Informational Justice and Remote Working: All is Not Fair for Work at Home

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Abstract
Given the increase in remote working due to the social distancing requirements as part of the response to the Covid-19 Pandemic, the variable of work-from-home has become more salient in the business community. The existing literature squarely places remote working as an antecedent to employee perceptions of Organizational Justice throughout many industries. The same literature presents work from home in a positive frame of reference in a pre-pandemic world. However, in the Covid-19 environment, many perceptions have changed regarding employment. Likely overall perceptions regarding work from home have also shifted because more people engage in the activity. We argue that perceptions of work from home through the frame of reference found in the literature of Organizational Justice have shifted to be more negative. To study this phenomenon, we gathered social media data in comments from a work discussion forum on the Reddit website. We coded the data with an a priori codeset and assigned dummy variables for analysis. The dataset was analyzed via a five-way Factorial ANOVA examining the influences of the four independent variables of Organizational Justice (Distributive, Procedural, Interpersonal, and Informational Justice) and the temporal occurrence of Covid-19 on the sentimental polarity of comments surrounding the topic of work from home. Our findings indicated that Informational Justice significantly contributes to more negative sentiment regarding work-from-home. Additionally, when Distributive, Interpersonal, and Informational Justice and Distributive and Informational Justice interact, sentimental polarity grows more negative for work from home. Discussion of results, implications for practice, and limitations presented.

Keywords Remote working · Organizational justice · Informational justice · Fairness perceptions

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The Problem of Work from Home and Changing Organizational Fairness Perceptions

The Covid-19 (CV-19) Pandemic significantly changed how organizations operate. Since March 2020, work-from-home (WFH) employees have used information technology more often to maintain their connection to the organization (Holst, 2020; Ipsen et al., 2021; Miller, 2021). Historically, remote work (e.g., telecommuting, teleworking) comprised approximately 17% of the United States workforce employees who performed their job duties outside the office setting for five or more days per week. However, within three months of the CV-19 Pandemic, the number of employees within the same market who engaged in teleworking jumped from 17 to 44% (Holst, 2020). The dramatic and sudden shift to remote working (RW) was not without negative consequences. Employees reported feelings of social isolation and increased family-work conflict (FWC) despite experiencing the newfound benefits of autonomy and self-leadership from RW (Galanti et al., 2021).

Beyond the stress and strain from remote working, many employees experienced a disconnected feeling from their manager, workplace, and organization because of how bilateral communication occurred (Dwivedi et al., 2020). Additionally, the experiences during the Pandemic have altered workers’ perceptions of fairness surrounding nearly all aspects of their jobs (e.g., Lee 2021; Li, 2021; Sublett et al., 2021). Therefore, organizations consider changing to hybrid, onsite, or continuing RW as work constraints lift to reap the historical literature-based benefits associated with RW (Miller, 2021). Even though the literature surrounding RW depicts primarily positive outcomes (e.g., Gajendran & Harrison 2007; Golden et al., 2006; Maruyama & Tietze, 2012; Rau & Hyland, 2002), more contemporary studies express increased negative consequences of the same behaviors (e.g., Anderson & Kelliher 2020; Aplin-Houtz et al., 2021; Galanti et al., 2021; Wang et al., 2021). Given the likelihood of the continued use of RW, we argue that stakeholders should plan for any positive or negative changes in employees’ justice perceptions to anticipate alterations in work outcomes.

Furthermore, we argue the need for more exploration of fairness perceptions and RW to understand better how workforce perceptions have altered during the Pandemic. The call for research by Kleinberg et al. (2020) for more extended timeframe sampling of emotional responses and robust modeling to better understand how the emotional content during the Pandemic affects people’s lives strongly supports our argument and this study. Therefore, we propose the following research question: “How has the emotional tone surrounding RW changed because of the CV-19 Pandemic?”

With our sample of comments obtained from anonymous social media posts, this study provides a deeper understanding of how remote workers feel regarding organizational justice in the context of the CV-19 Pandemic. By incorporating qualitative data with quantitative analysis, this study will delve into the sentiment underlying an individual’s perceptions of justice, thus expanding the understanding of organizational justice (Barsky et al., 2011; Bies, 2015; Colquitt, 2001). First, we provide the theoretical background of RW and the four components of organizational justice (distributive justice, procedural justice, interpersonal justice, and informational justice) to provide a framework for data interpretation. Using this framework, we explain the methodology for qualitative data collection and the method for using a priori coding based on the organizational justice literature to conduct an analysis. We will then explain how we used sentiment analysis to assign value to the comments surrounding RW. Next, using the qualitative turned quantitative variables, we conducted a factorial ANOVA to determine if a significant
relationship was present between justice perceptions, comment polarity, and RW. Lastly, we discuss our results, present the discussion, and conclude with future research opportunities.

Foundations in the Existing Literature

Remote Working (RW)

The historical view of RW is primarily positive. Gajendran and Harrison (2007) found positive relationships between RW and job satisfaction, autonomy, stress, performance, and work-family conflict (WFC) in their meta-analysis. This research trend finds positive relationships between RW and satisfaction due to increased flexibility and autonomy, which encourages a reduction in WFC (Golden et al., 2008; Maruyama & Tietze, 2012; Morganson et al., 2010). At the individual level, RW allows employees to balance work and personal obligations (Hill et al., 1998) and potentially reduces WFC (Gajendran & Harrison, 2007; Golden et al., 2006; Maruyama & Tietze, 2012; Rau & Hyland, 2002). Furthermore, RW offers employees the freedom and flexibility to work wherever and whenever desired (Gajendran & Harrison, 2007), exponentially increasing work-related autonomy (Sardeshmukh et al., 2012).

