 2017).

The high quality fail rate in our experiment is comparable to other online panel studies (e.g., Chandler et al., 2019; see also as an example Webb & Tangney, 2022, for an extremely high quality fail rate) and underscores the importance of detecting careless responders (Arthur et al., 2021; Goldammer et al., 2020). In the previous study from which we adopted the task (Meslec et al., 2020), the researchers asked several questions about the content of the study, including the question of how much money was donated per correctly decrypted letter, and conducted it at a university laboratory (paper and pencil) with a student sample. Almost all participants responding correctly in their study suggests that the question per se was not too difficult (the amount of money to be donated was mentioned several times in the instructions

as well as the videos) but that there might be differences regarding attention between on-site laboratory studies and online panel studies that should be acknowledged. Excluding participants after treatment assignment can potentially lead to differential attrition and thus biased estimates (Aronow et al., 2019; Montgomery et al., 2018). Our analyses of differences regarding the quality checks between the two experimental conditions among the excluded participants showed a slightly higher rate of individuals reporting not having heard the sound of the video in the neutral condition than in the combined stewardship and authenticity condition in the main experiment. This is consistent with the additional finding that the attrition rate was slightly higher in the neutral condition. Although it is unlikely that the leadership manipulation influenced the technical check, we cannot rule out the possibility that the results could be biased. Therefore, researchers should use pretreatment quality checks whenever possible to avoid potential differential attrition (Varaine, 2023).

Future Research

Building on our paper, we have several recommendations for future research that might further advance the field of leadership. First, we encourage researchers to conduct more robust and causally identified studies to investigate the effects of servant (and authentic) leadership to be able to meaningfully inform leadership theory and practice. When the explanatory variable can be manipulated, experiments are a promising approach; when the explanatory variable is measured, instrumental variable estimation can be a viable option, ideally using experimentally randomized instrumental variables (Sajons, 2020). In our illustrative experiment, we tested the effect of a predictor (i.e., combined stewardship and authenticity) on an outcome (i.e., task performance). Such simple research designs allowing for robust causal inferences can be more valuable for science and policy than more complex but not causally identified designs. If researchers want to study more complex models in their experiments, including, for instance, mediating mechanisms, the effects can be tested with an

instrumental variable approach, as noted before (Sajons, 2020). Additionally, we would like to point to an alternative (and like the instrumental variable approach scarcely applied) experimental method allowing to study mediating processes on condition that the mediator cannot only be measured but also manipulated: the experimental-causal-chain design (P. M. Podsakoff & Podsakoff, 2019; Spencer et al., 2005). The underlying idea of this method is that the mediating process is examined in two steps, first investigating the effect of the manipulated predictor on the mediator and then of the manipulated mediator on the outcome. Although it does not allow for a statistical test of the mediation (which is mostly not the primary concern), this method can also be very beneficial for the causal investigation of mediating processes.

Second, in addition to examining servant leadership as a whole, we recommend investigating the single dimensions of servant leadership and their combinations to determine whether certain aspects are especially important for the potential effects of servant leadership (A. Lee, Lyubovnikova, et al., 2020). Our findings indicate that combined stewardship and authenticity or their perceptions do not predict individual performance; thus, it would be interesting to examine the effects of these and the remaining servant leadership dimensions in different combinations. Field experiments are an appropriate method for studying the effects of servant leadership as a whole as well as individual dimensions, including interactive aspects. An intervention study by Antonakis et al. (2011) could serve as an example for future examination of the effects of servant leadership perceptions. Here, the authors used the random assignment to charismatic leadership training as an instrument to estimate the effects of charismatic leadership perceptions on several leadership outcomes.

Third, it would be interesting to explore the effects of combined stewardship and authenticity as well as other servant leadership dimensions on different outcomes. The decoding task used in the experiment is one possibility to investigate how motivated

individuals are to work hard (Meslec et al., 2020), and by simplifying the task, we made it more dependent on effort, especially in an online context, following previous research that found that efficient effort and focus on the appropriate behaviors are necessary to perform well in organizational contexts (van Iddekinge et al., 2023). Nevertheless, the decoding task cannot fully cover organizational performance, and further outcomes could be studied, ideally in field experiments (see, for instance, Antonakis et al., 2022; Fest et al., 2021, as examples of how performance outcomes could be examined in field experiments). Additionally, it would be interesting to focus not only on performance but also on different outcomes, such as follower satisfaction. Furthermore, researchers should vary the context in which they study servant leadership and its dimensions. The performance in our study was tied to donations to a charity organization. Therefore, the neutral condition also emphasized the common good (which is part of stewardship) to some extent. Thus, it would be interesting to examine these effects also in different contexts not tied to social projects. Finally, developing objectively manipulable, codable, and non-overlapping attributes of servant leadership, as has already been done for charismatic leadership (Antonakis et al., 2011) and transformational leadership (G. Stock et al., 2022), would be important also for servant leadership. Clearly distinguishable attributes would allow for a more precise and fine-grained investigation of the effects of servant leadership and its dimensions.

Conclusion

Rigorous and causally identified research is important to meaningfully inform science and practice. However, previous research on the effects of servant and authentic leadership does not provide such robust investigations. Therefore, we call for well-designed experiments and the use of instrumental variable regression to account for the potential endogeneity of measured leader behaviors (e.g., via observation or questionnaires). We hope our roadmap can help researchers address this important challenge and further advance research intended to

draw causal conclusions—not only on servant leadership but also on authentic leadership and other constructs in our field.

Supplementary Material

Supplementary material for this article is available at https://doi.org/10.23668/psycharchives.13030 (see also the *Related PsychArchives Objects* tab on this page).

Author Note

The pre-study and the main experiment were preregistered (prestudy: https://doi.org/10.23668/psycharchives.6680; main experiment: https://doi.org/10.23668/psycharchives.6536). The data collection for the main experiment was funded by PsychLab, a service of the Leibniz Institute for Psychology (ZPID). Permission by World Vision Germany has been obtained for the descriptions in the speeches. The experiment was approved by the local Ethical Review Board (2021-07/35, University of Bamberg).

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Appendix A

Systematic Review of Studies Using Servant Leadership as Explanatory Variable:

Overview of Journals

Journal	Number of resulting articles	
	Included	Total
Journal of Business Research	5	5
Tourism Management	5	5
Journal of Business Ethics	4	11
European Journal of Work and Organizational Psychology	4	5
Journal of Managerial Psychology	4	4
Journal of Management	2	3
Journal of Organizational Behavior	2	3
Journal of Applied Psychology	2	2
Journal of Vocational Behavior	2	2
Career Development International	1	1
Ethics & Behavior	1	1
Group & Organization Management	1	1
Human Resource Development Quarterly	1	1
Human Resource Management	1	1
Personnel Psychology	1	1
Psychology of Sport and Exercise	1	1
Technological Forecasting and Social Change	1	1
Corporate Social Responsibility and Environmental Management	0	2
The Leadership Quarterly	0	2
BMC Medical Ethics	0	1
Journal of Business and Psychology	0	1
Journal of Knowledge Management	0	1
Journal of Occupational and Organizational Psychology	0	1

Note. $N = 56$ articles in total, with 38 articles including one or more relevant studies (see supplemental material for the search query). The journals are first ordered by the number of included articles, then by the total number of found articles, and finally alphabetically.

Appendix B

Systematic Review of Studies Using Authentic Leadership as Explanatory Variable: Overview of Journals

Journal	Number of resulting articles	
	Included	Total
Journal of Business Ethics	14	19
The Leadership Quarterly	6	18
European Journal of Work and Organizational Psychology	4	4
Journal of Management	3	6
Journal of Managerial Psychology	3	4
Journal of Business Research	2	2
Psychology of Sport and Exercise	2	2
Applied Psychology	1	1
Business Ethics Quarterly	1	1
Career Development International	1	1
Journal of Business and Psychology	1	2
Journal of Occupational and Organizational Psychology	1	2
Journal of Organizational Behavior	1	2
Organizational Behavior and Human Decision Processes	1	2
Personnel Psychology	1	1
Academy of Management Annals	0	1
BMC Medical Ethics	0	1
Business Ethics: A European Review	0	1
California Management Review	0	1
Group & Organization Management	0	1
International Journal of Management Reviews	0	1
Nursing Ethics	0	1

Note. $N = 74$ articles in total, with 42 articles including one or more relevant studies (see supplemental material for the search query). The journals are first ordered by the number of included articles, then by the total number of found articles, and finally alphabetically.

Appendix C

Explanation of the Authenticity and Stewardship Manipulation

Sentence	Text	Authenticity	Stewardship
1	Hi, my name is Kate, and I'm working with the research team that conducts this study.		
2	I'm pleased that you are taking part in our study project!	Pleasure: Expressing emotions	
3	In the next three minutes, my job is to inform you about the importance of your task.		
4	You already know your task:		
5	You are here to correctly decode as many letters as possible as quickly as possible.		
6	In this way, we will not only be able to contribute to current research and thereby promote the well-being of the general public, but—and this is something that particularly excites me—we will also be able to do something good for people in need.	Excitement: Expressing emotions	Focusing on the good of the whole
7	I realize that you and I, as individuals, can't save the world.	Admitting limitations	
8	But we can still fulfil our social responsibilities and thus contribute to making the world a little better.		Emphasizing societal responsibility
9	For every letter that you decode correctly, we will donate 3 pence to the child welfare organization World Vision.		
10	We have designed the study so that you, as a participant, will benefit in two ways:		Service instead of self-interest: participants
11	Firstly, by being rewarded directly by your panel provider and secondly, by increasing the amount of funds donated to the charity.		
12	This study is part of a scientific paper in the field of industrial and organizational psychology.		
13	But we don't only want to increase the number of scientific papers.		Service instead of self-interest: Sense of obligation to common good beyond self-interest
14	Rather, our vision is to contribute positively to the world of work in the long term through our research findings and to make a lasting positive difference to people in need.		Long-term vision. This and next sentence: Focusing on the good of the whole; service instead of self-interest: working world, people in need

Sentence	Text	Authenticity	Stewardship
15	Therefore, we have linked your study participation to the donations.		
16	It saddens me to see how many children have to suffer from poverty or the consequences of violence and war.	Sadness: Expressing emotions	
17	Thus, as already mentioned, the donations will benefit World Vision.		
18	The focus of this child welfare organization is to help the most vulnerable children overcome poverty and lead them to living more fulfilling lives.		
19	Through targeted capacity building, the organization supports children, families, and their communities in the fight against poverty and injustice.		
20	Our small research team could not achieve our vision on its own—which is to carry out research projects needed to contribute positively to the world of work and make a positive difference to people in need.	This and next sentence: Admitting limitations	Long-term vision
21	For that, we need your help.		
22	And remember:		
23	The more letters you decode, the more money is raised for World Vision.		Focusing on the good of the whole
24	Together, we can truly make a difference when everyone uses their strengths for the welfare of the whole.		Focusing on the good of the whole
25	So please follow the instructions you've received for this decoding task very carefully.		
26	You have already read some information and will be provided with more details in a moment.		
27	Next to the encrypted phrases, we will present different decoding schemes to you.		
28	Look carefully at each of the schemes and choose the one that best matches each of the encrypted words, respectively.		
29	Thank you very much for listening.		
30	You can go ahead and start the task right now.		
Total occurrences per category		5	9

Note. The manipulation and the explanations are based on the conceptualization by van Dierendonck and Nuijten (2011).

Appendix D

Possible Sources of Misfit in the CFAs

Combined Stewardship and Authenticity Perceptions

According to the modification indices, a cross-loading of SL_AU4 (about revealing true feelings) on the stewardship factor would improve the model. One reason could be that it is not easy to rate whether someone shows *true* feelings, and the participants were thus more likely to interpret the leader's feelings as true if "the importance of focusing on the good of the whole", the "long-term vision", and "the societal responsibility of [the] work" (Items SL_STE1 to SL_STE3) had been successfully conveyed.

Charismatic Leadership Perceptions

Items CL4, CL9, and CL12 had the lowest factor loadings in both the pre-study and the main experiment. Additionally, CL9 and CL12 showed a relatively high positive residual correlation probably because both items include the expression of confidence. CL4 concerns the leader's enthusiasm when talking about tasks. Thus, all three items have in common that they require a subjective interpretation of how these abstract constructs are prototypically conveyed. In contrast, the other items focus on more specific behavioral aspects and feelings toward the leader. In the bifactorial model (main experiment), several items show cross-loadings; for instance, CL9 (concerning power and confidence) on inspirational motivation, which is comprehensible because conveying confidence to reach a goal can also motivate followers. CL9 also shows a relatively high variance compared to the other items, which might be due to the fact that the item includes two different aspects that could be evaluated differently.

Agreeableness

The most noticeable misspecifications are the low factor loadings of Items 8 (insulting people) and 10 (feeling little concern for others). For Item 8, this finding might reflect that

insulting directly and negatively affects other people, unlike the other items, which refer only to one's thoughts and attitudes or can positively impact relationships (taking time out for others or making people feel at ease). Additionally, several item pairs showed correlated errors, especially Items 2 and 5, and 1 and 7. The correlated errors are conceivable, considering the highly similar content of the item pairs: Items 2 and 5 are about feelings or emotions, and Items 1 and 7 are about being interested in others (Item 7 is inverse to Item 1).

CHAPTER VII

GENERAL DISCUSSION

In the following, I briefly summarize the three studies included in this dissertation before discussing their main theoretical and practical implications, as well as their strengths and limitations. Subsequently, I highlight other potential pitfalls of servant leadership research that complement Study 3 and identify several promising avenues for future research.

Summary of Findings

Studies 1 and 2 longitudinally investigated the associations between servant leadership and followers' performance and well-being in a crisis context. Study 1 indicated that servant leadership is positively and indirectly associated with followers' adaptivity and proactivity, as well as with the two mediators (i.e., basic psychological need satisfaction and procedural justice). Additionally, the associations with both performance indicators were mediated by basic need satisfaction, whereas the association with followers' proactivity via procedural justice was negative. Furthermore, there were no direct associations between servant leadership and proactivity or adaptivity and no *in*direct association with adaptivity via procedural justice. Study 2 took a more dynamic perspective of servant leadership and follower well-being in the crisis context. The results showed that perceived servant leadership decreased before slightly increasing again over the first eight months of the COVID-19 crisis. Followers' exhaustion did not change over time. Moreover, servant leadership and exhaustion were found to be both inter- and intraindividually related: First, the higher perceived servant leadership was, the lower was followers' exhaustion. Second, changes in servant leadership and exhaustion were significantly related, in that a higher decrease (increase) in servant leadership was associated with a higher increase (decrease) in exhaustion.

In Study 3, central methodological problems were delineated which impede the causal inferences from studies on servant leadership. Two systematic methodological reviews

demonstrated that previous research on servant and authentic leadership as explanatory variables has not provided rigorous and causally identified studies. To improve this concerning state of research, well-designed experiments as well as the use of instrumental variable regression to address the potential endogeneity of measured servant leadership were recommended and illustrated through a randomized experiment. In this experiment, neither combined stewardship and authenticity *behavior* nor *perceptions* had an effect on followers' performance.

Theoretical Implications

Various theoretical implications have been elucidated in the chapters pertaining to the studies. In the following, I revisit several of these implications and furthermore demonstrate how the studies complement each other in their implications. First, the results regarding crisis context are addressed, before I focus more intensively on methodological aspects.

Servant Leadership in the Crisis Context

Crises can pose significant challenges for individuals and may deplete resources, for instance, through high demands (e.g., severe uncertainty; LeNoble et al., 2023). Given the high probability that leaders and followers will encounter crises in their professional lives (Riggio & Newstead, 2023), it is crucial to investigate how negative effects can be prevented or mitigated. Leadership appears to play a central role in this context (Rudolph et al., 2021). Studies 1 and 2 contribute to expanding the highly limited knowledge regarding effective leadership in crisis contexts (e.g., Bajaba et al., 2021; Collins et al., 2023; Howes et al., 2021), particularly concerning servant leadership (Zada et al., 2022). The studies support the theorizing that servant leadership can be beneficial in such contexts by providing valuable resources that assist employees in successfully and healthily navigating through crises. However, Study 1 also indicates possible adverse associations.

Study 1 provides evidence that servant leadership is positively associated with follower adaptivity and proactivity via basic psychological need satisfaction during crisis. This finding is consistent with previous research that highlights the importance of addressing individual followers' needs even in challenging crisis situations to help them cope with the changes and challenges resulting from such uncertain contexts (Bakker et al., 2023; Burro et al., 2021; Vermote et al., 2022). Especially during the COVID-19 crisis, which conveyed factors such as reduced contact with leaders and colleagues, the sudden transition to remote work, and further regulatory measures, individual basic need satisfaction (i.e., for relatedness, competence, and autonomy) was at risk (Šakan et al., 2020; Vermote et al., 2022). Through their employee focus, servant leaders can provide important resources that address these needs. For instance, they do not utilize their power to impose tasks or decisions upon their followers; rather, they consider it essential to persuade them (van Dierendonck, 2011), which can contribute to autonomy satisfaction. Basic psychological need satisfaction can subsequently lead to intrinsic motivation, which supports proactivity and adaptivity (Gagné et al., 2022).

Besides basic psychological need satisfaction, servant leadership was positively related to followers' procedural justice perceptions in Study 1; however, the relationship between procedural justice and proactivity was negative. This result is unexpected, as previous research, including a recent meta-analysis (A. Lee, Lyubovnikova, et al., 2020) found positive relationships between the constructs. According to this meta-analysis, procedural justice can create conditions (e.g., a psychologically safe climate) for favorable follower behaviors such as proactivity and enhance the likelihood that followers accept leaders' decisions and support the organization. It would therefore be reasonable that proactivity would also be positively associated with procedural justice in Study 1. Nonetheless, a plausible explanation for the contradicting result is that individuals in the

studied crisis context tried to protect their resources (which can be explained by COR theory) and focused on the essentials to maintain school operations. As proactive behavior also requires resources (cf. Fay & Hüttges, 2017), it is therefore probable that high procedural justice resulted in followers simply adopting measures introduced by the leader in a comprehensible and fair manner, rather than additionally becoming proactive themselves. An examination of the scales used to measure procedural justice and proactivity in Study 1 further supports this assertion. The items of the procedural justice scale refer, for instance, to whether one was able to influence the outcomes achieved through a particular procedure. The proactivity items primarily focus on improvements in the execution of core tasks. When individuals perceive they can influence outcomes, the necessity for improvement may diminish, particularly if a high workload constrains capacity for additional efforts. An alternative explanation for the negative association between procedural justice and proactivity could be that individuals perceived their efforts in the crisis context not as proactive, but rather as reactive, as they were required to continually respond to changing circumstances (cf. Howes et al., 2021). Consequently, it would be valuable to conduct qualitative interviews or observational studies to determine how employees assess their own performance in a crisis context.

