THE LONGITUDINAL VALIDITY OF PERFORMANCE-BASED PROMOTION IN THE NBA

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ABSTRACT

Most organizations make promotion decisions based on employees' prior performance. Despite the prevalence of this performance-based promotion strategy, its validity remains unclear. We extend past research by testing competing hypotheses on the relationship between employee performance and future leader performance as derived from three theoretical perspectives (i.e., performance requirements perspective, follower-centric perspective, and Theory of Expert Leadership). We examined our hypotheses in the context of the National Basketball Association (NBA) and gathered data on the entire career of all NBA coaches until 2020 (N = 329), including their prior performance as basketball players. We tested our hypotheses using Bayesian structural equation modeling with latent variables. Overall, our analyses indicated a notable, yet weak, relationship between employee (i.e., player) and leader (i.e., coach) performance that remained stable over time. Overall, our results are in line with the performance requirements perspective. Hence, we recommend to reconsider the use of performance-based promotion strategy.

Keywords: basketball; expert leadership; leader selection; performance-based promotion; Peter Principle

The longitudinal validity of performance-based promotion in the NBA

"A player who makes a team great is better than a great player."

John Wooden (former player and coach of the NBA)

How do employees become organizational leaders? Most organizations promote employees to leader positions based on their prior performance as an employee (see Church, Guidry, Dickey, & Scrivani, 2021; Church, Rotolo, Ginther, & Levine, 2015). In turn, it is no surprise that leaders typically attribute their promotion to their own previous employee performance (Gallup, 2014). Hence, *performance-based promotion* is essential to employees' career progression and, more generally, organizational life.

Despite its prevalence, the validity of the performance-based promotion strategy—the extent to which employee performance predicts later leadership performance—is inconclusive. Whereas some studies reported positive links between employee performance and leader performance (e.g., Goodall & Pogrebna, 2015), the majority of studies did not find a substantial link between employee performance and leader performance (e.g., Schleu, Krumm, Zerres, & Hüffmeier, 2023), and yet other studies even reported negative relationships (e.g., Benson, Li, & Shue, 2019; for an overview, see Schleu & Hüffmeier, 2021). Furthermore, the *long-term* validity of this strategy (i.e., how long employee performance is predictive for later leader performance) has been mostly neglected (for an initial test of temporal changes, see however Schleu et al., 2023). Since performance-based promotion determines who is selected as an organizational leader (and as such has a long-term impact), a long-term validity of this strategy would be crucial. Altogether, the validity and, hence, the actual utility of this pervasive

promotion strategy remains elusive. Illuminating this issue is of high practical relevance, since leaders and their behaviors have a huge impact on organizations (i.e., employee health, motivation, and performance; see Li, Sun, Taris, Xing, & Peeters, 2021; Montano, Reeske, Franke, & Hüffmeier, 2017), selecting unsuitable leaders comes with high costs (Cronbach & Gleser, 1965; Schmidt & Hunter, 1998).

To gain further insight into the short-term and long-term validity of this promotion strategy, we build on, and extend, a recent study that tested the predictive validity of employee performance for leader performance in the professional soccer context (i.e., the German Bundesliga, see Schleu et al., 2023). They did not find a systematic link between employee performance and leader performance, both initially and over time (i.e., no temporal changes). In addition, the proposed moderation effect of relevance (i.e., the relevance of performance requirements in employee positions for leader positions) was not supported (Schleu et al., 2023). With the current research we replicate and extend this study (i.e., testing for mediation and relying on Bayesian statistics) in the NBA context.

The National Basketball Association (NBA) is a highly relevant occupational context: Despite the constraints of the COVID pandemic (Greer, 2021), the NBA generated a revenue of $8.3 billion in the 2019-20 season (Wojnarowski & Lowe, 2020). Moreover, the NBA has around 20,000 employees (National Basketball Association, n.d.), and is an organization with highly visible, and increasing, societal engagement and impact (e.g., see their support for the Black Lives Matter movement; see Deng, 2020). In comparison to professional soccer, the NBA context seems to be more suitable to examine the link between employee performance and leader performance. First, performance in basketball is less affected by coincidence: Whereas a single goal can be game-changing in soccer, with typically around three goals per game in total

(Statista, n. d.), teams competing in a regular NBA game often score around 100 points each (Basketball Reference, n.d.). As such, the result of an NBA game is less influenced by a lucky shot due to the law of large numbers. Second, an NBA head coach (i.e., the leader) has more chances to intervene and influence the course of the game (i.e., reflected in leader performance) compared to a head coach in the Bundesliga, due to the availability of time-outs, exchanging players, and closer proximity to the team during the games (Deutscher Fussball-Bund, n.d.; National Basketball Association, 2018). In sum, examining performance-based promotions within the NBA context increases the chances of finding a potentially existing link between prior employee performance and later leader performance (cf. Denrell & Lin, 2012).

With our research, we test competing hypotheses as derived from three theoretical perspectives. In doing so, we examine the validity of performance-based promotions systematically over time and provide the first test of a potential explanatory mechanism. We base our hypotheses on the following theoretical perspectives. First, to predict leader performance, the *performance requirements perspective* (Zaccaro, Green, Dubrow, & Kolze, 2018) focuses on individual differences (i.e., *knowledge, skills, abilities, and other characteristics*; KSAOs) as indicated by prior employee performance and the relevance of such KSAOs for a subsequent leader position. Second, based on *the follower-centric perspective* (Uhl-Bien, Riggio, Lowe, & Carsten, 2014), a leader's previous experience in a domain, in combination with their high performance, is proposed to affect follower processes (e.g., the perceived prototypicality of the leader; Hogg, 2001) and, thus, result in better team performance (i.e., leader performance). Both the performance requirements perspective and the follower-centric perspective have been proposed to be part of an integrative framework on the predictive validity of employee performance for leader performance (Schleu & Hüffmeier, 2021). Finally, the *Theory of Expert*

Leadership (TEL; Goodall & Bäker, 2015) assumes that later leader performance is strongly linked to the expert knowledge gained as an employee, as it helps, for instance, to use team resources optimally to compose a functioning team (i.e., functional leadership). Hence, our research expands the understanding of which theoretical perspective best explains the potential relationship between employee performance and leader performance.

In summary, in the current research, we take a closer and unique look at the highly prevalent yet hitherto unclear strategy of performance-based promotion. First, we advance theory and research by providing a competitive test of the three outlined perspectives on performance-based promotions (see also Schleu & Hüffmeier, 2021; Schleu et al., 2023), thereby also providing a constructive replication (i.e., by methodologically improving prior studies; cf. Köhler & Cortina, 2021). Specifically, we consider whether and how the validity of performance-based promotions changes over time, by examining the relationship between employee performance and leader performance initially after the promotion to a leader position (i.e., leader performance at T1) and across longer time spans (i.e., the link between employee performance and leader performance at T2 and T3). This systematic approach allows us to provide insights regarding the potential (dis-)advantages of promoting former high performing employees concerning their subsequent leader performance and the long-term impact of those promotion decisions.