However, contemporary scholarship paints a darker picture of RW. When workers only WFH, they can easily be overworked and have blurred boundaries between home responsibilities in their family role and work duties (Eddleston & Mulki, 2017). Multiple studies argue that the CV-19 Pandemic has only amplified the blurring of boundaries between work and home, causing significant stress and increasing family-work conflict (FWC) and WFC (e.g., Anderson & Kelliher 2020; Aplin-Houtz et al., 2021; Galanti et al., 2021; Wang et al., 2021). RW during the Pandemic resulted in social isolation and increased FWC despite the benefits of autonomy and self-leadership (Galanti et al., 2021; Aplin-Houtz et al., 2021) recently argued that even though WFC has decreased with RW, CV-19 has caused FWC to increase, invoking changes in fairness perceptions of the work/home environment. Therefore, we propose the following:

Hypothesis 1: Sentiment surrounding the perceptions of RW has become more negative in relation to the CV-19 Pandemic.

To further understand the effect of RW on employees, we suggest that RW will impact organizational justice (distributive, procedural, interpersonal, and informational).

Organizational Justice

Organizational justice is described as a four-dimensional concept that includes distributive, procedural, interpersonal, and informational components (Barsky et al., 2011; Bies, 2015; Colquitt, 2001). Perceptions regarding organizational choices are influenced by the belief that decisions are fair or unfair. Previous research indicates perceptions of organizational justice influence work-related attitudes, behaviors, and outcomes (Al-Zu’bi, 2010; Barsky & Kaplan, 2007; Barsky et al., 2011; Latham & Pinder, 2005; Tabibnia et al., 2008). For example, work outcomes affected by justice perceptions include trust (Cohen-Charash & Spector, 2001; DeConick, 2010; Hubbell & Chory-Assad, 2005), performance, job satisfaction,
organizational commitment, organizational citizenship behaviors, counterproductive work behaviors, absenteeism, turnover, and emotional exhaustion (Colquitt, 2001).

The literature concedes emotion impacts how one perceives organizational justice. For example, in a study by Janssen et al. (2010), the authors found emotional exhaustion was indirectly impacted negatively in the absence of high levels of positive affect. However, when positive affect was low, the authors found that emotional exhaustion intensified. These results signify that the emotional language in comments that address organizational justice likely has not only an emotional tone, but the emotional tone will be negative if justice perceptions are low. Additionally, the negative emotion expressed in comments likely results from emotional exhaustion. Pérez-Rodríguez et al. (2019) also found negative emotion statistically significant in mediating the relationship between perceptions of organizational justice and well-being. However, the authors did not find the same relationship with positive emotion for distributive justice perceptions. Moreover, in a study by SimanTov-Nachlieli and Bamberger (2021), the authors found that negative emotions associated with elements of organizational justice potentially elicited by perceptions of unfairness can drive counterproductive workplace behaviors against both organizational agents and innocent coworkers.

**Distributive Justice** Distributive justice encompasses the cognitive interpretation and judgment of how organizational resources (e.g., salaries and time allocation for tasks/projects) impact fairness perceptions (Cohen-Charash & Spector, 2001; Colquitt, 2001; McFarlin & Sweeney, 1992; Forsyth, 2018) presented that justice perceptions are understood through the lens of five distributive norms: equality, equity, power, need, and responsibility. Among these five norms, each perception of distributive justice is compared to one’s values against how the organization rendered resources. For example, in equality, an employee believes all peers should be given equal shares of the rewards/costs for all uses of organization resources. For equity, employee value lies in the belief that resources should be dispersed based on the weighted value of the input to the organization. When power is the employees’ value perception, they believe the amount of authority, status, or overall organizational control should receive more resources. Finally, employees value distributing resources based on employee needs via the need norm. Conversely, in the responsibility norm, employees believe those with the most resources are responsible for sharing them with those who have less (Forsyth, 2018).

Arguably, the scarcity, allocation, withdrawal, and uncertainty surrounding organizational resources during the CV-19 Pandemic have caused friction within employee perceptions of organizations. Therefore, we propose the following:

**Hypothesis 2:** Sentiment surrounding the perceptions of distributive justice for workers has become more negative in relation to RW.

**Procedural Justice** Procedural justice concerns how one perceives the ethics of implied or inferred bias, the representation of stakeholders in organizational culture/actions, and the accuracy and correction of issues that arise in the processes adopted or observed by an organization (Leventhal, 1980). Through the lens of procedural justice, employees cognitively interpret and judge how an organization implements protocols and procedures for job tasks (Cohen-Charash & Spector, 2001; Colquitt, 2001; McFarlin & Sweeney, 1992).
Currently, there are four accepted models for how employees interpret and weigh perceptions of procedural justice: the outcomes model, the balancing model, the participation model, and the group engagement model. In the outcomes model, employee perceptions of justice are weighed against the final effort put into an organizational task (McFarlin & Sweeney, 1992). For the balancing model, the equitable allocation of how each employee must go through processes and procedures leads to justice perceptions (Solum, 2004). Finally, in the participation model, fairness perceptions are weighed against employees being given equal opportunity to access or impact how each employee participates in organizational processes (Cohen & Wills, 1985; Earley & Lind, 1987). Derived from Social Identity Theory (Tajfel et al., 1979), the group engagement model asserts that a group’s procedural justice process influences employees’ identification with the organization, influencing their type of engagement within the group (Tyler & Blader, 2003). Considering that many workers were forced to WFH due to restrictions of social distancing during the CV-19 Pandemic (Holst, 2020), many organizational procedures had to change to accommodate WFH. The stress associated with frequent changes in how one’s job was performed impacted employee health and fairness perceptions. Therefore, we propose the following:

Hypothesis 3: Sentiment surrounding the perceptions of procedural justice for workers has become more negative in relation to RW.