The insignificant indirect relationship between servant leadership and adaptivity via procedural justice also contradicts previous studies in non-crisis contexts with similar constructs (e.g., commitment to change; Kool & van Dierendonck, 2012). A central characteristic of crises is that they are perceived as significant and urgent (Y. L. Wu et al., 2021), necessitating rapid decision-making. Consequently, followers may have recognized the need to adapt regardless of their procedural justice perceptions during the COVID-19 crisis. Additionally, many decisions were not within the leaders' control (e.g., measures regarding social distancing), rendering procedural justice perceptions irrelevant to adaptivity in these

instances. Furthermore, it is possible that procedural justice is not directly associated with adaptivity, but rather mediated through additional variables, such as organizational identification (Michel et al., 2010). These various explanatory possibilities should be examined more closely in future studies.

Through the inclusion of two different mediators in Study 1, the relationships with adaptivity and proactivity could be examined in a differentiated manner, demonstrating that servant leadership can also exhibit negative associations with desirable constructs (i.e., mediated via procedural justice) in the crisis context. In line with this finding, some initial studies have shown negative associations between servant leadership and follower behavior and experiences under certain circumstances (e.g., Si et al., 2023). Thus, Study 1 underscores the importance of including competing mediators in studies on servant leadership, considering different potential explanations for the associations in different contexts. Based on the resulting differentiated knowledge, the construct or environmental factors can then be adjusted, as necessary, to avoid possible undesired effects.

The results of Study 2 provide evidence for COR theory as an appropriate explanation for the trajectories of servant leadership and followers' exhaustion as well as the relationships between the two constructs in longitudinal settings. Simultaneously, the findings raise several questions that warrant investigation in future research. On average, servant leadership perceptions decreased over the study period before slightly increasing again. The observed decline of servant leadership perceptions could be attributed to the numerous demands placed on leaders during the early stages of the crisis (e.g., communicating the changing conditions within the school community or providing the necessary technical equipment) and additional challenges (such as fear concerning COVID-19; Reid, 2022; Upadyaya et al., 2021) that threatened and potentially depleted the leaders' resources. Consequently, leaders may have had reduced capacity to exhibit positive leadership behaviors (Harms et al., 2017). COR

theory also emphasizes that individuals can adapt to stressors over time (Hobfoll et al., 2018), which can explain the finding that the decrease in servant leadership perceptions attenuated over time and servant leadership perceptions eventually increased again. Over time, leaders may have adjusted to the situation and learned to adapt to the adverse conditions, enabling them to utilize their resources optimally. This, in turn, may have allowed them to restore their resources and reorient their focus on supporting their followers, ultimately resulting in the observed increase in leadership perceptions. An additional explanation for the observed decrease in servant leadership perceptions during the initial months of the crisis could be that servant leadership was higher at the onset of the crisis (compared to levels before the crisis) as leaders made efforts to provide maximum support to their followers, eventually returning to baseline levels over the course of several months. Future research should therefore endeavor to measure servant leadership prior to the commencement of a crisis to acquire more precise knowledge regarding the interpretation of servant leadership trajectories within crisis contexts.

Also aligning with COR theory is the finding that servant leadership is associated with lower levels of follower exhaustion at both inter- and intraindividual levels. Servant leaders prioritize their followers' well-being and can thus provide essential resources, such as social support, guidance, and practical assistance (e.g., Gray et al., 2023; van Dierendonck & Nuijten, 2011) or remove obstacles that could lead to depleted resources. Thus, servant leadership can help followers acquire and protect their resources or gain new resources, thereby mitigating feelings of stress and exhaustion and facilitating well-being and performance (cf. Hobfoll et al., 2018; Inceoglu et al., 2018). Accordingly, I observed that servant leadership and exhaustion exhibited a negative between-person relationship. Furthermore, within individuals, the findings of Study 2 suggest that as leaders become less available or supportive (i.e., servant leadership perceptions are lower), followers may

experience increased exhaustion, as insufficient resources are available to counteract or compensate for resource losses. Conversely, when servant leadership perceptions increase, followers may experience a reduction in exhaustion, as they have sufficient resources available. As higher servant leadership perceptions were associated with lower exhaustion at both levels (within- and between-person), homology is evident here (Gabriel et al., 2019; McCormick et al., 2020). Future research is required to elucidate whether the mechanisms operating at the respective levels are identical or differ (McCormick et al., 2020).

Regarding the trajectories of exhaustion, predictions derived from COR theory are equivocal. COR theory suggests that when individuals experience resource depletion (e.g., due to increased demands during a crisis), they may become more vulnerable to exhaustion (Halbesleben et al., 2014). On the other hand, COR theory also posits a habituation effect, suggesting that individuals adapt to challenging contexts over time, thereby utilizing their resources more efficiently (Hobfoll et al., 2018). Previous studies in crisis contexts have predominantly corroborated the former aspect, indicating an increase in exhaustion during the crisis (Freeman et al., 2021; Sokal et al., 2020); however, Study 2 observed an on-average stable level of employee exhaustion. Individuals may have adapted to the circumstances (e.g., remote teaching) over time and become more adept at managing the challenges posed by the crisis, thus maintaining a stable level of exhaustion. Consequently, an important open question remains regarding how the relative weighting of resource-draining and habituation processes changes over time. It is plausible that the resource-threatening aspect is more salient at the onset of the crisis, while the habituation effect becomes more prominent as the crisis progresses. An alternative explanation for the stable level of exhaustion could be the relatively high level of servant leadership at the beginning of the crisis (3.979 on a 5-point Likert scale). This may indicate that servant leadership was relatively high already before the crisis, which could have initiated gain spirals and equipped followers with resources that

could protect them from resource losses during the crisis (e.g., resilience or a strong supportive climate among colleagues).

Additionally, COR theory cannot conclusively elucidate why individuals with higher initial levels of exhaustion experienced lower increases in exhaustion. The theory would predict a loss spiral (Hobfoll et al., 2018): The fewer resources an individual has available, the higher the risk for further resource losses and, consequently, the higher the risk for an increase in exhaustion. This finding could be attributed to the fact that servant leaders strongly focus on individual needs and may have provided greater support to individuals experiencing higher levels of exhaustion. Conversely, individuals who were initially less exhausted may have exerted more effort to maintain educational operations and support their colleagues, resulting in an increase in their exhaustion levels. This reasoning is supported by research that found that exhausted employees more strongly engage in crafting social job resources (Breevaart & Tims, 2019)—which can again be explained by COR theory, as employees may attempt to protect their threatened resources by seeking help and support. Further investigations into the potential explanations are necessary to address this issue.

Studies 1 and 2 extended previous research by longitudinally investigating the associations between servant leadership and follower performance and well-being. Regarding the direct associations between servant leadership and follower performance, it appears that, with one exception in adaptivity (a study with a two-month time lag, which was thus shorter than the one in Study 1; Kaya & Karatepe, 2020), only cross-sectional studies could identify direct associations between the constructs (Bande et al., 2016; Luo & Zheng, 2018; Varela et al., 2019). However, even in these cross-sectional studies, the results were inconsistent, comprising also fully mediated associations (Bande et al., 2016). A study with a longer time frame of 18 months found only indirect associations between servant leadership and adaptivity (Kaltiainen & Hakanen, 2020), as in Study 1. Thus, it is possible that the

associations vary depending on the time lags between measurement points, and future research should examine these relationships with varying time intervals to better understand the dynamics (cf. Dormann & Griffin, 2015). Additionally, different contexts (e.g., different occupational fields and crisis vs. non-crisis context) should be considered, as this could potentially influence the relationships. For instance, teachers' relatively high autonomy in their work might result in leadership having only an indirect effect on performance through motivational factors (e.g., basic need satisfaction). Study 2 did not only incorporate time lags between the studied constructs but also explored trajectories of servant leadership and exhaustion by utilizing an LGCM approach with four measurement points over the first eight months of the crisis. This methodology enables the analysis of within-person dynamics and contributes to understanding how the constructs and relationships change over time; an aspect that most studies describe theoretically but cannot investigate as they use only interindividual study designs (Gabriel et al., 2019). Additionally, the findings support previous claims that leadership should not be considered static, but that it varies over time (McClean et al., 2019). Researchers should therefore, when examining their hypotheses, question whether they describe within-person dynamics and, if so, design the study to fit their theory.

A growing number of researchers underscore the importance of considering context in leadership research in order to resolve conflicting findings and derive valid theoretical and practical implications (e.g., Johns, 2024; Liden & Antonakis, 2009; Oc, 2018). With Studies 1 and 2, I address these recommendations and investigate servant leadership in the crisis context and within a specific occupational field (i.e., school teachers). By exploring two potential mediators, Study 1 advances our understanding of the mechanisms through which leadership may be effective in crisis contexts. With Study 2, I additionally contribute to answering the question of how a crisis context affects leadership (as recommended, e.g., by Rudolph et al., 2021). Examining how servant leadership evolves over time in the crisis context and

determining whether this trajectory differs in comparison to other contexts is important, as this facilitates the provision of valid recommendations for leaders or the implementation of other interventions. Particularly in Study 1, it becomes evident that research findings are not simply transferable between contexts. Whereas the findings on the mediation between servant leadership and follower performance through basic need satisfaction are consistent with other studies in different contexts (e.g., Chiniara & Bentein, 2016; van Dierendonck et al., 2014), the findings differ with regard to procedural justice. In the change context, positive relationships between procedural justice and several favorable employee behaviors have already been found (e.g., readiness for change; Oreg et al., 2011), whereas in the crisis context, Study 1 shows no relationship with adaptivity and even a negative relationship with proactivity. The results thus further emphasize the claims of other researchers to incorporate context more strongly into leadership research.

In current research, there is an ongoing discussion about which behavior is most beneficial during crises. Some studies indicate that directive behavior is favorable (e.g., Krause et al., 2024), whereas other research emphasizes more communal behaviors (e.g., Kniffin et al., 2021). In light of this discussion, Studies 1 and 2 suggest that servant leadership is positively associated with both performance and well-being during crises. Because servant leadership incorporates both communal and directive aspects by caring about their followers' well-being and providing direction (Liden et al., 2008; van Dierendonck & Nuijten, 2011), it could reconcile these differing approaches. Future research should examine which dimensions of servant leadership are especially advantageous and how required leadership behaviors differ across various contexts.

Causal Effects of Servant Leadership

Several researchers have noted that many findings in leadership research are not causally interpretable (e.g., Antonakis et al., 2010). This limitation has also been criticized in

comprehensive reviews specifically addressing servant leadership (Eva et al., 2019; A. Lee, Lyubovnikova, et al., 2020). Study 3 specifically addresses this issue and elucidates various problems that may restrict the causal interpretability of studies examining servant leadership as an explanatory variable. To determine the prevalence of these issues, I conducted systematic reviews of servant and authentic leadership, focusing on these methodological aspects (in the following section, I concentrate on the review of servant leadership). When *measuring* servant leadership, a central concern is the risk of endogeneity. Endogeneity can cause estimated results not to converge to the true values even with increasing sample size (Antonakis et al., 2010) and be present in servant leadership research due to omitted variables or simultaneity issues. All studies examined in the review in Study 3 interpreted their results implicitly or explicitly as causal, although the non-experimental studies were all susceptible to endogeneity. Various aspects increase the risk of endogeneity. When questionnaires are utilized, they capture not only servant leadership *behavior* but also individual perceptions and measurement errors (G. Wang et al., 2019). These perceptions can be influenced by numerous factors, such as raters' individual differences or contextual factors (Hansbrough et al., 2015); all these factors can potentially be omitted variables. Further omitted variables may result from using the same source to capture servant leadership perceptions and outcomes, raters responding in a socially desirable manner or with certain tendencies, or employing the same elicitation technique to capture servant leadership and hypothesized outcomes (P. M. Podsakoff et al., 2012). Even if the measurement were not influenced by omitted variables, the problem of simultaneity may exist, meaning that servant leadership perceptions or behavior and the hypothesized outcomes influence each other (Güntner et al., 2020). Studies 1 and 2 are similarly affected by these issues, and their findings may be compromised by endogeneity due to the utilization of questionnaires to assess servant leadership perceptions

and follower behavior and experiences, as well as the reliance on a single source (i.e., teachers).

To address issues regarding causality, it is frequently recommended to utilize experiments, as was done in Study 3. The advantage of this approach is that servant leadership is manipulated and therefore exogenous by definition, allowing for the observation of a counterfactual (Antonakis et al., 2010, 2014). However, there are several potential pitfalls, which I have identified and developed improvement strategies for in Study 3. Through a realistic design of the experimental manipulation, the salience of the manipulation should be reduced, thus minimizing the risk of revealing critical information about the hypotheses. When outcomes concern behavior or choices, they should elicit actual behaviors and be consequential, ensuring that behavior cannot be easily adapted based on demand effects or social desirability (Lonati et al., 2018). Furthermore, control groups should enable fair comparisons (Antonakis, 2017). Ideally, a neutral control group is employed, which differs only in servant leadership behavior but not in other aspects of the manipulation (cf. Lonati et al., 2018). Manipulation checks should be conducted in a pilot study, as in-sample manipulation checks may lead, for instance, to demand effects or consistent response behavior (Lonati et al., 2018; P. M. Podsakoff & Podsakoff, 2019). Furthermore, servant leadership should not only be examined as an aggregated construct but also in terms of its individual dimensions (either separately or in combination). This approach allows for the determination of whether the effects of servant leadership are particularly dependent on specific dimensions and how these dimensions interact in various combinations (Cianci et al., 2014; A. Lee, Lyubovnikova, et al., 2020). As evidenced in the review, the difficulties described in Study 3 were present in all included studies; only one experiment conducted the manipulation check out of sample. Consequently, there remains significant potential for improvement in future research.

When servant leadership is measured, due to the impossibility of manipulation or when perception is explicitly investigated, it is necessary to correct for potential endogeneity. To this end, Study 3 demonstrated how instrumental variable estimation with an experimentally randomized instrumental variable can be utilized to achieve this objective. In this approach, the randomized assignment to servant leadership manipulation is employed as an instrument, ensuring that only the exogenous variance component in the potentially endogenous predictor variable (e.g., servant leadership perceptions) is used to estimate the effect on the outcome (Kennedy, 2008; Sajons, 2020).

To illustrate the recommendations, Study 3 also included an experiment implementing these recommendations. This experiment examined the effect of two combined dimensions (i.e., authenticity and stewardship) of servant leadership on the performance of followers. Additionally, the assignment to the manipulation was utilized as an instrument for the perceptions of the two combined dimensions to demonstrate how the instrumental variable approach can be practically applied in servant leadership research. No positive effect on performance was observed for either combined authenticity and stewardship behavior or perceptions thereof. Several potential explanations exist for the non-significant results. For instance, it is possible that other dimensions of servant leadership, such as accountability (which includes setting clear expectations and granting responsibility to followers), are more crucial for performance, or that the manipulation was insufficiently strong. In any case, this result raises the question of the extent to which one can rely on previous findings regarding servant leadership as an explanatory variable. The hypotheses from Studies 1 and 2 should also be examined in the future using such more robust methods. However, the difficulty here lies in the fact that crises cannot be planned, making realistic (field) experiments challenging. A viable approach in this context could be experiments using virtual reality, in which both servant leadership behavior and the context could be realistically manipulated.

As intended, the combined stewardship and authenticity condition and the neutral condition in the experiment do not differ objectively regarding *charismatic leadership tactics*. Concerning *charismatic leadership perceptions*, the two groups did also not differ in the pre-study; however, in the main experiment with a larger sample size and thus greater statistical power, significant differences were observed. Although the effects for *servant leadership perceptions* were significantly stronger than those for charismatic leadership perceptions, the results nevertheless highlight several shortcomings in the existing leadership research. Among other things, the results corroborate the explanations in Study 3 that questionnaires are influenced not only by leadership behavior but also by other variables. This is evidenced by the fact that the two conditions did not differ based on the objectively coded charismatic leadership tactics. Furthermore, the constructs partially overlap in their content (e.g., that the leader has a vision), which points to the currently discussed topic of construct redundancy in leadership research (e.g., Banks et al., 2018). For future research, it would be desirable to develop objectively codable behaviors for the dimensions of servant leadership, similar to the charismatic leadership tactics for charismatic leadership. Moreover, when investigating servant leadership, it is important for researchers to be aware of whether they actually intend to examine servant leadership perceptions (as measured by questionnaires) or rather servant leadership behavior. Depending on the research question, both can be interesting; however, the appropriate research method should be chosen to investigate the hypotheses.

As Study 3 indicates, until now, we cannot be sure whether servant leadership can live up to its promises or if its effects are only spurious because no causal conclusions can be drawn from the studies to date. Instead, due to endogeneity issues, the estimated effects could be smaller, larger, insignificant, or even in a different direction than the current empirical research suggests. The problem of lacking causality not only concerns the servant leadership and authentic leadership constructs, as demonstrated in Study 3, but also pertains to other

leadership styles such as ethical leadership (Schowalter et al., 2022), and even management and psychology research as a whole (Antonakis et al., 2014). Therefore, researchers should conduct more methodologically rigorous experiments, including field experiments, to investigate servant leadership behavior and use instrumental variable regression to address potential endogeneity in measured servant leadership. There are already promising first attempts in research on other leadership constructs to provide such robust investigations, which can additionally inspire future research on servant leadership as an explanatory variable (e.g., Antonakis et al., 2022; Fest et al., 2021 on charismatic leadership; Banks et al., 2022 on ethical leadership).

Practical Implications

This dissertation yields several practical implications which I delineate in the following. First, Study 1 demonstrates that even though a high workload often accompanies crises, it is crucial not only to focus on maintaining organizational processes but also to address followers' basic psychological needs. Servant leaders can meet these needs by explaining the background and purpose of the steps taken to their followers (to satisfy the need for autonomy); promoting community and mutual support to meet the relatedness need (e.g., providing remote communication platforms); and providing the necessary resources, such as training, so that followers can fulfill their competence needs. Furthermore, it is important that servant leaders are aware that servant leadership is positively associated with procedural justice perceptions and that these perceptions may potentially reduce proactivity in the crisis context. If proactivity is nevertheless required, leaders should promote it through other measures, for example, by fostering basic need satisfaction.

