Check for updates

FEATURE ARTICLE

WILEY

A meta-analysis of change in applicants' perceptions of fairness

Udo Konradt | Martina Oldeweme | Sabrina Krys [iD] | Kai-Philip Otte

Work and Organizational Psychology, Institute of Psychology, Kiel University, Kiel, Germany

Correspondence
Udo Konradt, Work and Organizational Psychology, Institute of Psychology, Kiel University, Olshausenstraße 62, Kiel D-24118, Germany.
Email: konradt@psychologie.uni-kiel.de

Funding information
Deutsche Forschungsgemeinschaft, Grant/Award Number: Ko-1412/12-1

Abstract

Using an event-triggered multi-stage framework, this random-effects meta-analysis examined the changes in applicants' perceptions of fairness between consecutive stages and throughout the entire personnel selection process. We integrated findings of studies with at least two measurement points, resulting in 45 effect sizes (overall $N = 3,038$). Trajectories of perceptions of fairness decreased nonlinearly across the process, with a steeper decrease for people who held high levels of initial fairness expectations. Unjust treatment produced a decrease in perceptions of fairness from pretest to posttest and an increase from posttest to postdecision. Furthermore, the length of the time interval moderated the changes in fairness perceptions between the posttest and postdecision stage. Practical implications and an agenda for future research are discussed.

KEYWORDS

applicant, change, fairness, latent trajectory, meta-analysis, perceptions, personnel selection

1 | INTRODUCTION

Wanting to be treated fairly is considered a fundamental human desire. Universality theories suggest that being treated fairly fulfills a number of basic needs, including the need for human influence and voice (e.g., Adams, 1963; Lind & van den Bos, 2002), a sense of self-worth and self-esteem (e.g., Lind, 1995), and universal norms of ethics and morality (e.g., Folger, 1998). Fairness has also been examined in the personnel selection context, where it plays an important role. It is widely recognized, for instance, that treating people fairly is directly connected to the image people have of an organization and can impact their relationship with it (McCarthy et al., 2017). Unfair treatment, moreover, can also be quickly communicated to a broader audience through employer rating portals (e.g., kununu.com) or social networks. This emphasizes the importance of researching the effects of just and unjust treatment during the selection process. The results of studies in this area have been summarized in various narrative reviews (Colquitt & Zipay, 2015; Gilliland & Steiner, 2012; McCarthy et al., 2017; Truxillo & Bauer, 2011; Truxillo, Bauer, & McCarthy, 2015) and quantitative meta-analyses (Anderson, Salgado, & Hülsheger, 2010; Hausknecht,

Day, & Thomas, 2004; Truxillo, Bodner, Bertolino, Bauer, & Yonce, 2009), which have advanced our understanding of perceptions of fairness in the personnel selection process.

Despite this wealth of research, previous meta-analyses have focused on static or short-term relationships and have thereby largely disregarded the fact that perceptions of fairness change over time. However, examining these changes is of fundamental importance, as numerous authors have highlighted (e.g., Chan & Schmitt, 2004; Fortin, Cojuharenco, Patient, & German, 2016; McCarthy et al., 2017; Rupp, Shao, Jones, & Liao, 2014). Arguably, the personnel selection process typically consists of multiple stages in which applicants are repeatedly confronted with varying information. Consequently, their perceptions of fairness may be shaped and revised dynamically during the selection process (Breaugh, 2009; Evertz & Süß, 2017). Hausknecht, Sturmann, and Roberson (2011) demonstrated that trajectories in employees' perceptions of fairness explained additional variance in work outcomes after controlling for end-state levels of fairness. In addition, high initial levels in fairness expectations corresponded to a steeper decrease in these trajectories (Konradt, Garbers, Erdogan, & Bauer, 2016). Consequently, the first goal of the present meta-analysis is to examine the trajectories of applicants' perceptions of fairness.

Accordingly, aggregating observations from individual stages in the selection process, or examining only a particular stage, give at best only a snapshot of what actually happens and may even result in relevant effects being over- or underestimated and in important insights being obscured. Describing and understanding the changes in perceptions of fairness during the selection process is crucial for developing a nuanced and detailed perspective on what applicants perceive to be fair or unfair and to develop useful advice to practitioners and organizations. Therefore, the second purpose of this meta-analysis is to examine the changes in applicants' perceptions of fairness between consecutive stages of the selection process. We also examine the impact of a particular selection practice or experience (e.g., just or unjust treatment, type of selection procedures) on applicants' perceptions. To investigate these effects, we employ a multiple-stage design (Saks, 2013), which enables us to answer questions such as "Does the length of the time interval between stages influences the change in perceptions of fairness dependent of the selection stage?". Findings on such questions not only help to achieve a better understanding of the change in perceptions of fairness, but are especially relevant from a practical point of view in order to improve the selection process (e.g., In which stages are which practices particularly relevant?).

Conclusively, this meta-analytic study is designed to systematically aggregate the results of previous longitudinal and repeated measure research to derive conclusions about that body of research and to extend previous research in the following important ways. First, in contrast to preceding work, this meta-analysis is the first to address fundamental questions about changes in perceptions of fairness. By two-stage meta-analytic structural equation modeling we are not only able to identify changes in perceptions of fairness between two consecutive stages in the selection process but also to identify the trajectory of perceptions of fairness over time, which have not been tested in any previous meta-analytical review. Finally, drawing on theories of justice (Gilliland, 1993; Jones & Skarlicki, 2013), we identify and examine factors that might influence the degree to which perceptions of fairness change, including applicants' expectations of fairness, just or unjust treatment in the selection process, the length of the time interval between stages in the selection process, the type of setting (i.e., hypothetical vs. real-world settings), and the number and type of selection procedures used. Our hypothesized model is displayed in Figure 1.

2 | THEORETICAL BACKGROUND AND HYPOTHESES

Typically, personnel selection is a process in which applicants progress through different stages, from application, to testing, and final
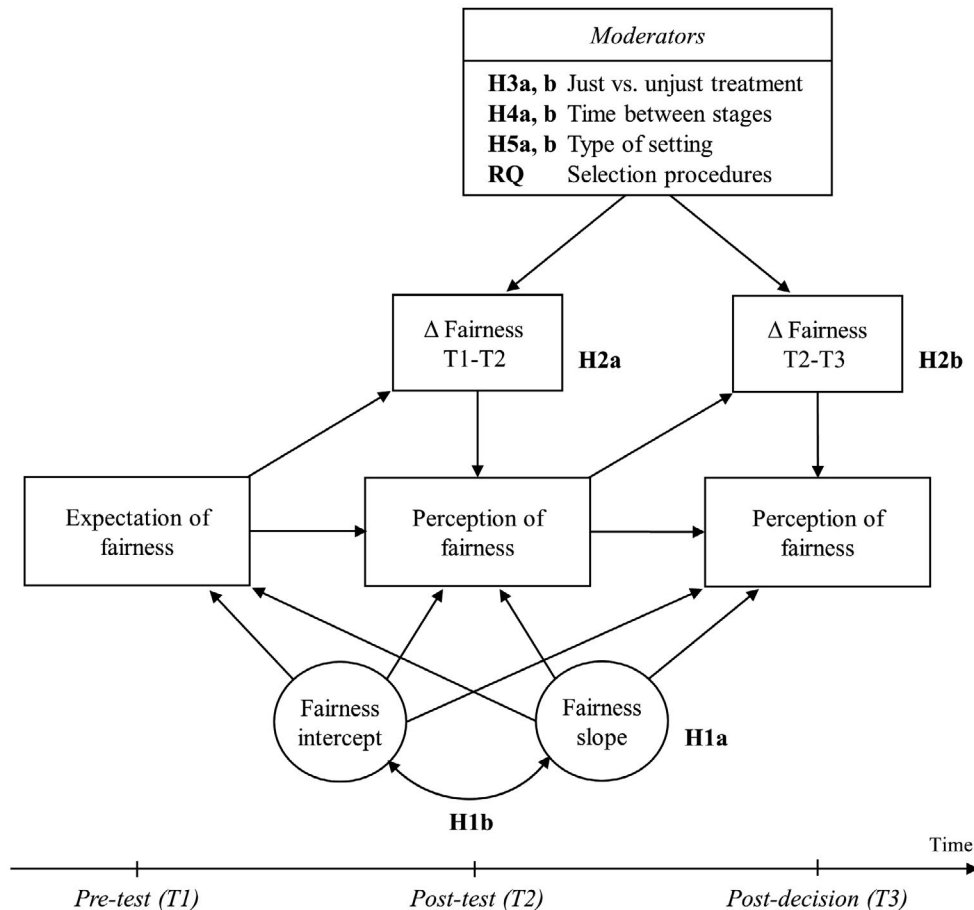

FIGURE 1 Hypothesized model showing the different changes at different points in time in expectation of fairness and perceptions of fairness in the three-stage selection framework and the influence of moderators

decision. Each stage is initiated by specific events, such as the organization's reaction to the applicant's application, the assessment tests, and interviews, or the communication of the hiring decision to the applicant. This structure is reflected in Barber's multi-stage framework (1998). The framework implies that, for applicants who progress beyond the first stage (i.e., the application), their perceptions of fairness develop over three stages: pretest, posttest, and postdecision. Pretest refers to the stage after the applicant has applied for a job. The posttest stage refers to the period after the applicant has undertaken a series of assessments (e.g., tests or interviews). Postdecision (or postfeedback) refers to the period after the applicants received feedback on their application (e.g., offer or rejection). During each stage, applicants gain new information that shapes their perceptions of how fair the selection process is, which, in turn, influences perceptions at the following stages (Ambrose & Cropanzano, 2003). Changes in perceptions of fairness are also inherent both in organizational justice theories (Jones & Skarlicki, 2013; Lind, 2001; van den Bos, Lind, & Wilke, 2001) and applicant fairness theories (Chan & Schmitt, 2004; Ployhart & Harold, 2004). Chan and Schmitt (2004) argued that applicants' perceptions of fairness change over time in consequence of the way they are treated during the application process. Similarly, applicant attribution-reaction theory (AART; Ployhart & Harold, 2004) proposes that perceptions of fairness are formed during an attributional processing sequence (i.e., situation perception, expectation, perceived satisfaction or violation, and attribution) that evolves over time. Consequently, perceptions of fairness evolve dynamically as individuals encounter new information during the selection process.

2.1 | Trajectory of applicants' perceptions of fairness

A first approach to capturing change in applicants' perceptions of fairness is to examine the latent trajectory (i.e., average growth trajectory or pattern of change over time) over the entire selection process (Curran, Obeidat, & Losardo, 2010). A longitudinal study with real job applicants has demonstrated that the latent trajectory of perceptions of fairness shows a nonlinear decline over the entire selection process (Konradt et al., 2016). Their findings have recently been replicated in a randomized controlled trial with a simulated selection context (Butucescu & Iliescu, 2018). They argued that selection processes are stressful events and thus lead to negative emotionality and feelings of stress, which trigger both a self-serving bias and a negative appraisal of the selection process relating to fairness perception.