Second, we test whether the relationship between employee performance and leader performance can (partly) be explained by *functional leadership* (e.g., the optimal use of team resources to compose a functioning team; Morgeson, DeRue, & Karam, 2010)—a central mechanism proposed by TEL (Goodall & Bäker, 2015), which has not been tested before. Doing so will allow for a more comprehensive test of TEL compared to prior studies.

Third, we examine the validity of performance-based promotions in the NBA, which represents a particularly suitable and relevant context, as described above. We explicitly consider the context of our research and add contextual nuance to our theorizing (see theory section)—thereby following recent calls (Cruz, 2021; Johns, 2006). As the context has a strong impact on leadership (Osborn, Hunt, & Jauch, 2002) and thus leader performance, adding contextual nuance will advance our understanding on the validity of performance-based promotions and might contribute to resolving previously inconsistent findings.

Based on the contributions above, our research will support evidence-based decision making concerning the performance-based promotion strategy and provide knowledge about its "sustainability" (i.e., its validity over time). Hence, our research also has important practical implications.

THE PRESENT RESEARCH

We build on, and extend, prior research on performance-based promotions. While research on the topic has increased in the last 20 years, the resulting insights are still limited due to inconclusive findings (see Schleu & Hüffmeier, 2021). A recent review identified potential moderators to explain the varying results (Schleu & Hüffmeier, 2021), including temporal changes and the relevance of performance requirements in employee positions for leader positions. However, initial findings did not support the proposed moderators (Schleu et al., 2023). Following previous research (Schleu & Hüffmeier, 2021; Schleu et al., 2023), we consider three relevant theoretical perspectives and provide a competitive test of their predictions concerning the link between employee performance and leader performance: (1) the performance requirements perspective (e.g., Zaccaro, 2012; Zaccaro et al., 2018), (2) the follower-centric perspective (e.g., Uhl-Bien et al., 2014), and (3) the TEL (see Goodall & Bäker, 2015).

Performance Requirements Perspective

Based on the underlying logic of performance-based promotions, employee performance (presumably) indicates who is the best employee. The implicit assumption, then, is that the best employees will also be the most capable leaders—and therefore should, over time, receive more responsibility and be promoted to leader positions. However, following the performance requirements perspective, this logic would have merit only to the extent to which employee performance actually indicates the KSAOs relevant for the leader position. Although high employee performance can certainly indicate essential KSAOs for the employee position, this does not necessarily generalize to the KSAOs that are essential for the subsequent leader position. Hence, to achieve a high validity of performance-based promotion, the overlap between KSAOs for the employee and leadership position also needs to be high (see Asher & Sciarrino, 1974; Zaccaro et al., 2018).

When comparing general work taxonomies (e.g., Bartram, 2005) to managerial taxonomies (Borman & Brush, 1993; Tett, Guterman, Bleier, & Murphy, 2000), it becomes apparent that the tasks of employees and leaders vary greatly: There are several tasks that are unique to leader positions, such as the task of motivating employees (see Borman & Brush, 1993; Tett et al., 2000). Hence, leadership positions require at least partly different KSAOs than employee positions, which typically center around rather technical work (Bartram, 2005). This reasoning is in line with research on work sample testing: With increasing point-to-point correspondence (Asher & Sciarrino, 1974; Robertson & Kandola, 1982; Wernimont & Campbell, 1968) between a work sample and the respective position (e.g., task specificity and bandwidth of tasks), test performance becomes a better predictor of subsequent performance on the respective position.

Considering central performance requirements for leader positions, intelligence, for instance, has a higher predictive validity for leader performance (i.e., a more complex position) than for employee performance for most positions (see Salgado & Moscoso, 2019). Moreover, recent work by Wilmot and Ones (2021) suggested a lower predictive validity of personality facets for leader performance than for performance in most employee positions. Furthermore, job knowledge acquired as an employee might be helpful when becoming a leader, yet only for some contexts (e.g., in creative domains), and not in general (see Day, Harrison, & Halpin, 2009).

Altogether, the performance requirements perspective can explain positive to negative links between employee performance and leader performance. More specifically, the relationship between employee performance and leader performance could be (1) positive (in case of a high overlap in performance requirements), (2) null (in case of a very low or nonexistent overlap in performance requirements), or even (3) negative (if the performance requirements of the prior employee position impair leader performance). In general, however, employee performance should not be a good predictor for leader performance due to mismatching tasks and responsibilities between employee and leader positions.

Yet, the overlap between performance requirements of employee and leader positions, and, therefore, the predictive validity of employee performance for leader performance, likely depends on the particular context (Johns, 2006). Therefore, we compare the typical performance requirements of employee and leader positions, in the NBA, our study context. We investigate the transition from the role of NBA player (i.e., employee position) to NBA head coach (i.e., leader position). The performance of a professional basketball player is largely determined by the ability to score (e.g., by scoring oneself or by "assisting" team mates to score) and/or to hinder the opposing team to score. Hence, employee performance partly depends on immutable physical

characteristics (e.g., height or wingspan; Ackland, Schreiner, & Kerr, 1997; Zarić et al., 2020), mutable physical characteristics (e.g., anaerobic capacity; Riezebos, Paterson, Hall, & Yuhasz, 1983; see Ostojic, Mazic, & Dikic, 2006), as well as trainable physical skills such as shooting accuracy (see Okazaki, Rodacki, & Satern, 2015) or vertical jumping (see Pehar et al., 2017). Tactical and technical knowledge (see Pehar et al., 2017) is also beneficial in professional sports, just like being disciplined and emotionally stable (Jones, Neuman, Altmann, & Dreschler, 2001). In contrast, the performance of an NBA head coach is largely reflected by how well the own team ranks in the competition (while controlling for available resources). In particular, the head coach's ability to train and motivate players, both individually and as a team (Fort, Lee, & Berri, 2008), select suitable players and co-trainers (Rogers, Crozier, Schranz, Eston, & Tomkinson, 2022), and develop a strategy for each opponent, game, or even particular game situation (see Moreno & Lozano, 2014) determines their leader performance.

Comparing the two positions of NBA player and NBA head coach, the degree of overlap between performance requirements is typically limited. For instance, as an NBA head coach, a high shooting accuracy or an athletic physique (as a former player) may not necessarily be an advantage in developing players and, hence, leading a team to win. Still, the tactical and technical knowledge gained as an NBA player (see Pehar et al., 2017), as well as some personal characteristics (e.g., being disciplined and emotionally stable; Jones et al., 2001), can have a positive impact on both player and coach performance. In summary, the performance requirements of the employee position and the leader position should only overlap to a small extent. Hence, we propose:

Hypothesis 1a: The predictive validity of employee performance for initial leader performance (directly following the promotion [at T1]) is weak (either positive or

negative) at best, which should correspond to a standardized path coefficient ranging from -.30 to .30.

