How temporal and social comparisons in performance evaluation affect fairness perceptions

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A R T I C L E   I N F O

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A B S T R A C T

In the context of performance evaluations, temporal comparisons inform people how well they are doing relative to how they have performed in the past. Social comparisons inform people how well they are doing relative to others. The present research examined the effects of temporal and social comparisons on the fairness perceptions of those who receive the evaluations. In four studies using different methodologies, temporal evaluations were perceived as adhering more to principles of procedural and interpersonal fairness than social evaluations. The effects of temporal versus social evaluations on fairness perceptions were mediated by perceptions of receiving individualized treatment.

1. Introduction

Performance evaluations involve comparison to standards, and the characteristics of the standards determine the consequences of the evaluations (Locke & Latham, 2002). For example, other people’s performance is frequently used as a standard to assess the focal individual’s achievement (Festinger, 1954; Wood, 1989). This process of social comparison has been shown to exert significant effects on the thoughts, feelings, and behaviors of the individuals receiving the evaluations (Tesser, 1988). In fact, social comparison information may even outweigh the effects of objective performance information in determining individuals’ reactions (Klein, 1997).

Noting this possibility, researchers have examined the effects of social comparisons in the context of performance evaluations. For example, upward social comparisons (e.g., “You’re doing worse than your peers”) have been shown to reduce affective trust in peers whereas downward social comparisons (e.g., “You’re doing better than your peers”) reduce cognitive trust in peers (Dunn, Ruedy, & Schweitzer, 2012). In negotiation contexts, it has been shown that the type of social standards (the counterparts of the negotiations vs. other negotiators in similar situations) can have significant effects on negotiators’ satisfaction (Novemsky & Schweitzer, 2004). Specifically, comparisons with the counterparts’ outcomes were more likely to decrease negotiators’ satisfaction by focusing their attention on the portion they failed to claim. These findings suggest that to whom they are compared can significantly influence people’s experiences of and reactions to performance evaluations.

Another important type of performance standards is how well the individual has done in the past. When one’s own past performance is used as a standard, the nature of the evaluation is temporal (i.e., me now vs. me in the past) rather than social (i.e., me vs. others). Since Albert’s (1977) cogent analysis of temporal comparisons, researchers have tended to consider temporal and social comparisons as alternatives to one another. For example, Wilson and Ross (2000) examined how frequently temporal and social comparisons were used as a basis of self-evaluations. They showed that individuals’ desires to obtain enhancing (i.e., positive) versus accurate information about themselves served as the fundamental motives underlying the use of temporal versus social comparisons, respectively.

An important aspect of previous research that compared the effects of temporal and social comparisons is that it has largely been confined to situations in which people were evaluating themselves (Robinson-Whelen & Kiecolt-Glaser, 1997; Suls, Marco, & Tobin, 1991; Wilson & Ross, 2000; Butler, 1998). In contrast, there has been a lack of research on how temporal and social comparisons differentially influence people when those comparisons are used by others to evaluate them. This omission is unfortunate because people often receive evaluations from others in a variety of settings, such as schools and workplaces (Ilgen, Fisher, & Taylor, 1979).

There are two noteworthy exceptions. First, Levine and Green (1984) examined the interactive effect of temporal and social comparison information (from others) on children’s attention to their peers. Their findings suggested that children reduced their attention to their peers when they were told that their own performance was decreasing,
especially when they were also being outperformed by their peers. Second, Zell and Alicke (2009) demonstrated that individuals’ self-perceptions of competencies were affected by how their performance changed over time (i.e., temporal comparisons) whereas external observers’ perceptions of competencies were largely shaped by how individuals fared against others (i.e., social comparisons).

Nevertheless, much needs to be learned about how people respond to performance evaluations made by others as a function of temporal and social comparisons. First, prior research (e.g., Levine & Green, 1984; Zell & Alicke, 2009) has mainly focused on the valence of comparisons (i.e., whether people are doing better or worse than temporal and social standards). In contrast, relatively little is known about how the utilization of temporal versus social comparisons in and of itself influences those who are evaluated. This is important to examine, because individuals who are receiving the evaluations may make different inferences about how they are being treated depending on the type of comparisons (Lind & Tyler, 1988). For example, people may consider a temporal evaluation to be more individualized because it focuses only on them, whereas a social evaluation includes information about other people. As we hypothesize below, being treated in a more individualized fashion may induce people to consider that they are being dealt with in a more dignified and respectful way. Furthermore, believing that the evaluators have taken into account detailed information about their performance, employees who receive temporal evaluations may also consider the evaluation processes as more accurate and unbiased.

We investigate how temporal versus social comparisons shape employees’ judgments related to the evaluation process. More specifically, we examine whether temporal versus social comparisons lead to different perceptions of procedural and interpersonal fairness (Colquitt, 2001; Colquitt, Greenberg, & Zapata-Phelan, 2005). We further explore the psychological mechanism that explains the differential effects of temporal versus social comparisons on fairness perceptions.

It is worth examining whether the type of comparisons influences fairness perceptions, because performance evaluations are likely to have more positive effects when employees receive them well (e.g., openly rather than defensively; ilgen et al., 1979). Performance evaluations are designed to help employees assess how they are doing their jobs and ultimately, to motivate them to perform better (Mayer & Davis, 1999). For these positive effects of performance evaluations to be realized, they need to be accepted by the individuals on the receiving end. A cardinal principle in the organizational justice literature is that people are more likely to accept information and decisions that are accompanied by a fair process (Colquitt, Conlon, Wesson, Porter, & Ng, 2001; Lind & Tyler, 1988). Therefore, the positive consequences of performance evaluations are more likely to be realized when the evaluations are seen as adhering more to principles of procedural and interpersonal fairness (Leung, Su, & Morris, 2001).

2. Temporal comparisons, social comparisons, and fairness

The distinction between temporal and social comparisons has proven meaningful in a variety of literatures such as achievement goals (Elliot & Thrash, 2001), health management (Suls et al., 1991), and aging (Robinson-Whelen & Kiecolt-Glaser, 1997). For example, researchers have suggested that individuals with learning (or mastery) goals typically make temporal comparisons to evaluate their achievement whereas those with performance goals are more apt to use social comparisons (Ames & Ames, 1984; Elliot & Thrash, 2001). However, as noted above, prior research has mainly examined why people use temporal versus social comparisons when they are evaluating themselves, rendering less clear how individuals react to temporal versus social comparisons coming from others. This is partially due to a lack of research on the effects of temporal comparisons. As Zell and Alicke (2009) put it, “Compared to the hundreds of studies that fly under the social comparisons banner, research on temporal comparisons is sparse” (p. 224). The present research attempts to extend previous work by examining how temporal versus social comparisons made by others differentially affect people’s perceptions along a dimension known to have ubiquitous effects on work attitudes and behaviors: fairness.

The vast literature on organizational justice (e.g., Colquitt et al., 2005) has distinguished between the fairness related to (1) the outcomes that employees receive (distributive fairness; Adams, 1965), (2) the decision-making process associated with the outcomes (procedural fairness; Leventhal, Karuza, & Fry, 1980), and (3) the behavior of the parties who plan and implement decisions (interactional fairness; Bies, 1987). Interactional fairness has further been subdivided into interpersonal and informational fairness, the former capturing the extent to which individuals are treated in a respectful manner and the latter reflecting how effectively relevant information has been communicated (Shapiro, Buttner, & Barry, 1994). The present research focuses on how temporal versus social comparisons affect perceptions of procedural and interpersonal fairness, because the temporal/social distinction is conceptually linked to these two dimensions of fairness. Nevertheless, for purposes of comprehensiveness, we also examine perceptions of distributive and informational fairness. Next, we provide the theoretical rationale for the prediction that employees’ judgments of procedural and interpersonal fairness will be higher when they receive a performance evaluation that is based on temporal than social comparisons.

3. The effects of temporal and social comparisons on fairness perceptions

A temporal comparison uses employees’ own past performance as the standard to evaluate their current performance. Therefore, in temporal comparisons, employees receiving the evaluations are the only individuals being considered during the appraisal process. This conveys to employees that the evaluations have focused on them and that the evaluators have devoted attention to the particular evaluations they are receiving (Sluss & Thompson, 2012). Thus, employees may infer that the evaluator has taken into account the details of their performance.

In contrast, a social comparison evaluation discusses employees’ performance relative to other people’s performance, which may elicit a perception of being viewed as another face in the crowd. When employees receive a social evaluation, it is implied that other people are also receiving the same type of evaluations. Employees may thus think that the evaluators’ effort to conduct the evaluations has been distributed across multiple parties (self and others), giving them the impression that less attention was devoted to their own appraisal. In this situation, employees are less likely to think that the evaluators have considered information specific to their performance.