In addition to satisfying followers' basic psychological needs, Study 2 indicates that servant leaders can assist followers in successfully managing crises by providing resources that can contribute to the acquisition of additional resources and to the protection against or

compensation for resource loss (e.g., by promoting mutual support among colleagues). Furthermore, leaders should endeavor to remove obstacles (e.g., insufficient technical equipment for teachers engaged in remote teaching) to prevent resource losses. It is important to note that servant leadership perceptions are subject to fluctuation. As these fluctuations are associated with changes in followers' exhaustion, a continuous demonstration of servant leadership behavior is necessary.

Organizations can also contribute to successful crisis management by selecting leaders based on their servant leadership behaviors and training their leaders in this leadership approach. As previous research suggests that servant leadership is also advantageous in non-crisis contexts (e.g., Eva et al., 2019), organizations can benefit not only by promoting followers' performance and well-being in crisis contexts. The greatest risk of resource loss often occurs in the initial months of a crisis when individuals must rapidly adapt to sudden changes (e.g., to an abrupt transition to remote work in case of the COVID-19 crisis). Therefore, it is crucial that leaders support their followers in building resources already prior to crises, enabling them to better protect against or compensate for resource loss.

Study 2 showed that servant leadership perceptions decreased over time during the initial phase of the crisis, before slightly increasing again after several months. This finding suggests that it is important to support leaders by establishing structures that facilitate the desired leadership behavior. For instance, servant leadership requires time, necessitating the creation of necessary freedom and ensuring that no goal conflicts arise so that leaders do not experience resource depletion. Reducing bureaucracy, fostering resilience, and investing in leaders' health can be additional measures. Moreover, a supportive organizational culture should be promoted, as followers can also contribute to supporting their leaders, for example, by assuming responsibility themselves (Zheng et al., 2023).

Finally, the observation that exhaustion did not change over time in Study 2 suggests that the crisis did not solely encompass resource-depleting factors. For instance, remote work for teachers could also conserve resources, as the teachers may not need to exert as much emotional control in remote contexts as in in-person contexts (Hilger et al., 2021). These aspects could be explored through individual coaching sessions with teachers, enabling them to recognize and utilize these resources effectively.

Limitations

The three studies have several strengths and limitations, which have already been discussed in the Discussion sections of the respective studies. Therefore, I highlight and extend only a few central aspects. First, servant leadership theory and most investigations of the construct do not consider context, although such factors may lessen, enhance, or change the impact of the leadership construct (Eva et al., 2019; Johns, 2024). Thus, a strength of Studies 1 and 2 is the thorough discussion of the associations and implications in context. However, to be sure whether servant leadership shows differential effects depending on the context, further studies with varying contextual factors (which ideally should also be modeled) and meta-analyses with context as a moderator are necessary to compare the associations of servant leadership with follower performance and well-being in different contexts (Johns, 2006; Liden & Antonakis, 2009).

Second, the three studies demonstrate considerable methodological diversity. Studies 1 and 2 employed a longitudinal design to investigate the relationships between servant leadership and follower performance and well-being, whereas Study 3 consisted of systematic reviews and a randomized experiment, including an instrumental variable approach. In the experiment, reliance was not placed solely on self-reports from followers, but actual behavior was measured in terms of a genuine outcome (donations to a charity). Nevertheless, in Studies 1 and 2, it would have been interesting to use different sources, such as the leaders'

perspectives, in addition to teachers' ratings. In fact, principals had additionally answered surveys including, for instance, their perceptions of their own leadership behavior or on teachers' proactivity and adaptivity. However, due to the crisis situation, which entailed a high workload due to sudden changes, the sample size, number of groups, and thus the statistical power was insufficient for conducting reliable multilevel analyses, so I could only focus on the follower perspective. Future research should replicate the findings using different sources to measure the variables, ideally also conduct observational studies, and use instrumental variables to address potential endogeneity issues.

Third, in Study 3, the effect of a combination of two servant leadership dimensions was examined as previous research has called for determining which dimensions or combinations of them are crucial for servant leadership (Cianci et al., 2014; A. Lee, Lyubovnikova, et al., 2020). Combined stewardship and authenticity perceptions were measured with the two corresponding dimensions of the Servant Leadership Scale (van Dierendonck & Nuijten, 2011). Although the confirmatory analyses indicated that stewardship and authenticity could be treated as two dimensions, it should be kept in mind that the questionnaire has not been validated for the use of single dimensions and the results could be ambiguous (as may the overall servant leadership construct due to its multidimensionality; Edwards, 2011). Thus, future research should validate the measures of single dimensions of servant leadership and their combinations.

Finally, in Studies 1 and 2, I aimed to use the complete 30-item Servant Leadership Survey. However, the confirmatory factor analyses showed difficulties regarding the factor structure of the questionnaire. Consequently, I only used the official short scale of the Servant Leadership Survey, which resulted in a better solution but needed several modifications as well. An explanation for the deviations from the original validation study could be contextual influences, which could destabilize the factor structure of the instrument (Antonakis et al.,

2003). This notion is underscored by the finding that the meaning of the servant leadership construct differs between countries (Parris & Peachey, 2013). Such influences may also change the correlations between the dimensions because, depending on the context, different leadership behaviors could be required or perceived as prototypically effective (Bass, 1997; Lord et al., 1984, 2001). Thus, the Servant Leadership Survey needs to be further tested and validated in different contexts and, based on these findings, improved in the future.

Further Pitfalls in Servant Leadership Research

Lack of Behavioral Counterfactuals in Measurement Scales

In Study 3, I explained the difference between servant leadership behaviors and perceptions, emphasizing the limitations of questionnaires in measuring behaviors due to factors such as situational or rater-related influences. This perspective posits the existence of a behavioral true score that accurately reflects actual behaviors, and the measurement score may deviate from this true score due to measurement bias. However, also the formulation of items themselves can be problematic, as leadership questionnaires often conflate behavioral descriptions with raters' evaluations (T. Fischer & Dietz, 2020; T. Fischer & Sitkin, 2023). As a result, items may require raters' judgment rather than observation, which can diminish the validity of leadership measures (and of other behavioral measures in organizational research) and impede the replicability of their factor structure. Having a behavioral counterfactual means that an item's "measurement score refers to the presence (or absence), magnitude (e.g., frequency, intensity), or temporal unfolding of a behavior (e.g., rate, duration, temporal patterning) and is not conflated with other constructs" (T. Fischer, 2023, p. 1). Examples of items with behavioral counterfactuals in the Servant Leadership Survey that I used in the three studies are "My manager encourages his/her staff to come up with new ideas" from the empowerment dimension or "My manager keeps criticizing people for the mistakes they have made in their work" (inverse item) from the forgiveness dimension. The absence of a

behavioral counterfactual is different from mere measurement bias or error, which are unsystematic and diminish with increasing sample size because it remains then unclear whether variation in scores is due to variation in leader behaviors or raters' judgment calls. Reasons for the absence of behavioral counterfactuals can be, for example, *double-barreled* (mixing behavior with another construct), *interpretive* (requiring interpretation of the item due to no single objective standard), or *non-behavioral* (refers to leadership but not leadership behaviors) formulations (see T. Fischer, 2023, for further details). The Servant Leadership Survey is also affected by such evaluative formulations. Three examples are given here for illustrative purposes: First, the item "My manager gives me the information I need to do my work well" from the empowerment dimension is double-barreled as it includes a judgment of situational appropriateness. Second, one of the items for the authenticity dimension is "My manager shows his/her true feelings to his/her staff". This is an interpretive item as it entails an unobservable aspect, that is the veracity of expressed feelings, which can only be assessed by the leaders themselves. Third, the item "My manager is often touched by the things he/she sees happening around him/her" from the same dimension is a non-behavioral item relating to leader's character rather than their behavior. Other measures, such as the servant leadership measure by Liden et al. (2015) have similar problems and also have to be revised in this regard. As with behavior and perceptions in Study 3, it is important to investigate both behavior and evaluations; however, researchers should use either behavior-descriptive or -evaluative items depending on their research question, as evaluations are outcomes of leader behavior (T. Fischer, 2023). Thus, cause and effect would be measured at the same time, bearing the risk of producing positive results due to tautologies (Alvesson, 2020).

Deficiencies in Construct Definition

Even if the items were well designed and did not conflate behaviors and evaluations, they can only adequately represent the servant leadership construct if it is defined clearly and

precisely. Additionally, a clearly delineated definition is essential to distinguish servant leadership from other leadership styles, to assess the validity of claims pertaining to construct redundancy (e.g., Banks et al., 2016, 2018), and to build theories on associations with other constructs (Eva et al., 2019; MacKenzie, 2003). As described in Chapter 1, Eva et al. (2019) provided a new definition of servant leadership, based on existing conceptualizations. However, they themselves state that this definition leaves a lot of room for interpretation when it comes to understanding the multidimensionality of servant leadership and can only serve as a starting point for further developing a comprehensive theory. Accordingly, there are many different models and conceptualizations of servant leadership, which place different emphases regarding its dimensions. For instance, van Dierendonck & Nuijten's (2011) conceptualization and their resulting Servant Leadership Survey comprises a task focus that is not included in other conceptualizations. Consequently, a recent study (Sun et al., 2023) employed a sequential factor analysis using the four most widely used servant leadership measures to gain a better understanding of the hierarchical structure of the construct and found a hierarchical structure comprising seven levels with seven lower-order factors. None of the four measures covered all the lower-order factors. This method, while insightful in its aim to provide a more holistic understanding of the nature of servant leadership, is constrained in its capacity to overcome the underlying conceptualization issues present within the four included servant leadership measures. To this end, a more appropriate initial step would be to refine servant leadership theory so that it conveys the central idea of the construct in an unambiguous manner, aligns with prior research on the topic, and clearly distinguishes the servant leadership construct from related concepts. Additionally, a good definition should specify the expected variation in values of the construct across different cases, conditions, and time. If the construct is multidimensional, the definition should also outline the relationships between the subdimensions and the overarching construct (MacKenzie, 2003). Amongst

others, this means that actual leadership behaviors (*what* the leader does) should not be conflated with their underlying intentions (the *why* of the behavior), the quality of execution (*how well* it is actioned), or their resulting effects (T. Fischer & Sitkin, 2023). Only the *what* is descriptive, while the other three aspects are evaluative. T. Fischer and Sitkin (2023) found that instead of formally defining the construct, mostly operational conceptualizations for servant leadership have been developed. Consequently, behaviors were bundled based on their positive valence (e.g., their intention) instead of a clear conceptual rationale, leading to conceptual ambiguity. Also in van Dierendonck and Nuijten's (2011) conceptualization, which was not investigated in the article by T. Fischer and Sitkin, the definitions conflate descriptive and evaluative aspects. For instance, in their definition of empowerment, the authors do not only describe what the leaders do (e.g., sharing information) but also evaluative aspects such as underlying intentions (e.g., fostering followers' self-confidence). However, these aspects should be disentangled to build a comprehensive and precise theory on servant leadership as a foundation for future research.

Investigating Only Positive Outcomes

Researchers commonly associate positive leadership styles with favorable outcomes and negative leadership styles with unfavorable outcomes (Alvesson, 2020). Although this appears to be a reasonable assumption, it may not always hold true, so it is essential to investigate also potential drawbacks of servant leadership. For instance, having a strong follower focus could be a considerable strain for leaders, especially during times of crisis (A. Newman et al., 2022). Moreover, well-intentioned support inadvertently may have adverse outcomes for followers under certain circumstances (Gray et al., 2023). For example, servant leaders may too frequently take on tasks for their followers that they are not skilled at or do not enjoy, which could ultimately hinder the growth of their followers. The findings of Study 1 also point in this direction, as higher perceived procedural justice was associated with lower

proactivity in the crisis context. Some initial studies have explored the circumstances under which servant leadership is linked to lower organizational citizenship behavior (OCB; Si et al., 2023) or increased exhaustion among leaders (Zheng et al., 2023) and followers (A. C. Peng et al., 2023). Thus, future research should adopt a more nuanced perspective on the potential positive and negative effects of servant leadership.

Future Research

Prior to concluding this dissertation, I would like to emphasize several avenues for future research, in addition to those already described in the Theoretical Implications section of this chapter, that build upon and complement the three studies presented. First, it would be beneficial to conduct further investigations into the effects of servant leadership and its dimensions in the still relatively understudied crisis context as well as in other contexts. Subsequently, researchers can conduct meta-analyses to assess whether the effects are consistent or vary across different contexts (Liden & Antonakis, 2009). For the school context in Studies 1 and 2, this could imply investigating the relationships in a typical school year that is not marked by a crisis, and comparing these with the findings of Studies 1 and 2. Moreover, context-specific research enables researchers to determine the extent to which the outcome can be attributed to servant leadership and how much can be ascribed to the broader situational factors (Johns, 2023).

In Studies 1 and 2, only servant leadership was investigated. Thus, besides contextual variables that could be associated with follower behavior and experiences besides servant leadership, it would be interesting to examine also different leadership styles and compare the strength and direction of the associations, especially against the backdrop of the critics regarding construct redundancy in leadership research (e.g., Banks et al., 2018).

Furthermore, Study 1 found that servant leadership can also have negative associations with proactivity via procedural justice in the crisis context. However, this does not imply that

procedural justice should not be promoted. Instead, it is worth investigating which measures could be combined with servant leadership to promote proactivity, even in crisis contexts. Another aspect of proactivity that is yet to be explored is whether employees' perception of their own proactivity changes in a crisis context and is, for example, more likely to be interpreted as adaptability.

It is important to investigate further mediating mechanisms that may be involved in the relationships between servant leadership and followers' performance and well-being. The results of Study 2 indicate that COR theory is an underlying mechanism that links servant leadership to exhaustion; however, it is necessary to empirically test which specific resources are the defining mechanisms. Additionally, COR theory may also be relevant to the relationship between servant leadership and proactivity, with exhaustion potentially serving as a mediator between the two. Servant leadership may help conserve resources, thereby preventing exhaustion (cf. Malik et al., 2022; Mun et al., 2022) and enabling followers to be more proactive (cf. Liu et al., 2021). When relevant mediators are identified, testing them simultaneously is useful to determine which processes are dominant (Eva et al., 2019).

As proposed in Study 3, and ensuing from Studies 1 and 2, it would be valuable to investigate which dimensions of servant leadership are particularly relevant for follower performance and well-being in a crisis context. Moreover, it would be beneficial to examine also the relationships from Study 1 over time, employing latent change score models, for instance. Such an approach would enable the detection of leading and lagged relationships and any changes therein over time (McArdle, 2009). In this regard, one should also examine which aspects of servant leadership exhibit greater fluctuation and which are more stable, and to what extent these aspects influence servant leadership perceptions in a crisis context.

It is essential to conduct more robust and causally identified research on the effects of servant leadership. To this end, carefully designed randomized experiments can be conducted

when the explanatory variable can be manipulated. Additionally, when servant leadership is measured, instrumental variable estimation with experimentally randomized instrumental variables is a promising method. Particularly suitable for this purpose are field experiments, in which, for example, the assignment to servant leadership training can be used as an instrumental variable for servant leadership perceptions. To study the aforementioned mediating processes, an experimental-causal-chain design can be a viable option, as well, if the mediator is both measurable and manipulable (P. M. Podsakoff & Podsakoff, 2019; Spencer et al., 2005). Although this approach does not permit a statistical test of mediation (which is typically not the primary objective), it can be highly beneficial for the causal examination of mediating processes. An example of such a design would be the investigation of the effect of servant leadership behavior on follower performance, mediated by justice perceptions. In this approach, one would first manipulate servant leadership behavior (e.g., using videos) and measure the effect on justice perceptions. Additionally, a second experiment would be conducted in which justice perception is manipulated (see Sajons, 2020, for an exemplary manipulation of distributive justice) and the effect on performance (e.g., measured as in Study 3) is assessed.

Servant leadership measurement should be improved so that questionnaires measure either servant leadership behavior or raters' evaluations. To measure servant leadership behavior, they should use questionnaires that ask purely behavioral questions. However, if the aim is to focus on followers' evaluations, evaluative questionnaires that can capture them should be used. An item for such an evaluative questionnaire could be "I feel encouraged to use my talents" (adapted from an item from the empowerment scale of the Servant Leadership Survey). In addition to questionnaires, researchers can use alternative methods to measure servant leadership, such as interaction coding (Güntner et al., 2023) as an observational method, or technological advancements such as machine learning (A. Lee et al., 2022) or

other technology-assisted ratings (T. Fischer et al., 2023). Even when dealing with the latter, it is important to ensure that these categories do not conflate behavior and evaluations.

Finally, it is important to revise the conceptualization of servant leadership so that the construct is clearly delineated, without conceptual ambiguity. A comprehensive and precise theory of servant leadership would not only facilitate the manipulation of servant leadership behavior in experiments and the development of measurement instruments but also help distinguish servant leadership from other leadership styles.

Has Servant Leadership Still Got More to Serve?

In the course of this dissertation, the servant leadership construct and the research surrounding it have been subjected to substantial criticism. Consequently, the question arises whether the construct should continue to be investigated or be discarded. Servant leadership distinguishes itself from other leadership constructs, for example, through its focus on benefiting multiple stakeholders, humility, or prioritizing followers' needs before organizational goals (Anderson & Sun, 2017; Eva et al., 2019; A. Lee, Lyubovnikova, et al., 2020; Lemoine et al., 2019; Pircher Verdorfer & Peus, 2014). While it has not been unequivocally demonstrated that servant leadership yields the various positive effects attributed to it by previous research due to endogeneity issues as well as a focus on investigating positive constructs in general, the construct should not be completely rejected. Instead, a comprehensive revision and refinement are necessary to delineate it more clearly and enhance its investigability. A central issue that is criticized about servant leadership (and other leadership constructs) is that it is a broad collection of positive valenced terms (T. Fischer et al., 2024). Thus, to preserve and test its value solidly, the concept and its dimensions must be more precisely defined and differentiated. This would facilitate analyzing specific relationships and enhance understanding of which dimensions are particularly effective in various circumstances. The question of whether leadership constructs in general

remain meaningful is also pertinent here. Leadership styles reduce complexity by structuring leaders' behaviors and highlighting which behaviors are effective under specific conditions. However, these styles must not merely represent a collection of positive behaviors but should include clear, separable dimensions that can be empirically examined. With a clearer definition and improved empirical examination of its dimensions, servant leadership could continue to be a significant approach for leadership practice and research, despite its current challenges. Therefore, it should not be discarded, but rather further developed and more precisely investigated.