Additional work outcomes affected by justice perceptions include job satisfaction and organizational commitment. Both job satisfaction and organizational commitment have a positive relationship with justice perceptions, mainly procedural justice (Al-Zu’bi, 2010; Cohen-Charash & Spector, 2001; DeConick, 2010), as well as procedural, distributive, and interpersonal justice interacting with organizational citizenship behaviors (Cohen-Charash & Spector, 2001; DeConick, 2010; Karriker & Williams, 2009) and counterproductive work behaviors (Zoghbi-Manrique-de-Lara & Verano-Tacoronte, 2007). Furthermore, given the strong negative relationship between employee perceptions of procedural and distributive justice and employee performance (Cohen-Charash & Spector, 2001; Karriker & Williams, 2009), RW may also affect this justice-performance relationship given the potential increase in ambiguity due to the increased use of RW (DeConick, 2010).

Interactional Justice as Interpersonal Justice and Informational Justice Interactional Justice focuses on the social exchange amongst individuals instead of the actual processes through which decision outcomes are derived (Bies, 1986; Colquitt, 2001) proposed segmenting interpersonal justice and informational justice into two separate components of organizational justice because of their marked differences in how employees perceive overall justice in an organization. He presented that interpersonal justice refers to perceptions of the treatment and level of respect experienced by employees during organizational interactions. In contrast, informational justice relates to the adequacy of the explanations given in timeliness, specificity, and truthfulness of information communicated to the employee. Both constructs deal with the work environment. Huang et al. (2017) postulated that a just work environment naturally occurs when one possesses the traits of being conscientious and agreeable. The authors contend that an employee’s likeability can be the limiting factor that defines the perceived justice for that employee. Matta et al. (2017) argue that when a manager possesses the trait of self-control, there is less overall perceived unfairness in their subordinates.
Considering responsibilities and expectations, psychological demands, and organizational policies and activities as antecedents of WFC, Judge and Colquitt (2004) argued that stress within the perception of workplace procedural and interpersonal justice mediated WFC. In other words, employees manage the crossroads of their work and family lives with less stress, given a just organizational environment. Matta et al. (2017) found daily stress-mediated justice variability for job dissatisfaction and emotional exhaustion.

During the movement from in-person working to more RW because of the social distancing requirements of the CV-19 Pandemic, the stress of frequency changes by organizations regarding communications of what was required for job duties was deeply felt by many employees (DeFilippis et al., 2020). Therefore, we propose the following:

Hypothesis 4: Sentiment surrounding the perceptions of interpersonal justice for workers has become more negative in relation to RW.
Hypothesis 5: Sentiment surrounding the perceptions of informational justice for workers has become more negative in relation to RW.

Hypothesized Model

To answer the research question, “How has the emotional tone surrounding RW changed because of the CV-19 Pandemic” we will explore each proposed hypothesis through the model found in Fig. 1. Owing to the literature reviewed indicating that the constructs

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Fig. 1  Hypothesized model
explored each impact fairness perception, our model evaluates the statistical significance of variance of how each construct relates to the relative positive or negative tone of emotion regarding RW. Considering our hypothesized model can be applied to most work environments, and no prior studies have been conducted with our proposed model, we argued that sampling a general population of workers outside of the work environment would be the best way to evaluate the broad aspects and relationships of each variable.

Most current fairness studies explore individual perceptions of fairness with organized empirical studies using tools such as psychological constructs in surveys and various levels of structured interviews that limit understanding of how the findings directly impact remote workers in real-world situations. Even though the data collection methods of the existing literature carry high levels of validity and drive theory on how fairness impacts organizational and individual outcomes, they all have the limitation of the researcher inadvertently imposing bias via Hawthorn/secondary observer effects by being an unintended actor for the discussing of these topics of fairness because people often behave and respond differently when they are not aware they are being observed in real-world settings (Breznau, 2016; Fontana & Frey, 2005). The same questions researchers ask a remote worker in their study likely would be answered differently when remote workers discuss the same topics of fairness at home and in the workplace with their peers. Therefore, we argue that exploring social media comments has the potential for capturing the emotional content associated with their perceptions of the proposed hypotheses without the bias of sampling the population of workers directly with traditional sampling methods.

**Method**

**Scraping the Surface of Public Sentiment About RW**

We purposely chose for data collection the social media site Reddit because it allowed us to investigate people’s emotional content behind the topic of RW. Our rationale for using social media data collection compared to other methods was based on the logic that people are more comfortable discussing concerns in an online forum than in face-to-face interactions (Johnson & Ambrose, 2006). As core functions of Reddit, the strength of submission anonymity and sharing of more structured text-based posts lend to more open comments when compared to platforms such as Facebook and Twitter (Foufi et al., 2019). Reddit boasts over 50 billion views from over 50 million visitors daily to the 100,000 subreddit communities (Reddit, 2021). In particular, the Reddit subforum (i.e., subreddit) Work (r/work), in which work-related discussions occur, boasts over 28,000 subscribers (Reddit, 2021). Considering that these metrics exhibit external validity by providing a robust data collection opportunity, we argued that r/work should offer the appropriate information to answer our research question. Furthermore, using public content via Reddit disallowed the need for a populational study. By focusing only on the textual content of comments, we concentrate on emotional expression and not the authors’ identity.

Utilizing R Studio and the reditextextor package, we extracted the dataset with the following parameters: comments including the search terms “Work from home”, “remote work”, “mobile work”, and “telecommute.” Utilizing Ferrero’s (1894) Principle of Least Effort, a theory that postulates people are parsimonious in communication attempts, and Zipf’s Law (1949), we argue that this community (r/work) utilizes the above search terms to explain the emotion surrounding RW perceptions. In a study by Newman (2005), the
author argued that the mathematical ability to measure the occurrence via power laws (e.g., Zipf’s Law) is not isolated solely to the frequency of words or emotions. Instead, Zipf’s law is frequently utilized in measuring and forecasting the magnitude of earthquakes, the intensity of wars, the intensity of solar flares, and the populations of cities. Therefore, the mathematical relationships in word frequency and emotional content naturally occur on par with other natural and social environmental occurrences. The principle of least effort and Zipf’s law have been used in studies by multiple scholars to explain the emotional content of words used to convey the parsimonious meaning in language (e.g., Guo et al., 2020; Scherer & Ellgring, 2007; Vine et al., 2020). Therefore, the extracted dataset is appropriate for answering the research question.