How might the relationship between employee performance and leader performance change over time? Given a low overlap of the performance requirements of both positions, high employee performance does not indicate the KSAOs required for the subsequent leader position. As there is no reason to expect a change in the overlap of the performance requirements of both positions over time, we expect the link between employee performance and leader performance to be weak not only initially, but also over time. While leader performance is likely to improve over time (i.e., with increasing experience and adaptation), this improvement should be rather unrelated to previous employee performance. So, we propose:

Hypothesis 1b: The predictive validity of employee performance for leader performance remains weak over time (i.e., across T1, T2, and T3).

Moderator: Degree of overlap between employee performance and leader performance. According to the performance requirements perspective, the greater the overlap between the positions of employee and leader, the stronger the relationship between employee performance and leader performance ought to be (Asher & Sciarrino, 1974; Zaccaro et al., 2018). Hence, we consider the particular employee position (i.e., player positions) as a moderator of the relationship between employee performance and leader performance. Since head coaches are responsible for developing the overall game strategy, we propose a greater overlap for that particular employee position that is also more involved in the strategic build-up of the game—the point guard position (Grijalva, Maynes, Badura, & Whiting, 2020). Consequently, employee performance should be a better predictor for leader performance among former point guards. Altogether, if we observe supporting evidence for the performance requirements perspective, we

aim to test this follow-up hypothesis:

> *Hypothesis 1c: The predictive validity of employee performance for leader performance is higher for an employee position with a greater overlap (i.e., the point guard), compared to a lower overlap with the leader position.*

Follower-Centric Perspective

Another relevant perspective to explain the validity of performance-based promotions focuses on follower processes (see Steffens, Munt, van Knippenberg, Platow, & Haslam, 2021; Uhl-Bien et al., 2014). When an employee gets promoted to a leader position due to their excellent performance in their previous role as an employee, followers can perceive this leader as a role-model (Hogg, 2001) and as prototypical for their team (see Schleu & Hüffmeier, 2021), because they share central attributes with their leader (e.g., being a professional athlete). In turn, being perceived as prototypical can facilitate identity leadership (Steffens et al., 2014). Identity leadership is defined as "a recursive, multi-dimensional process that centers on leaders' capacities to represent, advance, create, and embed a shared sense of social identity for group members" (Steffens et al., 2014: 1002). Consequently, identity leadership increases the credibility of, and the support for, the leader (Uhl-Bien et al., 2014). Hence, followers might accept their leader more, follow their lead, and ultimately perform better (Steffens et al., 2021). Altogether, based on the follower-centric perspective, leaders who performed well previously (i.e., high employee performance) are expected to experience more follower support and, hence, achieve higher leader performance (i.e., team performance; cf. Field, 1989).

As for the context of our research, the proposed relationship between employee performance and leader performance might be even stronger compared to other contexts because former NBA players—especially high performing players—are idolized by the public and

younger players (e.g., Thomas, 2021). Hence, follower-related processes might be especially prominent in the context of the current study. Therefore, we propose:

Hypothesis 2a: The predictive validity of employee performance for initial leader performance (directly following the promotion [at T1]) is at least moderately positive, corresponding to a standardized path coefficient equivalent to or above .30.

What does the follower-centric perspective suggest when it comes to the predictive validity of employee performance for leader performance over time? As mentioned earlier, previous high employee performance will initially be linked to being perceived as prototypical to the team and will facilitate identity leadership. Whereas these processes might initially result in a positive relationship between employee performance and leader performance, identity leadership requires additional action over time (Steffens et al., 2014). In particular, leaders need to show high engagement for the team (e.g., advance team goals and empower team members) to continuously be perceived as identity leader—and profit from follower support (see Haslam, Reicher, & Platow, 2011; Steffens et al., 2014). Hence, for employee performance to predict leader performance over time, employee performance would also need to predict leader engagement for the team. Since, the follower-centric perspective does not propose a link between former employee performance and subsequent engagement for the team, follower support should decrease over time (Haslam et al., 2011; Steffens et al., 2014). Consequently, we predict:

Hypothesis 2b: The predictive validity of employee performance for leader performance decreases over time (i.e., across T1, T2, and T3).

Theory of Expert Leadership

TEL (Goodall & Bäker, 2015) centers around "expert leaders" who obtained their knowledge as employees through their high performance, practice, and technical education; they

are thus prior high-performing employees. In particular, TEL proposes the following mechanisms to explain how better leader performance arises. First, building on expertise research (see Ericsson, Charness, Feltovich, & Hoffman, 2006), TEL proposes that expert leaders (compared to non-expert leaders) process information more holistically and consider longer time-frames (i.e., sustainable rather than short-term success) when making decisions. Thus, they are able to make better strategic decisions (cf. Guthrie & Datta, 1997; Nahavandi & Malekzadeh, 1993). Second, as expert leaders have, by definition, garnered expertise in a similar employee position, they can share their background and knowledge with their employees while understanding their employees' motives and struggles. Consequently, they should be able to create a productive work environment, set realistic goals, and asses their employees' performance realistically, which, overall, should facilitate good team performance as reflected in high leader performance (Goodall & Bäker, 2015). Third, as expert leaders likely select employees similar to themselves—presumably also high-performing employees—they are proposed to make better selection decisions (i.e., hiring employees with great potential; Goodall & Bäker, 2015). Fourth, due to their expertise, expert leaders are assumed to have a *signaling function*, such that they signal the strategic orientation of an organization (Goodall & Bäker, 2015). Although TEL acknowledges other factors to be relevant as well, it assumes that expert knowledge gained as an employee distinguishes successful from unsuccessful leaders. Notably, proponents of the TEL claim that this theory applies to the context of this study (i.e., NBA; Goodall, Kahn, & Oswald, 2011) and propose a link "between brilliance as a player and the (much later) winning percentage or playoff success of that person as a coach" (Goodall et al., 2011: 267). Altogether the TEL would suggest:

Hypothesis 3a: The predictive validity of employee performance—indicating expert

knowledge—for initial leader performance (directly following the promotion [at T1]) is at least moderately positive, corresponding to a standardized path coefficient equivalent to or above .30.

Following the logic of TEL, most of the outlined processes (e.g., strategic decision making, creating a good working environment for employee, and better personnel selection) should primarily unfold over time. In particular, expert leaders should be able to make better strategic decisions. However, the full impact of those strategic decisions will only unfold and be observable over time. Similarly, better personnel selection decisions are unlikely to produce immediate effects (i.e., better team performance), but will only have an impact after some time (e.g., after an orientation phase). Thus, following TEL:

Hypothesis 3b: The predictive validity of employee performance—indicating expert knowledge—for leader performance becomes stronger over time (i.e., across T1, T2, and T3).