Conclusion

To ensure the continued progression of the rising trend in publications on servant leadership, as observed in recent decades, in a meaningful manner, it is imperative to revisit the origins of the construct and redefine it. Research so far has indicated various beneficial associations between servant leadership and follower behaviors and experiences and Studies 1 and 2 showed them also for the crisis context. Yet, Study 1 demonstrated that servant leadership can also have unintended adverse associations (i.e., with proactivity). Nevertheless, these results could potentially be biased by endogeneity as Study 3 showed, so causal inferences cannot be drawn from the current state of research.

To address this issue and enhance research quality, clearly defined constructs and robust methodological approaches are necessary, not only for scientific advancement but also to derive sound and applicable recommendations for practice. This dissertation not only points to the need to investigate servant leadership in context but also demonstrates important pitfalls in servant leadership research that have the potential to severely limit the validity of empirical studies in the field. Through clear recommendations and an illustrative experiment, crucial avenues for future research have been delineated, which hopefully contribute to deepening the understanding of servant leadership in diverse contexts and promoting

methodologically rigorous investigations. Thus, this work aims to contribute to a positive transformation of the current state of research and to elucidate the relationships between servant leadership and its outcomes.

REFERENCES

Aldrup, K., Klusmann, U., Lüdtke, O., Göllner, R., & Trautwein, U. (2018). Student misbehavior and teacher well-being: Testing the mediating role of the teacher-student relationship. *Learning and Instruction*, *58*, 126–136. https://doi.org/10.1016/j.learninstruc.2018.05.006

Alvesson, M. (2020). Upbeat leadership: A recipe for – or against – "successful" leadership theory. *The Leadership Quarterly*, *31*(6), Article 101439. https://doi.org/10.1016/j.leaqua.2020.101439

Alvesson, M., & Einola, K. (2019). Warning for excessive positivity: Authentic leadership and other traps in leadership studies. *The Leadership Quarterly*, *30*(4), 383–395. https://doi.org/10.1016/j.leaqua.2019.04.001

Amis, J. M., & Janz, B. D. (2020). Leading change in response to COVID-19. *Journal of Applied Behavioral Science*, *56*(3), 272–278. https://doi.org/10.1177/0021886320936703

Anderson, M. H., & Sun, P. Y. T. (2017). Reviewing leadership styles: Overlaps and the need for a new 'full-range' theory. *International Journal of Management Reviews*, *19*(1), 76–96. https://doi.org/10.1111/ijmr.12082

Angrist, J. D., & Pischke, J.-S. (2009). *Mostly harmless econometrics: An empiricist's companion*. Princeton University Press. https://doi.org/10.2307/j.ctvcm4j72

Antonakis, J. (2017). On doing better science: From thrill of discovery to policy implications. *The Leadership Quarterly*, *28*(1), 5–21. https://doi.org/10.1016/j.leaqua.2017.01.006

Antonakis, J., Avolio, B. J., & Sivasubramaniam, N. (2003). Context and leadership: An examination of the nine-factor full-range leadership theory using the Multifactor Leadership Questionnaire. *The Leadership Quarterly*, *14*(3), 261–295. https://doi.org/10.1016/S1048-9843(03)00030-4

Antonakis, J., Bastardoz, N., Liu, Y., & Schriesheim, C. A. (2014). What makes articles highly cited? *The Leadership Quarterly*, *25*(1), 152–179. https://doi.org/10.1016/j.leaqua.2013.10.014

Antonakis, J., Bastardoz, N., & Rönkkö, M. (2021). On ignoring the random effects assumption in multilevel models: Review, critique, and recommendations. *Organizational Research Methods*, *24*(2), 443–483. https://doi.org/10.1177/1094428119877457

Antonakis, J., Bendahan, S., Jacquart, P., & Lalive, R. (2010). On making causal claims: A review and recommendations. *The Leadership Quarterly*, *21*(6), 1086–1120. https://doi.org/10.1016/j.leaqua.2010.10.010

Antonakis, J., d'Adda, G., Weber, R., & Zehnder, C. (2022). Just words? Just speeches? On the economic value of charismatic leadership. *Management Science*, *68*(9), 6355–6381. https://doi.org/10.1287/mnsc.2021.4219

Antonakis, J., Day, D. V., & Schyns, B. (2012). Leadership and individual differences: At the cusp of a renaissance. *The Leadership Quarterly*, *23*(4), 643–650. https://doi.org/10.1016/j.leaqua.2012.05.002

Antonakis, J., Fenley, M., & Liechti, S. (2011). Can charisma be taught? Tests of two interventions. *Academy of Management Learning & Education*, *10*(3), 374–396. https://doi.org/10.5465/amle.2010.0012

Arend, M. G., & Schäfer, T. (2019). Statistical power in two-level models: A tutorial based on Monte Carlo simulation. *Psychological Methods*, *24*(1), 1–19. https://doi.org/10.1037/met0000195

Aronow, P. M., Baron, J., & Pinson, L. (2019). A note on dropping experimental subjects who fail a manipulation check. *Political Analysis*, *27*(4), 572–589. https://doi.org/10.1017/pan.2019.5

Arthur, W., Hagen, E., & George, F. (2021). The lazy or dishonest respondent: Detection and prevention. *Annual Review of Organizational Psychology and Organizational Behavior*, *8*, 105–137. https://doi.org/10.1146/annurev-orgpsych-012420-055324

Avolio, B. J., Reichard, R. J., Hannah, S. T., Walumbwa, F. O., & Chan, A. (2009). A meta-analytic review of leadership impact research: Experimental and quasi-experimental studies. *The Leadership Quarterly*, *20*(5), 764–784. https://doi.org/10.1016/j.leaqua.2009.06.006

Bajaba, A., Bajaba, S., Algarni, M., Basahal, A., & Basahel, S. (2021). Adaptive managers as emerging leaders during the COVID-19 crisis. *Frontiers in Psychology*, *12*, Article 661628. https://doi.org/10.3389/fpsyg.2021.661628

Bakker, A. B., Breevaart, K., Scharp, Y. S., & Vries, J. D. (2023). Daily self-leadership and playful work design: Proactive approaches of work in times of crisis. *Journal of Applied Behavioral Science*, *59*(2), 314–336. https://doi.org/10.1177/00218863211060453

Bakker, A. B., Demerouti, E., & Verbeke, W. (2004). Using the job demands-resources model to predict burnout and performance. *Human Resource Management*, *43*(1), 83–104. https://doi.org/10.1002/hrm.20004

Bande, B., Fernández-Ferrìn, P., Varela-Neira, C., & Otero-Neira, C. (2016). Exploring the relationship among servant leadership, intrinsic motivation and performance in an industrial sales setting. *Journal of Business and Industrial Marketing*, *31*(2), 219–231. https://doi.org/10.1108/JBIM-03-2014-0046

Banks, G. C., Engemann, K. N., Williams, C. E., Gooty, J., McCauley, K. D., & Medaugh, M. R. (2017). A meta-analytic review and future research agenda of charismatic leadership. *The Leadership Quarterly*, *28*(4), 508–529. https://doi.org/10.1016/j.leaqua.2016.12.003

Banks, G. C., Fischer, T., Gooty, J., & Stock, G. (2021). Ethical leadership: Mapping the terrain for concept cleanup and a future research agenda. *The Leadership Quarterly*, *32*(2). https://doi.org/10.1016/j.leaqua.2020.101471

Banks, G. C., Gooty, J., Ross, R. L., Williams, C. E., & Harrington, N. T. (2018). Construct redundancy in leader behaviors: A review and agenda for the future. *The Leadership Quarterly*, *29*(1), 236–251. https://doi.org/10.1016/j.leaqua.2017.12.005

Banks, G. C., McCauley, K. D., Gardner, W. L., & Guler, C. E. (2016). A meta-analytic review of authentic and transformational leadership: A test for redundancy. *The Leadership Quarterly*, *27*(4), 634–652. https://doi.org/10.1016/j.leaqua.2016.02.006

Banks, G. C., Ross, R., Toth, A. A., Tonidandel, S., Mahdavi Goloujeh, A., Dou, W., & Wesslen, R. (2023). The triangulation of ethical leader signals using qualitative, experimental, and data science methods. *The Leadership Quarterly*, *34*(3), Article 101658. https://doi.org/10.1016/j.leaqua.2022.101658

Bass, B. M. (1997). Does the transactional-transformational leadership paradigm transcend organizational and national boundaries? *American Psychologist*, *52*(2), 130–139. https://psycnet.apa.org/doi/10.1037/0003-066X.52.2.130

Bass, B. M. (1999). Two decades of research and development in transformational leadership. *European Journal of Work and Organizational Psychology*, *8*(1), 9–32. https://doi.org/10.1080/135943299398410

Bass, B. M., & Avolio, B. J. (1995). *Multifactor Leadership Questionnaire: Instrument (leader and rater form) and scoring guide (form 5x-short)*. Mind Garden.

Bastardoz, N., Matthews, M. J., Sajons, G. B., Ransom, T., Kelemen, T. K., & Matthews, S. H. (2023). Instrumental variables estimation: Assumptions, pitfalls, and guidelines. *The Leadership Quarterly*, *34*(1). https://doi.org/10.1016/j.leaqua.2022.101673

Bastardoz, N., & van Vugt, M. (2019). The nature of followership: Evolutionary analysis and review. *The Leadership Quarterly*, *30*(1), 81–95. https://doi.org/10.1016/j.leaqua.2018.09.004

Bäuerle, A., Teufel, M., Musche, V., Weismüller, B., Kohler, H., Hetkamp, M., Dörrie, N., Schweda, A., & Skoda, E.-M. (2020). Increased generalized anxiety, depression and distress during the COVID-19 pandemic: A cross-sectional study in Germany. *Journal of Public Health*, *42*(4), 672–678. https://doi.org/10.1093/pubmed/fdaa106

Beausaert, S., Froehlich, D. E., Devos, C., & Riley, P. (2016). Effects of support on stress and burnout in school principals. *Educational Research*, *58*(4), 347–365. https://doi.org/10.1080/00131881.2016.1220810

Beausaert, S., Froehlich, D. E., Riley, P., & Gallant, A. (2023). What about school principals' well-being? The role of social capital. *Educational Management Administration & Leadership*, *51*(2), 405–421. https://doi.org/10.1177/1741143221991853

Behzadnia, B., & FatahModares, S. (2020). Basic psychological need-satisfying activities during the COVID-19 outbreak. *Applied Psychology: Health and Well-Being*, *12*(4), 1115–1139. https://doi.org/10.1111/aphw.12228

Bellemare, M. F., Masaki, T., & Pepinsky, T. B. (2017). Lagged explanatory variables and the estimation of causal effect. *The Journal of Politics*, *79*(3), 949–963. https://doi.org/10.1086/690946

Bernardin, H. J., Cooke, D. K., & Villanova, P. (2000). Conscientiousness and agreeableness as predictors of rating leniency. *Journal of Applied Psychology*, *85*(2), 232–236. https://doi.org/10.1037/0021-9010.85.2.232

Bernerth, J. B., Armenakis, A. A., Feild, H. S., & Walker, H. J. (2007). Justice, cynicism, and commitment: A study of important organizational change variables. *Journal of*

Applied Behavioral Science, *43*(3), 303–326. https://doi.org/10.1177/0021886306296602

Beycioglu, K., & Kondakci, Y. (2014). Principal leadership and organizational change in schools: A cross-cultural perspective. *Journal of Organizational Change Management*, *27*(3). https://doi.org/10.1108/JOCM-06-2014-0111

Bono, J. E., Hooper, A. C., & Yoon, D. J. (2012). Impact of rater personality on transformational and transactional leadership ratings. *The Leadership Quarterly*, *23*(1), 132–145. https://doi.org/10.1016/j.leaqua.2011.11.011

Bono, J. E., & Judge, T. A. (2003). Self-concordance at work: Toward understanding the motivational effects of transformational leaders. *Academy of Management Journal*, *46*(5), 554–571. https://doi.org/10.2307/30040649

Bowling, N. A., Huang, J. L., Brower, C. K., & Bragg, C. B. (2023). The quick and the careless: The construct validity of page time as a measure of insufficient effort responding to surveys. *Organizational Research Methods*, *26*(2), 323–352. https://doi.org/10.1177/10944281211056520

Breevaart, K., & Tims, M. (2019). Crafting social resources on days when you are emotionally exhausted: The role of job insecurity. *Journal of Occupational and Organizational Psychology*, *92*(4), 806–824. https://doi.org/10.1111/joop.12261

Brislin, R. W. (1986). The wording and translation of research instruments. In W. J. Lonner & J. W. Berry (Eds.), *Field methods in cross-cultural research* (pp. 137–164). Sage Publications.

Brosi, P., Spörrle, M., & Welpe, I. M. (2018). Do we work hard or are we just great? The effects of organizational pride due to effort and ability on proactive behavior. *Business Research*, *11*(2), 357–373. https://doi.org/10.1007/s40685-018-0061-7

Buffone, P. (2021). Agility: An essential element of leadership for an evolving educational landscape. *FACETS*, *6*, 1610–1620. https://doi.org/10.1139/facets-2021-0085

Bundy, J., Pfarrer, M. D., Short, C. E., & Coombs, W. T. (2017). Crises and crisis management: Integration, interpretation, and research development. *Journal of Management*, *43*(6), 1661–1692. https://doi.org/10.1177/0149206316680030

Burro, R., Vicentini, G., Rocca, E., Barnaba, V., Hall, R., & Raccanello, D. (2021). Development and validation of the Robust—Pandemic Coping Scale (R-PCS). *Frontiers in Psychology*, *12*, Article 725344. https://doi.org/10.3389/fpsyg.2021.725344

Burton, L. J., Welty Peachey, J., & Wells, J. E. (2017). The role of servant leadership in developing an ethical climate in sport organizations. *Journal of Sport Management*, *31*(3), 229–240. https://doi.org/10.1123/jsm.2016-0047

Bush, T. (2021). Leading through COVID-19: Managing a crisis. *Educational Management Administration & Leadership*, *49*(3), 373–374. https://doi.org/10.1177/1741143221997267

Byrne, B. M. (1998). *Structural equation modeling with LISREL, PRELIS, and SIMPLIS: Basic concepts, applications, and programming*. Erlbaum.

Cai, Z., Mao, Y., Gong, T., Xin, Y., & Lou, J. (2023). The effect of servant leadership on work resilience: Evidence from the hospitality industry during the COVID-19 period. *International Journal of Environmental Research and Public Health*, *20*(2), Article 1322. https://doi.org/10.3390/ijerph20021322

Cangiano, F., Parker, S. K., & Yeo, G. B. (2019). Does daily proactivity affect well-being? The moderating role of punitive supervision. *Journal of Organizational Behavior*, *40*(1), 59–72. https://doi.org/10.1002/job.2321

Carnevale, J. B., & Hatak, I. (2020). Employee adjustment and well-being in the era of COVID-19: Implications for human resource management. *Journal of Business Research*, *116*, 183–187. https://doi.org/10.1016/j.jbusres.2020.05.037

Cerasoli, C. P., Nicklin, J. M., & Ford, M. T. (2014). Intrinsic motivation and extrinsic incentives jointly predict performance: A 40-year meta-analysis. *Psychological Bulletin*, *140*(4), 980–1008. https://doi.org/10.1037/a0035661

Chan, M., Sharkey, J. D., Lawrie, S. I., Arch, D. A. N., & Nylund-Gibson, K. (2021). Elementary school teacher well-being and supportive measures amid COVID-19: An exploratory study. *School Psychology*, *36*(6), 533–545. https://doi.org/10.1037/spq0000441

Chandler, J., Rosenzweig, C., Moss, A. J., Robinson, J., & Litman, L. (2019). Online panels in social science research: Expanding sampling methods beyond Mechanical Turk. *Behavior Research Methods*, *51*(5), 2022–2038. https://doi.org/10.3758/s13428-019-01273-7

Chen, N. Y.-F., Crant, J. M., Wang, N., Kou, Y., Qin, Y., Yu, J., & Sun, R. (2021). When there is a will there is a way: The role of proactive personality in combating COVID-19. *Journal of Applied Psychology*, *106*(2), 199–213. https://doi.org/10.1037/apl0000865

Chiniara, M., & Bentein, K. (2016). Linking servant leadership to individual performance: Differentiating the mediating role of autonomy, competence and relatedness need satisfaction. *The Leadership Quarterly*, *27*(1), 124–141. https://doi.org/10.1016/j.leaqua.2015.08.004

Choudhary, A. I., Akhtar, S. A., & Zaheer, A. (2013). Impact of transformational and servant leadership on organizational performance: A comparative analysis. *Journal of Business Ethics*, *116*(2), 433–440. https://doi.org/10.1007/s10551-012-1470-8

Cianci, A. M., Hannah, S. T., Roberts, R. P., & Tsakumis, G. T. (2014). The effects of authentic leadership on followers' ethical decision-making in the face of temptation: An experimental study. *The Leadership Quarterly*, *25*(3), 581–594. https://doi.org/10.1016/j.leaqua.2013.12.001

Cohen, J. (1992). A power primer. *Psychological Bulletin*, *112*(1), 155–159. https://doi.org/10.1037/0033-2909.112.1.155

Cole, D. A., Ciesla, J. A., & Steiger, J. H. (2007). The insidious effects of failing to include design-driven correlated residuals in latent-variable covariance structure analysis. *Psychological Methods*, *12*(4), 381–398. https://doi.org/10.1037/1082-989X.12.4.381

Collins, M. D., Dasborough, M. T., Gregg, H. R., Xu, C., Midel Deen, C., He, Y., & Restubog, S. L. D. (2023). Traversing the storm: An interdisciplinary review of crisis leadership. *The Leadership Quarterly*, *34*(1), Article 101661. https://doi.org/10.1016/j.leaqua.2022.101661