The acquired dataset resulted in a single raw data file comprising 5,459 comments from October 10, 2010, to August 14, 2021. We removed 1,499 duplicate comments, resulting in a total dataset of 3,960 comments. No date-range change was made in the deletion of duplicate comments. Therefore, the mean comment per date in the dataset was 6.083 (SD = 7.425). The creation of comments came from 1,525 unique users with a range of one to 68 comments per user (M = 2.595, SD = 6.476). Additionally, the dataset included 210 comments from users with (Deleted) as a username. Please see Table 1. for the available descriptive statistics for the comment and user data.

From Comments to Concepts – Processing the Data

Sentiment Analysis Considering the technical requirements of sentiment analysis necessitated the filtering of terms to avoid distortion during data analysis and processing, the extracted dataset was filtered using the following steps proposed by Meyer et al. (2008).

After pre-processing, we analyzed the data using sentiment analysis to determine the themes and relationships present in the dataset. To improve the accuracy of determining sentimental polarity, we chose to analyze at the entire comment level and not at the word level. We used the sentimentR package as suggested by Naldi (2019). SentimentR also allows for establishing the quantified relationship between emotional content and the descriptive elements of the comments within the extracted dataset. We chose this method to develop a quantified relationship between emotional content within the descriptive

| Table 1 Breakdown of comments and unique users |
|-----------------------------------------------|
| Comment frequency | Total comments | % | Unique users | % |
| 1–10 * | 2999 | 75.73% | 1484 | 93.92% |
| 11–20 | 435 | 10.98% | 32 | 4.37% |
| 21–30 | 147 | 3.71% | 6 | 0.39% |
| 31–40 | 1 | 0.76% | 1 | 0.07% |
| 41–50 | 0 | 0.96% | 0 | 0.00% |
| 51–60 | 0 | 0.00% | 0 | 0.00% |
| 61–70 | 131 | 3.31% | 2 | 0.13% |
| 210 | 210 | 5.30% | **1 | 0.07% |

N = 3,960 comments. M = 127.74 (SD = 185.98), 1,525 unique users.

*Users with one comments = 865. ** Users with (Deleted) username = 210.
elements of each comment from Reddit. The package assigns a positive, negative, or neutral emotional tone value based on the sentimentality lexicon. With the numerical value set based on the lexicon in tandem with categorical presence (also represented numerically), we postulate that we can determine the presence of themes and relationships present in the Reddit comments to help answer our research question.

Making Sense of the Sea of Comments

A Factorial ANOVA was conducted to compare the main effects of organizational justice perceptions, the temporal inclusion of CV-19, and sentimental tone in comments associated with “work from home” and the interaction effect among all variables. All assumptions were met for ANOVA modeling, including a Levene’s test score of 0.133 for the mean and 0.269 for the median.

Categorizing Comment Content

Our literature review established a coding scheme for synonyms associated with the four dimensions of organizational justice. Dummy variables were assigned based on the presence of the below synonyms (0 = absence of the synonym, 1 = presence of the synonym). In other words, if the word could be associated with one of the organizational justice factors, we coded with a 1 because the word indicated the presence of one of the factors was taking place in the comment. Please see below in the “Variables” section for each word that presented as a synonym for the factors of organizational justice. Additionally, a dummy variable was assigned to the temporality of CV-19 as it connected to the dataset (0 = Dates before 3/11/2020, 1 = Dates after 3/11/2020).

Variables

Distributive Justice (DJ) “Pay”, “money”, “salary”, “promotion”, “per hour”, “an hour”, “wage”, “earn”, “income”, “financial”, and “paid” were used to evaluate if Distributive Justice elements were present in the dataset. We purposely chose these words because the literature strongly isolates that distributive justice surrounds aspects of pay. Therefore, we decided to code words that were common in the comments that addressed elements associated with the pay one received as part of their work.

Procedural Justice (PJ) “Process”, “procedure”, “policy”, “method”, “system”, and “operation” were used to evaluate if Procedural Justice elements were present in the dataset. Considering that procedural justice addresses how one perceives the fairness associated with the process of doing one’s job or how just the procedure/policy is applied throughout the workforce, we believe that the above words indicate that the User were expressing emotional content in the realm of procedural justice.

Interpersonal Justice (IPJ) “Accommodate”, “support (not tech support)”, “understanding”, “PTO”, “time off”, “respect”, “treat”, and “treatment” were used to evaluate if Interpersonal Justice elements were present in the dataset. Overall, the literature concedes that interpersonal justice addresses how one perceives how fair a situation is through the lens of how one is uniquely treated or observes others are treated with respect. Considering that the above words
associate with giving personal accommodations or addressing how one perceives treatment by others in the workplace, we believe that the coding scheme captures the relative essence of interpersonal justice.

**Informational Justice (INFO)** “Information”, “communication”, “memo”, “communicate”, and “explain” were used to evaluate if Informational Justice elements were present in the dataset. We purposely chose these words in our coding scheme because they associate with communication and the exchange of information. After all, informational justice addresses the perception of how well the individual feels that information is communicated.

**Sentiment Polarity** The package sentimentR assigned a positive sentiment value of +0.01 or larger, whereas negative sentiment was given −0.01 or less. A value’s higher polarity—connected with being either more positive or negative—was indicated by how far from zero it was. Words or phrases without an emotional association were identified and given a neutral value from the analysis. For example, the words “sad”, “hate”, “mad”, or “angry” would be assigned a negative polarity. Conversely, words like “like”, “love”, “happy”, “smile”, or “joy” would be assigned a positive polarity. Neutral words include terms like “hello”, “are”, and “have”. Considering that we used the package sentimentR, we did not code at the individual word level to improve the quality of the analysis. Terms like “not good” would be assigned a value of -1 for “not” and +1 for “good” in word-level sentiment analysis resulting in an overall zero score for the phrase “not good”. Instead, in the package sentimentR, “not good” would be assigned a score of -1 because the meaning/emotional content of the words indicates that an overall negative situation is being described.