Functional leadership. As summarized above, TEL proposes several mechanisms underlying a potential link between employee performance and leader performance, such as leaders making better decisions, creating a better work environment, thereby facilitating employees' high performance, and selecting better personnel (i.e., identifying talent). In the context of our research, this would translate to, for instance, better strategic decision-making of head coaches, better team formation, and creating an environment in which players perform at their capacity. These processes can be summarized as *functional leadership* (i.e., the optimal use of team resources to compose a functioning team; Morgeson et al., 2010). Hence, TEL suggests that functional leadership mediates the relationship between employee performance and leader performance, at least partly. Hence, in our study we ask:

Research Question 1: Does functional leadership mediate the relationship between employee performance and leader performance?

METHODS

To examine our competing hypotheses, we relied on archival data from professional sports, sampled in a panel format. More specifically, we gathered performance data over the course of careers (i.e., head coaches who have been players) from the NBA. In line with previous research, we relied on sports data to investigate our hypotheses and research questions (see also Wolfe et al., 2005; Grijalva et al., 2020) because this context enables a clean test of predictions, given the standardized setting (due to consistent rules and shared goals) as well the availability of objective performance data. Due to the objective nature of the performance measures (see below), our data are less prone to biases as compared to subjective performance evaluations (Murphy & Cleveland, 1995) and show higher reliability (Quińones, Ford, & Teachout, 1995; Sturman, 2007). We pre-registered our study (see https://osf.io/ytqka/?view_only=facf9559497c45d7bc00feab0a989301).

Participants

Our data include all NBA head coaches between 1947 and 2020 (N = 329). Subsequently, we gathered the head coaches' previous player performance, if they have previously played in the NBA (N = 157). We collected our data from the following websites: (1) https://www.basketball-reference.com/ (for all NBA head coach and player performance data); and (2) http://www.82games.com/ (for the outlined mediator; data were available only from 2004 until 2019).

Measures

Employee performance. To operationalize employee performance (i.e., the predictor), we

relied on three different measures of player performance: (1) the overall minutes played in the NBA, because usually only the best-performing players of a team are selected to play due to the competitive character of professional sports; (2) the player efficiency rating (PER; i.e., a measure of per-minute production standardized, such that the league average is 15), which accounts for accomplishments (e.g., field goals) and negative results (e.g., missed shots) of the player; and (3) the player's win shares per 48 minutes, the duration of one game (WS/48; i.e., an estimate of the number of wins contributed by a player per 48 minutes; league average is approximately .100).

Employee experience. To operationalize employee experience, we differentiated between head coaches who have been professional NBA players before their coaching career (N = 157) and those that have not (N = 172) using a dummy variable (yes vs. no).

Leader performance. We operationalized leader performance (i.e., the criterion) with three different measures for head coach performance per season: (1) the number of coached NBA games (as a head coach). Suboptimal results (e.g., results not meeting a manager's expectations) oftentimes are not accepted and can result in coach succession (Cannella & Rowe, 1995). This holds particular true in the NBA due to the highly competitive environment; (2) the rank of the coached team in the NBA (i.e., either at the end of the season or the end of the leader's appointment—depending on what happened first). Following Fischer, Dietz, and Antonakis (2017), we conceptualized leader performance as the performance of the coached team; and (3) the number of wins of the coached NBA games as a more detailed performance measure.

Mediator. We operationalized the outlined mediator of *functional leadership* (i.e., to identify and compose the best functioning team) based on the best performing five-man floor units (in Basketball, there are five members per team on the floor simultaneously). This statistic is concerned with the 20 most frequently employed five-man units and their performance. To

evaluate the head coach's ability to identify and compose the best performing teams, we relied on the following operationalization (measured per coached season): The mean of the most frequently composed five-man floor units' winning percentage (i.e., wins vs. losses), weighted by the minutes each unit was playing (i.e., weighted mean).[1]

Overlap of the employee and leader performance requirements. We assumed a greater overlap of player and head coach positions—and subsequently performance requirements–for the point guard position in comparison to the other player positions, since the point guard position arguably is more complex and more involved in the strategic process (see Grijalva et al., 2020). Hence, we contrasted the point guard position to the remaining player positions (i.e., dummy variable; point guard vs. other positions).

Control variables. We controlled for the following potentially relevant variables: (1) the quality of the coached team, operationalized as the team's rank *before* the head coach took over; (2) the height of the head coaches because it might correlate with previous player position, and has shown to predict leader emergence (Judge & Cable, 2004); (3) the continued employment of a head coach with a club (i.e., a continuous leadership) because longer time intervals could influence coach performance positively as compared to shorter intervals. Hence, we controlled for the continued employment of a head coach with a club (i.e., dummy variable, continued employment vs. change in employment since the previous season).

Analytical Strategy

We used Bayesian structural equation modeling (BSEM; Muthén & Asparouhov, 2012)

[1] In addition, we also pre-registered three other operationalizations, namely the mean of all composed units' points per possession (i.e., offense score) weighted by the minutes each unit was playing; the mean of all composed units' allowed points per possession (i.e., defense score) weighted by the minutes each unit was playing; and when ranking the teams due to their floor time, the rank of the best-performing unit (i.e., the unit with the highest winning percentage). Unfortunately, the (additional) inclusion of these operationalization of the mediator resulted in serious convergence problems. Thus, we decided to rely on the first operationalization to conduct our analyses (see above); we were not able to test the alternative operationalizations of our proposed mediator.

to investigate *Hypotheses 1a-3b*. To analyze the influence of employee performance on leader performance over time, we prepared the data in a long-format. We included the first three seasons per head coach (T1- T3) because only a few coaches held a head coach position for more than three seasons (i.e., the inclusion of more seasons per coach would have resulted in a strong increase of missing data). We examined the predictive validity of employee performance over time by comparing a model with equality constraints for the relations of employee performance with leader performance at T1-T3 with an unconstrained model.

For *RQ1,* we used Bayesian multilevel structural equation modeling (BMSEM; Depaoli & Clifton, 2015). As data for the mediator were first available in the NBA season of 2004, we excluded data from all prior seasons. The dataset has been prepared in a multilevel format (i.e., wide-format) with seasons (Level 1) nested within head coaches (Level 2). An advantage of the BMSEM approach is that the sample sizes per Level 2 unit (i.e., head coach) can differ. Thus, we were able to consider all seasons per head coach. employee performance has been included as a Level 2 predictor variable, whereas the ability to compose a functioning team (i.e., the mediator) and leader performance have been measured at Level 1 resulting in a 2-1-1 mediation model (see Preacher, Zyphur, & Zhang, 2010).

Employee performance and leader performance were modeled as latent constructs in the main analyses for H1a-H3b and RQ1. To account for different metrics, all measures were standardized prior to model estimation. The analyses were run with Mplus 8.5 (Muthén & Muthén, 1998 – 2017).