One possible explanation of the declining fairness trajectory might be that selection procedures are stressful events that involve a high degree of uncertainty and can evoke negative emotions such as insecurity and anxiety (e.g., van den Bos & Lind, 2002). Such events can thus be a stress factor for individuals and can, in extreme cases, be a threat to their health (Sinclair, 2014). Since applicants have invested considerable resources in their application and usually

regard the outcome (i.e., getting a job offer) as important but they do not receive feedback until the end, their impressions and negative emotions may tend to remain quite strong. These negative emotions may, in turn, lead to what is called mood congruency memory bias. Here applicants will recall previous experiences that feel to be similar to their current mood and thus perceive their experience as less positive and less fair (Loeffler, Myrtek, & Peper, 2013).

Furthermore, if we look at models relating to episodic memory, studies have shown that emotional experiences are more likely to be remembered than neutral stimuli (e.g., Quevedo et al., 2003). Models of context-specific memory suggest that people in a certain mood tend to improve their coding or retrieval of stimuli that have the same affective valence, that is, information that is congruent with their current mood is retrieved more readily than information that is incongruent (Bower, 1987). Accordingly, negative information is more likely to be perceived than positive information.

Another reason for an overall decline might be that most candidates, which move through the process, receive a rejection, which evokes negative emotions (cf. Gilliland, Groth, Baker IV, Polly, & Langdon, 2001) as they are associated with disappointment and can violate one's self-view (Schinkel, Van Dierendonck, & Anderson, 2004). According to the self-threat model of procedural justice, applicants might perceive a rejection as a threat to their ego or self-concept (Lilly & Wipawayangkool, 2018). This can lead to defensive behavior in order to restore their self-esteem (Roese & Olson, 2007). Applicants tend to search for a possible explanation for a rejection that shifts the blame for their own situation onto something other than themselves. If applicants have been treated unfairly or rejected, they search for inconsistencies, biased judgments, and other signs of injustice in the selection process and blame the organization for the outcome (Lilly & Wipawayangkool, 2018). Consistent with theory and prior research we, therefore, suggest that:

Hypothesis 1a *The trajectory of applicants' perceptions of fairness will show a decline over the entire selection process.*

Despite this, applicants' *expectations* of fairness (i.e., anticipatory fairness or initial level of perceptions of fairness)—which have been defined as "probabilistic beliefs about the characteristics of the forthcoming selection procedure" (Schreurs, Derous, Proost, Notelaers, & De Witte, 2008, p. 170)—correspond to the decline in their perceptions of fairness (Celani, Deutsch-Salamon, & Singh, 2008; Jones & Skarlicki, 2013). Expectations of fairness serve as a frame of reference, with the applicants' previous experience providing a reference point (Jones & Skarlicki, 2013). Thus, applicants' perceptions of an event are formed relative to a pretest anchor in terms of fairness expectations (Gilliland, 2008); their expectations about an upcoming situation will thus influence how they perceive a situation by guiding the type of information they pay attention to and the attributions they make (Ployhart & Harold, 2004; Schreurs et al., 2008). In situations that involve a high degree of uncertainty (e.g., selection process), applicants engage in attributional processes to identify causes of negative experiences. Applicants will search

for any explanation that puts blame on something other than themselves (e.g., the test was not job-related) (Lilly & Wipawayangkool, 2018). As a result, they focus on those aspects that do *not* meet their expectations. Even small deviations from expectations have a significant and negative influence on their fairness perception.

The importance of realistic expectations is also evident from similar contexts: A realistic job preview influences applicants' expectations. When they become an employee of the organization, these (un)met expectations, in turn, influence their performance, satisfaction, commitment, perceptions of honesty, acceptance, attraction, and turnover intentions (for an overview, see Cable & Yu, 2013). Therefore, (un)met expectations can affect how applicants perceive the fairness of an organization. Consistent with this assumption, previous work has demonstrated that elevated expectations of fairness are linked to a steeper decline in perceptions of fairness over time (Butucescu & Iliescu, 2018; Konradt et al., 2016). Consequently, we hypothesize a negative relationship between applicants' expectations of fairness (i.e., intercept) and the decline in perceptions of fairness over time (i.e., slope):

Hypothesis 1b *Applicants whose expectations of fairness are initially high (i.e., intercept of trajectories) will show a steeper decline (i.e., slope of trajectories) in their perceptions of fairness throughout the entire selection process.*

2.2 | Changes in perceptions of fairness between consecutive stages

Besides examining the trajectory of perceptions of fairness over the entire selection process, we also study the change in perceptions between consecutive stages. Fairness theories suggest that perceptions of fairness are "affected by expectations about future treatment and memories of past treatment" (Fortin et al., 2016, p. 7). Consequently, the stages in the selection process are interdependent and can affect each other. Findings on such interdependencies are particularly relevant from a practical point of view. Many selection processes consist of sequential hurdles that applicants need to pass. It is, therefore, important for organizations to improve the stages but also to improve the transitions between them so that applicants do not withdraw their application during the process.

In terms of the pretest stage, "applicants learn about the job and organization, prepare application materials, and interact with company representatives for the first time" (Hausknecht et al., 2004, p. 13). Through this initial contact (e.g., via email or telephone), an applicant will form certain expectations regarding the organization and upcoming selection process. As already indicated, those expectations will, in turn, affect that individual's perception of an event's fairness at the posttest stage (Proudfoot & Lind, 2015). Moreover, we argue that fairness judgments in the pretest stage not only affect judgments in the posttest stage but will also decline over these two consecutive stages. As argued previously, applying for a job and participating in assessments involves a high degree of strain and uncertainty for applicants, who do not know whether they will receive a job offer or not (van den Bos & Lind, 2002). The more time, resources,

and hope applicants have invested in applications, the more they will fear failure. Furthermore, the applicant attribution-reaction theory (AART; Ployhart & Harold, 2004) poses that fairness perceptions are shaped by attributional processes. In the posttest stage, applicants engage in attributional processes to identify causes of, for example, their performance in a test, and they will search for any explanation that puts blame on something other than themselves (Lilly & Wipawayangkool, 2018). As a result, applicants mainly focus on those aspects of the assessment phase that do not meet their expectations. Even small deviations from expectations thus have a significant and negative influence on the perception of fairness in the posttest stage. In line with the mood congruency effect, applicants will then retrieve experiences that fit with their current mood and will perceive the process as more unfair (Loeffler et al., 2013). Based on this literature, we put forward the following hypothesis:

Hypothesis 2a *Applicants' perceptions of fairness of the personnel selection process will decrease between the pretest and posttest stages.*

Between the posttest and postdecision stage, we assume there will also be a decline in applicants' perceptions of fairness. The outcome of the application process (i.e., the hiring decision) itself influences applicants' perceptions of the procedure: Those who receive a job offer will perceive the process more favorably than those who get a rejection (Gilliland, 1994; Ryan, Sacco, Mcfarland, & Kriska, 2000). Since most applicants will be rejected, negative emotions (e.g., disappointment, anger, frustration) in the postdecision stage are thus more likely (cf. Gilliland et al., 2001). The self-threat model of procedural justice suggests that applicants who are rejected become defensive and make external attributions by blaming the organization for their situation (Lilly & Wipawayangkool, 2018). In this stage, there should accordingly be a clear decrease in applicants' perceptions of fairness. In line with theory, we consequently predict the following change will occur:

Hypothesis 2b *Applicants' perceptions of fairness of the personnel selection process will decrease between the posttest and post-decision stage.*

2.3 | Moderators of the changes between consecutive stages in perceptions of fairness

Drawing on theories of fairness, we have also explored the variation in these changes between stages in perceptions of fairness by identifying potential moderators. The first moderator, which forms part of all fairness theories, is the just or unjust treatment to which applicants were exposed.

2.3.1 | Effects of just and unjust treatment of applicants

Theory predicts that applicants generally expect to be treated justly (Colquitt, Greenberg, & Zapata-Pehlan, 2005). Because of

this, unjust treatments are likely to have a stronger negative effect on perceptions of fairness, whereas just treatments will only confirm the applicant's expectations (Jones & Skarlicki, 2013). This is in accordance with the principle of "bad is stronger than good" (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001), where bad events have a more lasting and intense impact than good events. Furthermore, in uncertainty management theory (Lind & van den Bos 2002; van den Bos & Lind 2002) it is argued that fairness matters more when people are uncertain about something. This is especially the case in a selection process, where applicants are uncertain about the outcome, which is of direct relevance for their career. Lind and van den Bos (2002, p. 196) argued that unjust treatment "under conditions of uncertainty gives the uncertainty a particularly sinister complexion and makes people even more uneasy". Thus, unjust treatment will itself produce feelings of uncertainty. Conversely, just treatment helps applicants overcome their feelings of personal uncertainty and insecurity by giving them confidence that they will achieve a good outcome or that rejection will provoke fewer negative emotions. This is in line with Mullen's (2007) suggestion that people only think about justice when they experience negative emotions. Consequently, applicants who are treated unjustly will focus much more on justice issues and are, therefore, more sensitive to any violation of justice. These arguments lead us to the following hypothesis:

Hypothesis 3 *Applicants' perceptions of fairness will decrease more between the pretest and posttest stage (a) and between the posttest to postdecision stage (b) when they are treated unjustly as opposed to justly.*

2.3.2 | Time span between stages in the personnel selection process

In line with the logic of change, the length of the time interval between consecutive stages in the selection process might predict the magnitude of the changes in applicants' perceptions of fairness. When two points in time are far apart, people might have changed their mental representations of fairness through causal attributions and sense-making processes (Jones & Skarlicki, 2013; Ployhart & Harold, 2004). Additionally, previous research (Paterson, Green, & Cary, 2002) indicated a low test-retest reliability for perceptions of fairness and the authors suggested three different causes for this: Individuals changed their norms of fairness over time, used different reference points, or were prone to memory biases. Rosy retrospection bias is another possible memory bias that might play a role in perceptions of fairness over time. That is, people tend to remember events in the past more positively than they actually felt at the time (Mitchell, Thompson, Peterson, & Cronk, 1997). Applied to our context, applicants tend to remember something that happened in the past as being less unfair the longer ago the event took place. As such, the following hypotheses are offered:

Hypothesis 4 *When the intervals between (a) pretest and posttest and (b) posttest and postdecision are longer, applicants' perceptions of fairness will decrease less than when the intervals are shorter.*

2.3.3 | Hypothetical versus real-world settings

In their meta-analysis, Hausknecht and colleagues (2004) assume that effect sizes drawn from real-world settings will differ from those found in hypothetical studies that simulate selection settings. In real-world settings, job applicants are taking part in an actual selection process. In hypothetical settings, individuals are taking on the role of an applicant or base their judgments on descriptions of different procedures. Hausknecht et al. (2004) reported that average correlations with perceptions of fairness are stronger in hypothetical settings than in real-world settings. They argued that one reason for the difference in effect sizes between real-world and hypothetical settings might be that, in hypothetical settings, applicants are confronted with scenarios that trigger perceptions that are more to do with aspirations or wish fulfillment. In addition, these applicants may behave less strategically, because complaints of unfairness will have no consequences in terms of the hiring decision. The authors also noted that a methodological bias could be an explanation for the moderating effect of the type of setting: Applicants in real-world settings may represent a restricted range of applicants because of self-selection. The restriction, in turn, could mitigate the observed effects. This led us to hypothesize that:

Hypothesis 5 *Applicants will show a steeper decrease in their perceptions of fairness from pretest to posttest (a) and from posttest to postdecision (b) in hypothetical settings than in real-world settings.*

2.3.4 | Number and type of selection procedures

Selection procedures used in a selection process vary in number and/or type. Referring to the number of procedures used, applicants are more strained with an increasing number of procedures (cf. Ryan & Ployhart, 2000). They could thus perceive the process as less fair. In contrast, the more procedures are used, the more valid and thus fairer the selection process is perceived. Research has for example demonstrated that the validity of a selection process increases if a multimethodological approach is used (see Schmidt & Hunter, 1998, for details).