**CV-19** The delineating date for CV-19 involvement was March 11, 2020. We chose this date because it was the first time any mention of CV-19 occurred in the data set. In addition, this date coincides with the global shutdown associated with the Pandemic and the subsequent mass exodus from in-office work. Therefore, we coded dates before March 11, 2020, with a zero and dates after with a 1.

**Deeper Meanings Gleaned Through Analysis**

**ANOVA Analysis**

A five-way analysis of variance was conducted on the influence of four independent variables (distributive, procedural, interpersonal, and informational justice) and the temporal occurrence of CV-19 on the sentiment polarity of comments surrounding the topic of WFH to test the five hypotheses outlined earlier in this paper. To aid in testing each hypothesis, all organizational justice variables included two levels: the absence of coded words associated with the element of organizational justice and the presence of the same element. Similarly, the CV-19 variable had two levels: the comment date before March 11, 2020, and comments after March 11, 2020. All effects were non-statistically significant at the 0.05 significance level except for the informational justice (INFO) factor (F (1, 3957) = 4.661, p < .031), which yielded an effect size of 0.001, indicating 0.1% of the variance in sentiment polarity was explained by words associated with informational justice perceptions. In addition, when evaluating the polarity of comments related to “work from home,” the presence of informational justice terminology (M=-0.246) was less than the absence of
informational justice terminology ($M=-0.127$). This result supports the proposed hypothesis 5, indicating that INFO significantly impacts RW and causes more negative comments surrounding the topic.

The non-significant main effects were DJ ($F(1, 3957)=2.698$, $p<.101$), IPJ ($F(1, 3957)=2.633$, $p<.105$), PJ ($F(1, 3957)=0.739$, $p<.390$), and Covid ($F(1, 3957)=0.172$, $p<.679$). These non-significant results indicate there is no support for hypotheses 1–4.

When evaluating the interaction effect, two significant relationships were found: distributive justice (DJ)*interpersonal justice (IPJ)*INFO ($F(1, 3957)=6.422$, $p<.011$) and DJ*INFO ($F(1, 3957)=5.601$, $p<.018$). The presence of DJ, INFO, and IPJ terminology ($M=-0.691$) was less than the same variables’ absence ($M=-0.126$). The presence of DJ and INFO terminology ($M=-0.386$) was less than the absence of the same variables ($M=-0.151$). These indirect effects indicate that when multiple dimensions of organizational justice are combined, sentiment regarding RW dramatically decreases (Figs. 2, 3, and 4).

All other interaction effects were non-significant: DJ*PJ ($F(1, 3957)=2.726$, $p<.099$), DJ*IPJ ($F(1, 3957)=3.205$, $p<.073$), DJ*PIJ ($F(1, 3957)=2.574$, $p<.073$), DJ*Covid-19 ($F(1, 3957)=0.255$, $p<.613$), PJ*INFO ($F(1, 3957)=0.311$, $p<.577$), PJ*IPJ ($F(1, 3957)=0.751$, $p<.386$), PJ*Covid-19 ($F(1, 3957)=0.020$, $p<.888$), PJ*PJ ($F(1, 3957)=2.027$, $p<.155$), IPJ*Covid-19 ($F(1, 3957)=0.322$, $p<.571$), INFO*Covid-19 ($F(1, 3957)=0.376$, $p<.540$), DJ*PJ*IPJ ($F(1, 3957)=2.130$, $p<.145$), DJ*PJ*INFO ($F(1, 3957)=2.079$, $p<.149$), DJ*PJ*Covid-19 ($F(1, 3957)=0.312$, $p<.576$), DJ*INFO*Covid-19 ($F(1, 3957)=1.101$, $p<.294$), PJ*IPJ*INFO ($F(1, 3957)=0.106$, $p<.744$), PJ*IPJ*Covid-19 ($F(1, 3957)=0.000$, $p<.986$), PJ*INFO*Covid-19 ($F(1, 3957)=0.003$, $p<.606$).

![Fig. 2 Interaction effect of distributive justice and informational justice describing a dramatic decrease in comment polarity when synonyms of distributive justice and synonyms of informational justice occur concurrently](image-url)
Fig. 3 Interaction effect of interpersonal and informational justice when distributive justice is not present

Fig. 4 Interaction effect of interpersonal and informational justice when distributive justice is present
describing comment polarity dramatically becomes more negative

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DJ*PJ*IPJ*INFO (F(1, 3957) = 1.912, p < .167), DJ*PJ*INFO*CV-19 (F(1, 3957) = 1.827, p < .177), DJ*IPJ*INFO*CV-19 (F(1, 3957) = 0.030, p < .862), DJ*IPJ*INFO*CV-19 (F(1, 3957) = 0.007, p < .932), indicating no combined effect for any variables on polarity. Hypotheses 1–4 are not supported, indicating no significant relationship exists with the other dimensions studied.

**Comments Examples of Coding**

To ensure quality coding in the prior “Method” section and to capture the thematic richness of the phenomenon of remote working in the everyday lives of the users who provided comments for analysis, we evaluated three themes from the significant findings: (1) when a user commented about remote working, informational justice perceptions were overall negative in tone, (2) when discussing remote working, users employ the lens of Distributive Justice to explain how they understand or cope with poor informational justice perceptions, (3) when there is a negative perception of informational justice in an organization, there is also similar perceptions of negative for interpersonal and distributive justice.

The comments from Reddit often were responses to another user experiencing a problem because of remote working and not targeted answers to questions as found in interviewing. Even though the comments were not structured as with traditional data collection in the qualitative realm for perceptions by individual participants, the users expressed their views as though they were explaining to a coworker/peer ways to circumvent a problem. We also acknowledge that there were multiple comments from users who expressed having only positive experiences with remote working. However, the negative experience occurred more frequently in our dataset.