We evaluated Bayesian model fit and MCMC convergence by consultation of posterior predictive *p*-value (PPP), posterior predictive checking (PPC), potential scale reduction (PSR), as well as trace and autocorrelation plots for all estimated model parameters (see recommendations

by Depaoli & van de Schoot, 2017). Additionally, we calculated CFI, RMSEA, and BIC, which have so far only been implemented for BSEM in Mplus (Asparouhov & Muthén, 2020). Settings for the model estimation were held equal for all tested models. We used 1,000,000 MCMC iterations with two independent Markov chains, whereas the first 500,000 iterations served as burn-in. Due to a notable degree of autocorrelation for some parameters, we thinned the posterior distributions by including only every 10^{th} iteration (see Depaoli & van de Schoot, 2017). Except for the measurement part of the models, we used uninformative priors (i.e., Mplus default prior specifications). For the measurement part of the models, we relied on Muthén and Asparouhov (2012) for the specification of the model priors. Based on their recommendations, we implemented a normal-distributed prior of $N(|1|, 0.1)$ for the factor loadings and an inverse-Wishart prior of $IW(1, 15)$ (for the BMSEM we used $IW(1, 8)$ for the Level 1 and $IW(1, 11)$ for Level 2) for the residual variances for the indicators. For the residual covariances between the indicators, we specified a small-variance prior of $IW(0, 15)$ (for the BMSEM we used $IW(0, 8)$ for the Level 1 and $IW(0, 11)$ for Level 2).

RESULTS

Table 1 and 2 present descriptive statistics and intercorrelations. As the examination of *RQ1* required a different data structure (i.e., multilevel structure; see above), we provide two tables for the descriptive statistics. In general, previous employee experience (i.e., being an NBA player) affected two of our operationalizations of leader performance. Head coaches with previous player experience had more wins per season (M = 35.39 vs. M = 33.30, F[1, 1838] = 7.25, p = .007, d = .13) and completed more games as head coach (M = 69.90 vs. M = 66.98, F[1, 1843] = 7.72, p = .006, d = .13). No differences could be found for the rank of the coached team in the respective league (M = 3.44 vs. M = 3.52, F[1, 1836] = 0.82, p = .366, d = .04).

Insert Table 1 about here

Insert Table 2 about here

Main analyses

The results for *Hypotheses 1a-3b* are presented in Table 3. The model fit for the unconstrained model was satisfying (PPP = .47; PPC 95% CI using chi-square = [-32.34; 33.41]; PSR < 1.01; CFI = 1.00, 90% CI [0.99; 1.00]; RMSEA = .00, 90% CI [.00; .05]; BIC = 3224.11). As we examined whether the effect of employee performance on leader performance changed over time, we included equality constraints for the effects between T1-T3. This model received a similar fit with a slightly better BIC compared to the unconstrained model (PPP = .33 PPC 95% CI using chi-square = [-26.90; 39.72]; PSR < 1.01; CFI = 1.00, 90% CI [0.98; 1.00]; RMSEA = .00, 90% CI [.00; .07]); BIC = 3222.31). Hence, the effect of employee performance on leader performance remained *constant* over time. The results indicated a weak and positive effect of employee performance on leader performance across T1-T3 ($\beta_{constrained}$ = .13, 95% CI = [.02; .25]). These first results are consistent with the performance requirements perspective, and they support Hypotheses 1a and 1b. The results did not support *Hypothesis 1c*, however, as the interaction effect of leader performance and the degree of overlap (i.e., considering the player position as a moderator) between employee and leader position at all three measurement occasions was likely zero (i.e., the posterior distributions included zero as plausible value). Therefore, a central moderator of the performance requirements perspective was not supported. In summary, the results provide support for *Hypothesis 1a and 1b*. By contrast, *Hypotheses 1c* and *2a-3b* received no support, as the effect of employee performance on leader performance

was weak and stable over time.

Insert Table 3 about here

Research Question 1

The results regarding RQ1 are presented in Table 4. The Bayesian model fit was good (PPP = .39; PPC 95% CI using chi-square = [-21.87; 28.09]; PSR < 1.01). Functional leadership (i.e., the mediator) was strongly related to leader performance on Level 1 (β = .84, 95% CI = [.78; .95]) and Level 2 (β = .98, 95% CI = [.88; 1.04]). Yet, employee performance was not associated with the mediator (β = -.04, 95% CI = [-.46; .37]), and, thus, the results did not indicate an indirect relation between employee performance and leader performance via the ability to compose a functioning team (95% CI = [-.24; .20]).

Insert Table 4 about here

Supplementary Analyses

Regarding the alternative operationalization of leader performance (i.e., number of games as head coach per season), the statistical analyses revealed a similar pattern (see Table 5). Bayesian model fit was good for the unconstrained model (PPP = .44; PPC 95% CI using chi-square = [-22.87; 24.69]; PSR < 1.01; CFI = 1.00, 90% CI [0.97; 1.00]; RMSEA = .00, 90% CI [.00; .07]; BIC = 2248.72), but slightly better for the model with equality constraints for the relation between employee performance and leader performance over time to which we refer hereafter (PPP = .50; PPC 95% CI using chi-square = [-24.09; 23.05]; PSR < 1.01; CFI = 1.00, 90% CI [0.97; 1.00]; RMSEA = .00, 90% CI [.00; .06]; BIC = 2238.86). Employee performance was weakly positively related to leader performance, and the magnitude of the relation remained constant over time ($\beta_{constrained}$ = .11, 95% CI = [.01; .21]). Thus, the results again provided

support for *Hypotheses 1a* and *1b*. By contrast, *Hypotheses 2a-3b* received no support.

Insert Table 5 about here

Regarding *Hypothesis 1c*, results did not indicate an interaction between employee performance and the degree of overlap between the employee position and the leader position, as the posterior distributions of the interaction effects covered zero. Thus, *Hypothesis 1c* also received no support when considering our alternative operationalization for leader performance.

Examining RQ1 with the alternative operationalization of leader performance revealed the same pattern, as employee performance was unrelated to the mediator (i.e., functional leadership; β = -.02, 95% CI = [-.44; .40]).

In line with recent recommendations (Becker, Atinc, Breaugh, Carlson, Edwards, & Spector, 2016; Bernerth & Aguinis, 2016), we analyzed the influence of control variables in separate models. In general, the inclusion of control variables did not change the pattern of results, and the differences in the obtained parameter estimates were only very small. Regarding the models to test *Hypotheses 1-3*, only team quality and height were notably related to leader performance. In the multilevel model to examine *RQ1*, none of the control variables, except for team quality at Level 1, were related to leader performance. In summary, the results were not affected by the inclusion of control variables.