Referring to the type of procedures, the trimodal selection approach distinguishes between the trait (e.g., personality tests, cognitive ability tests), biographical (e.g., interviews), and simulation (e.g., role-play exercise, work sample) approach (Deters, 2017). Hausknecht and colleagues (2004) observed the highest favorability among applicants for interviews (biographical approach) and work samples (simulation approach). Cognitive ability and

personality tests (trait approach) only came fifth and sixth in the ranking, respectively. This corroborates more recently meta-analytical evidence that selection procedures could be clustered into three distinct groups: most preferred (e.g., interviews, work samples), favorably evaluated (e.g., cognitive ability and personality tests), and least preferred (e.g., honesty tests, personal contacts) (Anderson et al., 2010).

However, previous research did not examine whether different approaches (e.g., biographical and trait approach) or their combination influences applicants' perceptions of fairness. Similarly, the number of procedures should be considered, because the number increases with a combination of procedures. What is not yet clear, therefore, is the impact of the number and type of procedures on the change between the various stages in applicants' perceptions of fairness. We thus pose the following research question:

Research Question: Do the number and type of selection procedures moderate the changes in perceptions of fairness between consecutive stages in the selection process?

3 | METHOD

3.1 | Literature search

To locate all relevant studies, we employed a comprehensive search strategy. First, we used a range of online databases, including PsycARTICLES (covering published articles, chapters, books, and [unpublished] dissertations), EBSCOhost (covering published articles and encompassing several databases, e.g., Business Source Premier), ScienceDirect, ABI/INFORM, and Web of Science. The following search terms, broken down into smaller search terms as necessary, were used to identify relevant studies: *selection/recruitment fairness*, *organizational/organisational justice*, *applicant/candidate reaction*, *applicant/candidate perception*, *applicant perspective* and *assessment*, *testing*, *test-taking*, *personnel/employee selection/recruitment* and *longitudinal*, *dynamic*, *long-term*, *long-run*, *repeated measure*, *within-subject*. Second, we checked the studies included in previous reviews on applicants' perceptions of fairness as well as references in prominent studies identified early in the search process (e.g., Bauer, Maertz, Dolen, & Campion, 1998; forward search). Third, we contacted the 10 authors and institutions that had contributed the greatest number of studies to the data collection in order to get hold of any further unpublished literature, and we also conducted cross-reference checks of all eligible studies. Fourth, in October 2016 we sent out a request for unpublished data via the mailing lists of the industrial and organizational psychology secretaries of the American Psychological Association (APA), the German Society for Psychology (Deutsche Gesellschaft für Psychologie, DGPs), and the Dutch Association of Psychologists (Nederlands Instituut van Psychologen, NIP). Finally, we contacted authors of published studies that did not include either all the necessary demographic information or the complete correlation matrix. The search for studies was completed in April 2019.

3.2 | Inclusion criteria

Studies had to meet the following criteria to be included in the meta-analysis: (a) they deal with justice/fairness and examine one or more justice/fairness variables (e.g., procedural justice); (b) they have a repeated measure design and consider at least two of the three stages in the selection process (pretest, posttest, postdecision); (c) the samples had to consist of real applicants or participants assuming the role of applicants; (d) and they had to provide sufficient statistical information (i.e., correlations, sample size, mean values) to calculate effect sizes.

3.3 | Data collection

The first search procedure step yielded a total of 1,092 records (PsycARTICLES: 865; EBSCOhost: 57; ABI/INFORM: 49; Web of Science: 121). Following an initial scan for eligibility by screening the headlines and removal of duplicates, 1,056 records were excluded, leaving a total of 36 records obtained through the databases. A further six records were found by scanning the references of Gilliland and Steiner (2012), Jones and Skarlicki (2013), Truxillo et al. (2015), Hausknecht, Sturman, and Roberson (2011), Chapman and Webster (2006), and Konradt, Garbers, Böge, Erdogan, and Bauer (2017). Another eleven records were identified by looking up articles that cited Jones and Skarlicki (2013) or Bauer et al. (1998); three unpublished records were also included in the analysis. A total of 56 records were assessed for eligibility.

Two independent judges read the articles in full and excluded a further 38 articles. Reasons for exclusion at this stage were that the studies were not original articles, but were reviews, commentaries, and so forth (15); that they dealt with justice in a broader sense (8); that they did not use a repeated measures design (7); that they dealt with perceptions of fairness among employees in organizations, not specifically during the selection process (7); or that the paradigm was not suitable (1).

Additionally, we received a response from the NIP, which led us to include two additional articles and one unpublished data set that fitted our criteria for inclusion (six data sets in total). Another study published shortly after the completion of the literature search was also included (two data sets). Via the various platforms indicated above and using the overview table from McCarthy et al. (2017), we found four further studies to include in the meta-analysis (Butucescu & Iliescu, 2018; Horvath, Ryan, & Stierwalt, 2000; Oostrom, Bos-Broekema, Serlie, Born, & van der Molen, 2012; Wiechmann & Ryan, 2003). Furthermore, of these studies, twelve studies were excluded prior to analyses for different reasons: First, four were excluded because no correlations or no pre and postmeans were reported (e.g., Schinkel, van Vianen, & Ryan, 2016 (Study 4); Ployhart & Ryan, 1998; Truxillo, Bauer, & Sanchez, 2001), thus rendering quantitative analysis regarding our hypothesis impossible, or because we could find no current contact information for the author (Carless, 2003). Second, we excluded the longitudinal study by Ferguson, Moye, and Friedman
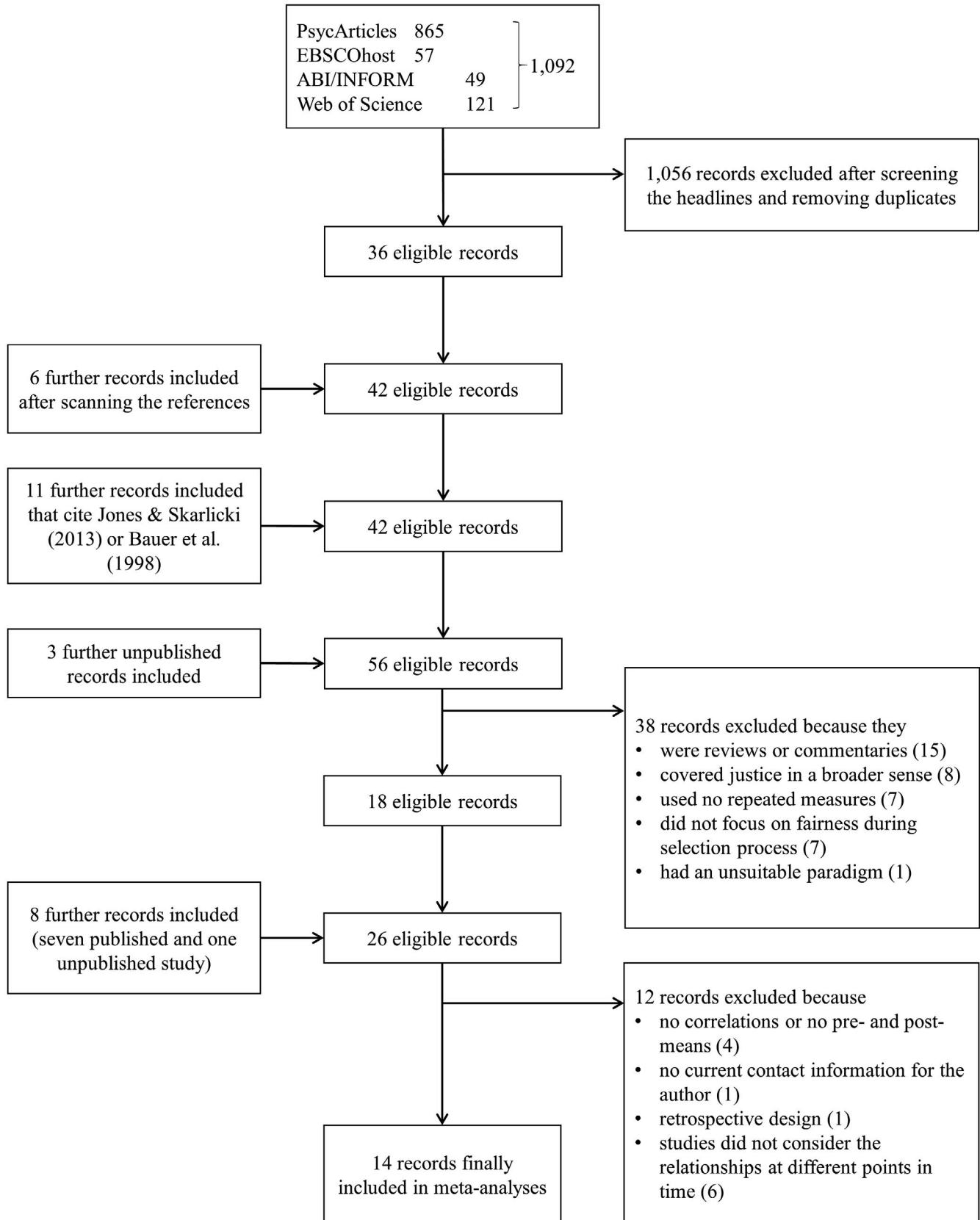
PsycArticles 865
EBSCOhost 57
ABI/INFORM 49 ⎤ 1,092
Web of Science 121 ⎦

1,056 records excluded after screening the headlines and removing duplicates

36 eligible records

6 further records included after scanning the references

42 eligible records

11 further records included that cite Jones & Skarlicki (2013) or Bauer et al. (1998)

42 eligible records

3 further unpublished records included

56 eligible records

38 records excluded because they
• were reviews or commentaries (15)
• covered justice in a broader sense (8)
• used no repeated measures (7)
• did not focus on fairness during selection process (7)
• had an unsuitable paradigm (1)

18 eligible records

8 further records included (seven published and one unpublished study)

26 eligible records

12 records excluded because
• no correlations or no pre- and post-means (4)
• no current contact information for the author (1)
• retrospective design (1)
• studies did not consider the relationships at different points in time (6)