Thus, we predict performance evaluations that emphasize temporal rather than social comparisons are more likely to lead employees to believe that their evaluators have incorporated specific details of their performance. We refer to this reaction of employees as perceptions of individualized treatment. This construct is distinct from related concepts such as leader-member exchange (LMX; Graen, Novak, & Sommerkamp, 1982; Liden & Maslyn, 1998) and feedback specificity (Goodman, Wood, & Chen, 2011). Particularly, LMX focuses on employees’ perceptions describing their relationships with the leaders, and thus it encompasses broad domains of interpersonal dynamics (e.g., “How would you characterize your working relationship with your immediate supervisor?”; Liden & Graen, 1980). Therefore, LMX does not appear to capture what employees experience specifically in the context of performance evaluations. On the other hand, feedback specificity directly deals with performance evaluation settings. However, it does not reflect the social dynamics between the evaluators and employees. Feedback specificity instead pertains to objective rules governing performance evaluations (e.g., “I was given specific feedback about my performance”; Goodman et al., 2011). Therefore, LMX and feedback specificity may not be suitable constructs to capture interpersonal dynamics in performance evaluations. Moreover, neither of
them directly measures the extent to which employees believe that their evaluators have incorporated specific details related to their performance.

We focus on the construct of individualized treatment because we believe that it mediates the relationships between the type of comparisons and fairness perceptions. We predict that perceptions of individualized treatment, which are more likely to be elicited by temporal than social comparisons, will lead employees to perceive higher levels of procedural fairness in the domains of accuracy, the suppression of personal biases, and the ethicality of evaluation processes (Colquitt, 2001; Leventhal et al., 1980; van Prooijen & Zwenk, 2009). Each employee’s performance involves many details. For example, an employee who previously demonstrated stellar performance might temporarily lose focus and struggle. Conversely, an employee who started with a low level of productivity might improve after gaining experience. Importantly, employees tend to consider such details as important pieces of information related to their performance (Zell & Alick, 2009). Thus, employees who think that their evaluation incorporates such specific details may think that it is based on a good deal of information related to their performance and thus is more accurate and unbiased. They may also perceive the evaluation as more ethical in that the evaluators may have invested significant efforts to take into account much information regarding their performance. Therefore, temporal comparisons and ensuing perceptions of individualized treatment may lead people to believe that the evaluators have engaged in due diligence, which makes the appraisal right not only in terms of accuracy or unbiasedness but also from a moral or ethical point of view.

We do not predict that the distinction between temporal and social comparisons applies to all elements of procedural fairness, such as perceived voice (Colquitt, 2001). Regardless of whether temporal or social comparison evaluations are provided, they are conducted by the evaluators according to the procedures determined by the evaluators, without requiring input from the parties being evaluated. Therefore, we limit the scope of our prediction to the procedural fairness elements of accuracy, bias suppression, and ethicality, which those we considered to be most conceptually linked with the distinction between temporal and social comparisons.2

Hypothesis 1. Relative to a social comparison performance evaluation, a temporal comparison performance evaluation is perceived as adhering more to the procedural fairness principles of accuracy, bias suppression, and ethicality.

Performance evaluations that use temporal comparisons may also be perceived to adhere to the principles of interpersonal fairness such as respectful, dignifying, and polite treatment. Interpersonal exchange in organizations has symbolic value. Feedback provided by an evaluator can have strong meaning to employees because it conveys how they are viewed in the organization (De Cremer & Mulder, 2007). When temporal comparisons signal that the evaluation is focusing on them and incorporating specific details about their performance, it may symbolize that they are valued by their evaluators (Ollkkenen & Lipponen, 2006), which may lead to the employees’ sense of receiving respectful, dignifying, and polite treatment (Bies, 1987; Bies & Shapiro, 1987).

Social comparisons are less likely to prompt favorable judgments of these interpersonal fairness principles. When the evaluation does not seem to draw on specific information about their performance, employees may be less likely to think that they are being recognized on an individual basis by their evaluators. Believing that the details related to their performance have not been considered as much, they may infer that they are being treated as one of the masses rather than as individuals in their own right (Hofmann, Morgeson, & Gerras, 2003; Lind & Tyler, 1988), in which case the symbolic message of respectful treatment, dignity, and politeness may not shine through. We thus predict that employees’ perceptions of respectful, dignifying, and polite treatment will be higher in response to a temporal comparison evaluation than a social comparison evaluation.

Similar to procedural fairness, we do not predict that the effects of temporal versus social comparisons are relevant to all elements of interpersonal fairness. One of the items comprising interpersonal fairness, “refraining from making improper comments,” seems conceptually distant from the distinction between temporal versus social comparisons (Bies & Moag, 1986; Colquitt, 2001); both types of comparisons can be made without resorting to rude or improper comments. The following hypothesis is thus limited to the interpersonal fairness elements of respectful, dignifying, and polite treatment.3

Hypothesis 2. Relative to a social comparison performance evaluation, a temporal comparison performance evaluation is perceived as adhering more to the interpersonal fairness principles of respectful, dignifying, and polite treatment.

The culmination of the above reasoning gives rise to another prediction:

Hypothesis 3. Employees’ perceptions of how much they are receiving individualized treatment mediate the relationships between temporal versus social comparison evaluation and perceptions pertaining to procedural fairness (i.e., accuracy, bias suppression, and ethicality) and interpersonal fairness (i.e., dignity, respect, and politeness).

4. Overview of studies

The present research consists of 4 empirical studies. In Study 1a, using the data collected from a sample of working professionals, we developed scales to measure temporal and social comparisons and examined how they were related to perceptions of procedural and interpersonal fairness. In Study 1b, we sought to confirm the factor structure of the temporal and social comparison scales developed in Study 1a and replicate the results demonstrated in Study 1a.

To enhance the internal validity of the findings from Studies 1a and 1b, in Study 2 we experimentally manipulated temporal versus social comparisons and examined their effects on fairness perceptions. All participants in Study 2 read scenarios in which they imagined that they were on the receiving end of a performance evaluation in an organization. We also tested in Study 2 whether the effects of temporal versus social comparisons on fairness perceptions emerged across different levels of positivity and negativity emphasized in the evaluations. To do so, we orthogonally manipulated the type of comparisons (temporal or social) and the valence of the evaluation (positive, negative, or mixed).

In Study 3 we attempted to replicate the causal effects of temporal and social comparisons on fairness perceptions. The difference between Study 3 and Study 2 was that participants in Study 3 actually received performance evaluations from their manager (whereas in Study 2...
participants reported how they would have responded in a hypothetical situation). Furthermore, in Study 3 we performed the tests of mediation set forth in Hypothesis 3.

In sum, the present studies draw on a variety of methodological designs to examine whether people perceive higher levels of procedural and interpersonal fairness in response to a temporal comparison evaluation than to a social comparison evaluation. To the extent that similar results emerge across studies, we gain increased confidence in the validity of the findings. By examining the mediating mechanism, we also seek to shed light on why people perceive higher levels of procedural and interpersonal fairness in response to temporal versus social comparisons.  

5. Study 1a

In Study 1a, we developed scales to measure temporal and social comparisons in performance evaluations and examined their relationships with perceptions of procedural and interpersonal fairness.

5.1. Method

5.1.1. Sample

We collected survey data from 153 employees who were enrolled in an executive MBA program in the United States as part-time students. The mean age of the participants was 34.7 (SD = 6.1) and 39% were female. Four participants did not report their age. One of them did not provide gender information, either. Their average tenure in their organizations was 6.5 years (SD = 4.5). Participants identified their race with the following frequencies: 49% White, 30% Asian, 7% Black, 7% Latino, 1% Native American, and 5% two or more races. Three participants did not provide their race information. Participants were from various industries, including high tech, health care, and manufacturing.

5.1.2. Measures

All items in the present research were measured using a seven-point Likert-type scale ranging from 1 ("not at all") to 7 ("very much"). As discussed above, although temporal and social comparisons have been examined in the context of self-evaluation, we were not aware of a reliable scale to measure these constructs in performance evaluation settings when other parties were the source of the evaluations. Therefore, we developed our own items. Before participants responded to these items, they were asked to think about a performance evaluation that they received within the previous year. To make the experience more salient, participants were requested to provide some details of the evaluation, including when it took place and how long it lasted.

The complete set of items used to measure temporal and social comparisons is listed in Table 1. The analysis of the correlation matrix showed that the first and second factors’ eigenvalues were 2.98 and 2.36, whereas the eigenvalue of the third factor dropped to 0.29, suggesting that two factors explained most of the variance (Browne, Cudeck, Tateneni, & Mels, 2008). As can be seen in Table 1, after oblique (CF-Quartimax) rotation (Browne, 2001), each item loaded on its corresponding factor.