Theme 1: Negative Tone with Remote Working and Informational Justice perceptions

“If they say x, and I say y, and they respond z, should I go with a or b? Press them for details, get them to do their work. Ask them for flowcharts, demand details, and do all of this with the genuine want of bettering yourself at your job…. They are informed of what you should know. They need to impart it. It’s not wrong to ask for praise by phrasing it as ‘and if I say z, this is correct isn’t it?’ If it is, and they blame you for it, that’s on them.’”

When the above Reddit user described how communication in a remote working situation is not always clear, the user illustrated how the lack of clarity can easily cause changes in informational justice perceptions as though they had experienced a similar situation before. As with any workplace, the interactions a worker experiences among small groups and individual communications require skills like negotiation, interpretation, and listening to effectively accomplish job duties (Darling & Dannels, 2003). However, even if an employee possesses the skills needed to navigate workplace communication, the employee does not always perceive communication as fair. Mazzei and Ravazzani (2011) argued that even though companies may plan to provide excellent communication, there is often a misalignment between employee and the company. The authors argued that this misalignment causes the employee to complain about the lack of listening, the absence of clarity of messages, the poor experience of hierarchical communication, and outwardly accusing the company of opportunism. Please see Table 2 for other quote examples of this theme.

**Theme: Distributive Justice Lens to Explain Poor Informational Justice Perceptions** User responding to another user about dealing with an informational justice issue in
| How Informational Justice Impacts Remote Working | Example quote |
|------------------------------------------------|---------------|
| User offering advice to users about dealing with an informational justice issue in their workplace | ‘If they say x, and I say y, and they respond z, should I go with a or b?’ Press them for details, get them to do their work. Ask them for flowcharts, demand details, and do all of this with the genuine want of bettering yourself at your job.... They are informed of what you should know. They need to impart it. It’s not wrong to ask for praise by phrasing it as ‘and if I say z, this is correct isn’t it?’ If it is, and they blame you for it, that’s on them. |
| User identifying another user’s perception of negative Informational Justice and offering advice | It sounds like the person you report to is not giving you the information you need to do the very best work you can and creating a hostile work environment. So, if you can’t get her to be more responsive, you may have to make a complaint and get help. |
| User asking for clarification and offering an interpretation of another user’s perception of negative Informational Justice | I am not sure what problem you are trying to solve. Are you trying to get clarification on how to do a task that is unclear, or are you asking if it is acceptable to phone it in because your manager is phoning it in? I think more information is needed. You say when you ask for directions, your manager ignores you. Does your manager ignore you BECAUSE you asked for directions or does your manager usually ignore you? Is your manager annoyed that you asked for directions or just busy / doesn’t think your question is important? Are you asking for directions that have already been provided or can easily be looked up? Do others struggle with the same ambiguity? Do you have any special needs we should be aware of (like Asperger’s or sensitivity?) that would require gentler handling or more precise directions? How important are these tasks? |
their workplace answer explaining how lower perceptions of Informational Justice through bad communications cause conflict in the workplace (WFH implied) and indicates unfair distributive justice practices also cause frustration. In other words, the users appear to have a more negative tone in their comments when talking about poor communication and compensation. This negative tone may be due to the presence of pay secrecy policies in the organizations the commenter works for because the emotion for workers in organizations where pay secrecy policies appeared to be buffered with other negative emotions. For example, scholars recently found that cynicism (the negative affect surrounding one’s work) can ease the relationship between negative perceptions of pay secrecy policies and workplace ostracism (Aplin-Houtz et al., 2022). We may be observing Aplin-Houtz et al.’s findings and providing deeper support for their conclusions. Please see Table 3 for examples of this theme.

Theme: Where There are Poor Informational Justice Perceptions, There are Similar Issues with Interpersonal and Distributive Justice Perceptions

In other words, when there is poor communication, the emotional content will be negatively buffered if there is also topical coverage of pay and a lack of respect perceived by the worker. This theme indicates that the other factors of organizational justice (sans procedural) likely amplify the intensity of negative sentiment in an environment of perceived low informational justice. Please see Table 4 for example quotes to support this theme.

Discussion

The research of Hill et al. (1998) shows RW benefits both organizations and employees in the form of cost reduction in organizational overhead from brick-and-mortar offices and reduced employee commuting time. However, one may question the worth of that cost reduction compared to the potential negatives that may occur if RW is not managed effectively (Galanti et al., 2021). One of the most important conclusions to be drawn from our research is that, except for one factor of organizational justice, there has been a general shift toward more positive sentiment regarding fairness perceptions. This finding suggests that, in most RW management situations, the potential challenges associated with managing RW may result in less negative perceptions of organizational fairness. In the following paragraphs, we break down how the non-significant and significant findings of our study can be explained to advance our theoretical understanding of how fairness is potentially interpreted for remote workers.

When evaluating Hypothesis 1: Sentiment surrounding the perceptions of RW has become more negative in relation to the CV-19 Pandemic, we were surprised by the non-significant result in our analysis because the current literature paints the perception of fairness with very dark colors in how workers interpret the workplace with the CV-19 pandemic (e.g., Anderson & Kelliher 2020; Aplin-Houtz et al., 2021; Galanti et al., 2021; Wang et al., 2021). Moreover, when considering the source of our sampling, we theorized that the sentiment would be overall negative because people are considerably more inclined to report unpleasant experiences than favorable ones in social media discussions than in face-to-face interactions (Johnson & Ambrose, 2006). However, our results indicate that the experience of the CV-19 pandemic was not as dire as the literature paints concerning RW. We may be observing the perceived benefits of flexible work and RW in increased autonomy and decreased work-family conflict (WFC). Specifically,
RW allows workers to balance professional and personal commitments (Hill et al., 1998) and may decrease WFC (Gajendran & Harrison, 2007; Golden et al., 2006; Maruyama & Tietze, 2012; Rau & Hyland, 2002). Additionally, remote employment grants staff members the adaptability and freedom to work whenever and wherever they choose (Gajendran & Harrison, 2007), thus improving work-related autonomy (Sardeshmukh et al., 2012). With our non-significant finding, we contend that the comments and subsequent lack of increased negative polarity may be explaining workers are juggling WFC more effectively because of the increased use of remote and flexible work in the post-Covid-19 environment.