14 records finally included in meta-analyses

FIGURE 2 Flow diagram of the literature search

TABLE 1 Characteristics of studies included in the meta-analysis

Study	k	N	Percentage of males	Age M	Age SD	Age Range	Sample	Measurement points	Moderators Setting	Moderators Treatment	Time span (days)	Selection procedures Number	Selection procedures Type
Bell, Wiechmann, and Ryan (2006)	4	788	83.30	NA	NA	NA	Applicants for firefighter positions	T1, T2	RW	Just	14	1	T
Butucescu and Iliescu (2018)	3	209	21	21.20	4.40	NA	Undergraduate students studying psychology and public relations and communications	T1, T2, T3	H	NA	0	2	T
Horvath, Ryan, and Stierwalt (2000)	3	186–202	31.20	20.00	3.30	NA	Undergraduate psychology students in a simulated applicant context	T2, T3	H	Just	7	1	T
Konradt (2017), Study 1	2	53–103	46.80	21.68	3.93	16–46	Apprentices in different vocational schools	T1, T2	H	Just, unjust	0	2	T + B
Konradt (2017), Study 2	3	47–102	36.90	21.07	3.52	16–38	Apprentices in different vocational schools	T1, T2	H	Just, unjust	0	2	T + B
Konradt, Garbers, Böge, Erdogan, and Bauer (2017)	4	182	39.00	18.20	1.30	15–28	Applicants for an apprenticeship for a large industrial firm (high-level training program)	T1, T2	RW	Just	14	>3	T + B + S
Konradt, Garbers, Erdogan, and Bauer (2016)	1	182	39.00	18.20	1.30	15–28	Applicants for an apprenticeship for a large industrial firm (high-level training program)	T1, T2	RW	Just	14	>3	T + B + S
Oostrom, Bos-Broekema, Serlie, Born, and van der Molen (2012)	6	99–106	63.20	NA	8.40	NA	Applicants for positions in various organizations	T1, T2	RW	Just	0	>3	T + B + S
Otte (2018)	8	88–97	20.20	23.09	5.89	NA	Apprentices in different vocational schools	T1, T2, T3	H	Just, unjust	0	2	T + B
Schinkel (2016), Study 1	2	20–119	55.26	42.07	9.72	24–62	Applicants for positions in diverse industries, including teaching, IT, finance, etc.	T1, T3	RW	Just	56	2	T + B
Schreurs, Derous, Proost, and De Witte (2010)	3	340	47.10	23.94	2.81	21–39	Applicants for positions at a bank and an insurance holding company	T1, T2	RW	Just	0	>3	T + B + S

(Continues)

TABLE 1 (Continued)

| Study | k | N | Percentage of males | Age | | | Sample | Moderators | | | | Selection procedures | |
				M	SD	Range		Measurement points	Setting	Treatment	Time span (days)	Number	Type
Truxillo, Bauer, Campion, and Paronto (2002)	2	261	79.40	27.54	5.55	NA	Applicants for the police force	T1, T2, T3	RW	Just	30	2	T + S
van Vianen, Taris, Scholten, and Schinkel (2004)	1	282	61.00	35.00	8.50	20–57	Applicants for different jobs in different organizations	T2, T3	RW	Just	NA	>3	T + B + S
Wiechmann and Ryan (2003)	3	200–202	24.00	20.00	NA	NA	Students undertaking an exercise to select applicants for a business analyst or customer service representative position	T2, T3	H	Just	7	1	S

Note: The reported sample size refers to the *N* used to calculate the (differences in) mean changes.

Abbreviations: B, biographical approach; H, hypothetical; NA, not available; RW, real-world; S, simulation approach; T, trait approach; T1, pretest; T2, posttest; T3, postdecision.

(2008) because its retrospective design did not meet the inclusion criteria: Participants were only asked about their perceptions of fairness if they were already or soon to be employed. Due to cognitive bias, this design is not compatible with that of other studies in which applicants were asked about their perceptions of fairness immediately after each selection stage. Finally, we had to exclude six studies because they did not consider the relationships between fairness variables at different points in time (e.g., Chapman & Webster, 2006). Figure 2 provides a flow diagram of the literature search.

In the final meta-analysis, 14 studies with 45 mean changes (overall $N = 3,038$ participants) were included (studies are marked with an asterisk in the reference list).[1] For descriptive information on these studies, see Table 1. Four of the studies were unpublished at the time of the literature search. The sample size for each study ranged between 47 and 788. The mean time lag between the coded waves of measurement from pretest to posttest was 11.7 days, and from posttest to postdecision, it was 18.5 days. The mean proportion of men was 46.80%. The mean age was 24.89 with an average standard deviation of 4.89, and the range was between 15 and 62 years.

3.4 | Coding of study characteristics

For each study, relevant information was coded, including the publication year, sample size, and sample characteristics (age, gender, and the type of job being applied for). Authors were asked to complete basic statistics when they were missing. To compute the effect sizes, we used standardized mean changes (see "Data Analysis"). For studies that considered more than one of our dependent variables, or more than one type of a particular dependent variable, we looked at the size of each effect. We did not devote any attention to identifying possible dependencies between the effect sizes within studies, thus underestimating the variance of the composite effect size, giving us a smaller confidence interval (Cheung, 2014).

To test the potential moderators, we coded the treatment, type of setting (hypothetical or real-world setting), time intervals (in days) between measurement points, and the number and type of selection procedures. The treatment of applicants during the selection process (before the decision is communicated to the applicant) was coded as "just" (1) and "unjust" (0). For hypothetical studies, we coded the described treatment. For real-world settings, a description of the treatment was missing in most cases. In those cases, the treatment was coded as "just" because in all these studies the mean value of the perception of fairness was above the scale mean value. The type of setting (real-world vs. hypothetical settings) was also dummy coded as 0 and 1, respectively.[2] We also coded the number of selection procedures (1, 2, or ≥ 3), the type of selection procedures (trait, simulation, trait + biographical, trait + simulation, or trait + biographical + simulation), and the interval between stages (0, 7, 14, or 30 days). Two trained raters, blinded to the hypotheses, coded the studies independently, and revealed a substantial level of agreement (Cohen's kappa = 0.75). All discrepancies in coding were resolved through discussion.

3.5 | Data analysis

We calculated the meta-analytic effect sizes and effects of the moderators using the 'metafor' package (Viechtbauer, 2010) in R (R Core Team, 2017). We used a random-effects meta-analysis based on Schmidt and Hunter, in line with our assumption that the true effect is not the same in all studies, since the contexts will vary (cf. Schmidt, Oh, & Hayes, 2009; Borenstein, Hedges, Higgins, & Rothstein, 2009). The calculated summary effect is, therefore, the estimate of the mean of the true effects. In accordance with the procedures suggested by Schmidt and Hunter (2014), the estimated effect sizes were adjusted based on the sample sizes and also corrected for the reliability of the measures. As a substitute for any missing reliability coefficient, we used the mean of the reliabilities of the respective study (Schmidt & Hunter, 2014).[3] We calculated d and the respective confidence intervals in the form of a change score effect size, using the standardized mean change with change score standardization (SMCC; Morris & DeShon, 2002). 95% confidence intervals have to exclude zero in order to conclude that the effect size is different from zero. We also calculated the I^2 statistic, which estimates the proportion of variability that is due to heterogeneity as opposed to chance (Higgins, Thompson, Deeks, & Altman, 2003).

Moderator analyses were performed using a *factorial approach* (also referred to as subgroup analysis, and helpful in interpreting categorial moderators): For each category of a categorical predictor, a subgroup was specified, and the effect size was calculated. To assess whether our point estimates were affected by publication bias, we conducted a fail-safe N analysis (Rosenthal, 1979) and tested its robustness by testing whether the obtained value was larger than 5 x k + 10 (cf. Rosenthal, 1991).

Additionally, we conducted two-stage structural equation modeling (TSSEM) (Cheung & Chan, 2005) analyses to identify latent fairness trajectory (Hypotheses 1a and 1b). We extracted from each study bivariate correlations between perceptions of fairness at T1 (pretest), T2 (posttest), and T3 (postdecision), together with corresponding means and standard deviations. Mplus 8.4 (Muthén & Muthén, 1998–2019) with Maximum Likelihood estimation was used to perform the TSSEM analyses. The correlation matrices were pooled across studies as the weighted average (stage 1), and the pooled matrix was used as the observed correlation matrix (stage 2) to fit the latent growth curve (LGC) models (Bollen & Curran, 2006). To analyze the LGC models, we used a two-step procedure. As a first step, we compared the AIC (Akaike information criterion) and BIC (Bayesian information criterion; Aho, Derryberry, & Peterson, 2014) indices to analyze the form of change in perceptions of fairness over time by comparing three possible trajectories: (1) an intercept-only-model with no growth over time, (2) a linear growth model, (3) and a nonlinear growth model (unstructured model; Grimm & Ram, 2012) with fixed loadings for the slope at T1 (fixed to 0) and T3 (fixed to 1) (cf. Chan & Schmitt, 2000). Lower AIC and BIC values indicate a better fit. As a second step, we interpreted the root mean square error of approximation (RMSEA) (Browne & Cudeck, 1989), comparative fit index (CFI) (Bentler, 1990), and Tucker-Lewis index (TLI) (Bentler & Bonett, 1980). An acceptable model fit was indicated by CFI and

TLI values greater than or equal to 0.95 and by an RMSEA of up to .10 (Browne & Cudeck, 1989).

4 | RESULTS

4.1 | Latent trajectory

Hypothesis 1a predicted that the trajectory of applicants' perceptions of fairness will show a decline over the entire selection process. Comparison of the models revealed that the fully saturated nonlinear LGC model (AIC = 16778.67, BIC = 16832.56) had lower AIC and BIC indices than the intercept-only-model (i.e., assuming no growth over time, ΔAIC = 310.71, ΔBIC = 292.74) or the linear LGC model (ΔAIC = 63.29, ΔBIC = 57.31). The significantly negative slope of the latent trajectory indicated that applicants' perceptions of fairness diminished throughout the three stages, mean slope = −.26, SE = .02, $p < .001$. This corresponds to a change of 6% between the first and second stage, 1.1% between the second and third stages, and 7.1% across the entire selection process. Hypothesis 1a was thus supported. In support of Hypothesis 1b, the decrease in perceptions of fairness was steeper for applicants whose initial expectations of fairness were higher than for those whose expectations were lower. The intercept and slope parameters were significantly and negatively related (β = −.93, SE = .03, $p < .001$).

4.2 | Changes between consecutive stages

Hypothesis 2 predicted that applicants' perceptions of fairness would decrease between pretest and posttest (a) and between posttest and postdecision (b). The effect sizes (SMCCs) for the change between pretest and posttest ranged between −3.03 and 1.86. Of these, the majority (18 out of 28; 64%) were negative and 10 (36%) were positive. The overall mean effect size for the changes between pretest and posttest was −.23, with a confidence interval including zero (95% CI [−.53 | .08], k = 28, N = 2,401) and a heterogeneity of I^2 = 97.36%. Thus, Hypothesis 2a was rejected. The fail-safe N computed with alpha .05 (two-tailed) was 2,394 and is larger than 5 × k + 10 (=150). Thus, publication bias is unlikely in this meta-analysis.

The effect sizes (SMCCs) of the standardized mean changes from posttest to postdecision ranged between −1.10 and 0.63. Of these, 50% (7 out of 14) were negative, one effect size was exactly zero, and 43% (6 out of 14) were positive. The overall mean effect size for the change from posttest to postdecision was −.05, with a confidence interval including zero (95% CI [−.25 | .15], k = 14, N = 1,337) and a heterogeneity of I^2 = 93.53 %. Hypothesis 2b was thus rejected.

4.2.1 | Moderators of change

To determine whether the analysis of moderators of changes between consecutive stages was reasonable, we first assessed the level of effect size heterogeneity, using the I^2 heterogeneity index.