We drew on Colquitt (2001) to measure the elements of procedural and interpersonal fairness that we hypothesized to be related to temporal versus social comparisons. The items measuring procedural fairness were, "The evaluation was based on accurate information," "The evaluation was free of bias," and "The evaluation upheld ethical and moral standards." Interpersonal fairness was measured by, "The evaluator treated me with dignity," "The evaluator treated me with respect," and "The evaluator treated me in a polite manner." Although distributive fairness was not part of our predictions, it was included to test whether the effects of temporal and social comparisons influenced fairness judgments pertaining to the outcome (distributive) as well as to the process (procedural and interpersonal). Based also on Colquitt (2001), distributive fairness was measured by, "The outcomes of my evaluation were appropriate for the work I have completed," "The outcomes of my evaluation reflected the effort I have put into my work," and "The outcomes of my evaluation were justified, given my performance." Two participants did not complete procedural and distributive fairness items, respectively.

5.2. Results and discussion

Table 2 reports descriptive statistics and intercorrelations. Table 3 shows the results from analyses in which perceptions of fairness were regressed on temporal and social comparisons simultaneously. 5 As predicted, temporal comparisons were positively related to perceptions of procedural fairness \(b = 0.15, t = 2.18, p = 0.031, 95\% CI = [0.014, 0.290]\) and interpersonal fairness \(b = 0.16, t = 2.47, p = 0.015, 95\% CI = [0.033, 0.296]\). In contrast, social comparisons were not significantly related to procedural fairness \(b = 0.01, t = 0.11, p = 0.909, 95\% CI = [-0.122, 0.137]\) or interpersonal fairness \(b = 0.01, t = 0.14, p = 0.892, 95\% CI = [-0.115, 0.132]\). Hotelling’s \(t\) suggested that the relationship between temporal comparisons and procedural fairness was stronger than the one between social comparisons and procedural fairness \(t = 1.83, p = 0.069\). A similar difference emerged for interpersonal fairness \(t = 2.11, p = 0.039\).

Distributive fairness demonstrated different patterns from the other two domains of fairness. Temporal comparisons were not significantly related to perceptions of distributive fairness \(b = 0.11, t = 1.23, p = 0.221, 95\% CI = [-0.067, 0.285]\) nor were social comparisons \(b = 0.14, t = 1.67, p = 0.097, 95\% CI = [-0.026, 0.304]\). Moreover, Hotelling’s \(t\) demonstrated that there was no significant difference between the extent to which temporal versus social comparisons were related to distributive fairness \(t = -0.52, p = 0.601\).

Temporal comparisons yielded positive relationships with perceptions of procedural and interpersonal fairness. The more employees thought that they received an evaluation emphasizing how they performed relative to how they had performed in the past, the more they believed that (1) the evaluation adhered to accuracy, bias suppression, and ethicality, and (2) the evaluators treated them in a respectful,

<table>
<thead>
<tr>
<th>Items</th>
<th>Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. My evaluator emphasized how I performed compared with my previous performance</td>
<td>0.88 0.11</td>
</tr>
<tr>
<td>2. My evaluator compared my performance to my previous performance</td>
<td>0.92 0.12</td>
</tr>
<tr>
<td>3. My evaluator spent a lot of the evaluation discussing how my performance fared against my previous performance</td>
<td>0.81 0.20</td>
</tr>
<tr>
<td>4. My evaluator emphasized how I performed compared with my colleagues’ performance</td>
<td>-0.01 0.96</td>
</tr>
<tr>
<td>5. My evaluator compared my performance to my colleagues’ performance</td>
<td>-0.05 0.98</td>
</tr>
<tr>
<td>6. My evaluator spent a lot of the evaluation discussing how my performance fared against my colleagues’ performance</td>
<td>-0.07 0.89</td>
</tr>
</tbody>
</table>

Note: \(n = 153\). Numbers in boldface represent factor loadings greater than .4 on the corresponding factors.

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4 The study materials, data, and codes for analyses can be found at https://osf.io/4jm3.

5 Participants’ age and gender were included as control variables per an anonymous reviewer’s suggestion. The inclusion of these control variables did not change the statistical significance of the results.
Table 2
Descriptive statistics and intercorrelations from Study 1a.

<table>
<thead>
<tr>
<th>Variables</th>
<th>M</th>
<th>SD</th>
<th>α</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Age</td>
<td>34.67</td>
<td>6.13</td>
<td>-0.13</td>
<td>-0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>2. Gender (1 = female)</td>
<td>0.39</td>
<td>0.49</td>
<td>-</td>
<td>-0.37</td>
<td>0.64</td>
<td>0.55</td>
<td>0.49</td>
<td>0.28</td>
<td></td>
</tr>
<tr>
<td>3. Temporal comparisons</td>
<td>3.37</td>
<td>1.70</td>
<td>0.91</td>
<td>-0.11</td>
<td>-0.08</td>
<td>-0.08</td>
<td>-0.08</td>
<td>-0.08</td>
<td>0.05</td>
</tr>
<tr>
<td>4. Social comparisons</td>
<td>2.57</td>
<td>1.80</td>
<td>0.96</td>
<td>-0.09</td>
<td>-0.06</td>
<td>0.10</td>
<td>0.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Procedural fairness</td>
<td>5.12</td>
<td>1.43</td>
<td>0.82</td>
<td>-0.03</td>
<td>-0.04</td>
<td>0.17</td>
<td>0.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Interpersonal fairness</td>
<td>6.07</td>
<td>1.37</td>
<td>0.97</td>
<td>-0.05</td>
<td>0.01</td>
<td>0.20</td>
<td>0.04</td>
<td>0.65</td>
<td></td>
</tr>
<tr>
<td>7. Distributive fairness</td>
<td>4.87</td>
<td>1.82</td>
<td>0.97</td>
<td>0.01</td>
<td>-0.10</td>
<td>0.11</td>
<td>0.15</td>
<td>0.67</td>
<td>0.56</td>
</tr>
</tbody>
</table>

Note: n = 148–153.

Table 3
Regression analyses from Study 1a.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Procedural fairness</th>
<th>Interpersonal fairness</th>
<th>Distributive fairness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>-0.01 (0.02)</td>
<td>-0.01 (0.02)</td>
<td>-0.00 (0.02)</td>
</tr>
<tr>
<td>Gender</td>
<td>-0.08 (0.25)</td>
<td>0.15 (0.07)</td>
<td>0.11 (0.09)</td>
</tr>
<tr>
<td>Temporal compa-</td>
<td>(0.24)</td>
<td>(0.23)</td>
<td>(0.31)</td>
</tr>
<tr>
<td>risons</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social compar-</td>
<td>0.01 (0.07)</td>
<td>0.01 (0.06)</td>
<td>0.14 (0.08)</td>
</tr>
<tr>
<td>risons</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>0.10</td>
<td>1.26</td>
<td>0.23</td>
</tr>
<tr>
<td>R²</td>
<td>0.00</td>
<td>0.03</td>
<td>0.00</td>
</tr>
<tr>
<td>AR²</td>
<td>0.03</td>
<td>0.04</td>
<td>0.03</td>
</tr>
</tbody>
</table>

Note. n = 149 (interpersonal fairness) or 148 (procedural and distributive fairness). Values in parentheses are standard errors.

Table 4
Confirmatory factor analyses from Study 1b.

<table>
<thead>
<tr>
<th>CFA models</th>
<th>χ²</th>
<th>df</th>
<th>CFI</th>
<th>RMSEA</th>
<th>Δχ²</th>
<th>p-value of Δχ²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1: Hypothesized five-factor model</td>
<td>132.18</td>
<td>80</td>
<td>0.96</td>
<td>0.079</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model 2: Combining temporal and social comparisons</td>
<td>209.16</td>
<td>84</td>
<td>0.91</td>
<td>0.120</td>
<td>76.97</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Model 3: Combining temporal comparisons and procedural fairness</td>
<td>292.25</td>
<td>84</td>
<td>0.85</td>
<td>0.154</td>
<td>160.07</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Model 4: Combining temporal comparisons and interpersonal fairness</td>
<td>272.27</td>
<td>84</td>
<td>0.86</td>
<td>0.147</td>
<td>140.09</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Model 5: Combining temporal and distributive fairness</td>
<td>295.74</td>
<td>84</td>
<td>0.84</td>
<td>0.156</td>
<td>163.56</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Model 6: Combining social and interpersonal fairness</td>
<td>211.81</td>
<td>84</td>
<td>0.91</td>
<td>0.121</td>
<td>79.63</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Model 7: Combining social and distributive fairness</td>
<td>203.25</td>
<td>84</td>
<td>0.91</td>
<td>0.117</td>
<td>71.07</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Model 8: Combining interpersonal and distributive fairness</td>
<td>257.64</td>
<td>84</td>
<td>0.87</td>
<td>0.141</td>
<td>125.45</td>
<td>&lt; 0.001</td>
</tr>
</tbody>
</table>

6. Study 1b

In Study 1b, we sought to replicate the findings from Study 1a in a confirmatory manner. As in Study 1a, we measured the extent to which temporal and social comparisons were used in actual performance evaluations. Using these data, we examined the factor structure of temporal comparisons, social comparisons, and fairness perceptions based on confirmatory factor analyses. Then, as in Study 1a, we examined how temporal and social comparisons were related to perceptions of fairness.