Furthermore, to test *Hypothesis 3b* specifically, we conducted the outlined analyses with the subsample of head coaches who coached the same club for several seasons (N = 115). Again, the model with equality constraints for the effect of employee performance on leader performance across T1-T3 had a better fit (especially indicated by the differences in the BIC values of 2345.09 vs. 2353.33 for the models without control variables) rendering the effect of employee performance on leader performance to be constant over time ($\beta_{constrained}$ = .20, 95% CI

= [.06; .34]). Additionally, even in the unconstrained model, the effect did not increase over time (β_{t1} = .27, 95% CI = [.07; .46]; β_{t2} = .09, 95% CI = [-.15; .31]; β_{t3} = .16, 95% CI = [-.07; .38]). This pattern of results could also be observed with the alternative operationalization of leader performance as number of coached games as a head coach. Hence, these analyses provided further evidence against *Hypothesis 3b*.

DISCUSSION

We examined three competing theoretical perspectives and their predictions concerning the validity of performance-based promotions. In particular, we considered their implications on the initial validity of employee performance for leader performance, as well as temporal changes of the relationship between employee performance and leader performance. Furthermore, we examined the overlap of employee and leader positions as a potential moderator. The results of our findings indicated partial support for the performance requirements perspective (*Hypotheses 1a-1b*) because relationship between employee performance and leader performance was weak initially (i.e., at T1), and did not change over time (i.e., remained weak at T2 and T3). When comparing our findings to past research examining the link between employee performance and leader performance in professional soccer (Schleu et al., 2023), we find a descriptively stronger relationship between employee performance and leader performance. As argued above, our study context, the NBA, should be more suitable to find a potential relationship between employee performance and leader performance, as coincidences do not affect the game outcomes to the same extent (due to the law of large numbers) and coaches have comparatively more chances to influence the game and consequently their teams' performance (cf. Deutscher Fussball-Bund, n.d.; National Basketball Association, 2018). The proposed moderation by the overlap of employee and leader positions (*Hypothesis 1c*), however, was not supported by our analyses.

Further, our results neither indicated support for the follower-centric perspective (*Hypotheses 2a-2b*), nor for TEL (*Hypotheses 3a-b*). The result patterns held for different operationalizations of leader performance and even when restricting our sample to head coaches with continuous employment with one club for all three time points (i.e., a potential boundary condition of the follower-centric perspective and TEL). When comparing leader performance from previous NBA players to non-players, previous NBA players performed significantly better (i.e., below the threshold of a small effect) concerning two of our three operationalizations for leader performance. In addition, we investigated whether functional leadership (*RQ1*) mediates the relationship between employee performance and leader performance—a central prediction of the TEL (Goodall & Bäker, 2015). Although our analyses indicated a strong link between the mediator functional leadership and leader performance, we found no link between employee performance and functional leadership. So, at least for our study context, this central proposed mechanism of TEL did not explain a potential relationship between employee performance and leader performance.

Theoretical Implications and Future Research

Our research indicates that, despite its prevalence in a variety of contexts, performance-based promotion is not necessarily a particularly valid approach to select leaders. To understand the underlying processes better, we considered three theoretical perspectives and contrasted their assumptions in our research: the performance requirements perspective (Zaccaro, 2012), the follower-centric perspective (Uhl-Bien et al., 2014), and TEL (Goodall & Bäker, 2015). In addition, we contributed to the literature by considering the specific context of our study (Johns, 2006) and grounding our hypotheses accordingly.

Overall, our results point towards the importance of the performance requirements

perspective. In our study, the physical attributes of NBA players, for instance, are particularly important to their player performance, but rather irrelevant for their later performance as an NBA head coach. Hence, the relationship between employee performance and leader performance was proposed (and found) to be rather weak (initially and over time). However, the proposed moderator (i.e., relevance of performance requirements in employee positions for leader positions) was not supported in our study (in line with prior findings; cf. Schleu et al., 2023). This finding is somewhat surprising, given that our overall findings supported the performance requirements perspective. Perhaps the increase in the overlap between the performance requirements for the employee and leader position was not big enough to produce a meaningful effect: While a point guard often is more involved in the strategic build up during a match, this activity might still be different from developing strategies for a team over the course of a season. Future studies would profit from conducting detailed job analyses to compare the performance requirements of prior employee positions with later leader positions. This would provide a more comprehensive test of this perspective. As the degree of overlap is a central element of the performance requirements perspective, a more comprehensive test of this moderation effect is crucial to explain the relationship between employee performance and leader performance—and also to potentially improve upon the validity of performance-based promotion.

Our research provided no support for the follower-centric perspective regarding the validity of performance-based promotion. However, as both the follower-centric perspective and the performance requirements perspective aim to explain the relationship between employee performance and leader performance, future research is needed to disentangle the relative importance of both perspectives, for instance, by examining all proposed mediators and moderators. Such an approach has the potential of resolving previous inconsistent results.

Our research provided no support for TEL (Goodall & Bäker, 2015) because the initial relationship between employee performance and leader performance was small and did not increase over time. As previously discussed (see Schleu et al., 2023), it might be necessary to limit our sample to continuously employed leaders to test the predictions of TEL because the proposed mechanisms, such as functional leadership (e.g., better personnel selection), might only unfold within an organization, but not across organizations. To test this idea, we included only leaders with continuous employment for the included three measurement points. Yet, these findings were in line with our main results and, consequently, did not support the predictions of TEL (see Goodall & Bäker, 2015).

Limitations

Acknowledging the limitations of our research, we would like to indicate, first, that we could not control the circumstances of the observed performance data. To limit the risks for endogeneity-related issues (see Antonakis, 2017; Antonakis, Bendahan, Jacquart, & Lalive, 2010), we (1) relied on objective performance measures to avoid confounding biases in performance ratings (see Ciancetta & Roch, 2021; Kossek & Buzzanell, 2018), (2) included control variables (e.g., team-quality measures) to reduce the risk for omitted variable bias, (3) gathered longitudinal data (see Mackey, 2008), and (4) collected data on the full population of NBA head coaches. Still, further research utilizing fully controlled designs is needed.

Second, we could not examine all proposed mechanisms of the three theoretical perspectives directly. While our research incorporated functional leadership—a central mechanism proposed by the TEL—future research would profit from a more comprehensive evaluation of all proposed mechanisms (e.g., required KSAOs for the performance requirements perspective, perceived prototypicality for the follower-centric perspective, and the signaling

function of expert leaders for TEL). Thus, future research is needed to illuminate the explanatory value of the different theoretical perspectives in even greater depth (see Schleu & Hüffmeier, 2021).

Third, another important avenue for future research is to examine the generalizability of our findings to more diverse samples (as our sample is all male) and other occupational settings. While we adapted our theorizing to the study context and relied on panel-like data from different organizations (i.e., all NBA clubs) to ensure external validity (see Cruz, 2021), researching additional contexts will further our understanding of the validity of performance-based promotions.