TABLE 2 Analysis of moderators on changes in applicants' perceptions of fairness between consecutive stages of the selection process

Hypothesis and research question	Moderator	Subgroup	Pretest to posttest				Posttest to postdecision			
			k (N_{total})	SMCC	95% CI	I^2	k (N_{total})	SMCC	95% CI	I^2
H3	Treatment	Unjust	4 (302)	**-2.28**	**-2.75 | -1.81**	96.16	2 (97)	**.60**	**.17 | 1.03**	91.09
		Just	23 (1,708)	-.17	-.43 | .09		11 (1,031)	-.05	-.23 | .13	
H4	Time interval (in days)	0[a]	19 (1,249)	-.28	-.63 | .06	97.26	1 (209)	**-.53**	**-.79 | -.26**	63.89
		7	–	–	–		6 (395)	**-.11**	**-.22 | -.01**	
		14	9 (970)	-.20	-.61 | .22		–	–	–	
		30	–	–	–		2 (261)	.17	-.01 | .35	
H5	Type of setting	Real-world	18 (1,515)	-.19	-.50 | .13	97.19	3 (543)	.19	-.15 | .53	91.46
		Hypothetical	10 (704)	**-.72**	**-1.13 | -.30**		11 (794)	-.16	-.36 | .04	
RQ	Number of selection procedures	1	4 (788)	-.30	-.77 | .18	96.83	6 (395)	-.11	-.38 | .15	92.58
		2	10 (704)	**-.72**	**-1.12 | -.31**		7 (660)	-.04	-.33 | .25	
		≥3	14 (727)	-.03	-.33 | .27		1 (282)	.22	-.42 | .86	
	Type of selection procedures	T	5 (788)	-.31	-.77 | .14	96.94	4 (403)	-.24	-.53 | .05	90.83
		S	–	–	–		3 (201)	-.08	-.42 | .26	
		T + B	9 (495)	**-.71**	**-1.07 | -.35**		4 (190)	-.12	-.43 | .20	
		T + S	–	–	–		2 (261)	.17	-.24 | .58	
		T + B + S	14 (727)	-.03	-.33 | .28		1 (282)	.22	-.36 | .80	

Note: k = number of effect sizes; N_{total} = the sample sizes of each study were aggregated; I^2 = total heterogeneity/total variability. For effects in bold print, the confidence interval excludes zero.

Abbreviations: B, biographical approach; CI, confidence interval; H, hypothesis; RQ, research question; S, simulation approach; SMCC, standardized mean change with change score standardization; T, trait approach.

[a]For hypothetical studies we have set the time interval to 0 days when they were completed on the same day.

Our analyses showed that more than 93% of the total variability among effect sizes was caused by true heterogeneity between studies. These results consistently indicate a high level of effect size heterogeneity across the studies in our sample (cf. Higgins & Thompson, 2002), suggesting that moderator analysis was warranted. The results of the moderator analyses are presented in Table 2.

Hypothesis 3a predicted that the decline in applicants' perceptions of fairness from pretest to posttest would be stronger when they were treated unjustly than when they were treated justly. Consistent with this hypothesis, perceptions of fairness from pretest to posttest significantly declined when applicants were treated unjustly (SMCC = −2.28, CI [−2.74 | −1.82], $k = 4$), whereas in the just condition the effect size for a change between these two stages was nonsignificant (SMCC = −.17, CI [−.43 | .09], $k = 23$). Hypothesis 3b, which predicted that the decline in applicants' perceptions of fairness from posttest to postdecision would be more severe when applicants were treated unjustly rather than justly, was rejected. In the unjust condition perceptions of fairness significantly increased from the posttest to the postdecision (SMCC = .60, CI [.41 | .79], $k = 2$), whereas no change was found in the just condition (SMCC = −.05, CI [−.24 | .14], $k = 11$). Thus, an unjust treatment received by applicants prior to the decision led to an increase in their perceptions of fairness from the posttest to the postdecision stage (see Table 2).

For the length of the time interval between two consecutive stages (Hypotheses 4a and 4b), the analysis did not reveal a significant change in applicants' perceptions of fairness between the pre and posttest (0 or 14 days; see Table 2). In accordance with Hypothesis 4b, however, there was a stronger decrease for smaller time intervals (0, 7 or 30 days) between the posttest and postdecision stage ($SMCC_0 = −.53$, CI [−.79 | −.26], $k = 1$; $SMCC_7 = −.11$, CI [−.22 | −.01], $k = 6$; $SMCC_{30} = .17$, CI [−.01| .35], $k = 2$). Therefore, consistent with Hypothesis 4b, the decrease in applicants' perceptions of fairness was less strong (or even nonexistent) for longer intervals between the posttest and postdecision stage (see Table 2).

Hypothesis 5 examined to the moderating role of the type of setting (hypothetical vs. real-world settings). Subgroup analyses for the change between pretest and posttest revealed that the change was more marked when the settings were hypothetical (SMCC = −.72, CI [−1.13 | −.30], $k = 10$) rather than real-world (SMCC = −.19, CI [−.50 | .13], $k = 18$). Subgroup analyses for the change between posttest and postdecision revealed there to be no moderating effect. In both subgroups (hypothetical and real-world), the change was nonsignificant (SMCC = −.16, CI [−.40 | .07], $k = 11$ and SMCC = .19, CI [−.15 | .53], $k = 3$, respectively).

The research question examined the moderating role of number and type of selection procedures on applicants' perceptions of fairness. As shown in Table 2, there were almost no significant effects. Significant changes in perceptions between the pretest and posttest were found for studies that used two compared to one, three or more selection procedures (SMCC = −.72, CI [−1.12 | −.31], $k = 10$). In addition, a significant moderation effect was found for those studies who pursued the trait + biographical approach (SMCC = −.71, CI

[−1.07 | −.35], $k = 9$). However, the 95% CIs of the subgroups overlapped, which restricts this finding (see Table 2).

4.3 | Supplementary analyses

Supplementary analyses were conducted to determine whether the effects varied depending on the type of source, as 15% ($k = 17$) of the studies included were unpublished. The analyses show that the negative mean change from pretest to posttest ($k = 28$, $I^2 = 97.30\%$) for unpublished studies was stronger (SMCC = −.71, CI [−1.09 | −.33]) than for published studies (SMCC = −.52, CI [−.52 | .11]). However, the 95% CIs of the subgroups overlapped, which restricts the finding. The mean change from posttest to postdecision ($k = 14$, $I^2 = 93.76\%$) was neither significant for published (SMCC = −.04, CI [−.26 | .17]) nor for unpublished studies (SMCC = −.12, CI [−.48 | .24]). These results suggest it is unlikely that there were differences depending on the type of source.

5 | DISCUSSION

In conducting this meta-analytic review, we aimed to address several limitations and research gaps in the applicant fairness literature. First, we used studies with matched groups and repeated measures designs to address questions of causal influence, change, and psychological processes that have not been addressed meta-analytically before. By focusing exclusively on studies that used these repeated measurement designs with at least two stages in the selection process, this meta-analysis allowed us to examine how perceptions of fairness changed between the various stages. Second, we used an event-triggered multi-stage framework, in which we distinguished between pretest, posttest, and postdecision stages in the personnel selection process. Third, we combined meta-analysis with structural equation modeling, which allowed us to examine the latent trajectory of applicants' perceptions of fairness that had not been examined in earlier meta-analyses.

In general, our results suggest that to fully understand the dynamic nature of perceptions of fairness, we need to consider the influence of previous perceptions of fairness and the change in perceptions of fairness between different stages. In addition, this meta-analysis set out to identify and examine moderators that might influence the degree to which perceptions of fairness change.

Our meta-analysis indicates that there is a considerable change in perceptions of fairness during a selection process, with an overall decrease across the entire process, irrespective of how fairly applicants were treated. Our finding that the trajectory in perceptions of fairness follows a nonlinear rather than a linear pattern, mirrors previous findings (Butucescu & Iliescu, 2018; Guo, 2012; Konradt et al., 2016). Interestingly, applicants with high expectations of fairness showed a steeper decline in their perceptions of fairness than those whose expectations were initially lower. This fits with the logic that applicants mainly focus on those aspects that did *not* meet their

expectations and that even small deviations from expectations have a significant and negative influence on their perceptions of fairness.

Another central finding is that the change in perceptions of fairness between consecutive stages of the selection process is related to how fairly or unfairly applicants were treated. In the just treatment condition, there was no change between consecutive stages of the process, whereas in the unjust condition the change from pretest to posttest was initially negative, but from posttest to postdecision it was positive. As summarized by Ambrose and Cropanzano (2003), and applied to our context, new information gained between the posttest and postdecision stage can have a positive effect on applicants' perceptions of fairness, although the applicants were previously treated unjustly (between the pretest and posttest). One explanation for this unexpected finding might be that applicants who perceived an increase in fairness did get an explanation and justification in the postdecision stage for the (unjust) selection procedure. Additionally, it might be plausible that applicants also did get constructive and helpful feedback which led to a re-evaluation of their previous negative perception. However, it is important to bear in mind that only two effect sizes from only one hypothetical study were available for the calculation of this effect. The possibility to derive (practical) implications on this basis is limited. We encourage future research to pursue the question of whether and to what extent a previously unfair treatment and the resulting negative effects on applicant reactions can be revised.

Our results demonstrated that the decrease in applicants' perceptions of fairness was less strong (or even nonsignificant) for longer intervals between the posttest and postdecision stage. This suggests that people have changed their mental representations of fairness by means of causal attributions and sense-making processes when two events are more widely spaced (Jones & Skarlicki, 2013; Ployhart & Harold, 2004).

The first meta-analytic review on applicants' perceptions of fairness by Hausknecht and colleagues (2004) found that the average effect sizes were higher for hypothetical studies than for real-world studies. Consistent with these findings, our results revealed that, in hypothetical settings, the mean effect sizes for the negative change between pretest and posttest were significant and slightly higher than in real-world studies, although the confidence intervals overlapped. The effects found in hypothetical settings should, therefore, be regarded as representing the upper bounds of what may be found, with effects tending to be generally less pronounced in real-world settings.

The ambiguous effect of the number and type of selection procedures on the change in perceptions of fairness is somewhat surprising. One explanation for this inconsistent effect might be a methodological one: The variables number and type were confounded. Arguably, the more approaches were considered in a selection process, the more procedures were used. Furthermore, this result is based on a comparatively small number of sample sizes within subgroups that were suitable for the meta-analysis (e.g., the combination of the trait, biographical, and simulation approach in the second phase of the selection process). A small sample size cannot

preclude an unreliable estimation of the effect sizes and inefficient standard errors. Consequently, this finding is less likely to be precise and thus should be interpreted with caution. Another explanation for this finding is that we classified the selection procedures according to the trimodal selection approach. Thus, we distinguished between the trait, biographical, and simulation approach but not between different procedures within these groups. A modified classification of the selection procedures may have led to different results. We hope that we can encourage researchers to take up this point and consider the effects of number and type of selection procedures in selection processes in a more nuanced way, so that important implications for organizations can be derived thereof.