Colquitt, J. A. (2001). On the dimensionality of organizational justice: A construct validation of a measure. *Journal of Applied Psychology*, *86*(3), 386–400. https://doi.org/10.1037//0021-9010.86.3.386

Coombs, W. T., & Holladay, S. J. (1996). Communication and attributions in a crisis: An experimental study in crisis communication. *Journal of Public Relations Research*, *8*(4), 279–295. https://doi.org/10.1207/s1532754xjprr0804_04

Coombs, W. T., & Holladay, S. J. (2005). An exploratory study of stakeholder emotions: Affect and crises. In N. M. Ashkanasy, W. J. Zerbe, & C. E. J. Härtel (Eds.), *The effect of affect in organizational settings* (pp. 263–280). Emerald Group Publishing Limited. https://doi.org/10.1016/S1746-9791(05)01111-9

Crawford, E. R., LePine, J. A., & Rich, B. L. (2010). Linking job demands and resources to employee engagement and burnout: A theoretical extension and meta-analytic test. *Journal of Applied Psychology*, *95*(5), 834–848. https://doi.org/10.1037/a0019364

Crawshaw, J. R., van Dick, R., & Brodbeck, F. C. (2012). Opportunity, fair process and relationship value: Career development as a driver of proactive work behaviour. *Human Resource Management Journal*, *22*(1), 4–20. https://doi.org/10.1111/j.1748-8583.2011.00169.x

Curran, P. G. (2016). Methods for the detection of carelessly invalid responses in survey data. *Journal of Experimental Social Psychology*, *66*, 4–19. https://doi.org/10.1016/j.jesp.2015.07.006

Curran, P. J., Obeidat, K., & Losardo, D. (2010). Twelve frequently asked questions about growth curve modeling. *Journal of Cognition and Development*, *11*(2), 121–136. https://doi.org/10.1080/15248371003699969

Dasborough, M. T., & Scandura, T. (2022). Leading through the crisis: "Hands off" or "hands-on"? *Journal of Leadership & Organizational Studies*, *29*(2), 219–223. https://doi.org/10.1177/15480518211036472

Deci, E. L., Olafsen, A. H., & Ryan, R. M. (2017). Self-determination theory in work organizations: The state of a science. *Annual Review of Organizational Psychology and Organizational Behavior*, *4*, 19–43. https://doi.org/10.1146/annurev-orgpsych-032516-113108

Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, *11*(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01

Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, *86*(3), 499–512. https://doi.org/10.1037//0021-9010.86.3.499

Demerouti, E., Bakker, A. B., Vardakou, I., & Kantas, A. (2003). The convergent validity of two burnout instruments. *European Journal of Psychological Assessment*, *19*(1), 12–23. https://doi.org/10.1027//1015-5759.19.1.12

Demerouti, E., Mostert, K., & Bakker, A. B. (2010). Burnout and work engagement: A thorough investigation of the independency of both constructs. *Journal of Occupational Health Psychology*, *15*(3), 209–222. https://doi.org/10.1037/a0019408

Dormann, C., & Griffin, M. A. (2015). Optimal time lags in panel studies. *Psychological Methods*, *20*(4), 489–505. https://doi.org/10.1037/met0000041

Du, X., Song, Y., Wang, H., Chen, W., Wang, L., Feng, X., Zhang, X., & Song, C. (2024). Research on the relationship between nurses' compliance with standard precautions, servant leadership and emotional exhaustion: A cross-sectional survey. *Journal of Advanced Nursing*, *80*(7), 2822–2834. https://doi.org/10.1111/jan.16020

Edwards, J. R. (2011). The fallacy of formative measurement. *Organizational Research Methods*, *14*(2), 370–388. https://doi.org/10.1177/1094428110378369

Ehrhart, M. G. (2004). Leadership and procedural justice climate as antecedents of unit-level organizational citizenship behavior. *Personnel Psychology*, *57*(1), 61–94. https://doi.org/10.1111/j.1744-6570.2004.tb02484.x

Einola, K., & Alvesson, M. (2021). The perils of authentic leadership theory. *Leadership*, *17*(4), 483–490. https://doi.org/10.1177/17427150211004059

Ejelöv, E., & Luke, T. J. (2020). "Rarely safe to assume": Evaluating the use and interpretation of manipulation checks in experimental social psychology. *Journal of Experimental Social Psychology*, *87*. https://doi.org/10.1016/j.jesp.2019.103937

Ellis, A. M., Bauer, T. N., Erdogan, B., & Truxillo, D. M. (2019). Daily perceptions of relationship quality with leaders: Implications for follower well-being. *Work & Stress*, *33*(2), 119–136. https://doi.org/10.1080/02678373.2018.1445670

Enders, C. K. (2022). *Applied missing data analysis*. The Guilford Press.

Eva, N., Robin, M., Sendjaya, S., van Dierendonck, D., & Liden, R. C. (2019). Servant leadership: A systematic review and call for future research. *The Leadership Quarterly*, *30*(1), 111–132. https://doi.org/10.1016/j.leaqua.2018.07.004

Eva, N., Sendjaya, S., Prajogo, D., Cavanagh, A., & Robin, M. (2018). Creating strategic fit: Aligning servant leadership with organizational structure and strategy. *Personnel Review*, *47*(1), 166–186. https://doi.org/10.1108/PR-03-2016-0064

Fay, D., & Hüttges, A. (2017). Drawbacks of proactivity: Effects of daily proactivity on daily salivary cortisol and subjective well-being. *Journal of Occupational Health Psychology*, *22*(4), 429–442. https://doi.org/10.1037/ocp0000042

Fedor, D. B., Caldwell, S., & Herold, D. M. (2006). The effects of organizational changes on employee commitment: A multilevel investigation. *Personnel Psychology*, *59*(1), 1–29. https://doi.org/10.1111/j.1744-6570.2006.00852.x

Fest, S., Kvaløy, O., Nieken, P., & Schöttner, A. (2021). How (not) to motivate online workers: Two controlled field experiments on leadership in the gig economy. *The Leadership Quarterly*, *32*(6), Article 101514. https://doi.org/10.1016/j.leaqua.2021.101514

Fiedler, F. E. (1967). *A theory of leadership effectiveness*. McGraw-Hill.

Fischer, R., & Karl, J. A. (2019). A primer to (cross-cultural) multi-group invariance testing possibilities in R. *Frontiers in Psychology*, *10*, Article 1507. https://doi.org/10.3389/fpsyg.2019.01507

Fischer, T. (2023). Measuring behaviors counterfactually. *The Leadership Quarterly*, *34*(6), 101750. https://doi.org/10.1016/j.leaqua.2023.101750

Fischer, T., & Dietz, J. (2020). Measures of authentic, ethical, and servant leadership spuriously predict objective outcomes. *Academy of Management Proceedings*, *2020*(1). https://doi.org/10.5465/AMBPP.2020.18746abstract

Fischer, T., Dietz, J., & Antonakis, J. (2017). Leadership process models: A review and synthesis. *Journal of Management*, *43*(6), 1726–1753. https://doi.org/10.1177/0149206316682830

Fischer, T., Dietz, J., & Antonakis, J. (2024). A fatal flaw: Positive leadership style research creates causal illusions. *The Leadership Quarterly*, *35*(3), 101771. https://doi.org/10.1016/j.leaqua.2023.101771

Fischer, T., Hambrick, D. C., Sajons, G. B., & Van Quaquebeke, N. (2023). Leadership science beyond questionnaires. *The Leadership Quarterly*, *34*(6), Article 101752. https://doi.org/10.1016/j.leaqua.2023.101752

Fischer, T., & Sitkin, S. B. (2023). Leadership styles: A comprehensive assessment and way forward. *Academy of Management Annals*, *17*(1), 331–372. https://doi.org/10.5465/annals.2020.0340

Flora, D. B. (2020). Your coefficient alpha is probably wrong, but which coefficient omega is right? A tutorial on using R to obtain better reliability estimates. *Advances in Methods and Practices in Psychological Science*, *3*(4), 484–501. https://doi.org/10.1177/2515245920951747

Freeman, R., Knights, J., Beaton, L., Araujo, M., Yuan, S., Clarkson, J., Young, L., & Humphris, G. (2021). Prediction of emotional exhaustion over the course of the COVID-19 pandemic in primary care dental staff: An intensive longitudinal study. *BMJ Open*, *11*, Article e054827. https://doi.org/10.1136/bmjopen-2021-054827

Fugate, M., Prussia, G. E., & Kinicki, A. J. (2012). Managing employee withdrawal during organizational change: The role of threat appraisal. *Journal of Management*, *38*(3), 890–914. https://doi.org/10.1177/0149206309352881

Gabriel, A. S., Podsakoff, N. P., Beal, D. J., Scott, B. A., Sonnentag, S., Trougakos, J. P., & Butts, M. M. (2019). Experience sampling methods: A discussion of critical trends and considerations for scholarly advancement. *Organizational Research Methods*, *22*(4), 969–1006. https://doi.org/10.1177/1094428118802626

Gagné, M., Parker, S. K., Griffin, M. A., Dunlop, P. D., Knight, C., Klonek, F. E., & Parent-Rocheleau, X. (2022). Understanding and shaping the future of work with self-determination theory. *Nature Reviews Psychology*, *1*, 378–392. https://doi.org/10.1038/s44159-022-00056-w

Garber, J. S., Madigan, E. A., Click, E. R., & Fitzpatrick, J. J. (2009). Attitudes towards collaboration and servant leadership among nurses, physicians and residents. *Journal of Interprofessional Care*, *23*(4), 331–340. https://doi.org/10.1080/13561820902886253

Gardner, W. L., Cogliser, C. C., Davis, K. M., & Dickens, M. P. (2011). Authentic leadership: A review of the literature and research agenda. *The Leadership Quarterly*, *22*(6), 1120–1145. https://doi.org/10.1016/j.leaqua.2011.09.007

Gardner, W. L., Lowe, K. B., Meuser, J. D., Noghani, F., Gullifor, D. P., & Cogliser, C. C. (2020). The leadership trilogy: A review of the third decade of The Leadership Quarterly. *The Leadership Quarterly*, *31*(1), Article 101379. https://doi.org/10.1016/j.leaqua.2019.101379

Garretsen, H., Stoker, J. I., Soudis, D., & Wendt, H. (2024). The pandemic that shocked managers across the world: The impact of the COVID-19 crisis on leadership

behavior. *The Leadership Quarterly*, *35*(5), Article 101630. https://doi.org/10.1016/j.leaqua.2022.101630

Gau, L. A., & van Dierendonck, D. (2011). The impact of servant leadership on organisational commitment among the highly talented: The role of challenging work conditions and psychological empowerment. *European Journal of International Management*, *5*(5), 463–483. https://doi.org/10.1504/EJIM.2011.042174

Geiser, C. (2021). *Longitudinal structural equation modeling with Mplus: A latent state-trait perspective*. The Guilford Press.

Gillet, J., Cartwright, E., & van Vugt, M. (2011). Selfish or servant leadership? Evolutionary predictions on leadership personalities in coordination games. *Personality and Individual Differences*, *51*(3), 231–236. https://doi.org/10.1016/j.paid.2010.06.003

Gilmer, D. O., Magley, V. J., Dugan, A. G., Namazi, S., & Cherniack, M. G. (2023). Relative importance of incivility and loneliness in occupational health outcomes. *Occupational Health Science*, *7*, 531–555. https://doi.org/10.1007/s41542-023-00145-z

Goldammer, P., Annen, H., Stöckli, P. L., & Jonas, K. (2020). Careless responding in questionnaire measures: Detection, impact, and remedies. *The Leadership Quarterly*, *31*(4), Article 101384. https://doi.org/10.1016/j.leaqua.2020.101384

Goldberg, L. R. (1999). A broad-bandwidth, public domain, personality inventory measuring the lower-level facets of several five-factor models. In I. Mervielde, I. Deary, F. Fruyt, & F. Ostendorf (Eds.), *Personality psychology in Europe* (Vol. 7, pp. 7–28). Tilburg University Press.

Goodman, J. S., & Blum, T. C. (1996). Assessing the non-random sampling effects of subject attrition in longitudinal research. *Journal of Management*, *22*(4), 627–652. https://doi.org/10.1177/014920639602200405

Gotsis, G., & Grimani, K. (2016). The role of servant leadership in fostering inclusive organizations. *Journal of Management Development*, *35*(8), 985–1010. https://doi.org/10.1108/JMD-07-2015-0095

Gray, C. E., Spector, P. E., Wells, J. E., Bianchi, S. R., Ocana-Dominguez, C., Stringer, C., Sarmiento, J., & Butler, T. (2023). How can organizational leaders help? Examining the effectiveness of leaders' support during a crisis. *Journal of Business and Psychology*, *38*(1), 215–237. https://doi.org/10.1007/s10869-022-09810-6

Greenleaf, R. K. (1970). *The servant as leader*. Center for Applied Studies.

Greenleaf, R. K. (1977). *Servant-leadership: A journey into the nature of legitimate power and greatness*. Paulist Press.

Greenleaf, R. K. (2002). *Servant-leadership: A journey into the nature of legitimate power and greatness* (25th anniversary ed.). Paulist Press.

Griffin, M. A., Neal, A., & Parker, S. K. (2007). A new model of work role performance: Positive behavior in uncertain and interdependent contexts. *Academy of Management Journal*, *50*(2), 327–347. https://doi.org/10.5465/AMJ.2007.24634438

Griffin, M. A., Parker, S. K., & Mason, C. M. (2010). Leader vision and the development of adaptive and proactive performance: A longitudinal study. *Journal of Applied Psychology*, *95*(1), 174–182. https://doi.org/10.1037/a0017263

Güntner, A. V., Klonek, F., Lehmann-Willenbrock, N., & Kauffeld, S. (2020). Follower behavior renders leader behavior endogenous: The simultaneity problem, estimation challenges, and solutions. *The Leadership Quarterly*, *31*(6), Article 101441. https://doi.org/10.1016/j.leaqua.2020.101441

Güntner, A. V., Meinecke, A. L., & Lüders, Z. E. K. (2023). Interaction coding in leadership research: A critical review and best-practice recommendations to measure behavior.

The Leadership Quarterly, *34*(6), Article 101751. https://doi.org/10.1016/j.leaqua.2023.101751

Gustavson, K., Soest, T., Karevold, E., & Røysamb, E. (2012). Attrition and generalizability in longitudinal studies: Findings from a 15-year population-based study and a Monte Carlo simulation study. *BMC Public Health*, *12*, Article 918. https://doi.org/10.1186/1471-2458-12-918

Guthier, C., Dormann, C., & Voelkle, M. C. (2020). Reciprocal effects between job stressors and burnout: A continuous time meta-analysis of longitudinal studies. *Psychological Bulletin*, *146*(12), 1146–1173. https://doi.org/10.1037/bul0000304

Halbesleben, J. R. B., Neveu, J.-P., Paustian-Underdahl, S. C., & Westman, M. (2014). Getting to the "COR": Understanding the role of resources in conservation of resources theory. *Journal of Management*, *40*(5), 1334–1364. https://doi.org/10.1177/0149206314527130

Hansbrough, T. K., Lord, R. G., & Schyns, B. (2015). Reconsidering the accuracy of follower leadership ratings. *The Leadership Quarterly*, *26*(2), 220–237. https://doi.org/10.1016/j.leaqua.2014.11.006

Hansen, L. P. (1982). Large sample properties of generalized method of moments estimators. *Econometrica*, *50*(4), 1029–1054. https://doi.org/10.2307/1912775

Harms, P. D., Credé, M., Tynan, M., Leon, M., & Jeung, W. (2017). Leadership and stress: A meta-analytic review. *The Leadership Quarterly*, *28*(1), 178–194. https://doi.org/10.1016/j.leaqua.2016.10.006

Harris, A., & Jones, M. (2020). COVID 19 – school leadership in disruptive times. *School Leadership & Management*, *40*(4), 243–247. https://doi.org/10.1080/13632434.2020.1811479

Hauser, D. J., Ellsworth, P. C., & Gonzalez, R. (2018). Are manipulation checks necessary? *Frontiers in Psychology*, *9*. https://doi.org/10.3389/fpsyg.2018.00998

Hausman, J. A. (1978). Specification tests in econometrics. *Econometrica*, *46*(6), 1251–1271. https://doi.org/10.2307/1913827

Hayes, A. F., & Cai, L. (2007). Using heteroskedasticity-consistent standard error estimators in OLS regression: An introduction and software implementation. *Behavior Research Methods*, *39*(4), 709–722. https://doi.org/10.3758/bf03192961

Hertwig, R., & Ortmann, A. (2001). Experimental practices in economics: A methodological challenge for psychologists? *Behavioral and Brain Sciences*, *24*(3), 383–403. https://doi.org/10.1017/S0140525X01004149

Hilger, K. J. E., Scheibe, S., Frenzel, A. C., & Keller, M. M. (2021). Exceptional circumstances: Changes in teachers' work characteristics and well-being during COVID-19 lockdown. *School Psychology*, *36*(6), 516–532. https://doi.org/10.1037/spq0000457

Hill, A. D., Johnson, S. G., Greco, L. M., O'Boyle, E. H., & Walter, S. L. (2021). Endogeneity: A review and agenda for the methodology-practice divide affecting micro and macro research. *Journal of Management*, *47*(1), 105–143. https://doi.org/10.1177/0149206320960533

Hobfoll, S. E. (1989). Conservation of resources. A new attempt at conceptualizing stress. *American Psychologist*, *44*(3), 513–524. https://doi.org/10.1037/0003-066X.44.3.513

Hobfoll, S. E., Halbesleben, S. E., Neveu, J.-P., & Westman, M. (2018). Conservation of resources in the organizational context: The reality of resources and their consequences. *Annual Review of Organizational Psychology and Organizational Behavior*, *5*, 103–128. https://doi.org/10.1146/annurev-orgpsych-032117-104640

Hoch, J. E., Bommer, W. H., Dulebohn, J. H., & Wu, D. (2018). Do ethical, authentic, and servant leadership explain variance above and beyond transformational leadership? A meta-analysis. *Journal of Management*, *44*(2), 501–529. https://doi.org/10.1177/0149206316665461

Howes, S. S., Howes, J. C., & Huffcutt, A. I. (2021). Ch-Ch-Ch-Changes, and I-O psychology's role in managing them. *Industrial and Organizational Psychology*, *14*(1–2), 156–159. https://doi.org/10.1017/iop.2021.28