6.1. Method

6.1.1. Sample

We collected survey data via Flycatcher, a professional research panel that meets the ISO 26,362 requirements, allowing this panel to be used for social science research. A total of 104 employees who were working in Dutch organizations participated. The mean age of the participants was 36.7 (SD = 10.4) and 43% were female. Their average tenure in the organizations was 8.4 years (SD = 6.7). We did not collect the information regarding participants’ race but most of them (all but two) were Dutch citizens. Participants were working in various industries, including information technology, health care, and service.

6.1.2. Measures

As in Study 1a, participants were initially asked to think about a performance evaluation that they received within the previous year and to provide some information about the evaluation before they responded to the study items.

All items used in Study 1a were included in Study 1b. To examine the factor structure of the temporal and social comparison scales developed in Study 1a and fairness measures, we ran a set of confirmatory factor analyses, using an R package “lavaan” (Rosseel et al., 2017). As can be found in Table 4, the hypothesized five-factor model (temporal comparisons, social comparisons, procedural fairness, interpersonal fairness, and distributive fairness) demonstrated reasonable fit (CFI = 0.96, RMSEA = 0.079; Hu & Bentler, 1999). All of the alternative four-factor models failed to show acceptable fit (CFIs < 0.92, RMSEAs > 0.116). Moreover, results suggested that the hypothesized
The model demonstrated greater fit than the alternative models ($\Delta \chi^2$s > 71, $p$s < 0.001).

### 6.2. Results and discussion

Descriptive statistics and intercorrelations can be found in Table 5. Table 6 reports the results from regression analyses. Replicating the findings from Study 1a, we found that temporal comparisons were positively related to perceptions of procedural fairness ($b = 0.27, t = 2.38, p = 0.020, 95\% CI = [0.044, 0.487]$) and interpersonal fairness ($b = 0.45, t = 3.71, p < 0.001, 95\% CI = [0.209, 0.689]$). Once again, social comparisons were not significantly related to procedural fairness ($b = -0.00, t = -0.01, p = 0.991, 95\% CI = [-0.205, 0.203]$) or interpersonal fairness ($b = -0.04, t = -0.38, p = 0.702, 95\% CI = [-0.264, 0.179]$). Similar to what was found in Study 1a, the results of Hotelling’s $t$ tests showed that the relationships between temporal comparisons and fairness were stronger than the relationships between social comparisons and fairness, for both procedural fairness ($t = 1.86, p = 0.066$) and interpersonal fairness ($t = 3.18, p = 0.002$).

In contrast, and also consistent with the results of Study 1a, perceptions of distributive fairness were not significantly related to temporal comparisons ($b = 0.18, t = 1.48, p = 0.143, 95\% CI = [-0.061, 0.414]$) or social comparisons ($b = 0.15, t = 1.36, p = 0.176, 95\% CI = [-0.068, 0.369]$). Hotelling’s $t$ demonstrated that there was virtually no difference between temporal and social comparisons in the magnitude of their relationships with distributive fairness ($t = 0.01, p = 0.993$).

Study 1b replicated the results of Study 1a in a confirmatory manner and in a different cultural setting. The factor structure that distinguished temporal comparisons, social comparisons, and the three dimensions of fairness perceptions was found to explain the data better than the alternative models. Furthermore, temporal comparisons were positively related to perceptions of procedural and interpersonal fairness, whereas the relationships between social comparisons and perceptions of procedural and interpersonal fairness were nonsignificant. The findings suggested that temporal comparisons were more positively related to fairness perceptions than social comparisons with respect to the evaluation process (procedural and interpersonal fairness) but not the evaluation outcome (distributive fairness). Finally, as in Study 1a, the mean level of temporal comparisons was higher than social comparisons ($t = 2.55, p = 0.012$), attesting to the salience of temporal comparisons and the importance of studying them along with social comparisons.

### 7. Study 2

Study 2 was designed to test the research questions examined in Studies 1a and 1b with greater internal validity. Whereas in Studies 1a and 1b we measured temporal comparisons and social comparisons to examine their relationships with fairness perceptions, in Study 2 we experimentally manipulated temporal and social comparisons to test their effects on fairness perceptions.

We also sought to extend the results of Studies 1a and 1b by examining the effects of evaluation valence along with temporal and social comparisons. This enabled us to investigate whether the effects of temporal/social comparisons were observed across different levels of evaluation valence.

All participants in Study 2 indicated how much fairness they perceived in response to a hypothetical performance evaluation. Both the type of comparisons (temporal versus social) and the valence of the evaluation (positive, negative, or mixed) were experimentally manipulated in a $2 \times 3$ factorial design, in which the same dependent variables as in Studies 1a and 1b were measured.

#### 7.1. Method

##### 7.1.1. Sample

We recruited 401 US online participants via Amazon.com’s Mechanical Turk (Buhmester, Kwang, & Gosling, 2011). The mean age of the participants was 36.0 ($SD = 13.0$) and 47% of them were female. The participants identified their race with the following frequencies: 76% White, 9% Black, 5% Asian, 3% Latino(a), 1% Native American, and 5% two or more races. Thirty-four individuals failed to pass the attention checks and thus were excluded from the analyses. The inclusion of these participants did not change the statistical significance of our results.

##### 7.1.2. Procedures

After participants agreed to take part in the study, they were asked to imagine that they were employees receiving a performance evaluation in a mid-sized firm located in the United States. It was further explained that the performance evaluation in their company took place...
every six months, and that they were receiving the evaluation from their boss based on how they had performed during the past six months. Then participants were randomly led to believe that the evaluator was providing either a temporal or social comparison evaluation. Participants in the temporal comparison condition read the following: “The evaluation focuses on how you performed during the last six months. However, your boss is specifically emphasizing how your current performance fares against your previous performance (i.e., six months ago). In other words, your boss is comparing your current performance with your previous performance.” In contrast, participants in the social comparison condition read the following: “The evaluation focuses on how you performed during the last six months. However, your boss is specifically emphasizing how your current performance fares against other people’s performance (i.e., your colleagues). In other words, your boss is comparing your current performance with your colleagues’ performance.”

Next, to vary the valence of the evaluation, participants were randomly given one of three evaluative statements (positive, negative, or mixed). The statement in the positive valence condition was, “Generally, your performance is showing that you are doing a very good job. There are many aspects in which you are demonstrating strengths. Of course, you might need some minor adjustments for the things you are struggling with. But, on balance, good going!” The statement in the negative valence condition was, “Generally, your performance is showing that you are not doing a very good job. There are several aspects in which you are demonstrating weaknesses. Of course, there are certain areas where you are doing okay. But, on balance, you need to improve.” The statement in the mixed valence condition was, “There are many things that you are doing well, and there are also many things that need some corrections. Some aspects of your performance are showing that you have done a commendable job, and some are requiring additional effort. Whereas you are performing decently, I’d like to encourage you to aim higher.” Importantly, the evaluative statements were identical across the temporal versus social comparison conditions.

After reading the performance evaluation scenarios, participants completed manipulation checks pertaining to the independent variables as well as the items measuring perceptions of procedural and interpersonal fairness.

7.1.3. Measures
Manipulation checks of temporal and social comparisons were respectively, “How much did the evaluation compare your current performance with your previous performance?” and “How much did the evaluation compare your current performance with other people’s performance?” Evaluation valence was measured with two items: “How much did the evaluation consider the positive side of your performance?” (positive valence) and “How much did the evaluation consider the negative side of your performance?” (negative valence). Perceptions of procedural and interpersonal fairness were measured using the same items as in Studies 1a and 1b.

7.2. Results
Descriptive statistics and intercorrelations can be found in Table 7.

7.2.1. Manipulation check: Type of comparisons
We conducted a 2 (Type of comparisons) × 2 (Comparison measure) analysis of variance, with the former and latter treated as between- and within-subject variables, respectively. The results showed a significant interaction effect ($F = 456.98, p < 0.001$). Participants in the temporal comparison condition perceived higher levels of temporal comparisons ($M = 5.48, SD = 1.59$) than those in the social comparison condition ($M = 3.04, SD = 1.85$; $t = 13.59, p < 0.001$). Conversely, participants in the social comparison condition perceived higher levels of social comparisons ($M = 5.14, SD = 1.78$) than those in the temporal comparison condition ($M = 2.03, SD = 1.41$; $t = -18.63, p < 0.001$).