5.1 | Practical implications

The results of this research have several practical implications that are also in line with previous calls of authors (e.g., Ployhart & Hale, 2014) who have criticized that HR management practice generally neglects temporal dynamics. Specifically, the results of our study provide answers to a number of questions: (1) How perceptions of fairness vary over time (they decline regardless of whether or not the treatment is fair); (2) how intense these changes are (they are comparatively low in intensity); and (3) what variables influence the magnitude of the change (the answer is prior expectations of fairness, unjust treatment, length of time interval, type of setting, and selection procedures). This provides some more detailed insights into possible interventions. If applicants vary in their initial expectations of fairness, and if the direction and intensity of changes in perceptions also vary, these variations will have an impact on the applicants' subsequent attitudes and behaviors (Gilliland & Steiner, 2012; Truxillo & Bauer, 2011). Understanding who these applicants are, and which groups of applicants are at risk of being disappointed, provides an important starting point for managers and personnel staff in terms of deciding what might be done to minimize the dysfunctional effects of applicants perceiving there to be a low level of fairness. This is important because whether applicants would recommend an organization as an employer has been found to be related to the perceptions of fairness of its selection practices (Hausknecht et al., 2004). For example, applicants who show strongly decreasing fairness perception trajectories (i.e., the high-decreaser class) are at risk of a substantial decline in perceptions of fairness over time and might thus withdraw their application, even if they prove suitable. Being able to identify these applicants very early in the selection process and provide them with Supporting Information on the organization's values during the process may help organizations to enhance selection effectiveness.

We have demonstrated in our meta-analyses that higher expectations at the beginning of the selection process lead to a greater decrease in perceptions of fairness throughout the entire process. Drawing on the justice rules proposed by Gilliland (1993), organizations should raise realistic nonexaggerated expectations of the upcoming process in the application stage. HR managers should explain

transparently what is being done and why, and provide truthful information about the procedure, the decision-making process, and the people involved in the selection process (for a meta-analysis on the effects of explanations on applicant reactions see Truxillo et al., 2009).

In terms of the treatment during the selection process, Bauer, McCarthy, Anderson, Truxillo, and Salgado (2020) have published a best practice guide, which provides specific recommendations for HR managers. Among others, HR managers should take particular care to ensure that the selection procedures are face-valid, job-related, have perceived predictive validity (e.g., develop a selection system that is based on a job analysis), and are consistently administered (e.g., provide training to interviewers). Furthermore, applicants should have the opportunity to perform well (e.g., ensure that the selection system is comprised of multiple components) and they should be treated with respect (e.g., be pleasant, do not ask inappropriate questions).

Finally, we have also demonstrated that applicants' perceptions of fairness can change between the assessment and acceptance stage. In order to avoid a decrease (and hopefully facilitate an increase) in perceptions, HR managers should provide both timely and useful feedback and a justification for the hiring decision (e.g., give as much information as possible, provide information regarding future job applications) (Bauer et al., 2020; Gilliland, 1993).

5.2 | Developing an agenda for future research

About three decades after Gilliland's seminal work on fairness in personnel selection, almost five decades after one of the first studies on applicant perceptions (Alderfer & McCord, 1970), and after numerous quantitative and qualitative reviews, we must conclude that it is time for the next step. To encourage advances in both theory and practice, we suggest that the following lines of research should be considered in future studies (see also McCarthy et al., 2017).

First, future research on applicant reactions should examine applicants' perceptions of fairness over more than two points in time allowing to cover a larger part of the selection process (Chan & Schmitt, 2004; Fortin et al., 2016; McCarthy et al., 2017; Rupp et al., 2014). Consequently, future studies could help in understanding the dynamics by including data that capture the entire personnel selection process and allow the analysis of within-subject change processes such as fairness trajectories (e.g., Konradt et al., 2016, 2017) and its effects on distal outcomes (e.g., work attitudes, employee health; Hausknecht et al., 2011; Walker et al., 2013). Second, it might also be worthwhile to consider patterns of hidden dynamics (Hamaker & Wichers, 2017; Matta, Scott, Colquitt, Koopman, & Passantino, 2017) that have been examined in other domains of research (e.g., Houben, van Den Noortgate, & Kuppens, 2015), which include the range or amplitude of an individual's perception of fairness over time (i.e., variability), the variation in the level of perceptions of fairness from one stage to the next (i.e., instability), or self-perpetuating states over time (i.e., inertia).

Existing advanced methods of data analysis—which would permit simultaneous detangling of within- and between-subject analyses within a unified framework in order to control for any mutual influence (for further information, see Curran, Howard, Bainter, Lane, & McGinley, 2014; Grimm, Mazza, & Mazzocco, 2016)—have rarely if ever been used in selection research. In methodological terms, we thus suggest that our focus on organizational fairness should be extended to within-subject or ideographic designs (Silverstein, 1988). This would allow the effects to be calculated over time (including the velocity, acceleration, and inertia in change) and examined in much greater detail; it would also allow us to study change processes during major events and transitions (Bolger, Davis, & Rafaeli, 2003; Soenen, Melkonian, & Ambrose, 2017). We also suggest that the cognitive and affective processes that shape, or are shaped by, perceptions of fairness should be regarded as dynamic processes that can follow different metrics. To capture dynamic psychological processes, our meta-analytic model used a sampling protocol based on a series of specific discrete events (Bolger et al., 2003; Wheeler & Reis, 1991). We, therefore, suggest using models that are based on a multiple-hurdle selection process.

Also, existing longitudinal studies of applicants' perceptions of fairness rely exclusively on self-reports. Although this approach offers several advantages, including making it easy to capture psychologically relevant processes, it is retrospective and thus susceptible to memory bias. For this reason, other procedures might also be useful for monitoring applicant reactions, including unobtrusive methods of capturing behavior (for a review, see Chaffin et al., 2015). Specifically, McCarthy et al. (2017) proposed using web-based services such as organizational messaging and posts on social media to obtain behavioral data. In addition, future research should gather reports from sources other than applicants themselves (for example, from parents or peers) in order to address the issue of single-source bias. As a final point, our analysis has also shown that the studies we examined paid little attention to methodological issues of incomplete data in analyses (e.g., imputation) and have paid little attention to the advantages of latent structure modeling. More recent studies have been seen to respond to this shortcoming by more measurement points and latent growth curve modeling (e.g., Konradt et al., 2016).

5.3 | Limitations of the meta-analysis

Although this meta-analysis makes an important contribution to research on applicants' perceptions of fairness, it is not without limitations. The first group of limitations relates to the generalizability of our results. Instead of including as many studies as possible, our goal in this meta-analysis was to be selective by including only those studies that used at least two measurement points and that related to the domain of personnel selection. As a consequence, this meta-analysis included a small number of studies, which may have introduced bias into the analysis. However, including these studies in the meta-analysis nevertheless gives us an initial impression of their impact. At the same time, this limitation highlights areas where future

research is needed and may encourage researchers to study some of the relationships that we found.

At the methodological level, several issues emerged from our analyses that also highlight areas where future research is needed. First, the results are based mainly on studies of people in a relatively early adult life stage with limited professional and life experience, which differ in terms of a stable self-definition, stable attitudes, and egocentricity (Ashraf & Merunka, 2017). Consequently, it is unclear whether the findings of our study generalize to more experienced applicants. Second, because the results of studies in which the applicants were treated unfairly used hypothetical designs, the effects may represent the upper limit of what might be expected, since effects are generally less pronounced in real-world settings (Hausknecht et al., 2004). Third, the studies available focused on relationships and short-term fairness dynamics. However, studies of longer-term dynamics (e.g., over several weeks or months), which address how perceptions of fairness change over time, are rare. Accordingly, to make significant progress, at least three points in time should be examined, as this would allow us to model within-subject latent trajectories instead of analyzing only mean changes over the short- and medium-term.

6 | CONCLUSION

In this meta-analytic review, we have integrated previous research with more than one point of measurement theoretically and statistically and examined changes in perceptions of fairness throughout the different stages of the personnel selection process. The results indicate that applicants' perceptions of fairness decline in a nonlinear way over time. The decrease is steeper for applicants who have higher expectations of fairness before being assessed. Furthermore, we found both negative and positive changes in fairness perceptions from one selection stage to the next when applicants were treated unjustly, whereas we found no such changes when they were treated justly. The results of this study also indicated that the longer the time interval between the posttest and postdecision stage in the selection process, the smaller the decline in applicants' perceptions of fairness. This work has gone some way toward enhancing our understanding of how and why applicants' perceptions of fairness change throughout the selection process. We hope that these findings will stimulate further longitudinal research on perceptions of fairness in personnel selection.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interest. All authors have seen and approved the manuscript and warranted that the article is the authors' original work, has not received prior publication, and is not under consideration for publication elsewhere.

ORCID

Sabrina Krys 🆔 https://orcid.org/0000-0002-6630-853X

ENDNOTES

[1] Because the studies by Konradt et al. (2016, 2017) are based on the same sample, the sample was included only once in the total sample size.

[2] The correlation between the moderators' "treatment" and "type of setting" is below the critical limit of .5 for confounds between categorical moderators (Bijmolt, Van Heerde, & Pieters, 2005).

[3] Measures with low reliability (Cronbach's $\alpha < .6$) were excluded.

REFERENCES

References marked with an asterisk indicate studies included in the meta-analysis.

Adams, J. S. (1963). Towards an understanding of inequity. *The Journal of Abnormal and Social Psychology*, 67, 422–436. https://doi.org/10.1037/h0040968

Aho, K., Derryberry, D., & Peterson, T. (2014). Model selection for ecologists: The worldviews of AIC and BIC. *Ecology*, 95, 631–636. https://doi.org/10.1890/13-1452.1

Alderfer, C. P., & McCord, C. G. (1970). Personal and situational factors in the recruitment interview. *Journal of Applied Psychology*, 54, 377–385. https://doi.org/10.1037/h0029690

Ambrose, M. L., & Cropanzano, R. (2003). A longitudinal analysis of organizational fairness: An examination of reactions to tenure and promotion decisions. *Journal of Applied Psychology*, 88, 266–275. https://doi.org/10.1037/0021-9010.88.2.266

Anderson, N. R., Salgado, J. F., & Hülsheger, U. R. (2010). Applicant reactions in selection: Comprehensive metaanalysis into reaction generalization versus situational specificity. *International Journal of Selection and Assessment*, 18, 291–304. https://doi.org/10.1111/j.1468-2389.2010.00512.x

Ashraf, R., & Merunka, D. (2017). The use and misuse of student samples: An empirical investigation of European marketing research. *Journal of Consumer Behaviour*, 16, 295–308. https://doi.org/10.1002/cb.1590

Barber, A. E. (1998). *Recruiting employees: Individual and organization perspectives*. Thousand Oaks, CASage.

Bauer, T. N., Maertz, C. P. Jr, Dolen, M. R., & Campion, M. A. (1998). Longitudinal assessment of applicant reactions to employment testing and test outcome feedback. *Journal of Applied Psychology*, 83, 892–903. https://doi.org/10.1037//0021-9010.83.6.892

Bauer, T. N., McCarthy, J., Anderson, N., Truxillo, D. M., & Salgado, J. F. (2020). *What we know about candidate experience: Research summary and best practices for applicant reactions*. SIOP White Paper Series. Retrieved from https://www.siop.org/Portals/84/docs/White%20Papers/candidate%20experience.pdf?ver=2020-07-02-073420-397

Baumeister, R. F., Bratslavsky, E., Finkenauer, C., & Vohs, K. D. (2001). Bad is stronger than good. *Review of General Psychology*, 5, 323–370. https://doi.org/10.1037//1089-2680.5.4.323

*Bell, B. S., Wiechmann, D., & Ryan, A. M. (2006). Consequences of organizational justice expectations in a selection system. *Journal of Applied Psychology*, 91, 455–466. https://doi.org/10.1037/0021-9010.91.2.455

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, 107, 238–246. https://doi.org/10.1037/0033-2909.107.2.238.

Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin*, 88, 588–606. https://doi.org/10.1037/0033-2909.88.3.588

Bijmolt, T. H. A., Van Heerde, H. J., & Pieters, R. G. M. (2005). New empirical generalizations on the determinants of price elasticity. *Journal of Marketing Research*, 42, 141–156. https://doi.org/10.1509/jmkr.42.2.141.62296

Bolger, N., Davis, A., & Rafaeli, E. (2003). Diary methods: Capturing life as it is lived. *Annual Review of Psychology*, 54, 579–616. https://doi.org/10.1146/annurev.psych.54.101601.145030

Bollen, K. A., & Curran, P. J. (2006). *Latent curve models: A structural equation perspective*. Hoboken, NJWiley. https://doi.org/10.1002/0471746096

Borenstein, M., Hedges, L. V., Higgins, J. P. T., & Rothstein, H. R. (2009). *Introduction to meta-analysis*. Chichester, EnglandJohn Wiley & Sons Ltd.

Bower, G. H. (1987). Commentary on mood and memory. *Behaviour Research and Therapy*, 25, 443–455. https://doi.org/10.1016/0005-7967(87)90052-0

Breaugh, J. A. (2009). *Recruiting and attracting talent: A guide to understanding and managing the recruitment process*. Alexandria, VASociety for Human Resource Management.

Browne, M. W., & Cudeck, R. (1989). Single sample cross-validation indices for covariance structures. *Multivariate Behavioral Research*, 24, 445–455. https://doi.org/10.1207/s15327906mbr2404_4

*Butucescu, A., & Iliescu, D. (2018). Patterns of change in fairness perceptions during the hiring process: A conceptual replication in a controlled context. *International Journal of Selection and Assessment*, 26, 196–201. https://doi.org/10.1111/ijsa.12227

Cable, D. M., & Yu, K. Y. T. (2013). *The Oxford handbook of recruitment*. Oxford, UK: Oxford University Press. https://doi.org/10.1093/oxfordhb/9780199756094.001.0001

Carless, S. A. (2003). A longitudinal study of applicant reactions to multiple selection procedures and job and organizational characteristics. *International Journal of Selection and Assessment*, 11, 345–351. https://doi.org/10.1111/j.0965-075x.2003.00257.x

Celani, A., Deutsch-Salamon, S., & Singh, P. (2008). In justice we trust: A model of the role of trust in the organization in applicant reactions to the selection process. *Human Resource Management Review*, 18, 63–76. https://doi.org/10.1016/j.hrmr.2008.04.002

Chaffin, D., Heidl, R., Hollenbeck, J. R., Howe, M., Yu, A., Voorhees, C., & Calantone, R. (2015). The promise and perils of wearable sensors in organizational research. *Organizational Research Methods*, 20, 3–31. https://doi.org/10.1177/1094428115617004

Chan, D., & Schmitt, N. (2000). Interindividual differences in intraindividual changes in proactivity during organizational entry: A latent growth modeling approach to understanding newcomer adaptation. *Journal of Applied Psychology*, 85, 190–210. https://doi.org/10.1037//0021-9010.85.2.190

Chan, D., & Schmitt, N. (2004). An agenda for future research on applicant reactions to selection procedures: A construct-oriented approach. *International Journal of Selection and Assessment*, 12, 9–23. https://doi.org/10.1111/j.0965-075X.2004.00260.x

Chapman, D., & Webster, J. (2006). Toward an integrated model of applicant reactions and job choice. *The International Journal of Human Resource Management*, 17, 1032–1057. https://doi.org/10.1080/09585190600696572

Cheung, M. W. L. (2014). Modeling dependent effect sizes with three-level meta-analyses: A structural equation modeling approach. *Psychological Methods*, 19, 211–229. https://doi.org/10.1037/a0032968

Cheung, M. W. L., & Chan, W. (2005). Meta-analytic structural equation modeling: A two-stage approach. *Psychological Methods*, 10, 40–64. https://doi.org/10.1037/1082-989X.10.1.40

Colquitt, J. A., & Zipay, K. P. (2015). Justice, fairness, and employee reactions. *Annual Review of Organizational Psychology and Organizational Behavior*, 2, 1–25. https://doi.org/10.1146/annurev-orgpsych-032414-111457

Colquitt, J., Greenberg, J., & Zapata-Phelan, C. P. (2005). What is organizational justice? A historical overview. In J. Greenberg & J. Colquitt (Eds.), *Handbook of organizational justice* (pp. 3–56). Mahwah, NJLawrence Erlbaum Associates.

Curran, P. J., Howard, A. L., Bainter, S. A., Lane, S. T., & McGinley, J. S. (2014). The separation of between-person and within-person components of individual change over time: A latent curve model with structured residuals. *Journal of Consulting and Clinical Psychology*, 82, 879–894. https://doi.org/10.1037/a0035297

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

Deters, J. (2017). *Global leadership talent management: Successful selection of global leadership talents as an integrated process*. Bingley, UKEmerald Group Publishing.

Evertz, L., & Süß, S. (2017). The importance of individual differences for applicant attraction: A literature review and avenues for future research. *Management Review Quarterly*, 67, 141–174. https://doi.org/10.1007/s11301-017-0126-2

Ferguson, M., Moye, N., & Friedman, R. (2008). The lingering effects of the recruitment experience on the long-term employment relationship. *Negotiation and Conflict Management Research*, 1, 246–262. https://doi.org/10.1111/j.1750-4716.2008.00015.x

Folger, R. (1998). Fairness as moral virtue. In M. Schminke (Ed.), *Managerial ethics: Moral management of people and processes* (pp. 13–34). Mahwah, NJLawrence Erlbaum Associates.

Fortin, M., Cojuharenco, I., Patient, D., & German, H. (2016). It is time for justice: How time changes what we know about justice judgments and justice effects. *Journal of Organizational Behavior*, 37, 30–56. https://doi.org/10.1002/job.1958

Gilliland, S. W. (1993). The perceived fairness of selection systems: An organizational justice perspective. *Academy of Management Review*, 18, 694–734. https://doi.org/10.5465/AMR.1993.9402210155

Gilliland, S. W. (1994). Effects of procedural and distributive justice on reactions to a selection system. *Journal of Applied Psychology*, 79, 691–701. https://doi.org/10.1037/0021-9010.79.5.691

Gilliland, S. W. (2008). The tails of justice: A critical examination of the dimensionality of organizational justice constructs. *Human Resource Management Review*, 18, 271–281. https://doi.org/10.1016/j.hrmr.2008.08.001

Gilliland, S. W., & Steiner, D. D. (2012). Applicant reactions to testing and selection. In N. Schmitt (Ed.), *Oxford library of psychology. The Oxford handbook of personnel assessment and selection* (pp. 629–666). New York, NYOxford University Press.

Gilliland, S. W., Groth, M., Baker, R. C. IV, Dew, A. E., Polly, L. M., & Langdon, J. C. (2001). Improving applicants' reactions to rejection letters: An application of fairness theory. *Personnel Psychology*, 54, 669–703. https://doi.org/10.1111/j.1744-6570.2001.tb00227.x

Grimm, K. J., Mazza, G. L., & Mazzocco, M. M. (2016). Advances in methods for assessing longitudinal change. *Educational Psychologist*, 51, 342–353.

Grimm, K. J., & Ram, N. (2012). Growth curve modeling from a structural equation modeling perspective. In B. Laursen, T. D. Little, & N. A. Card (Eds.), *Handbook of developmental research methods* (pp. 432–444). New York, NYThe Guilford Press. https://doi.org/10.1080/00461520.2016.1208569

Guo, J. (2012). *The formation and change of overall justice perceptions: Consideration of time, events, and affect* (Doctoral dissertation). Retrieved from https://pdfs.semanticscholar.org/61fc/97d43d51a29a8628e43ccf1b81cf246e07a4.pdf

Hamaker, E. L., & Wichers, M. (2017). No time like the present: Discovering the hidden dynamics in intensive longitudinal data. *Current Directions in Psychological Science*, 26, 10–15. https://doi.org/10.1177/0963721416666518

Hausknecht, J. P., Sturman, M. C., & Roberson, Q. M. (2011). Justice as a dynamic construct: Effects of individual trajectories on distal work

outcomes. *Journal of Applied Psychology*, 96, 872–880. https://doi.org/10.1037/a0022991

Hausknecht, J., Day, D., & Thomas, S. (2004). Applicant reactions to selection procedures: An updated model and meta-analysis. *Personnel Psychology*, 57, 639–684. https://doi.org/10.1111/j.1744-6570.2004.00003.x

Higgins, J. P., & Thompson, S. G. (2002). Quantifying heterogeneity in a meta-analysis. *Statistics in Medicine*, 21, 1539–1558. https://doi.org/10.1002/sim.1186

Higgins, J. P., Thompson, S. G., Deeks, J. J., & Altman, D. G. (2003). Measuring inconsistency in meta-analyses. *British Medical Journal*, 327, 557–560. https://doi.org/10.1136/bmj.327.7414.557

*Horvath, M., Ryan, A. M., & Stierwalt, S. L. (2000). The influence of explanations for selection test use, outcome favorability, and self-efficacy on test-taker perceptions. *Organizational Behavior and Human Decision Processes*, 83, 310–330. https://doi.org/10.1006/obhd.2000.2911

Houben, M., van den Noortgate, W., & Kuppens, P. (2015). The relation between short-term emotion dynamics and psychological well-being: A meta-analysis. *Psychological Bulletin*, 141, 901–930. https://doi.org/10.1037/a0038822

Jones, D. A., & Skarlicki, D. P. (2013). How perceptions of fairness can change: A dynamic model of organizational justice. *Organizational Psychology Review*, 3, 138–160. https://doi.org/10.1177/2041386612461665

*Konradt, U., Garbers, Y., Böge, M., Erdogan, B., & Bauer, T. N. (2017). Antecedents and consequences of procedural fairness perceptions in personnel selection: A three-year longitudinal study. *Group and Organization Management*, 42, 113–146. https://doi.org/10.1177/1059601115617665

*Konradt, U., Garbers, Y., Erdogan, B., & Bauer, T. N. (2016). Patterns of change in fairness perceptions during the hiring process. *International Journal of Selection and Assessment*, 24, 246–259. https://doi.org/10.1111/ijsa.12144

*Konradt, U. (2017). *Entity fairness and event justice during personnel selection*. Unpublished raw data.

Lilly, J. D., & Wipawayangkool, K. (2018). When fair procedures don't work: A self-threat model of procedural justice. *Current Psychology*, 37, 680–691. https://doi.org/10.1007/s12144-016-9555-7

Lind, E. A. (2001). Fairness heuristic theory: Justice judgments as pivotal cognitions in organizational relations. In J. Greenberg & R. Cropanzano (Eds.), *Advances in organizational behavior* (pp. 56–88). Stanford, CAStanford University Press.

Lind, E. A. (1995). Justice and authority relations in organizations. In R. Cropanzano & M. K. Kacmar (Eds.), *Organizational politics, justice, and support: Managing the social climate of the workplace* (pp. 83–96). Westport, CTQuorum Books.