Practical Implications

Our research indicates a small, but notable link between employee performance and leader performance, which we found to be stable over time. Consequently, performance-based promotion strategies hold limited merit, at least in our study context. Nevertheless, this promotion strategy is very prevalent, not only generally, but also specifically in the NBA: 47.7% of all NBA head coaches (between 1947 and 2020) had been professional players before. The ongoing prevalence of performance-based promotions is particularly remarkable because the NBA is run like an organizational venture (i.e., with a strong focus on economic interests) and performance can be easily monitored.

As leaders and their behaviors have a huge impact on organizations (i.e., employee health, motivation, and performance; see Li et al., 2021; Montano et al., 2017), poor leader selection comes with high costs. Based on our findings—a rather low validity of performance-based promotion—and prior research on personnel selection (Asher & Sciarrino, 1974; Robertson & Kandola, 1982; Wernimont & Campbell, 1968), we recommend to only rely on

performance-based promotion when a strong overlap between the performance requirements of the prior employee position and the later leader position is given. Such an approach would require conducting systematic job analyses of both the employee and the leader position, which can then allow for a comparison between the respective performance requirements. Based on this comparison, it can either be recommendable to consider previous employee performance as a selection criterion (i.e., in case of a strong overlap), or rather not (i.e., in case of a weak overlap). Conducting systematic job analyses, then, allows to only take the performance on those job tasks into account that are relevant for the leader position, as for those tasks previous performance should be predictive (see Wernimont & Campbell, 1968). To further optimize leader selection, organizations could complement the performance-based promotion strategy with additional assessments. Thereby, they could cover leader job tasks that cannot be predicted by prior employee performance (e.g., a personality test or general mental ability; see Schmidt & Hunter, 1998). These considerations have the potential to improve the quality of leader selection.

Furthermore, we consider it worthwhile for organizations to generally challenge and rethink their strategy to select leaders. A recent paper (Erkal, Gangadharan, & Xiao, 2022) showed that an opt-in promotion strategy (i.e., when employees need to proactively decide to make a career and potentially be considered for leader positions) compared to an opt-out strategy (i.e., when employees need to take action if they do not want to be considered for being promoted to leader positions) reduced the gender gap in leader selection (i.e., more women stepped up to become a leader). As diverse leadership teams have a positive impact on organizational performance (Hoogendoorn, Oosterbeek, & van Praag, 2013), this strategy not only holds the potential to improve leader selection, but also to reduce discrimination due to gender and potentially other disadvantaged group memberships (van Dijk, Kooij, Karanika-

Murray, De Vos, & Meyer, 2020). In sum, this strategy contrasts with performance-based promotion, as there is no performance threshold limiting the pool of potential candidates to fill a leader position.

CONCLUSION

Performance-based promotion strategies are prevalent and appear as face-valid, yet their actual validity seems to be low, at least for some contexts. Our research mostly supports the predictions of the performance requirements perspective (Zaccaro et al., 2018), showing a small link between employee performance and leader performance initially and over time. To improve the validity of leader selection, we advise organizations to pay more attention to the actual performance requirements of the vacant leader position, rather than the candidates' past accomplishments.

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TABLE 1

Descriptive Statistics and Intercorrelations for Longitudinal Dataset

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.
1. Height																			
2. Position	-.69**																		
3. Continuous engagement with club (T1-T2)	-.09	.12																	
4. Continuous engagement with club (T2-T3)	-.14	.12	.10																
5. Minutes played	.16*	.06	.02	-.14															
6. PER	.30**	-.07	-.06	-.18*	.60**														
7. WS.48	.29**	-.09	-.12	-.18*	.54**	.89**													
8. Team quality (T1)	.06	-.05	.01	.02	-.15	-.21*	-.23**												
9. Team quality (T2)	.15	-.13	-.01	.01	-.08	-.11	-.14	.89**											
10. Team quality (T3)	.21*	-.14	.06	.13	-.06	.00	-.04	.76**	.84**										
11. Wins (T1)	.02	.02	-.23**	.17**	.22**	.25**	.29**	-.17**	-.21**	-.15									
12. Wins (T2)	-.09	.09	-.28**	-.13*	.16	.18*	.21*	-.28**	-.21**	-.31**	.44**								
13. Wins (T3)	-.15	.04	-.05	-.15*	.08	.10	.09	-.14	-.16*	-.24**	.25**	.48**							
14. Team rank (T1)	-.01	.09	.17**	-.01	-.08	-.19*	-.26**	.41**	.37**	.31**	-.54**	-.39**	-.22**						
15. Team rank (T2)	.03	.08	.16*	.10	-.09	-.09	-.14	.30**	.32**	.30**	-.41**	-.64**	-.40**	.55**					
16. Team rank (T3)	.16	-.04	.09	.25**	.00	-.06	-.07	.17*	.21**	.37**	-.26**	-.45**	-.73**	.34**	.48**				
17. Number coached games (T1)	.00	.04	-.19**	.19**	.15	.08	.11	.07	.05	.09	.80**	.20**	.13	-.13*	-.13*	-.13			
18. Number coached games (T2)	-.07	.08	-.28**	-.09	.09	.07	.08	-.15*	-.01	-.20**	.22**	.75**	.23**	-.17**	-.21**	-.19**	.19**		
19. Number coached games (T3)	-.09	-.01	.00	-.02	.14	.09	.06	-.10	-.08	-.04	.13	.18*	.73**	-.11	-.18*	-.29**	.10	.12	
M	193.16	0.44	0.15	0.16	16929.25	13.92	0.09	4.18	4.02	4.12	24.41	32.79	34.7	4.06	3.64	3.49	55.47	68.91	69.67
SD	8.31	0.5	0.36	0.36	10887.89	4.29	0.07	2.46	2.24	2.17	15.92	15.71	16.28	1.71	1.65	1.88	27.44	21.88	20.59
Min	175	0	0	0	12	-4.1	-0.28	1	1	1	0	0	0	1	1	1	0	1	3
Max	216	1	1	1	50111	27	0.31	15	15	15	67	73	68	8	8	8	84	84	84
N	176	162	329	329	157	157	157	272	212	165	324	242	187	323	242	187	329	242	187

Note. * $p < .05$, ** $p < .01$. Variables 1-4 capture time invariant control variables, variables 5-7 represent different measures for player performance, variables 8-10 capture time variant control variables (at T1, T2, and T3), variables are 11-19 measures for coach performance (at T1, T2, and T3). PER = the player efficiency rating, WS.48 = player's win shares per 48 minutes.