7.2.2. Manipulation check: Evaluation valence
The manipulation check items of positive and negative valence were submitted to a 3 (Evaluation valence) × 2 (Valence measure) analysis of variance, with the former and latter treated as between- and within-subject variables, respectively. The results showed a significant interaction effect ($F = 330.30, p < 0.001$). Participants in the positive valence condition perceived higher levels of positive valence ($M = 5.86, SD = 0.92$) than those in the mixed ($M = 4.52, SD = 1.18$) and negative valence conditions ($M = 2.79, SD = 1.36$; $F = 214.60, p < 0.001$). Conversely, participants in the negative valence condition perceived higher levels of negative valence ($M = 6.05, SD = 1.07$) than those in the mixed ($M = 4.54, SD = 1.17$) and positive valence conditions ($M = 3.00, SD = 1.16$; $F = 229.00, p < 0.001$).

It is worth noting that the manipulation of temporal versus social comparisons did not generate significant differences in perceptions of positive valence ($t = 1.38, p = 0.168$) and negative valence ($t = -0.93, p = 0.353$).

7.2.3. Procedural and interpersonal fairness
Perceptions of procedural and interpersonal fairness were submitted to 2 (Type of comparisons) × 3 (Evaluation valence) between-subject analyses of variance. The results demonstrated that perceptions of procedural fairness were significantly affected by both the type of comparisons ($F = 12.30, p < 0.001$) and evaluation valence ($F = 40.21, p < 0.001$). There was no significant interaction between the two independent variables ($F = 0.40, p = 0.672$). Similarly, perceptions of interpersonal fairness were significantly affected by temporal versus social comparisons ($F = 9.17, p = 0.003$) and evaluation valence ($F = 100.33, p < 0.001$), the interaction being nonsignificant ($F = 0.75, p = 0.473$).

The mean levels and standard deviations of fairness perceptions and the p-values for the differences between the temporal and social comparison conditions can be found in Table 8 (see Fig. 1 for a graphical demonstration). As predicted, participants who received temporal comparison evaluations believed that they were treated with greater procedural fairness ($M = 5.16, SD = 1.29$) than their counterparts who received social comparison evaluations ($M = 4.72, SD = 1.39$; $d = 0.33, t = 3.19, p = 0.002, 95% CI = [0.171, 0.722]$). Similarly, participants who received temporal evaluations perceived higher levels of interpersonal fairness ($M = 5.38, SD = 1.42$) than those who received social evaluations ($M = 5.01, SD = 1.46$; $d = 0.25, t = 2.44, p = 0.015, 95% CI = [0.071, 0.662]$). These patterns emerged in all three levels of evaluation valence. From Table 8 it can also be seen that fairness perceptions were highest in the positive valence condition, lowest in the negative valence condition, and in between these two in the mixed valence condition.

Finally, we tested whether the differences between fairness perceptions in the temporal and social comparison conditions remained significant when the measures of positive and negative valence were included in the analyses as control variables. The type of comparisons had significant effects on both procedural fairness ($t = 2.91, p = 0.004, 95% CI = [0.109, 0.562]$) and interpersonal fairness ($t = 2.10, p = 0.037, 95% CI = [0.014, 0.421]$).

7.3. Discussion
Study 2 built on the findings in Studies 1a and 1b by offering greater internal validity. The experimental manipulations of temporal versus

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7 Per an anonymous reviewer’s suggestions, we expanded our main analyses to include participants’ gender and age. We ran a 2 (Type of comparisons) × 3 (Evaluation valence) × 2 (Participants’ gender) between-subject analyses of covariance with participants’ age as a covariate. Gender and age did not demonstrate any significant main or interaction effects on procedural or interpersonal fairness. Furthermore, the main findings reported above were not affected in terms of their statistical significance when gender and age were included in the analyses.
social comparisons and the valence of the evaluation had significant and orthogonal effects on perceptions of procedural and interpersonal fairness. Temporal comparisons led to higher perceptions of fairness than social comparisons, and these patterns emerged in all three levels of evaluation valence. Finally, the type of comparisons had significant effects on fairness perceptions even when we controlled for the measures of positive and negative valence, suggesting that the effects of temporal versus social comparisons existed over and above how positive and negative the evaluations were perceived to be.

8. Study 3

Although the Study 2 findings were internally valid, participants did not actually experience the events of Study 2 but rather reported how they would have responded if they had received the evaluations. In Study 3, we moved toward examining how people reacted to performance evaluations that emphasized one type of comparisons with nothing said about the other (e.g., high temporal comparisons; Version 1). The other half were given evaluations that emphasized one type of comparisons and also minimized the other type (e.g., high temporal comparisons AND low social comparisons; Version 2). Thus, Study 3 consisted of a 2 (temporal vs. social) × 2 (positive vs. negative) × 2 (Version 1 vs. Version 2) between-subject design. As we describe below, the results were consistent across the two different versions.

8.1. Method

8.1.1. Sample

We recruited 404 US online participants via Amazon.com’s Mechanical Turk platform. The mean age of the participants was 37.1 (SD = 11.4) and 45% of them were female. The participants identified their race with the following frequencies: 76% White, 7% Black, 6% Latino(a), 6% Asian, 0.5% Native American, and 5% two or more races. Four individuals raised suspicion at the end of the study and thus were excluded from the analyses. The inclusion of these participants did not change the statistical significance of the results.

8.1.2. Procedures

After participants agreed to take part in the study, they were notified that two other people (named Jessie and Casey) would be working with them simultaneously. In reality, there were no such people. Participants were further informed that one of the three people would assume the role of a manager and the other two would be employees. Their roles were then decided in an ostensibly random manner. Participants and one other person (Jessie) were assigned to the role of employees whereas the other person (Casey) was given the role of a manager. Participants were told that the two employees (themselves and Jessie) would work on a task and the manager (Casey) would provide an evaluation of their performance. After the role assignment, participants worked on a task. The task was referred to as the “Social Insight Test.” In this task, participants were given a brief description of someone’s experiences at work and were asked to predict whether the individual would have remained in the company 12 months after the described incidents. To heighten participants’ engagement with the task, they were informed that Social Insight is an important skill, and many studies have demonstrated that people high in Social Insight achieved better career outcomes and enjoyed more rewarding interpersonal relationships. After participants worked on a sample question, they started Round One of the Social Insight Test.

Round One consisted of five descriptions from five different people.
To maintain ambiguity about how well they were performing and thereby preserve the credibility of the evaluations, participants were not given any information regarding whether they solved the questions correctly or not. After Round One, participants were told that Round Two would have the same format (five descriptions from five different people who did not overlap with those in Round One) and the manager (Casey) would evaluate their performance after Round Two. After participants finished Round Two (again, without being informed whether they solved the questions correctly or not), they were told that the manager sent them a brief message before the actual evaluation, and this message served as the first part of the manipulation.

As noted, the temporal and social comparison manipulation consisted of two different versions to which participants were randomly assigned. The evaluative statements unitalicized below are from Version 1 (which only emphasized one type of comparisons). Version 2 (which emphasized one type of comparisons and also minimized the other) had the same contents as Version 1 with some additional phrases. The phrases that were added to Version 2 are presented in italics.

The message in the temporal comparison conditions was, “You have completed both rounds. I will evaluate your Social Insight ability and give you feedback. What is really important is how you did in Round Two relative to how you did in Round One, because it signals whether you are on the right track regardless of how you did in the two rounds relative to Jessie. So, I will focus on how you performed in Round Two compared to how you performed in Round One.” The message in the social comparison conditions was, “You have completed both rounds. I will evaluate your Social Insight ability and give you feedback. What is really important is how you did in the two rounds relative to how Jessie did in the two rounds, because it signals whether you are on the right track regardless of how you did in Round Two relative to Round One. So, I will focus on how you did in the two rounds relative to how Jessie did in the two rounds.”

After this brief message from the manager (i.e., the first part of the manipulation), participants were asked to wait for about two minutes so that the manager could evaluate their performance. After 90s, participants were notified that the manager finished the evaluation. They proceeded to check the contents of their evaluations, which served as the second part of the manipulation. Again, the evaluative statements unitalicized below are from Version 1. The contents of Version 2 were identical to those of Version 1 plus additional phrases, which are presented in italics.

The evaluation in the positive (negative) temporal conditions was, “Like I said, I’ve focused on how you performed in Round Two compared to Round One of the Social Insight Test, because that’s what really matters regardless of how you did in the two rounds compared to Jessie. Your performance in Round Two was higher (lower) than your performance in Round One, suggesting you are (are not) doing better than before. So, I’d say you did a good job (I’d say you could have done better).”