Lind, E. A., & van den Bos, K. (2002). When fairness works: Toward a general theory of uncertainty management. *Research in Organizational Behavior*, 24, 181–223. https://doi.org/10.1016/S0191-3085(02)24006-X

Loeffler, S. N., Myrtek, M., & Peper, M. (2013). Mood-congruent memory in daily life: Evidence from interactive ambulatory monitoring. *Biological Psychology*, 93, 308–315. https://doi.org/10.1016/j.biopsycho.2013.03.002

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, 743–770. https://doi.org/10.5465/amj.2014.0455

McCarthy, J. M., Bauer, T. N., Truxillo, D. M., Anderson, N. R., Costa, A. C., & Ahmed, S. M. (2017). Applicant perspectives during selection: A review addressing so what? What's new? and Where to next? *Journal of Management*, 43, 1693–1725. https://doi.org/10.1177/0149206316681846

Mitchell, T. R., Thompson, L., Peterson, E., & Cronk, R. (1997). Temporal adjustments in the evaluation of events: The "rosy view". *Journal of Experimental Social Psychology*, 33, 421–448. https://doi.org/10.1006/jesp.1997.1333

Morris, S. B., & DeShon, R. P. (2002). Combining effect size estimates in meta-analysis with repeated measures and independent-groups designs. *Psychological Methods*, 7, 105–125. https://doi.org/10.1037//1082-989X.7.1.105

Mullen, E. (2007). The reciprocal relationship between affect and perceptions of fairness. In K. Törnblom & R. Vermunt (Eds.), *Distributive and procedural justice: Research and 42 social applications* (pp. 15–37). Burlington, VTAshgate.

Muthén, L., & Muthén, B. (1998–2019). *Mplus user's guide*. Los Angeles, CAAuthor.

*Oostrom, J. K., Bos-Broekema, L., Serlie, A. W., Born, M. P., & van derMolen, H. T. (2012). A field study of pretest and posttest reactions to a paper-and-pencil and a computerized in-basket exercise. *Human Performance*, 25, 95–113. https://doi.org/10.1080/08959285.2012.658928

*Otte, K.-P. (2018). *Further evidence on the change of entity fairness and event justice during personnel selection* (Unpublished raw data).

Paterson, J. M., Green, A., & Cary, J. (2002). The measurement of organizational justice in organizational change programmes: A reliability, validity and context-sensitivity assessment. *Journal of Occupational and Organizational Psychology*, 75, 393–408. https://doi.org/10.1348/096317902321119565

Ployhart, R. E., & Hale, D. (2014). The fascinating psychological microfoundations of strategy and competitive advantage. *Annual Review of Organizational Psychology and Organizational Behavior*, 1, 145–172. https://doi.org/10.1146/annurev-orgpsych-031413-091312

Ployhart, R. E., & Harold, C. M. (2004). The applicant attribution-reaction theory (AART): An integrative theory of applicant attributional processing. *International Journal of Selection and Assessment*, 12, 84–98. https://doi.org/10.1111/j.0965-075X.2004.00266.x

Ployhart, R. E., & Ryan, A. M. (1998). Applicants' reactions to the fairness of selection procedures: The effects of positive rule violations and time of measurement. *Journal of Applied Psychology*, 83, 3–16. https://doi.org/10.1037//0021-9010.83.1.3

Proudfoot, D., & Lind, E. A. (2015). Fairness heuristic theory, the uncertainty management model, and fairness at work. In R. S. Cropanzano & M. L. Ambrose (Eds.), *Oxford library of psychology. The Oxford handbook of justice in the workplace* (pp. 371–385). New York, NYOxford University Press.

Quevedo, J., Sant'Anna, M. K., Madruga, M., Lovato, I., de-Paris, F., Kapczinski, F., ... Cahill, L. (2003). Differential effects of emotional arousal in short-and long-term memory in healthy adults. *Neurobiology of Learning and Memory*, 79, 132–135. https://doi.org/10.1016/S1074-7427(02)00034-5

R Core Team (2017). *R: A language and environment for statistical computing*. Vienna, Austria: R Foundation for Statistical Computing. Retrieved from https://www.R-project.org/

Roese, N. J., & Olson, J. M. (2007). Better, stronger, faster: Self-serving judgment, affect regulation, and the optimal vigilance hypothesis. *Perspectives on Psychological Science*, 2, 124–141. https://doi.org/10.1111/j.1745-6916.2007.00033.x

Rosenthal, R. (1991). *Meta-analytic procedures for social research*. Newbury Park, CASAGE Publications.

Rosenthal, R. (1979). The file drawer problem and tolerance for null results. *Psychological Bulletin*, 86, 638–641. https://doi.org/10.1037/0033-2909.86.3.638

Rupp, D. E., Shao, R., Jones, K. S., & Liao, H. (2014). The utility of a multifoci approach to the study of organizational justice: A metaanalytic investigation into the consideration of normative rules, moral accountability, bandwidth-fidelity, and social exchange. *Organizational Behavior and Human Decision Processes*, 123, 159–185. https://doi.org/10.1016/j.obhdp.2013.10.011

Ryan, A. M., & Ployhart, R. E. (2000). Applicants' perceptions of selection procedures and decisions: A critical review and agenda for the future.

Journal of Management, 26, 565–606. https://doi.org/10.1177/01492 0630002600308

Ryan, A. M., Sacco, J. M., Mcfarland, L., & Kriska, S. D. (2000). Applicant self-selection: Correlates of withdrawal from a multiple hurdle process. *Journal of Applied Psychology*, 85, 163–79. https://doi.org/10.1037//0021-9010.85.2.163

Saks, A. M. (2013). How do you study recruitment? A consideration of the issues and complexity of designing and conducting recruitment research. In D. M. Cable & K. Y. T. Yu (Eds.), *The Oxford handbook of recruitment* (pp. 463–491). Oxford, UKUniversity Press.

*Schinkel, S. (2016). *Fairness perceptions during personnel selection* (Unpublished raw data).

Schinkel, S., Van Dierendonck, D., & Anderson, N. (2004). The impact of selection encounters on applicants: An experimental study into feedback effects after a negative selection decision. *International Journal of Selection and Assessment*, 12, 197–205. https://doi.org/10.1111/j.0965-075X.2004.00274.x

Schinkel, S., van Vianen, A. E., & Ryan, A. M. (2016). Applicant reactions to selection events: Four studies into the role of attributional style and fairness perceptions. *International Journal of Selection and Assessment*, 24, 107–118. https://doi.org/10.1111/ijsa.12134

Schmidt, F. L., & Hunter, J. E. (1998). The validity and utility of selection methods in personnel psychology: Practical and theoretical implications of 86 years of research findings. *Psychological Bulletin*, 2, 262–274. https://doi.org/10.1037/0033-2909.124.2.262

Schmidt, F. L., & Hunter, J. E. (2014). *Methods of meta-analysis: Correcting error and bias in research findings* (3rd ed.). Newbury Park, CASage Publications.

Schmidt, F. L., Oh, I. S., & Hayes, T. L. (2009). Fixed-versus random-effects models in meta-analysis: Model properties and an empirical comparison of differences in results. *British Journal of Mathematical and Statistical Psychology*, 62, 97–128. https://doi.org/10.1348/00071 1007X255327

*Schreurs, B., Derous, E., Proost, K., & De Witte, K. (2010). The relation between selection expectations, perceptions and organizational attraction: A test of competing models. *International Journal of Selection and Assessment*, 18, 447–452. https://doi.org/10.1111/j.1468-2389.2010.00527.x

Schreurs, B., Derous, E., Proost, K., Notelaers, G., & Witte, K. D. (2008). Applicant selection expectations: Validating a multidimensional measure in the military. *International Journal of Selection and Assessment*, 16, 170–176. https://doi.org/10.1111/j.1468-2389.2008.00421.x

Silverstein, A. (1988). An Aristotelian resolution of the idiographic versus nomothetic tension. *American Psychologist*, 43, 425–430. https://doi.org/10.1037//0003-066x.43.6.425

Sinclair, K. (2014). Global policy and local actions for vulnerable populations affected by disaster and displacement. *Australian Occupational Therapy Journal*, 61, 1–5. https://doi.org/10.1111/1440-1630.12117

Soenen, G., Melkonian, T., & Ambrose, M. L. (2017). To shift or not to shift? Determinants and consequences of phase shifting on justice judgments. *Academy of Management Journal*, 60, 798–817. https://doi.org/10.5465/amj.2014.0181

Truxillo, D. M., & Bauer, T. N. (2011). Applicant reactions to organizations and selection systems. In S. Zedeck (Ed.), *APA handbook of industrial and organizational psychology* (Vol. 2, 379–397). Washington, DCAmerican Psychological Association.

*Truxillo, D. M., Bauer, T. N., Campion, M. A., & Paronto, M. E. (2002). Selection fairness information and applicant reactions: A longitudinal field study. *Journal of Applied Psychology*, 87, 1020. https://doi.org/10.1037//0021-9010.87.6.1020

Truxillo, D. M., Bauer, T. N., & McCarthy, J. M. (2015). Applicant fairness reactions to the selection process. In R. Cropanzano & M. Ambrose (Eds.), *The Oxford handbook of justice in work organizations* (pp. 621–640). Oxford, EnglandOxford University Press.

Truxillo, D. M., Bauer, T. N., & Sanchez, R. J. (2001). Multiple dimensions of procedural justice: Longitudinal effects on selection system fairness and test-taking self-efficacy. *International Journal of Selection and Assessment*, 9, 336–349. https://doi.org/10.1111/1468-2389.00185

Truxillo, D. M., Bodner, T. B., Bertolino, M., Bauer, T. N., & Yonce, C. (2009). Effects of explanations on applicant reactions: A meta-analytic review. *International Journal of Selection and Assessment*, 17, 346–361. https://doi.org/10.1111/j.1468-2389.2009.00478.x

van den Bos, K., & Lind, E. A. (2002). Uncertainty management by means of fairness judgments. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 34, pp. 1–60). San Diego, CAAcademic Press.

van den Bos, K., Lind, E. A., & Wilke, H. A. (2001). The psychology of procedural and distributive justice viewed from the perspective of fairness heuristic theory. In R. Cropanzano (Ed.), *Justice in the workplace: Volume 2. From theory to practice* (pp. 49–66). Mahwah, NJErlbaum.

*vanVianen, A. E., Taris, R., Scholten, E., & Schinkel, S. (2004). Perceived fairness in personnel selection: Determinants and outcomes in different stages of the assessment procedure. *International Journal of Selection and Assessment*, 12, 149–159. https://doi.org/10.1111/j.0965-075X.2004.00270.x

Viechtbauer, W. (2010). Conducting meta-analyses in R with the metafor package. *Journal of Statistical Software*, 36, 1–48. https://doi.org/10.18637/jss.v036.i03

Walker, H. J., Bauer, T. N., Cole, M. S., Bernerth, J. B., Feild, H. S., & Short, J. C. (2013). Is this how I will be treated? Reducing uncertainty through recruitment interactions. *Academy of Management Journal*, 56, 1325–1347. https://doi.org/10.5465/amj.2011.0196

Wheeler, L., & Reis, H. (1991). Self-recording of everyday life events: Origins, types, and uses. *Journal of Personality*, 59, 339–354. https://doi.org/10.1111/j.1467-6494.1991.tb00252.x

*Wiechmann, D., & Ryan, A. M. (2003). Reactions to computerized testing in selection contexts. *International Journal of Selection and Assessment*, 11, 215–229. https://doi.org/10.1111/1468-2389.00245