Hu, J., He, W., & Zhou, K. (2020). The mind, the heart, and the leader in times of crisis: How and when COVID-19-triggered mortality salience relates to state anxiety, job engagement, and prosocial behavior. *Journal of Applied Psychology*, *105*(11), 1218–1233. https://doi.org/10.1037/apl0000620

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, *6*(1), 1–55. https://doi.org/10.1080/10705519909540118

Hu, W., Zhang, S., & Liu, S. (2022). Red tape and community workers' proactive behavior during COVID-19: Applying the job demands-resources model. *Frontiers in Psychology*, *13*, Article 871025. https://doi.org/10.3389/fpsyg.2022.871025

Inceoglu, I., Thomas, G., Chu, C., Plans, D., & Gerbasi, A. (2018). Leadership behavior and employee well-being: An integrated review and a future research agenda. *The Leadership Quarterly*, *29*(1), 179–202. https://doi.org/10.1016/j.leaqua.2017.12.006

James, E. H., Wooten, L. P., & Dushek, K. (2011). Crisis management: Informing a new leadership research agenda. *Academy of Management Annals*, *5*(1), 455–493. https://doi.org/10.1080/19416520.2011.589594

Jin, S., Li, Y., & Xiao, S. (2021). What drives employees' innovative behaviors in emerging-market multinationals? An integrated approach. *Frontiers in Psychology*, *12*, Article 803681. https://doi.org/10.3389/fpsyg.2021.803681

Johns, G. (2006). The essential impact of context on organizational behavior. *Academy of Management Review*, *31*(2), 386–408. https://doi.org/10.5465/amr.2006.20208687mes

Johns, G. (2017). Reflections on the 2016 Decade Award: Incorporating context in organizational research. *Academy of Management Review*, *42*(4), 577–595. https://doi.org/10.5465/amr.2017.0044

Johns, G. (2018). Advances in the treatment of context in organizational research. *Annual Review of Organizational Psychology and Organizational Behavior*, *5*, 21–46. https://doi.org/10.1146/annurev-orgpsych-032117-104406

Johns, G. (2024). The context deficit in leadership research. *The Leadership Quarterly*, *35*(1), Article 101755. https://doi.org/10.1016/j.leaqua.2023.101755

Johnson, R. E., Venus, M., Lanaj, K., Mao, C., & Chang, C.-H. (2012). Leader identity as an antecedent of the frequency and consistency of transformational, consideration, and abusive leadership behaviors. *Journal of Applied Psychology*, *97*(6), 1262–1272. https://doi.org/10.1037/a0029043

Johnson, S., Cooper, C., Cartwright, S., Donald, I., Taylor, P., & Millet, C. (2005). The experience of work-related stress across occupations. *Journal of Managerial Psychology*, *20*(2), 178–187. https://doi.org/10.1108/02683940510579803

Jonsdottir, I. H., Nordlund, A., Ellbin, S., Ljung, T., Glise, K., Währborg, P., Sjörs, A., & Wallin, A. (2017). Working memory and attention are still impaired after three years in patients with stress-related exhaustion. *Scandinavian Journal of Psychology*, *58*(6), 504–509. https://doi.org/10.1111/sjop.12394

Kaltiainen, J., & Hakanen, J. (2020). Fostering task and adaptive performance through employee well-being: The role of servant leadership. *Business Research Quarterly*, *25*(1), 28–43. https://doi.org/10.1177/2340944420981599

Kang, H., Jiang, Y., Zhao, Q., & Small, D. S. (2020). *ivmodel: An R package for inference and sensitivity analysis of instrumental variables models with one endogenous variable*. https://arxiv.org/pdf/2002.08457

Kauppila, O.-P., Ehrnrooth, M., Mäkelä, K., Smale, A., Sumelius, J., & Vuorenmaa, H. (2022). Serving to help and helping to serve: Using servant leadership to influence beyond supervisory relationships. *Journal of Management*, *48*(3), 764–790. https://doi.org/10.1177/0149206321994173

Kaya, B., & Karatepe, O. M. (2020). Does servant leadership better explain work engagement, career satisfaction and adaptive performance than authentic leadership? *International Journal of Contemporary Hospitality Management*, *32*(6), 2075–2095. https://doi.org/10.1108/IJCHM-05-2019-0438

Kelemen, T. K., Matthews, S. H., & Breevaart, K. (2020). Leading day-to-day: A review of the daily causes and consequences of leadership behaviors. *The Leadership Quarterly*, *31*(1). https://doi.org/10.1016/j.leaqua.2019.101344

Kennedy, P. (2008). *A guide to econometrics*. Blackwell.

Kenny, D. A. (1979). *Correlation and causality*. Wiley.

Khademi, M., Schmid Mast, M., Zehnder, C., & De Saint Priest, O. (2021). The problem of demand effects in power studies: Moving beyond power priming. *The Leadership Quarterly*, *32*(4). https://doi.org/10.1016/j.leaqua.2021.101496

Kim, J., Lee, H. W., Gao, H., & Johnson, R. E. (2021). When CEOs are all about themselves: Perceived CEO narcissism and middle managers' workplace behaviors amid the

COVID-19 pandemic. *Journal of Applied Psychology*, *106*(9), 1283–1298. https://doi.org/10.1037/apl0000965

Kirchner, K., Ipsen, C., & Hansen, J. P. (2021). COVID-19 leadership challenges in knowledge work. *Knowledge Management Research & Practice*, *19*(4), 493–500. https://doi.org/10.1080/14778238.2021.1877579

Kleiber, C., & Zeileis, A. (2008). *Applied econometrics with R*. Springer. https://doi.org/10.1007/978-0-387-77318-6

Kniffin, K. M., Narayanan, J., Anseel, F., Antonakis, J., Ashford, S. P., Bakker, A. B., Bamberger, P., Bapuji, H., Bhave, D. P., Choi, V. K., Creary, S. J., Demerouti, E., Flynn, F. J., Gelfand, M. J., Greer, L. L., Johns, G., Kesebir, S., Klein, P. G., Lee, S. Y., … van Vugt, M. (2021). COVID-19 and the workplace: Implications, issues, and insights for future research and action. *American Psychologist*, *76*(1), 63–77. https://doi.org/10.1037/amp0000716

König, J., Jäger-Biela, D. J., & Glutsch, N. (2020). Adapting to online teaching during COVID-19 school closure: Teacher education and teacher competence effects among early career teachers in Germany. *European Journal of Teacher Education*, *43*(4), 608–622. https://doi.org/10.1080/02619768.2020.1809650

Kool, M., & van Dierendonck, D. (2012). Servant leadership and commitment to change, the mediating role of justice and optimism. *Journal of Organizational Change Management*, *25*(3), 422–433. https://doi.org/10.1108/09534811211228139

Krause, R., Withers, M. C., & Waller, M. J. (2024). Leading the board in a crisis: Strategy and performance implications of board chair directive leadership. *Journal of Management*, *50*(2), 654–684. https://doi.org/10.1177/01492063221121584

Kunzler, A. M., Röthke, N., Günthner, L., Stoffers-Winterling, J., Tüscher, O., Coenen, M., Rehfuess, E., Schwarzer, G., Binder, H., Schmucker, C., Meerpohl, J. J., & Lieb, K.

(2021). Mental burden and its risk and protective factors during the early phase of the SARS-CoV-2 pandemic: Systematic review and meta-analyses. *Globalization and Health*, *17*, Article 34. https://doi.org/10.1186/s12992-021-00670-y

Kuoppala, J., Lamminpää, A., Liira, J., & Vainio, H. (2008). Leadership, job well-being, and health effects—A systematic review and a meta-analysis. *Journal of Occupational and Environmental Medicine*, *50*(8), 904–915. https://doi.org/10.1097/JOM.0b013e31817e918d

Ladkin, D., & Taylor, S. S. (2010). Enacting the 'true self': Towards a theory of embodied authentic leadership. *The Leadership Quarterly*, *21*(1), 64–74. https://doi.org/10.1016/j.leaqua.2009.10.005

Lam, C. K., Walter, F., & Huang, X. (2017). Supervisors' emotional exhaustion and abusive supervision: The moderating roles of perceived subordinate performance and supervisor self-monitoring. *Journal of Organizational Behavior*, *38*(8), 1151–1166. https://doi.org/10.1002/job.2193

Lamprinou, V. D. I., Tasoulis, K., & Kravariti, F. (2021). The impact of servant leadership and perceived organisational and supervisor support on job burnout and work–life balance in the era of teleworking and COVID-19. *Leadership & Organization Development Journal*, *42*(7), 1071–1088. https://doi.org/10.1108/LODJ-12-2020-0526

Lan, Y., Xia, Y., Zhang, X., Deng, H., & Han, C. (2023). A bittersweet experience: How does engaging in servant leader behaviors influence the actor's work engagement. *Current Psychology*, *42*(23), 19941–19954. https://doi.org/10.1007/s12144-022-03119-6

Landis, J. R., & Koch, G. G. (1977). The measurement of observer agreement for categorical data. *Biometrics*, *33*(1), 159–174. https://doi.org/10.2307/2529310

Lee, A., Inceoglu, I., Hauser, O., & Greene, M. (2022). Determining causal relationships in leadership research using Machine Learning: The powerful synergy of experiments

and data science. *The Leadership Quarterly*, *33*(5), Article 101426. https://doi.org/10.1016/j.leaqua.2020.101426

Lee, A., Legood, A., Hughes, D., Tian, A. W., Newman, A., & Knight, C. (2020). Leadership, creativity and innovation: A meta-analytic review. *European Journal of Work and Organizational Psychology*, *29*(1), 1–35. https://doi.org/10.1080/1359432X.2019.1661837

Lee, A., Lyubovnikova, J., Tian, A. W., & Knight, C. (2020). Servant leadership: A meta-analytic examination of incremental contribution, moderation, and mediation. *Journal of Occupational and Organizational Psychology*, *93*(1), 1–44. https://doi.org/10.1111/joop.12265

Lee, K., Sharif, M., Scandura, T., & Kim, J. (2017). Procedural justice as a moderator of the relationship between organizational change intensity and commitment to organizational change. *Journal of Organizational Change Management*, *30*(4), 501–524. https://doi.org/10.1108/JOCM-08-2015-0139

Lee, S. Y., Sung, Y. H., Choi, D., & Kim, D. H. (2021). Surviving a crisis: How crisis type and psychological distance can inform corporate crisis responses. *Journal of Business Ethics*, *168*(4), 795–811. https://doi.org/10.1007/s10551-019-04233-5

Lemoine, G. J., Hartnell, C. A., & Leroy, H. (2019). Taking stock of moral approaches to leadership: An integrative review of ethical, authentic, and servant leadership. *Academy of Management Annals*, *13*(1), 148–187. https://doi.org/10.5465/annals.2016.0121

LeNoble, C., Naranjo, A., Shoss, M., & Horan, K. (2023). Navigating a context of severe uncertainty: The effect of industry unsafety signals on employee well-being during the COVID-19 crisis. *Occupational Health Science*, *7*, 707–743. https://doi.org/10.1007/s41542-023-00155-x

Lesener, T., Gusy, B., & Wolter, C. (2019). The job demands-resources model: A meta-analytic review of longitudinal studies. *Work & Stress*, *33*(1), 76–103. https://doi.org/10.1080/02678373.2018.1529065

Leventhal, G. S. (1980). What should be done with equity theory? In K. J. Gergen, M. S. Greenberg, & R. H. Willis (Eds.), *Social exchange* (pp. 27–55). Springer. https://doi.org/10.1007/978-1-4613-3087-5_2

Lian, H., Li, J. K., Du, C., Wu, W., Xia, Y., & Lee, C. (2022). Disaster or opportunity? How COVID-19-associated changes in environmental uncertainty and job insecurity relate to organizational identification and performance. *Journal of Applied Psychology*, *107*(5), 693–706. https://doi.org/10.1037/apl0001011

Liao, C., Lee, H. W., Johnson, R. E., & Lin, S.-H. (2021). Serving you depletes me? A leader-centric examination of servant leadership behaviors. *Journal of Management*, *47*(5), 1185–1218. https://doi.org/10.1177/0149206320906883

Liden, R. C., & Antonakis, J. (2009). Considering context in psychological leadership research. *Human Relations*, *62*(11), 1587–1605. https://doi.org/10.1177/0018726709346374

Liden, R. C., Wayne, S. J., Meuser, J. D., Hu, J., Wu, J., & Liao, C. (2015). Servant leadership: Validation of a short form of the SL-28. *The Leadership Quarterly*, *26*(2), 254–269. https://doi.org/10.1016/j.leaqua.2014.12.002

Liden, R. C., Wayne, S. J., Zhao, H., & Henderson, D. (2008). Servant leadership: Development of a multidimensional measure and multi-level assessment. *The Leadership Quarterly*, *19*(2), 161–177. https://doi.org/10.1016/j.leaqua.2008.01.006

Liu, D., Chen, Y., & Li, N. (2021). Tackling the negative impact of COVID-19 on work engagement and taking charge: A multi-study investigation of frontline health

workers. *Journal of Applied Psychology*, *106*(2), 185–198. https://doi.org/10.1037/apl0000866

Lohrey, S., & Guillaume, Y. R. F. (2015). Servant leadership development: The role of training and leader identification. *Academy of Management Proceedings*, *2015*(1). https://doi.org/10.5465/ambpp.2015.17408abstract

Lonati, S., Quiroga, B. F., Zehnder, C., & Antonakis, J. (2018). On doing relevant and rigorous experiments: Review and recommendations. *Journal of Operations Management*, *64*(1), 19–40. https://doi.org/10.1016/j.jom.2018.10.003

Lord, R. G., Brown, D. J., Harvey, J. L., & Hall, R. J. (2001). Contextual constraints on prototype generation and their multilevel consequences for leadership perceptions. *The Leadership Quarterly*, *12*(3), 311–338. https://doi.org/10.1016/S1048-9843(01)00081-9

Lord, R. G., Foti, R. J., & De Vader, C. L. (1984). A test of leadership categorization theory: Internal structure, information processing, and leadership perceptions. *Organizational Behavior and Human Performance*, *34*(3), 343–378. https://doi.org/10.1016/0030-5073(84)90043-6

Luo, J., & Zheng, J. (2018). The impact of servant leadership on proactive behaviors: A study based on cognitive evaluation theory. *Psychology*, *9*(5), 1228–1244. https://doi.org/10.4236/psych.2018.95075

Lyons, J. B., & Schneider, T. R. (2009). The effects of leadership style on stress outcomes. *The Leadership Quarterly*, *20*(5), 737–748. https://doi.org/10.1016/j.leaqua.2009.06.010

Ma, Y., Faraz, N. A., Ahmed, F., Iqbal, M. K., Saeed, U., Mughal, M. F., & Raza, A. (2021). Curbing nurses' burnout during COVID-19: The roles of servant leadership and

psychological safety. *Journal of Nursing Management*, *29*(8), 2383–2391. https://doi.org/10.1111/jonm.13414

MacKenzie, S. B. (2003). The dangers of poor construct conceptualization. *Journal of the Academy of Marketing Science*, *31*(3), 323–326. https://psycnet.apa.org/doi/10.1177/0092070303031003011

MacKinnon, D. P., Lockwood, C. M., & Williams, J. (2004). Confidence limits for the indirect effect: Distribution of the product and resampling methods. *Multivariate Behavioral Research*, *39*(1), 99–128. https://doi.org/10.1207/s15327906mbr3901_4

Madigan, D. J., Kim, L. E., Glandorf, H. L., & Kavanagh, O. (2023). Teacher burnout and physical health: A systematic review. *International Journal of Educational Research*, *119*, Article 102173. https://doi.org/10.1016/j.ijer.2023.102173

Maier, G. W., Streicher, B., Jonas, E., & Woschée, R. (2007). Assessment of justice in organizations: The validity of a German version of the questionnaire by Colquitt (2001). *Diagnostica*, *53*(2), 97–108. https://doi.org/10.1026/0012-1924.53.2.97

Malik, A. A., Muneeb, D., Khan, N., Usman, M., & Latif, K. F. (2022). The nexus of servant leadership and project success: The mediation of emotional intelligence and job stress and moderation of team effectiveness. *Leadership & Organization Development Journal*, *43*(8), 1186–1200. https://doi.org/10.1108/LODJ-07-2021-0339

Malloy, E., & Kavussanu, M. (2021). The effects of an authentic coaching intervention on athlete outcomes: A pilot randomised controlled trial. *Psychology of Sport and Exercise*, *57*, 101957. https://doi.org/10.1016/j.psychsport.2021.101957

Marchiondo, L. A., Myers, C. G., & Kopelman, S. (2015). The relational nature of leadership identity construction: How and when it influences perceived leadership and decision-making. *The Leadership Quarterly*, *26*(5), 892–908. https://doi.org/10.1016/j.leaqua.2015.06.006

Maslach, C., & Jackson, S. E. (1981). The measurement of experienced burnout. *Journal of Organizational Behavior*, *2*(2), 99–113. https://doi.org/10.1002/job.4030020205

Matta, F. K., Scott, B. A., Colquitt, J. A., Koopman, J., & Passantino, L. G. (2017). Is consistently unfair better than sporadically fair? An investigation of justice variability and stress. *Academy of Management Journal*, *60*(2), 743–770. https://doi.org/10.5465/amj.2014.0455

Maxwell, S. E., Cole, D. A., & Mitchell, M. A. (2011). Bias in cross-sectional analyses of longitudinal mediation: Partial and complete mediation under an autoregressive model. *Multivariate Behavioral Research*, *46*(5), 816–841. https://doi.org/10.1080/00273171.2011.606716

McArdle, J. J. (2009). Latent variable modeling of differences and changes with longitudinal data. *Annual Review of Psychology*, *60*(1), 577–605. https://doi.org/10.1146/annurev.psych.60.110707.163612

McClean, S. T., Barnes, C. M., Courtright, S. H., & Johnson, R. E. (2019). Resetting the clock on dynamic leader behaviors: A conceptual integration and agenda for future research. *Academy of Management Annals*, *13*(2), 479–508. https://doi.org/10.5465/annals.2017.0081

McCormick, B. W., Reeves, C. J., Downes, P. E., Li, N., & Ilies, R. (2020). Scientific contributions of within-person research in management: Making the juice worth the squeeze. *Journal of Management*, *46*(2), 321–350. https://doi.org/10.1177/0149206318788435

McCune Stein, A., Bell, C. M., & Ai Min, Y. (2020). Does “the servant as leader” translate into Chinese? A cross-cultural meta-analysis of servant leadership. *European Journal of Work and Organizational Psychology*, *29*(3), 315–329. https://doi.org/10.1080/1359432X.2019.1703681

McNeish, D., Stapleton, L. M., & Silverman, R. D. (2017). On the unnecessary ubiquity of hierarchical linear modeling. *Psychological Methods*, *22*(1), 114–140. https://doi.org/10.1037/met0000078

Meade, A. W., & Craig, S. B. (2012). Identifying careless responses in survey data. *Psychological Methods*, *17*(3), 437–455. https://doi.org/10.1037/a0028085

Meijman, T. F., & Mulder, G. (1998). Psychological aspects of workload. In P. J. D. Drenth, H. Thierry, & C. J. Wolff (Eds.), *Handbook of work and organizational psychology* (pp. 5–33). Psychology Press.