The evaluation in the positive (negative) social conditions was, “Like I said, I’ve focused on how you performed compared to Jessie in the two rounds of the Social Insight Test, because that’s what really matters regardless of how you did in Round Two compared to Round One. Your performance was higher (lower) than Jessie’s performance, suggesting you are (are not) doing better than Jessie. So, I’d say you did a good job (I’d say you could have done better).”

After the evaluations, participants answered manipulation checks pertaining to the independent variables (the type of comparisons and evaluation valence) along with the items measuring fairness perceptions, the hypothesized mediator, and other variables.8

8 In the review process it was suggested that we also include items that measured the evaluator’s characteristics that participants inferred, participants’ affective states, and participants’ individual-level psychological characteristics (e.g., learning and

8.1.3. Measures

Perceptions of temporal comparisons, social comparisons, positive valence, negative valence, procedural fairness, and interpersonal fairness were measured using the same items as in Study 2. Perceptions of informational fairness were measured with the five items from Colquitt (2001), such as, “Your manager’s explanations regarding the feedback were reasonable.”

As noted, perceptions of individualized treatment in performance evaluations have not received direct attention from past research. Therefore, we created items to measure this construct. We adhered to three principles in developing the items. First, they tapped specifically into the context of performance evaluations. Second, they reflected participants’ perceptions of what the evaluator did instead of the objective rules governing the evaluation process. Third, they directly captured our definition of the construct (i.e., the extent to which employees believe that their evaluators have incorporated specific details of their performance). The three items that we developed based on these principles were, “Your manager incorporated details about your performance,” “Your manager took into account specific information regarding your performance,” and “Your manager provided individualized feedback to you.”

8.2. Results

The effects of temporal versus social comparisons described in this section were consistent across Versions 1 and 2. Therefore, we collapsed the analyses across the Version variable. Descriptive statistics and intercorrelations can be found in Table 9.

8.2.1. Manipulation check: Type of comparisons

As in Study 2, we conducted a 2 (Type of comparisons) X 2 (Comparison measure) analysis of variance, the former and latter being treated as between- and within-subject variables, respectively. As in Study 2, we found a significant interaction effect (F = 1045.05, p < 0.001). Participants in the temporal comparison condition perceived higher levels of temporal comparisons (M = 6.06, SD = 1.39) than those in the social comparison condition (M = 2.28, SD = 1.75; t = 23.86, p < 0.001). Conversely, participants in the social comparison condition perceived higher levels of social comparisons (M = 6.30, SD = 1.30) than those in the temporal comparison condition (M = 1.94, SD = 1.55; t = -30.46, p < 0.001).

8.2.2. Manipulation check: Evaluation valence

The manipulation-check items of positive and negative valence were submitted to a 2 (Evaluation valence) X 2 (Valence measure) analysis of variance, the former and latter being treated as between- and within-subject variables, respectively. As in Study 2, the results showed a significant interaction effect (F = 1244.45, p < 0.001). Participants in the positive valence condition perceived higher levels of positive valence (M = 6.00, SD = 1.05) than those in the negative valence condition (M = 2.30, SD = 1.36; t = 30.66, p < 0.001). Conversely, participants in the negative valence condition perceived higher levels of negative valence (M = 5.91, SD = 1.14) than those in the positive valence condition (M = 2.41, SD = 1.41; t = -27.27, p < 0.001). Also as in Study 2, the manipulation of temporal and social comparisons did not generate significant differences in perceptions of positive (t = 1.74, p = 0.083) and negative valence (t = 0.13, p = 0.900).

8.2.3. Procedural and interpersonal fairness

Perceptions of fairness were submitted to 2 (Type of (footnote continued) performance goal orientations). The complete list of constructs included in Study 3 and the results related to them can be found in the supplemental online materials.

9 For separate results from Version 1 and Version 2, please refer to the supplemental online materials.
comparisons) × 2 (Evaluation valence) between-subject analyses of variance. Perceptions of procedural fairness were significantly affected by both the type of comparisons (F = 15.47, p < 0.001) and evaluation valence (F = 169.22, p < 0.001). There was no significant interaction (F = 1.80, p = 0.181). Similarly, perceptions of interpersonal fairness were significantly influenced by the type of comparisons (F = 43.50, p < 0.001) and evaluation valence (F = 98.79, p < 0.001), the interaction being nonsignificant (F = 1.11, p = 0.293).

The mean levels and standard deviations of fairness perceptions and the p-values of the differences between the temporal and social comparison conditions can be found in Table 10 (see Fig. 2 for a graphical demonstration). Replicating Study 2 results, we found that participants who received temporal evaluations perceived higher levels of procedural fairness (M = 5.56, SD = 1.50) than those who received social evaluations (M = 5.04, SD = 1.64; d = 0.33, t = 3.30, p < 0.001, 95% CI = [0.209, 0.827]). Those who received temporal evaluations also perceived higher levels of interpersonal fairness (M = 5.47, SD = 1.32) than their counterparts who received social evaluations (M = 4.64, SD = 1.47; d = 0.57, t = 5.91, p < 0.001, 95% CI = [0.119, 0.617]). These patterns emerged in both the positive and negative evaluation conditions, while positive evaluations leading to higher perceptions of fairness than negative evaluations. Finally, the effect of temporal versus social comparisons was significant controlling for positive and negative valence measures (t = 2.50, p = 0.013, 95% CI = [0.064, 0.528]).

8.2.5. Individualized treatment

The hypothesized mediator, perceptions of individualized treatment was also analyzed in a 2 (Type of comparisons) × 2 (Evaluation valence) between-subject analysis of variance. The results demonstrated similar patterns as those found on the dependent variables. Perceptions of individualized treatment were significantly shaped by both the type of comparisons (F = 117.83, p < 0.001) and evaluation valence (F = 39.03, p < 0.001), with no significant interaction between them (F = 0.03, p = 0.865). In Table 10 and Fig. 2, it can be found that participants who received temporal comparison evaluations perceived higher levels of individualized treatment (M = 4.93, SD = 1.40) than those who received social comparison evaluations (M = 3.39, SD = 1.58; d = 0.92, t = 10.38, p < 0.001, 95% CI = [1.255, 1.841]). This effect was observed in both the positive and negative evaluation conditions, while positive evaluations resulting in higher perceptions of the hypothesized mediator than negative evaluations. The effect of temporal versus social comparisons was significant controlling for positive and negative valence measures (t = 10.29, p < 0.001, 95% CI = [1.135, 1.671]).

8.2.4. Informational fairness

Perceptions of informational fairness demonstrated similar patterns as procedural and interpersonal fairness: There was a significant main effect of the type of comparisons (F = 12.20, p < 0.001) and evaluation valence (F = 82.18, p < 0.001), but no significant interaction (F = 0.07, p = 0.792). As can be found in Table 10 and Fig. 2, participants who received temporal evaluations perceived higher informational fairness (M = 4.80, SD = 1.39) than those who received social evaluations (M = 4.37, SD = 1.34; d = 0.32, t = 3.19, p = 0.002, 95% CI = [0.167, 0.703]). Again, this effect was observed in both the positive and negative evaluation conditions, while positive evaluations leading to higher perceptions of fairness than negative evaluations. Finally, the effect of temporal versus social comparisons was significant controlling for positive and negative valence measures (t = 2.50, p = 0.013, 95% CI = [0.064, 0.528]).

10 Similar to Study 2, we examined whether participants’ gender and age had any significant effects on our results. We thus ran a 2 (Type of comparisons) × 2 (Evaluation valence) × 2 (Participants’ gender) between-subject analyses of covariance with participants’ age as a covariate. We observed only one significant effect, which was a main effect of participants’ gender on interpersonal fairness: Female participants overall perceived lower interpersonal fairness (M = 4.88, SD = 1.54) than male participants (M = 5.19, SD = 1.37; t = −2.14, p = 0.033). Importantly, the statistical significance of the findings reported in this study did not change when we included participants’ gender and age in the analyses.

### Table 9

Descriptive statistics and intercorrelations from Study 3.