In evaluating the meaning behind the non-significant results of Hypothesis 2: Sentiment surrounding the perceptions of distributive justice for workers has become more negative in relation to RW, we were again intrigued. In light of the “great resignation” mostly occurring in response to pay inadequacy (Aplin-Houtz et al., 2022; De Smet et al., 2022; Thomas et al., 2021), we expected to find a statistically significant sample of people discussing negative perspectives of distributive justice. However, we may be observing that the negative sentiment associated with the great resignation was related to onsite work and not in RW environments. Owing to our sampling gathering comments associated with RW, we did not capture the potential negativity related to onsite work. Thus we could not ascertain the amount of variance between the constructs outside the scope of RW.

### Table 3  The interaction between informational and distributive justice negatively effecting remote working theme examples extracted from coding to validate findings

| How the interaction of Informational and Distributive Justice Impacts Remote Working | Example quote |
| --- | -- |
| User responding to another user about dealing with an informational justice issue in their workplace | I’m upwards of a year into my position and it’s an identical scenario, would be excelling at my job if it weren’t for my boss trying to control/manipulate every little granular detail with counterproductive processes and nonsense, holds a ceiling over my head by doing so as he is also a gatekeeper in regards to withholding vital information from me. I literally hate it, have another job on the line right now and it’s also work from home, couldn’t care less if I’m taking a pay cut either. |
| User explaining how lower perceptions of Informational Justice through bad communications cause conflict in the workplace (WFH implied) and indicates a unfair distributive justice practices also cause frustration. | The worst thing is having bad communication in the workplace. Mistakes everywhere and waste of time. Everywhere. I’d just give up and say it straight. It’s a workplace not your grandmother’s birthday party. Things need to get done as well as possible. And asking for opinions and not listening is really normal for managers (in my case anyway). It’s like they want to know what they don’t or do want but can’t figure it out until someone starts throwing ideas at them. It’s so annoying, but they’re processing ultimately. Plus to be honest, I hate it when I provide most of their ideas, and they go into meetings taking most of the credit and doing none of the work. They get paid more for a reason. |
In contrast to the RW setting, employees can much more readily notice instances where they are compensated or provided resources related to their job that are negatively perceived when they work onsite. Comparing certain aspects of ourselves (such as our conduct, ideas, position, and achievements) to those of others in order to construct a more accurate assessment of ourselves is known as a social comparison (Buunk & Gibbons, 2007; Wood, 1996). According to the social comparison theory, individuals utilize upward and downward comparisons to assess their social status (Brown et al., 2007; Gerber et al., 2018). In upward comparisons, the comparison target is thought to be in a better position than the comparer, but in downward comparisons, the target is thought to be in a worse position (Gerber et al., 2018). When combining social comparison theory with equity theory through the lens of distributive justice perceptions, workers often negatively observe elements such as pay (Aplin-Houtz et al., 2022). Considering that employees with strong
perceptions of justice are more likely to use assimilative comparisons when making upward comparisons about the distribution of resources like pay, those employees with a low sense of fairness are more likely to use contrastive comparisons because they will feel powerless over how resources are handled or communicated in their job. Upward contrastive comparisons can arouse sentiments of enmity and rage, whereas downward contrastive comparisons can arouse feelings of superiority (Brown et al., 2007; Smith, 2000). Employees who engage in downward comparisons are more likely to create assimilative comparisons because they have a low sense of fairness and think that identical conditions could result in their misfortune. Negatively comparing oneself can make an employee depressed and sad (Brown et al., 2007; Smith, 2000). Employees with a high sense of justice will make downward contrastive comparisons because they think people with lower salaries should be paid less for just reasons. Considering that the literature supports that both upward and downward comparisons raise negative emotions, our findings indicate that distributive justice perceptions in our sample differ from the reviewed literature. Because the above-reviewed research’s data samples were primarily onsite workers, we argue that our findings advance distributive justice theory by providing evidence that remote workers perceive distributive justice differently than onsite workers. We rationalize that our sample likely does not have the same opportunity to use upward or downward comparisons in the remote environment as onsite workers because they may not have the opportunity to observe situations where there is a disparity of pay or other distributions of resources. Truly, the disparities still exist in RW. However, we theorize that the workers in a remote setting may not be observing inequality and thus do not have increased negative sentiment regarding distributive justice perceptions.

In a similar vein as Hypothesis 1, the non-significant findings of Hypothesis 3: Sentiment surrounding the perceptions of procedural justice for workers has become more negative in relation to RW can be explained by the flexibility of RW and the unique way remote workers perceive and interpret procedures. The RW environment carries the flexible work benefit of doing work duties/tasks when an employee desires rather than at a specific time. We may be observing that remote workers have less negative sentiment regarding perceptions of procedural justice because the fairness perceptions are mediated by the autonomy and relative flexibility in RW. Through the lens of the participation model in procedural justice, remote workers may not have as salient fairness perceptions as onsite workers because remote workers do not have the same opportunity to weigh comparisons against other employees being given equal opportunity to access or impact how each employee participates in processes for the organization (Cohen & Wills, 1985; Earley & Lind, 1987). After all, remote workers are more concerned with the procedures and policies that impact how work is done in their environment, not the organization.

Furthermore, we argue that through our sample discussing RW with other RW employees, we add to theory associated with the group engagement model (Tyler & Blader, 2003) by suggesting remote workers identify differently from onsite workers. In that, RW employees compare their in-group status to other remote workers more directly rather than in comparison with onsite workers. Moreover, we argue that for remote workers, identification with the organization is potentially less important than identifying with other remote workers.