Meslec, N., Curseu, P. L., Fodor, O. C., & Kenda, R. (2020). Effects of charismatic leadership and rewards on individual performance. *The Leadership Quarterly*, *31*(6), Article 101423. https://doi.org/10.1016/j.leaqua.2020.101423

Michel, A., Stegmaier, R., & Sonntag, K. (2010). I scratch your back – you scratch mine. Do procedural justice and organizational identification matter for employees' cooperation during change? *Journal of Change Management*, *10*(1), 41–59. https://doi.org/10.1080/14697010903549432

Mitroff, I. I., Pauchant, T. C., & Shrivastava, P. (1988). The structure of man-made organizational crises: Conceptual and empirical issues in the development of a general theory of crisis management. *Technological Forecasting and Social Change*, *33*(2), 83–107. https://doi.org/10.1016/0040-1625(88)90075-3

Montgomery, J. M., Nyhan, B., & Torres, M. (2018). How conditioning on posttreatment variables can ruin your experiment and what to do about it. *American Journal of Political Science*, *62*(3), 760–775. https://doi.org/10.1111/ajps.12357

Mulki, J. P., Jaramillo, F., & Locander, W. B. (2006). Emotional exhaustion and organizational deviance: Can the right job and a leader's style make a difference?

Journal of Business Research, *59*(12), 1222–1230. https://doi.org/10.1016/j.jbusres.2006.09.001

Mun, S., Moon, Y., Kim, H., & Kim, N. (2022). Current discussions on employees and organizations during the COVID-19 pandemic: A systematic literature review. *Frontiers in Psychology*, *13*, Article 848778. https://doi.org/10.3389/fpsyg.2022.848778

Mutch, C. (2015). Leadership in times of crisis: Dispositional, relational and contextual factors influencing school principals' actions. *International Journal of Disaster Risk Reduction*, *14*(2), 186–194. https://doi.org/10.1016/j.ijdrr.2015.06.005

Muthén, L. K., & Muthén, B. O. (1998–2017). *Mplus user's guide*. Muthén & Muthén.

Naidoo, L. J. (2016). Leader opportunity versus threat verbal framing and nonverbal emotional expressions impact followers' creative performance. *The Leadership Quarterly*, *27*(6), 869–882. https://doi.org/10.1016/j.leaqua.2016.06.001

Neider, L. L., & Schriesheim, C. A. (2011). The Authentic Leadership Inventory (ALI): Development and empirical tests. *The Leadership Quarterly*, *22*(6), 1146–1164. https://doi.org/10.1016/j.leaqua.2011.09.008

Neill, M., Hayward, K. S., & Peterson, T. (2007). Students' perceptions of the interprofessional team in practice through the application of servant leadership principles. *Journal of Interprofessional Care*, *21*(4), 425–432. https://doi.org/10.1080/13561820701443512

Neubauer, A. B., & Voss, A. (2016). Validation and revision of a German version of the Balanced Measure of Psychological Needs Scale. *Journal of Individual Differences*, *37*(1), 56–72. https://doi.org/10.1027/1614-0001/a000188

Neubert, M. J., Hunter, E. M., & Tolentino, R. C. (2016). A servant leader and their stakeholders: When does organizational structure enhance a leader's influence? *The Leadership Quarterly*, *27*(6), 896–910. https://doi.org/10.1016/j.leaqua.2016.05.005

Newman, A., Eva, N., Bindl, U. K., & Stoverink, A. C. (2022). Organizational and vocational behavior in times of crisis: A review of empirical work undertaken during the COVID-19 pandemic and introduction to the special issue. *Applied Psychology*, *71*(3), 743–764. https://doi.org/10.1111/apps.12409

Newman, D. A. (2003). Longitudinal modeling with randomly and systematically missing data: A simulation of ad hoc, maximum likelihood, and multiple imputation techniques. *Organizational Research Methods*, *6*(3), 328–362. https://doi.org/10.1177/1094428103254673

Nicholson, N. (1984). A theory of work role transitions. *Administrative Science Quarterly*, *29*(2), 172–191. https://doi.org/10.2307/2393172

Oc, B. (2018). Contextual leadership: A systematic review of how contextual factors shape leadership and its outcomes. *The Leadership Quarterly*, *29*(1), 218–235. https://doi.org/10.1016/j.leaqua.2017.12.004

Oksanen, A., Oksa, R., Celuch, M., Cvetkovic, A., & Savolainen, I. (2022). COVID-19 anxiety and wellbeing at work in Finland during 2020-2022: A 5-wave longitudinal survey study. *International Journal of Environmental Research and Public Health*, *20*(1), Article 680. https://doi.org/10.3390/ijerph20010680

Oksanen, A., Oksa, R., Savela, N., Mantere, E., Savolainen, I., & Kaakinen, M. (2021). COVID-19 crisis and digital stressors at work: A longitudinal study on the Finnish working population. *Computers in Human Behavior*, *122*, Article 106853. https://doi.org/10.1016/j.chb.2021.106853

Oreg, S. (2003). Resistance to change: Developing an individual differences measure. *Journal of Applied Psychology*, *88*(4), 680–693. https://doi.org/10.1037/0021-9010.88.4.680

Oreg, S., & Berson, Y. (2019). Leaders' impact on organizational change: Bridging theoretical and methodological chasms. *Academy of Management Annals*, *13*(1), 272–307. https://doi.org/10.5465/annals.2016.0138

Oreg, S., By, R. T., & Michel, A. (2013). Introduction. In S. Oreg, A. Michel, & R. T. By (Eds.), *The psychology of organizational change: Viewing change from the employee's perspective* (pp. 3–14). Cambridge University Press. https://doi.org/10.1017/CBO9781139096690.002

Oreg, S., Vakola, M., & Armenakis, A. (2011). Change recipients' reactions to organizational change. *The Journal of Applied Behavioral Science*, *47*(4), 461–524. https://doi.org/10.1177/0021886310396550

Oreg, S., & van Dam, K. (2009). Organisational justice in the context of organisational change. *Netherlands Journal of Psychology*, *65*, 127–135. https://doi.org/10.1007/BF03080135

Ortmann, A., & Hertwig, R. (2001). The costs of deception: Evidence from psychology. *Experimental Economics*, *5*, 111–131. https://doi.org/10.2139/ssrn.1502853

Osborn, R. N., Hunt, J. G., & Jauch, L. R. (2002). Toward a contextual theory of leadership. *The Leadership Quarterly*, *13*(6), 797–837. https://doi.org/10.1016/S1048-9843(02)00154-6

Parker, S. K., Williams, H. M., & Turner, N. (2006). Modeling the antecedents of proactive behavior at work. *Journal of Applied Psychology*, *91*(3), 636–652. https://doi.org/10.1037/0021-9010.91.3.636

Parris, D. L., & Peachey, J. W. (2013). A systematic literature review of servant leadership theory in organizational contexts. *Journal of Business Ethics*, *113*, 377–393. https://doi.org/10.1007/s10551-012-1322-6

Peng, A. C., Gao, R., & Wang, B. (2023). Linking servant leadership to follower emotional exhaustion through impression management. *Journal of Organizational Behavior*, *44*(4), 643–659. https://doi.org/10.1002/job.2682

Peng, J. C., Jien, J.-J., & Lin, J. (2016). Antecedents and consequences of psychological contract breach. *Journal of Managerial Psychology*, *31*(8), 1312–1326. https://doi.org/10.1108/JMP-10-2015-0383

Pircher Verdorfer, A., & Peus, C. (2014). The measurement of servant leadership: Validation of a German version of the Servant Leadership Survey (SLS). *Zeitschrift Für Arbeits- Und Organisationspsychologie*, *58*(1), 1–16. https://doi.org/10.1026/0932-4089/a000133

Ployhart, R. E., & Bliese, P. D. (2006). Individual adaptability (I-ADAPT) theory: Conceptualizing the antecedents, consequences, and measurement of individual differences in adaptability. In S. Burke, L. Pierce, & E. Salas (Eds.), *Understanding adaptability: A prerequisite for effective performance within complex environments* (pp. 3–39). Emerald Group Publishing Limited. https://doi.org/10.1016/S1479-3601(05)06001-7

Podsakoff, N. P., Podsakoff, P. M., Mackenzie, S. B., & Klinger, R. L. (2013). Are we really measuring what we say we're measuring? Using video techniques to supplement traditional construct validation procedures. *Journal of Applied Psychology*, *98*(1), 99–113. https://doi.org/10.1037/a0029570

Podsakoff, P. M., Mackenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended

remedies. *Journal of Applied Psychology*, *88*(5), 879–903. https://doi.org/10.1037/0021-9010.88.5.879

Podsakoff, P. M., Mackenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual Review of Psychology*, *63*, 539–569. https://doi.org/10.1146/annurev-psych-120710-100452

Podsakoff, P. M., & Podsakoff, N. P. (2019). Experimental designs in management and leadership research: Strengths, limitations, and recommendations for improving publishability. *The Leadership Quarterly*, *30*(1), 11–33. https://doi.org/10.1016/j.leaqua.2018.11.002

Pöysä, S., Pakarinen, E., & Lerkkanen, M.-K. (2021). Patterns of teachers' occupational well-being during the COVID-19 pandemic: Relations to experiences of exhaustion, recovery, and interactional styles of teaching. *Frontiers in Education*, *6*, Article 699785. https://doi.org/10.3389/feduc.2021.699785

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, *40*(3), 879–891. https://doi.org/10.3758/brm.40.3.879

Preacher, K. J., Wichman, A. L., MacCallum, R. C., & Briggs, N. E. (2008). *Latent growth curve modeling*. Sage.

Qiu, S., & Dooley, L. (2022). How servant leadership affects organizational citizenship behavior: The mediating roles of perceived procedural justice and trust. *Leadership & Organization Development Journal*, *43*(3), 350–369. https://doi.org/10.1108/LODJ-04-2021-0146

Ramos-Pla, A., Tintoré, M., & Del Arco, I. (2021). Leadership in times of crisis. School principals facing COVID-19. *Heliyon*, *7*(11), Article e08443. https://doi.org/10.1016/j.heliyon.2021.e08443

Rauvola, R. S., Rudolph, C. W., & Zacher, H. (2021). Handling time in occupational stress and well-being research: Considerations, examples, and recommendations. In P. D. Harms, P. L. Perrewé, & C.-H. Chang (Eds.), *Examining and exploring the shifting nature of occupational stress and well-being* (pp. 105–135). Emerald Publishing. https://doi.org/10.1108/S1479-355520210000019006

Reid, D. B. (2022). Suppressing and sharing: How school principals manage stress and anxiety during COVID-19. *School Leadership & Management*, *42*(1), 62–78. https://doi.org/10.1080/13632434.2021.1974827

Riggio, R. E., & Newstead, T. (2023). Crisis leadership. *Annual Review of Organizational Psychology and Organizational Behavior*, *10*(1), 201–224. https://doi.org/10.1146/annurev-orgpsych-120920-044838

Rivkin, W., Diestel, S., & Schmidt, K.-H. (2014). The positive relationship between servant leadership and employees' psychological health: A multi-method approach. *Zeitschrift Für Personalforschung*, *28*, 52–72. https://doi.org/10.1177/239700221402800104

Rowley, S., Pineault, L., & Dickson, M. (2021). Crisis demands leadership, so does our research. *Industrial and Organizational Psychology*, *14*(1–2), 112–116. https://doi.org/10.1017/iop.2021.18

Rudolph, C. W., Allan, B., Clark, M., Hertel, G., Hirschi, A., Kunze, F., Shockley, K., Shoss, M., Sonnentag, S., & Zacher, H. (2021). Pandemics: Implications for research and practice in industrial and organizational psychology. *Industrial and Organizational Psychology*, *14*(1–2), 1–35. https://doi.org/10.1017/iop.2020.48

Ruiz-Palomino, P., Yáñez-Araque, B., Jiménez-Estévez, P., & Gutiérrez-Broncano, S. (2022). Can servant leadership prevent hotel employee depression during the COVID-19 pandemic? A mediating and multigroup analysis. *Technological Forecasting and Social Change*, *174*, Article 121192. https://doi.org/10.1016/j.techfore.2021.121192

Sajons, G. B. (2020). Estimating the causal effect of measured endogenous variables: A tutorial on experimentally randomized instrumental variables. *The Leadership Quarterly*, *31*(5), Article 101348. https://doi.org/10.1016/j.leaqua.2019.101348

Šakan, D., Žuljević, D., & Roković, N. (2020). The role of basic psychological needs in well-being during the COVID-19 outbreak: A self-determination theory perspective. *Frontiers in Public Health*, *8*, Article 583181. https://doi.org/10.3389/fpubh.2020.583181

Salvagioni, D. A. J., Melanda, F. N., Mesas, A. E., González, A. D., Gabani, F. L., & Andrade, S. M. D. (2017). Physical, psychological and occupational consequences of job burnout: A systematic review of prospective studies. *PLoS ONE*, *12*(10), Article e0185781. https://doi.org/10.1371/journal.pone.0185781

Sargan, J. D. (1958). The estimation of economic relationships using instrumental variables. *Econometrica*, *26*(3), 393–415. https://doi.org/10.2307/1907619

Schaubroeck, J., Lam, S. S. K., & Peng, A. C. (2011). Cognition-based and affect-based trust as mediators of leader behavior influences on team performance. *Journal of Applied Psychology*, *96*(4), 863–871. https://doi.org/10.1037/a0022625

Schmitt, A., Den Hartog, D. N., & Belschak, F. D. (2016). Transformational leadership and proactive work behaviour: A moderated mediation model including work engagement and job strain. *Journal of Occupational and Organizational Psychology*, *89*(3), 588–610. https://doi.org/10.1111/joop.12143

Schoemann, A. M., Boulton, A. J., & Short, S. D. (2017). Determining power and sample size for simple and complex mediation models. *Social Psychological and Personality Science*, *8*(4), 379–386. https://doi.org/10.1177/1948550617715068

Schowalter, A. F., Röder, E. S., & Volmer, J. (2022, December). *On the trail of causality regarding ethical leadership: Recommendations and a methodological review*. 20th International Studying Leadership Conference, Brighton, UK.

Schowalter, A. F., & Volmer, J. (2023). Are the effects of servant leadership only spurious? The state of research on the causal effects of servant leadership, recommendations, and an illustrative experiment. *The Leadership Quarterly*, *34*(6), Article 101722. https://doi.org/10.1016/j.leaqua.2023.101722

Schowalter, A. F., & Volmer, J. (2025). Trajectories and associations of perceived servant leadership and teacher exhaustion during the first months of a crisis. *Occupational Health Science*, *9*, 57–88. https://doi.org/10.1007/s41542-024-00206-x

Seaton, G. A., Church, A. H., Allen, J. B., Jain, S., Dickey, J., & Guidry, B. (2021). Leadership in the time of COVID: Should we really throw the baby out with the bathwater? *Industrial and Organizational Psychology*, *14*(1–2), 117–122. https://doi.org/10.1017/iop.2021.22

Sendjaya, S., Sarros, J. C., & Santora, J. C. (2008). Defining and measuring servant leadership behaviour in organizations. *Journal of Management Studies*, *45*(2), 402–424. https://doi.org/10.1111/j.1467-6486.2007.00761.x

Sheldon, K. M., & Hilpert, J. C. (2012). The balanced measure of psychological needs (BMPN) scale: An alternative domain general measure of need satisfaction. *Motivation and Emotion*, *36*(4), 439–451. https://doi.org/10.1007/s11031-012-9279-4

Sheng, Z., Serban, A., Cortina, J. M., He, Y., & Yao, X. (2024). From helping to helpful: A social network examination of workplace helpfulness at multiple levels. *Journal of Business and Psychology*, *39*(4), 927–946. https://doi.org/10.1007/s10869-023-09923-6

Sherf, E. N., Venkataramani, V., & Gajendran, R. S. (2019). Too busy to be fair? The effect of workload and rewards on managers' justice rule adherence. *Academy of Management Journal*, *62*(2), 469–502. https://doi.org/10.5465/amj.2016.1061

Shi, D., DiStefano, C., Zheng, X., Liu, R., & Jiang, Z. (2021). Fitting latent growth models with small sample sizes and non-normal missing data. *International Journal of Behavioral Development*, *45*(2), 179–192. https://doi.org/10.1177/0165025420979365

Shim, D. C., Park, H. H., & Eom, T. H. (2016). Public servant leadership: Myth or powerful reality? *International Review of Public Administration*, *21*(1), 3–20. https://doi.org/10.1080/12294659.2016.1147753

Shondrick, S. J., & Lord, R. G. (2010). Implicit leadership and followership theories: Dynamic structures for leadership perceptions, memory, leader-follower processes. In G. P. Hodgkinson & J. K. Ford (Eds.), *International review of industrial and organizational psychology* (pp. 1–33). Wiley-Blackwell. https://doi.org/10.1002/9780470661628.ch1

Si, W., Shi, S., Zhou, M., & Cai, Z. (2023). Taken for granted: When servant leadership may be negatively related to OCB via psychological entitlement. *Journal of Business Research*, *166*, Article 114122. https://doi.org/10.1016/j.jbusres.2023.114122

Sinek, S. [@simonsinek]. (2015, January 28). *Leadership is not about being in charge. Leadership is about taking care of those in your charge* [Post]. X. https://x.com/simonsinek/status/560513329148723202