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<thead>
<tr>
<th>Variables</th>
<th>M</th>
<th>SD</th>
<th>α</th>
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<tr>
<td>2. Gender (1 = female)</td>
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<td>0.50</td>
<td>0.10</td>
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<tr>
<td>3. Manipulation check: Temporal comparisons</td>
<td>4.15</td>
<td>2.46</td>
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<td>0.04</td>
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<td>4. Manipulation check: Social comparisons</td>
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<td>2.60</td>
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<td>5. Manipulation check: Positive valence</td>
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<td>7. Procedural fairness</td>
<td>5.30</td>
<td>1.59</td>
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<td>8. Interpersonal fairness</td>
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<td>9. Informational fairness</td>
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Note: n = 400. * p < 0.05

### Table 10

Perceptions of fairness and individualized treatment from Study 3.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Procedural fairness</th>
<th>Interpersonal fairness</th>
<th>Informational fairness</th>
<th>Individualized treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Temporal</td>
<td>Social</td>
<td>Temporal</td>
<td>Social</td>
</tr>
<tr>
<td>Positive valence</td>
<td>6.32 (0.91)</td>
<td>5.96 (1.09)</td>
<td>6.02 (0.97)</td>
<td>5.31 (1.31)</td>
</tr>
<tr>
<td>Negative valence</td>
<td>4.78 (1.58)</td>
<td>4.07 (1.57)</td>
<td>4.90 (1.40)</td>
<td>3.93 (1.29)</td>
</tr>
<tr>
<td>Mean values</td>
<td>5.56 (1.50)</td>
<td>5.04 (1.64)</td>
<td>5.47 (1.32)</td>
<td>4.64 (1.47)</td>
</tr>
<tr>
<td>p-values for differences</td>
<td>0.001</td>
<td>&lt; 0.001</td>
<td></td>
<td>0.002</td>
</tr>
</tbody>
</table>

Note: n = 400. Values in parentheses are standard deviations.
correlational nature of the interpersonal fairness whereas social comparisons were not. Given the comparisons were positively related to perceptions of procedural and from their organizations, Studies 1a and 1b showed that temporal comparison evaluations led to higher perceptions of procedural and interpersonal fairness relative to social comparison evaluations.

9. General discussion

8.2.6. Tests of mediation

We tested the mediating effects of individualized treatment in the relationships between the type of comparisons and fairness. We used an R package “mediation” (Tingley, Yamamoto, Hirose, Keele, & Ima, 2015) to estimate the indirect effects with nonparametric bootstrap. The results suggested that perceptions of individualized treatment demonstrated significant indirect effects for all three dimensions of fairness (see Table 11 for results).

8.3. Discussion

In Study 3, we aimed to examine the effects of temporal versus social comparisons that participants actually experienced in an experimental setting. The findings once again indicated that temporal comparisons led to higher perceptions of procedural and interpersonal fairness than social comparisons. Informational fairness was also rated higher in response to temporal than social comparisons. These patterns emerged in both positive and negative evaluations. Moreover, the effects of temporal versus social comparisons on fairness perceptions remained significant even when we controlled for how positive and negative the evaluations appeared to be. Study 3 also provided evidence related to the mechanism underlying these effects. Participants who received temporal comparison evaluations perceived higher levels of individualized treatment than those who received social comparison evaluations, and the higher perceptions of individualized treatment in turn led to higher perceptions of procedural, interpersonal, and informational fairness.

9. General discussion

Taken together, the present studies provide evidence that temporal comparison evaluations led to higher perceptions of procedural and interpersonal fairness relative to social comparison evaluations. Drawing on actual performance evaluations that employees received from their organizations, Studies 1a and 1b showed that temporal comparisons were positively related to perceptions of procedural and interpersonal fairness whereas social comparisons were not. Given the correlational nature of the findings in Studies 1a and 1b, we moved toward establishing a causal relationship between the type of comparisons and fairness perceptions in Study 2 by randomly assigning participants to either the temporal or social comparison condition using hypothetical scenarios. The results of Study 2 showed that temporal comparison evaluations induced perceptions of higher procedural and interpersonal fairness than social comparison evaluations. Study 2 also varied the valence of the evaluation and showed that the effects of temporal versus social comparisons on fairness perceptions emerged across different levels of positivity and negativity emphasized in the evaluations. Moreover, these effects of temporal versus social comparisons were observed even when we controlled for how positive and negative the evaluations appeared to be. In Study 3, we replicated Study 2 findings by having participants receive temporal versus social evaluations in an experimental context. Once again, temporal evaluations led to higher fairness perceptions than social evaluations. Study 3 results also suggested that the differential effects of temporal and social comparisons on fairness perceptions were explained by the extent to which employees perceived individualized treatment from the evaluator.

9.1. Theoretical implications

9.1.1. Temporal versus social comparisons

Whereas the distinction between temporal and social comparisons is not new (e.g., Albert, 1977), most prior research has focused on when and why people instantiate one form of comparisons instead of the other to evaluate themselves (e.g., Butler, 1998; Wilson & Ross, 2001). The present research extended the investigations on temporal versus social comparisons to fairness perceptions. By doing so, it examined the effects of temporal and social comparisons when such comparisons were used by others to evaluate the focal individuals (Levine & Green, 1984; Zell & Alike, 2009).

The evidence from the past and present research indicates that the effects of temporal and social comparisons may depend on the source of the comparisons. Wilson and Ross (2000) showed that people used social comparisons to evaluate themselves when they were motivated to obtain an accurate assessment of themselves. In fact, the accuracy motive was at the heart of social comparison theory that was originally
developed by Festinger (1954). This perspective proposed that individuals have a strong motivation to accurately assess where they stand, and they compare themselves with others to make such an assessment. However, we found that employees who were evaluated by others using social comparisons (instead of temporal comparisons) perceived the evaluations as less accurate (an element of procedural fairness). In other words, individuals may initiate social comparisons to gain accurate information about themselves, but they might perceive lower levels of accuracy when social instead of temporal comparisons are used by other people. Perhaps people prefer to fulfill their need for accuracy on their own (by initiating social comparisons), whereas they may want their need for individualized treatment and respect satisfied by other people (by having evaluators who use temporal comparisons).

9.1.2. Organizational justice

The present research contributes to the organizational justice literature by examining what brings about fairness (Brockner, Wiesenfeld, Siegel, Bobocel, & Liu, 2015). Previous research that investigated the antecedents of fairness focused on when and why decision makers are more likely to enact various principles of fairness (e.g., De Cremer, 2004; Greenberg, 1987; Scott et al., 2009). The dependent variable in the present studies was perceived fairness rather than the enactment of fairness. We are hardly the first to examine fairness-related perceptions. In fact, much of the theorizing in the earlier justice research delineated the attributes that constitute people’s perceptions of being treated fairly. For example, Leventhal et al. (1980) proposed six principles of procedural fairness (e.g., accuracy and bias suppression), whereas Bies (1987) discussed several features of interactional fairness (e.g., being treated in respectful and dignifying manner). The present research builds on these earlier contributions by identifying a factor that influences perceptions of procedural and interpersonal fairness, namely whether the evaluation standards emphasize the self (i.e., temporal comparisons) or other people (i.e., social comparisons).

It is important to note that temporal and social comparison evaluation communications influenced employees’ perceptions of fairness in a rather discriminating way. For example, we did not find that people perceived all elements of procedural and interpersonal fairness to be higher in response to temporal than social comparison evaluations (see Footnotes 1 and 3). Furthermore, in Studies 1a and 1b neither temporal nor social comparisons were significantly related to distributive fairness. The fact that temporal and social comparisons speak to the process through which people were evaluated may explain why the type of comparisons did not have a strong relationship with perceptions of distributive fairness, which refer to the outcome of the evaluations.

While the present research focuses on procedural and interpersonal fairness as the main dependent variables, it also provides evidence that the greater perceived fairness in response to temporal than social comparisons generalizes to informational fairness. We make this statement more tentatively, since we had only one study (Study 3) that incorporated perceptions of informational fairness. Given that informational fairness is the dimension of organizational justice that has received the least attention in previous research (Colquitt et al., 2005), our findings appear to provide useful insight into how perceptions of informational fairness are formed.

9.1.3. Individualized treatment

Study 3 results demonstrated that perceptions of individualized treatment accounted for the relationships between the two types of comparisons and fairness perceptions. Individualized treatment refers to the extent to which evaluators incorporate specific details of employees’ performance. Employees may perceive individualized treatment as emanating from the evaluators’ personal characteristics or from their relationships with the evaluators (or both). In the former case, evaluators can be seen as those who generally take into account specific details to evaluate employees’ performance (“the evaluator does this in general”). In the latter case, the evaluations may be considered to result from personal ties between the employees and the evaluators (“the evaluator does this particularly for me”). These two types of attributions may influence employees’ perceptions of the evaluators. For example, judgments of trustworthiness consist of three dimensions: ability, integrity, and benevolence (Colquitt, Scott, & LePine, 2007). If employees attribute individualized treatment to the evaluators’ personal characteristics, they may think that the evaluators have the capabilities (ability) or character (integrity) to deliver such evaluations. In contrast, a relational attribution of individualized treatment may lead employees to believe that the evaluators have favorable intention particularly toward them, leading to perceptions of high benevolence.