In regards to Hypothesis 4: Sentiment surrounding the perceptions of interpersonal justice for workers has become more negative in relation to RW, the non-significant result indicates that the need for being treated fairly and with respect may not be as salient as an individual construct in sense-making and fairness perceptions for remote workers. As with the other hypotheses outlined above, there is a theoretical difference between how
remote and onsite workers interpret unfair circumstances or environments. The worker can choose where to complete work-related activities in the physical remote work environment. The fundamental ability to choose where and, in some cases, when and how to work is processed differently in a remote environment for one’s interpersonal justice perceptions because the worker feels they are granted respect for their time and autonomy. Therefore, workers in remote settings likely give less salience to interpersonal justice perceptions.

Based on the significant effect of informational justice and sentiment, we found support for Hypothesis 5: *Sentiment surrounding the perceptions of informational justice for workers has become more negative in relation to RW*. This finding indicates that the sentiment surrounding informational justice perceptions has become more negative with regard to RW. From a practical perspective, perceptions of negativity have increased regarding WFH when work-related information is lacking. There appears to be a disconnect between the office and the remote worker because of the absence of information. Our findings indicate that out of the four factors of organizational justice, informational justice appears to be the most salient for remote workers. This potential moderating effect of information on the relationship between RW and informational justice is an interesting development given the focus of previous research identifying the communication relationship between supervisor and employees, either by frequent exchanges or infrequent but significant interactions (Aggarwal-Gupta & Kumar, 2010), or the level of trust employees hold regarding management (Seok-Young, 2019). Recently, Huy and Liyao (2021) defined informational justice as fairness perceptions of a manager’s decision-making justification based on whether or not the employee believes the information to be honest. Our significant finding indicates that remote workers likely have enhanced negative informational justice perceptions because the isolation and lack of connections to the organization, ordinarily present in on-site work, instill potential distrust of management. We contend that the workers do not perceive they are given all of the necessary information to accomplish organizational tasks and connect to the organization’s culture. Unlike the situation where we theorize RW minimizes upward and downward comparisons of distributive justice, we argue that there is the potential for remote working employees to more readily engage in comparison to onsite workers resulting in increased negative perceptions of informational justice.

Owing to Colquitt’s (2001) argument that the individual factors of organizational justice rarely occur without interaction with the other factors, we explored the interactions in our study. The two interaction effects identified with our findings illustrate the interplay and intertwined nature of the elements of organizational justice. When we explore the comments in cases where the interaction between distributive justice and informational justice occurs, we find that lower perceptions of informational justice through poor communications cause conflict in the workplace (WFH implied) and indicate unfair distributive justice practices cause frustration. In their study on informational justice perceptions, De Ruiter et al. (2017) argued that because a social contract exists between management and employees, there is an expectation of a fair exchange of information regarding an employee’s job. Overall, an employee’s trust in the integrity of an employer moderates perceptions of informational justice and negative work outcomes (Skarlicki et al., 2008).

**Limitations and Directions for Future Research**

A significant limitation of this study is the absence of a direct populational study with pointed questions to explain the phenomenon. Even though we captured some data from comments that explain individual perceptions, this is no substitute for proper qualitative
content analyses. However, we argue that this study opens the door for future qualitative studies to explain the nuances of how the combination of informational justice perceptions and RW impacts people’s lives. Perhaps future research utilizing qualitative sampling could investigate the relationships among RW, informational justice, and trust.

In this study, we did not evaluate emojis independently or as part of the sentiment analysis. Future research should consider tapping into the growing support for assessing the language of emojis (e.g., Ayvaz & Shiha 2017) on this topic. Considering that the language of emojis is a new construct in the academic literature that does not have a vast literature to draw from, and there is no sentimental lexicon for the emotional content of emojis, we may not have captured all of the sentiments in comments. For example, if the comment contained a :) emoji, the smiley face emoji, is primarily considered positive because it is used to express a situation where the author wants to indicate their desire for the reader to know they are smiling. The same could be evaluated for :( with a sad or negative emotion because the author intends to show their sad emotion. Considering many emojis do not have academic support to label their emotional content, there is a need for scholarship to catch up in sentiment analysis to capture a greater spectrum of emotional content in comments.

Lastly, we are studying this phenomenon (i.e., the CV-19 Pandemic) during the phenomenon and likely are too close to capture the big picture. As a result, future research should explore the influence of CV-19 on RW after the Pandemic and whether the RW world truly has changed.

Epilogue and Summery

With the significant increase in RW as a result of the CV-19 Pandemic (Holst, 2020) and the impact of justice perceptions on work outcomes such as trust and counterproductive work behaviors (Cohen-Charash & Spector, 2001), we believe it is critical to continue researching the relationship between RW and organizational justice, particularly the informational justice component. Using the qualitative approach of sampling the social media platform Reddit and employing sentiment analysis, a Factorial ANOVA presented a direction for future research. Instead of analyzing all four components of organizational justice, we can now focus research on informational justice and the interactions among distributive, interpersonal, and informational justice and the relationship with RW. Further research could examine the relationships between RW and organizational justice and the four justice components and work outcomes.

In conclusion, this research has taken a forward-thinking approach by combining qualitative and quantitative methodology and analysis. First, by utilizing qualitative methods, we pre-processed data from an existing social media subforum and then used sentiment analysis to determine the underlying emotions present in the data. Then by using Factorial ANOVA to measure the presence or absence of sentiment, we added rigor to this study. Finally, this combination approach allows a deeper dive into the study of remote workers’ perceptions of organizational justice, particularly informational justice, during the CV-19 Pandemic.

Data Availability The data that support the findings of this study are available from the corresponding author upon reasonable request.

Declarations

Conflict of Interest We have no conflict of interest to disclose.
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