TABLE 2

Descriptive Statistics and Intercorrelations for Multilevel Dataset

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. Height												
2. Position	-.65**											
3. Team quality	.10	-.11										
4. Minutes played	.09	.10	-.14*									
5. PER	.04	.21**	.05	.74**								
6. WS.48	.17**	.10	.00	.67**	.90**							
7. Weight.Win	-.06	.22**	-.24**	-.21**	.00	.05		.61**	-.53**	.77**	-.64**	.02
8. Weight.Off	.09	.02	-.05	-.18**	-.10	.00	.64**		.14**	.50**	-.40**	-.05
9. Weight.Def	-.03	-.29**	.30**	-.17**	-.27**	-.30**	-.68**	-.11*		-.51**	.44**	-.05
10. Wins	-.14*	.23**	-.31**	-.19**	-.02	.04	.89**	.67**	-.64**		-.78**	.30**
11. Team rank	.12	-.24**	.23**	.13*	-.05	-.09	-.80**	-.63**	.55**	-.88**		-.01
12. Number coached games	-.04	-.05	-.18**	.03	-.03	-.04	-.14**	-.10*	.02	.03	.07	
M	191.96	0.57	4.51	18271.59	13.31	0.09	50.97	1.1	1.07	40.97	2.89	79.92
SD	7.66	0.5	3.08	11611.41	3.4	0.06	6.39	0.04	0.04	12.45	1.41	5.52
Min	175	0	1	12	0	-0.17	32.06	0.94	0.96	7	1	63
Max	208	1	15	50111	20	0.18	67.67	1.21	1.17	73	5	82
N	52	51	91	51	51	51	425	349	349	425	425	425

Note. Level 2 correlations are presented below the diagonal, Level 1 correlations are presented above the diagonal. Level-specific correlations have been calculated using person-mean centering. Variables 1-3 capture control variables, variables 4-6 represent different measures for player performance, variables 7-9 measured our mediator (i.e., 7. the mean of the most frequently composed five-man floor units' winning percentage (i.e., wins vs. losses) weighted by the minutes each unit was playing (i.e., weighted mean); 8. the mean of all composed units' points per possession (i.e., offense score) weighted by the minutes each unit was playing; and 9. the mean of all composed units' allowed points per possession (i.e., defense score) weighted by the minutes each unit was playing), and variables 10-12 measured coach performance. PER = player efficiency rating, WS.48 = player's win shares per 48 minutes.

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

TABLE 3

Results from BSEM with Equality Constraints

Model 1 - Criterion: Leader Performance Latent									
Model fit: PPP = .33 PPC 95% CI = [-26.90; 39.72]; PSR < 1.01; CFI = 1.00, 90% CI [0.98; 1.00]; RMSEA = .00, 90% CI [.00; .07]); BIC = 3222.31									
Measurement part	γ	2.5% CI	97.5% CI						
Employee performance									
Minutes played	.81*	.66	.92						
PER	.90*	.78	.96						
WS.48	.88*	.72	.95						
	T1			T2			T3		
Leader performance	γ	2.5% CI	97.5% CI	γ	2.5% CI	7.5% CI	γ	2.5% CI	97.5% CI
Wins	.84*	.67	.95	.90*	.80	.96	.94*	.87	.97
Team rank	-.83*	-.93	-.63	-.87*	-.94	-.73	-.91*	-.96	-.82
Structural part	T1			T2			T3		
	β	2.5% CI	97.5% CI	β	2.5% CI	97.5% CI	β	2.5% CI	97.5% CI
Employee performance	**.13***	.02	.25	**.12***	.02	.22	**.11***	.02	.20
Position	-.01	-.17	.16	.06	-.10	.22	.06	-.10	.22
Employee performance x Position	.08	-.08	.23	-.10	-.25	.06	.13	-.02	.28
Leader performance (T1)				**.46***	.29	.61			
Leader performance (T2)							**.58***	.42	.72

Note. *N* = 157. Results are standardized coefficients. (Residual-)covariances not shown for parsimony. PER = the player efficiency rating; WS.48 = player's win shares per 48 minutes. * 95%-CI excludes zero.

TABLE 4

Results from BMSEM

Model 1 - Criterion: Leader Performance Latent						
Model fit: PPP = .39; PPC 95% CI = [-21.87; 28.09]; PSR < 1.01						
Measurement part	γ	2.5% CI	97.5% CI			
Employee performance – Level 2						
Minutes played	.84*	.68	.94			
PER	.93*	.79	.97			
WS.48	.90*	.74	.96			
Leader performance – Level 1						
Wins	.93*	.82	.97			
Team rank	-.79*	-.86	-.68			
Leader performance – Level 2						
Wins	.91*	.80	.95			
Team rank	-.87*	-.94	-.72			
Structural part	Mediator: Weight.Win			Criterion: Leader performance		
	β	2.5% CI	97.5% CI	β	2.5% CI	97.5% CI
Level 1						
Weight.Win				**.84***	.78	.95
Level 2						
Employee performance	-.04	-.46	.37	.00	-.22	.23
Weight.Win				**.98***	.88	1.04

Note. N_{Level1} = 425, N_{Level2} = 92. Results are standardized coefficients. (Residual-)covariances not shown for parsimony. PER = the player efficiency rating; Weight.Win = the mean of the most frequently composed five-man floor units' winning percentage (i.e., wins vs. losses) weighted by the minutes each unit was playing (i.e., weighted mean); WS.48 = player's win shares per 48 minutes.
* 95%-CI excludes zero.

TABLE 5

Results from BSEM with Equality Constraints and Alternative Operationalization for Leader Performance

Model 1 - Criterion: Leader Performance = Number of coached games as head coach									
Model fit: PPP = .50; PPC 95% CI = [-24.09; 23.05]; PSR < 1.01; CFI = 1.00, 90% CI [0.97; 1.00]; RMSEA = .00, 90% CI [.00; .06]; BIC = 2238.86									
Measurement part	γ	2.5% CI	97.5% CI						
Employee performance									
Minutes played	**.82***	.69	.93						
PER	**.92***	.81	.96						
WS.48	**.89***	.77	.95						
Structural part	T1			T2			T3		
	β	2.5% CI	97.5% CI	β	2.5% CI	97.5% CI	β	2.5% CI	97.5% CI
Employee performance	**.11***	.01	.21	**.11***	.01	.21	**.10***	.01	.20
Position	.04	-.11	.20	.08	-.09	.24	-.03	-.21	.14
Employee performance x Position	.09	-.06	.24	-.06	-.23	.11	.11	-.06	.28
Leader performance (T1)				.07	-.13	.26			
Leader performance (T2)							**.29***	.03	.50

Note. *N* = 146. Results are standardized coefficients. (Residual-)covariances and autoregression coefficients for team quality not shown for parsimony. PER = the player efficiency rating; WS.48 = player's win shares per 48 minutes; Weight.Win = the mean of the most frequently composed five-man floor units' winning percentage (i.e., wins vs. losses) weighted by the minutes each unit was playing (i.e., weighted mean).* 95%-CI excludes zero.