Skaalvik, E. M., & Skaalvik, S. (2011). Teacher job satisfaction and motivation to leave the teaching profession: Relations with school context, feeling of belonging, and emotional exhaustion. *Teaching and Teacher Education*, *27*(6), 1029–1038. https://doi.org/10.1016/j.tate.2011.04.001

Skaalvik, E. M., & Skaalvik, S. (2016). Teacher stress and teacher self-efficacy as predictors of engagement, emotional exhaustion, and motivation to leave the teaching profession. *Creative Education*, *7*(13), 1785–1799. https://doi.org/10.4236/ce.2016.713182

Soenens, B., Vansteenkiste, M., Lens, W., Luyckx, K., Goossens, L., Beyers, W., & Ryan, R. M. (2007). Conceptualizing parental autonomy support: Adolescent perceptions of promotion of independence versus promotion of volitional functioning. *Developmental Psychology*, *43*(3), 633–646. https://doi.org/10.1037/0012-1649.43.3.633

Sokal, L., Trudel, L. E., & Babb, J. (2020). Canadian teachers' attitudes toward change, efficacy, and burnout during the COVID-19 pandemic. *International Journal of Educational Research Open*, *1*, Article 100016. https://doi.org/10.1016/j.ijedro.2020.100016

Sonnentag, S., Tay, L., & Nesher Shoshan, H. (2023). A review on health and well-being at work: More than stressors and strains. *Personnel Psychology*, *76*(2), 473–510. https://doi.org/10.1111/peps.12572

Sousa, M., & van Dierendonck, D. (2014). Servant leadership and engagement in a merge process under high uncertainty. *Journal of Organizational Change Management*, *27*(6), 877–899. https://doi.org/10.1108/JOCM-07-2013-0133

Sousa, M., & van Dierendonck, D. (2017). Servant leaders as underestimators: Theoretical and practical implications. *Leadership & Organization Development Journal*, *38*(2), 270–283. https://doi.org/10.1108/LODJ-10-2015-0236

Sousa, M., & van Dierendonck, D. (2021). Serving the need of people: The case for servant leadership against populism. *Journal of Change Management*, *21*(2), 222–241. https://doi.org/10.1080/14697017.2021.1917494

Spencer, S. J., Zanna, M. P., & Fong, G. T. (2005). Establishing a causal chain: Why experiments are often more effective than mediational analyses in examining psychological processes. *Journal of Personality and Social Psychology*, *89*(6), 845–851. https://doi.org/10.1037/0022-3514.89.6.845

Stock, G., Banks, G. C., Voss, E. N., Tonidandel, S., & Woznyj, H. (2022). Putting leader (follower) behavior back into transformational leadership: A theoretical and empirical course correction. *The Leadership Quarterly*, *34*(6), Article 101632. https://doi.org/10.1016/j.leaqua.2022.101632

Stock, J. H., & Yogo, M. (2005). Testing for weak instruments in linear IV regression. In D. W. K. Andrews, J. H. Stock, & T. J. Rothenberg (Eds.), *Identification and inference for econometric models: Essays in honor of Thomas Rothenberg* (pp. 80–108). Cambridge University Press. https://doi.org/10.1017/CBO9780511614491.006

Stone, A. G., Russell, R. F., & Patterson, K. (2004). Transformational versus servant leadership: A difference in leader focus. *Leadership & Organization Development Journal*, *25*(4), 349–361. https://doi.org/10.1108/01437730410538671

Sun, P. Y. T., Anderson, M. H., & Gang, H. (2023). Determining the hierarchical structure and nature of servant leadership. *Journal of Business and Psychology*. https://doi.org/10.1007/s10869-023-09904-9

Sutton, R. E., Mudrey-Camino, R., & Knight, C. C. (2009). Teachers' emotion regulation and classroom management. *Theory Into Practice*, *48*(2), 130–137. https://doi.org/10.1080/00405840902776418

Syrek, C., Kühnel, J., Vahle-Hinz, T., & De Bloom, J. (2022). Being an accountant, cook, entertainer and teacher—all at the same time: Changes in employees' work and work-related well-being during the coronavirus pandemic. *International Journal of Psychology*, *57*(1), 20–32. https://doi.org/10.1002/ijop.12761

Tang, G., Kwan, H. K., Zhang, D., & Zhu, Z. (2016). Work–family effects of servant leadership: The roles of emotional exhaustion and personal learning. *Journal of Business Ethics*, *137*(2), 285–297. https://doi.org/10.1007/s10551-015-2559-7

Tepper, B. J., Dimotakis, N., Lambert, L. S., Koopman, J., Matta, F. K., Man Park, H., & Goo, W. (2018). Examining follower responses to transformational leadership from a dynamic, person–environment fit perspective. *Academy of Management Journal*, *61*(4), 1343–1368. https://doi.org/10.5465/amj.2014.0163

Thibaut, J. W., & Walker, L. (1975). *Procedural justice: A psychological analysis*. Erlbaum.

Thornton, K. (2021). Leading through COVID-19: New Zealand secondary principals describe their reality. *Educational Management Administration & Leadership*, *49*(3), 393–409. https://doi.org/10.1177/1741143220985110

Tourish, D. (2020). Introduction to the special issue: Why the coronavirus crisis is also a crisis of leadership. *Leadership*, *16*(3), 261–272. https://doi.org/10.1177/1742715020929242

Trougakos, J. P., Beal, D. J., Cheng, B. H., Hideg, I., & Zweig, D. (2015). Too drained to help: A resource depletion perspective on daily interpersonal citizenship behaviors. *Journal of Applied Psychology*, *100*(1), 227–236. https://doi.org/10.1037/a0038082

Tyler, T. R., & De Cremer, D. (2005). Process-based leadership: Fair procedures and reactions to organizational change. *The Leadership Quarterly*, *16*(4), 529–545. https://doi.org/10.1016/j.leaqua.2005.06.001

Uhl-Bien, M., Riggio, R. E., Lowe, K. B., & Carsten, M. K. (2014). Followership theory: A review and research agenda. *The Leadership Quarterly*, *25*(1), 83–104. https://doi.org/10.1016/j.leaqua.2013.11.007

Upadyaya, K., & Salmela-Aro, K. (2020). Social demands and resources predict job burnout and engagement profiles among Finnish employees. *Anxiety, Stress, and Coping*, *33*(4), 403–415. https://doi.org/10.1080/10615806.2020.1746285

Upadyaya, K., Toyama, H., & Salmela-Aro, K. (2021). School principals' stress profiles during COVID-19, demands, and resources. *Frontiers in Psychology*, *12*, Article 731929. https://doi.org/10.3389/fpsyg.2021.731929

van den Broeck, A., Ferris, D. L., Chang, C.-H., & Rosen, C. C. (2016). A review of self-determination theory's basic psychological needs at work. *Journal of Management*, *42*(5), 1195–1229. https://doi.org/10.1177/0149206316632058

van den Broeck, A., Vansteenkiste, M., Witte, H., Soenens, B., & Lens, W. (2010). Capturing autonomy, competence, and relatedness at work: Construction and initial validation of the Work-Related Basic Need Satisfaction Scale. *Journal of Occupational and Organizational Psychology*, *83*(4), 981–1002. https://doi.org/10.1348/096317909X481382

van Dierendonck, D. (2011). Servant leadership: A review and synthesis. *Journal of Management*, *37*(4), 1228–1261. https://doi.org/10.1177/0149206310380462

van Dierendonck, D., & Nuijten, I. (2011). The Servant Leadership Survey: Development and validation of a multidimensional measure. *Journal of Business and Psychology*, *26*(3), 249–267. https://doi.org/10.1007/s10869-010-9194-1

van Dierendonck, D., & Sousa, M. (2016). Finding meaning in highly uncertain situations: Servant leadership during change. In B. Schyns, C. Peus, & S. Braun (Eds.), *Leadership lessons from compelling contexts* (pp. 403–424). Emerald Group Publishing Limited. https://doi.org/10.1108/S1479-357120160000008015

van Dierendonck, D., Sousa, M., Gunnarsdóttir, S., Bobbio, A., Hakanen, J., Pircher Verdorfer, A., Cihan Duyan, E., & Rodriguez-Carvajal, R. (2017). The cross-cultural

invariance of the Servant Leadership Survey: A comparative study across eight countries. *Administrative Sciences*, *7*(2), Article 8. https://doi.org/10.3390/admsci7020008

van Dierendonck, D., Stam, D., Boersma, P., de Windt, N., & Alkema, J. (2014). Same difference? Exploring the differential mechanisms linking servant leadership and transformational leadership to follower outcomes. *The Leadership Quarterly*, *25*(3), 544–562. https://doi.org/10.1016/j.leaqua.2013.11.014

van Iddekinge, C. H., Arnold, J. D., Aguinis, H., Lang, J. W. B., & Lievens, F. (2023). Work effort: A conceptual and meta-analytic review. *Journal of Management*, *49*(1), 125–157. https://doi.org/10.1177/01492063221087641

van Wart, M., & Kapucu, N. (2011). Crisis management competencies: The case of emergency managers in the USA. *Public Management Review*, *13*(4), 489–511. https://doi.org/10.1080/14719037.2010.525034

Varaine, S. (2023). How dropping subjects who failed manipulation checks can bias your results: An illustrative case. *Journal of Experimental Political Science*, *10*(2), 299–305. https://doi.org/10.1017/XPS.2022.28

Varela, J. A., Bande, B., Del Rio, M., & Jaramillo, F. (2019). Servant leadership, proactive work behavior, and performance overall rating: Testing a multilevel model of moderated mediation. *Journal of Business-to-Business Marketing*, *26*(2), 177–195. https://doi.org/10.1080/1051712X.2019.1603417

Vaziri, H., Casper, W. J., Wayne, J. H., & Matthews, R. A. (2020). Changes to the work-family interface during the COVID-19 pandemic: Examining predictors and implications using latent transition analysis. *Journal of Applied Psychology*, *105*(10), 1073–1087. https://doi.org/10.1037/apl0000819

Vermote, B., Waterschoot, J., Morbée, S., van der Kaap-Deeder, J., Schrooyen, C., Soenens, B., Ryan, R., & Vansteenkiste, M. (2022). Do psychological needs play a role in times of uncertainty? Associations with well-being during the COVID-19 crisis. *Journal of Happiness Studies*, *23*(1), 257–283. https://doi.org/10.1007/s10902-021-00398-x

Volmer, J., Schulte, E.-M., & Fritz, C. (2023). Facilitating employee recovery from work: The role of leader-member-exchange. *Occupational Health Science*, *7*, 297–319. https://doi.org/10.1007/s41542-022-00132-w

Waldman, D. A., Ramirez, G. G., House, R. J., & Puranam, P. (2001). Does leadership matter? CEO leadership attributes and profitability under conditions of perceived environmental uncertainty. *Academy of Management Journal*, *44*(1), 134–143. https://doi.org/10.5465/3069341

Walumbwa, F. O., Avolio, B. J., Gardner, W. L., Wernsing, T. S., & Peterson, S. J. (2008). Authentic leadership: Development and validation of a theory-based measure. *Journal of Management*, *34*(1), 89–126. https://doi.org/10.1177/0149206307308913

Wang, G., van Iddekinge, C. H., Zhang, L., & Bishoff, J. (2019). Meta-analytic and primary investigations of the role of followers in ratings of leadership behavior in organizations. *Journal of Applied Psychology*, *104*(1), 70–106. https://doi.org/10.1037/apl0000345

Wang, H., Zhou, X., Song, C., Yin, P., Shi, R., Zhang, H., Dan, Y., Wu, H., & Ye, J. (2022). The effect of hindrance stressors on the emotional exhaustion among front-line healthcare workers in the recuperation period during the COVID-19 epidemic in China: A prospective cross-sectional study. *BMJ Open*, *12*, Article e049191. https://doi.org/10.1136/bmjopen-2021-049191

Wang, L., Zhang, Z., McArdle, J. J., & Salthouse, T. A. (2008). Investigating ceiling effects in longitudinal data analysis. *Multivariate Behavioral Research*, *43*(3), 476–496. https://doi.org/10.1080/00273170802285941

Webb, M. A., & Tangney, J. P. (2022). Too good to be true: Bots and bad data from Mechanical Turk. *Perspectives on Psychological Science*. https://doi.org/10.1177/17456916221120027

Wee, E. X. M., & Fehr, R. (2021). Compassion during difficult times: Team compassion behavior, suffering, supervisory dependence, and employee voice during COVID-19. *Journal of Applied Psychology*, *106*(12), 1805–1820. https://doi.org/10.1037/apl0001001

Whitaker, R. C., Dearth-Wesley, T., & Gooze, R. A. (2015). Workplace stress and the quality of teacher–children relationships in Head Start. *Early Childhood Research Quarterly*, *30*, 57–69. https://doi.org/10.1016/j.ecresq.2014.08.008

Wickrama, K. A. S., Lee, T. K., O'Neal, C. W., & Lorenz, F. O. (2022). *Higher-order growth curves and mixture modeling with Mplus: A practical guide*. Routledge.

Williams, T. A., Gruber, D. A., Sutcliffe, K. M., Shepherd, D. A., & Zhao, E. Y. (2017). Organizational response to adversity: Fusing crisis management and resilience research streams. *Academy of Management Annals*, *11*(2), 733–769. https://doi.org/10.5465/annals.2015.0134

Winkler, E., Busch, C., Clasen, J., & Vowinkel, J. (2015). Changes in leadership behaviors predict changes in job satisfaction and well-being in low-skilled workers. *Journal of Leadership & Organizational Studies*, *22*(1), 72–87. https://doi.org/10.1177/1548051814527771

Wooldridge, J. M. (2010). *Econometric analysis of cross section and panel data*. MIT Press.

Wright, T. A., & Cropanzano, R. (1998). Emotional exhaustion as a predictor of job performance and voluntary turnover. *Journal of Applied Psychology*, *83*(3), 486–493. https://doi.org/10.1037/0021-9010.83.3.486

Wu, C.-H., & Parker, S. K. (2017). The role of leader support in facilitating proactive work behavior. *Journal of Management*, *43*(4), 1025–1049. https://doi.org/10.1177/0149206314544745

Wu, D.-M. (1973). Alternative tests of independence between stochastic regressors and disturbances. *Econometrica*, *41*(4), 733–750. https://doi.org/10.2307/1914093

Wu, H., Qiu, S., Dooley, L. M., & Ma, C. (2020). The relationship between challenge and hindrance stressors and emotional exhaustion: The moderating role of perceived servant leadership. *International Journal of Environmental Research and Public Health*, *17*(1), Article 282. https://doi.org/10.3390/ijerph17010282

Wu, J., Liden, R. C., Liao, C., & Wayne, S. J. (2021). Does manager servant leadership lead to follower serving behaviors? It depends on follower self-interest. *Journal of Applied Psychology*, *106*(1), 152–167. https://doi.org/10.1037/apl0000500

Wu, Y. L., Shao, B., Newman, A., & Schwarz, G. (2021). Crisis leadership: A review and future research agenda. *The Leadership Quarterly*, *32*(6), Article 101518. https://doi.org/10.1016/j.leaqua.2021.101518

Wulff, J. N., Sajons, G. B., Pogrebna, G., Lonati, S., Bastardoz, N., Banks, G. C., & Antonakis, J. (2023). Common methodological mistakes. *The Leadership Quarterly*, *34*(1). https://doi.org/10.1016/j.leaqua.2023.101677

Yikilmaz, I., Surucu, L., Maslakci, A., Dalmis, A. B., & Ergun, M. (2024). Workplace buoyancy and servant leadership as catalysts for sustainable disaster management: Mitigating emotional exhaustion in disaster response teams. *Sustainability*, *16*(7), Article 2695. https://doi.org/10.3390/su16072695

Yuan, K.-H., & Bentler, P. M. (2004). On chi-square difference and z tests in mean and covariance structure analysis when the base model is misspecified. *Educational and Psychological Measurement*, *64*(5), 737–757. https://doi.org/10.1177/0013164404264853

Zacher, H., & Rudolph, C. W. (2022). Researching employee experiences and behavior in times of crisis: Theoretical and methodological considerations and implications for human resource management. *German Journal of Human Resource Management*, *36*(1), 6–31. https://doi.org/10.1177/23970022211058812

Zada, M., Zada, S., Ali, M., Jun, Z. Y., Contreras-Barraza, N., & Castillo, D. (2022). How classy servant leader at workplace? Linking servant leadership and task performance during the COVID-19 crisis: A moderation and mediation approach. *Frontiers in Psychology*, *13*, Article 810227. https://doi.org/10.3389/fpsyg.2022.810227

Zapf, D., Dormann, C., & Frese, M. (1996). Longitudinal studies in organizational stress research: A review of the literature with reference to methodological issues. *Journal of Occupational Health Psychology*, *1*(2), 145–169. https://doi.org/10.1037//1076-8998.1.2.145

Zhang, H., Kwong Kwan, H., Everett, A. M., & Jian, Z. (2012). Servant leadership, organizational identification, and work-to-family enrichment: The moderating role of work climate for sharing family concerns. *Human Resource Management*, *51*(5), 747–767. https://doi.org/10.1002/hrm.21498

Zhang, Y., Zheng, Y., Zhang, L., Xu, S., Liu, X., & Chen, W. (2021). A meta-analytic review of the consequences of servant leadership: The moderating roles of cultural factors. *Asia Pacific Journal of Management*, *38*(1), 371–400. https://doi.org/10.1007/s10490-018-9639-z

Zheng, G. G., Zhou, Y., & Wu, W. (2023). Followers matter: Understanding the emotional exhaustion of servant leadership. *Applied Psychology*, *73*(1), 215–239. https://doi.org/10.1111/apps.12473

Zhou, D., Liu, S.-M., & Xin, H. (2020). Servant leadership behavior: Effects on leaders' work–family relationship. *Social Behavior and Personality: An International Journal*, *48*(3), 1–12. https://doi.org/10.2224/sbp.8980

Zhou, M., & Lin, W. (2016). Adaptability and life satisfaction: The moderating role of social support. *Frontiers in Psychology*, *7*, Article 1134. https://doi.org/10.3389/fpsyg.2016.01134

Zizzo, D. J. (2010). Experimenter demand effects in economic experiments. *Experimental Economics*, *13*(1), 75–98. https://doi.org/10.1007/s10683-009-9230-z