9.2. Practical implications

The present findings have two important practical implications. First, the results of all four studies suggest that one way managers can enhance their followers’ perceptions of fairness in performance evaluations is to ensure that at least some aspects of the evaluations consist of temporal comparisons (Ames & Ames, 1984). Second, our mediation analyses suggested that temporal evaluations were seen as fairer because they signaled to employees that the evaluations were done in an individualized manner (Bies, 1987; Bies & Shapiro, 1987). Such findings imply that when organizations treat their employees in an individualized way in contexts other than performance evaluations, it may help the employees develop more positive job attitudes. For example, Cable, Gino, and Staats (2013) found that new employees who were socialized in a way that enabled them to use their “signature strengths” were more motivated and engaged six months later. One possible explanation of these findings is that employees responded positively when specific aspects of their individual characteristics were recognized and expressed on the job.

Although the present findings suggest that temporal comparisons can be more beneficial than social comparisons as reflected in fairness perceptions, there might be situations in which managers prefer to use social comparisons to evaluate employees. For example, managers may rely on social comparisons to justify the outcomes (e.g., salary increases, promotions) that employees receive (Adams, 1965). Moreover, social comparisons can be used to increase employees’ effort by triggering their competitiveness (Ryan, Koestner, & Deci, 1991). Thus, managers need to assess the tradeoff between the benefits and costs associated with social comparisons and try to ensure that the former outweigh the latter before they initiate a process of comparing employees relative to one another.

9.3. Limitations

The present research has limitations, which set the stage for future research. For example, whereas we consistently found that temporal comparison evaluations led to higher perceptions of fairness, it is theoretically as well as practically important to examine moderating influences on the present findings. That is, under what conditions are the present findings more versus less likely to emerge?

It can be particularly valuable to examine when social comparisons can heighten perceived fairness (Dunn et al., 2012; Novemsky and Schweitzer, 2004). Perhaps social comparison evaluations undertaken in an individualized manner may lead to higher perceptions of fairness. For example, if evaluators clearly have gathered lots of information about the employees they appraise and then use such information as a basis of social comparison evaluations, the employees may find the evaluations to be fair. More generally, given the well-established consequences of employees’ fairness perceptions, it is worth considering what it takes for social comparison evaluations to lead to higher perceptions of fairness.

Study 3 raises additional questions for further research. First, although we attempted to simulate organizational hierarchy by labeling the two roles in distinct ways (“manager” versus “employee”) and
having participants evaluated by the manager, the sense of hierarchy may not have been very salient. It is worth examining whether the present findings generalize to a context in which people experience hierarchy more strongly.

Gender effects might also be relevant to the findings of Study 3. Based on the stereotypical beliefs that female managers should be warm and caring, participants who believed their evaluator to be female might have reacted more negatively to social comparison evaluations. Although participants’ own gender did not moderate the effects found in Study 3, the effects of evaluators’ gender and the potential interaction between participants’ and evaluators’ gender remain unknown.

Finally, it may be possible to improve the measure of the mediator in Study 3. Two of the items referred to the evaluator’s behavior (“Your manager incorporated details about your performance,” and “Your manager took into account specific information regarding your performance”) whereas the third one reflected more of an inference regarding how employees were treated by the evaluator (“Your manager provided individualized feedback to you”). Therefore, the first two items may have captured the behavioral antecedents of the perceptions measured by the third item. It is worth noting that the three items correlated highly with one another (the alpha coefficient was .83). Nevertheless, given the important mediating role played by the construct in Study 3, future research may investigate whether the measure can be improved.

10. Conclusion

Performance evaluations not only provide information on how well employees are doing their jobs, but also signal how the employees are recognized and treated in their workplaces. When individuals in organizations think that their performance is discussed relative to what they did in the past, they tend to think that the evaluators have considered detailed information about their performance compared to other people. In contrast, those who are compared with other people in their evaluations tend to believe that they are being treated as one of the masses whose specific details have not been fully incorporated. These differences between temporal and social comparisons shape perceptions of (a) how much the evaluations adhered to the principles of accurate, unbiased, and ethical procedures and (b) how much the evaluators are providing respectful, dignifying, and polite treatment. This set of evidence has implications for what managers can do to increase the extent to which performance evaluations are accepted by the individuals on the receiving end: use temporal comparisons.

Appendix A. Procedures and results of the initial study (all items were measured using a scale from 1 = not at all to 7 = very much)

A.1. Introduction

Please take a moment to think about a performance evaluation that you received within the last year. For example, you can think about when it happened, what the purpose of the evaluation was, who the evaluator was, how you received the evaluation (e.g., via email or 1-on-1 meeting), etc.

A.2. Manipulation

Temporal comparison condition:
In any event, the evaluation must be one that emphasized how you were evaluated relative to other people’s evaluation. Please think about what comments your evaluator specifically made regarding your performance compared to other people’s evaluations, how your evaluator approached this issue, which aspects of your performance were specifically emphasized, and how you felt about it. Please take 4–5 sentences to describe the performance evaluation situation you have in mind.

Social comparison condition:
In any event, the evaluation must be one that emphasized how you were evaluated relative to other people’s evaluation. Please think about what comments your evaluator specifically made regarding your performance compared to other people’s evaluations, how your evaluator approached this issue, which aspects of your performance were specifically emphasized, and how you felt about it. Please take 4–5 sentences to describe the performance evaluation situation you have in mind.

A.3. Manipulation check

Temporal comparison
How much did the evaluation compare your performance with your previous performance?:

Temporal condition: $M = 5.45, SD = 1.48$
Social condition: $M = 4.45, SD = 1.66$
Difference: $t = 3.91, p < .001$

Social comparison
How much did the evaluation compare your performance with other people’s performance?:

Temporal condition: $M = 4.19, SD = 2.04$
Social condition: $M = 4.68, SD = 1.92$
Difference: $t = -1.52, p = 0.132$

A.4. Evaluation valence

Positivity
How much did the evaluation consider the positive side of your performance?:

Temporal condition: $M = 6.12, SD = 0.99$
Social condition: $M = 5.88, SD = 1.37$
Difference: $t = 1.22, p = 0.223$

Negativity
How much did the evaluation consider the negative side of your performance?:

Temporal condition: $M = 3.23, SD = 1.81$
Social condition: $M = 3.33, SD = 1.81$
Difference: $t = -0.34, p = 0.734$

A.5. Procedural fairness

To what extent do the following statements apply to the procedures associated with the evaluation that you discussed above?
The evaluation was free of bias:

Temporal condition: $M = 5.99, SD = 1.22$
Social condition: $M = 5.38, SD = 1.72$
Difference: $t = 2.46, p = 0.015$

The evaluation was based on accurate information:

Temporal condition: $M = 6.22, SD = 1.02$
Social condition: $M = 5.72, SD = 1.53$
Difference: $t = 2.36, p = 0.020$

The evaluation upheld ethical and moral standards:

Temporal condition: $M = 6.33, SD = 1.11$
Social condition: $M = 5.79, SD = 1.51$
Difference: $t = 2.47, p = 0.015$
You were able to appeal the outcomes arrived at by the procedures:

Temporal condition: $M = 5.34$, $SD = 1.77$
Social condition: $M = 4.86$, $SD = 2.09$
Difference: $t = 1.53$, $p = 0.129$

You were able to express your views and feelings during the evaluation:

Temporal condition: $M = 5.97$, $SD = 1.40$
Social condition: $M = 5.79$, $SD = 1.47$
Difference: $t = 0.76$, $p = 0.449$

You had influence over the outcomes arrived at by the evaluation:

Temporal condition: $M = 5.01$, $SD = 1.68$
Social condition: $M = 4.68$, $SD = 1.95$
Difference: $t = 1.13$, $p = 0.262$

A.6. Interpersonal fairness

To what extent do the following statements apply to the way the evaluation was delivered?

The evaluator treated you with respect:

Temporal condition: $M = 6.56$, $SD = 0.85$
Social condition: $M = 6.35$, $SD = 0.91$
Difference: $t = 1.50$, $p = 0.135$

The evaluator treated you with dignity:

Temporal condition: $M = 6.51$, $SD = 0.82$
Social condition: $M = 6.22$, $SD = 1.14$
Difference: $t = 1.78$, $p = 0.077$

The evaluator treated you in a polite manner:

Temporal condition: $M = 6.53$, $SD = 0.85$
Social condition: $M = 6.27$, $SD = 1.11$
Difference: $t = 1.64$, $p = 0.104$

The evaluator refrained from improper remarks or comments:

Temporal condition: $M = 5.55$, $SD = 2.16$
Social condition: $M = 5.73$, $SD = 1.80$
Difference: $t = -0.57$, $p = 0.572$

Appendix B. Supplementary material

Supplementary data associated with this article can be found, in the online version, at http://dx.doi.org/10.1016/j.obhdp.2018.01.003.

References


