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Journal article

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Shoss, Mindy K. and Kueny, Clair Reynolds

This is an Accepted Manuscript of an article published as:

Shoss, M. K. and Reynolds Kueny, C. (2022). From speculation to substantiation: Empirically-testing societal changes in impact of fit on job satisfaction from 1989, 1998, 2006, and 2016. *Group and Organization Management*, pp. 1-37.

<https://doi.org/10.1177/10596011211058545>

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**From Speculation to Substantiation: Empirically-Testing Societal Changes in Impact of Fit
on Job Satisfaction From 1989, 1998, 2006, and 2016**

Mindy K. Shoss
University of Central Florida
Australian Catholic University

Clair Reynolds Kueny
Missouri University of Science & Technology

Paper has been accepted for publication in Group & Organization Management. Please see the journal for the final version of the paper.

Author Note

Mindy Shoss <https://orcid.org/0000-0001-5354-208X>

Clair Reynolds Kueny <https://orcid.org/0000-0003-0951-4326>

We are greatly appreciative to Tom Zagenczyk and the review team for their insightful advice. We would also like to thank Zoe Politis, Ignacio Azcarate, James Lai, Malek Kalai, Jeff Emile, Michael DiStaso for their assistance coding the articles in Table 1. Earlier versions of this manuscript and project were presented at the 2019 and 2016 annual conferences of the Society for Industrial and Organizational Psychology.

Correspondence should be addressed to Mindy Shoss, Department of Psychology, University of Central Florida, Orlando, FL 32816. Email: mindy.shoss@ucf.edu

From Speculation to Substantiation: Empirically-Testing Societal Changes in Impact of Fit on Job Satisfaction From 1989, 1998, 2006, and 2016

Abstract

Against the backdrop of large-scale changes in work over the past few decades, both business leaders and academics have speculated that employees' job satisfaction is increasingly tied to the extent to which their jobs meet their desires for meaning and other reinforcers. However, empirical evidence has not yet been brought to bear on these arguments. In order to provide insights into potential socio-temporal changes in how employees derive job satisfaction from job characteristics, we analyzed repeated large-scale population surveys in the United States to examine the impact of fit between desiring and receiving job characteristics on job satisfaction across four time points (1989, 1998, 2006, and 2016). Moderated polynomial regression analyses indicated that employees in more recent years experience greater dissatisfaction by deficiencies in intrinsically-rewarding job characteristics. We interpret these findings against broader discussions of the changing employment narrative theorized to have occurred in the United States over the past several decades.

Keywords: changing nature of work, job characteristics, employee satisfaction, person-job fit, moderated polynomial regression

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Popular press and academic treatises have documented what have been described as dramatic changes in the nature of work in the United States over the past 30 years (Cascio, 2003; Hollister, 2011; Hoffman et al., 2020; Rousseau, 1997). The forces of globalization coupled with enhanced technological capabilities have broken down traditional boundaries, creating a global marketplace marked by an increasing pace of change (Newman, 2005; Sparrowe, 2000). Traditional manufacturing jobs have declined and knowledge- and service-based work has grown (Atalay et al., 2020; Noe, 2010). Buttressed by decreasing union power and neoliberal emphasis on market forces and shareholder value, organizations have sought numeric and functional flexibility through layoffs and arms-length employment agreements (Davis, 2009; Fantasia & Voss 2004; Rousseau, 1997). Workers' real earnings have stagnated and income inequality has risen (Mishel & Davis, 2014).

Observers argue that the confluence of these trends have not only changed work itself, but also have changed the mental models by which individuals think about and evaluate their jobs and careers (Hollister, 2011; Kochan et al., 2019). The popular "new employment narrative" (Hollister, 2011) "point[s] to an America in which the assumptions of the past no longer hold" (Newman, 2005, p. 30; see also Fullerton & Wallace, 2007). Common thinking is that employees, like employers, have responded to these circumstances by developing a new model of employment – one in which employees are increasingly focused on the extent to which their jobs meet their values or needs (Brand, 2008; Cascio, 2003; Hollister, 2011; Kochan et al., 2019; Patrick, 2019). For example, Kerstein (2006) suggests that employees now believe jobs should

be meaningful and that employers should help employees develop their ‘true potential’, and failures in this regard can explain why employees are dissatisfied with their jobs.

The current paper examines whether empirical evidence is consistent with the idea that there have been societal changes in how people in recent years evaluate the characteristics of their jobs. In particular, the central question in the current paper concerns whether having the job characteristics that one desires has become a greater driver of job satisfaction in more recent decades. Stated differently, have employees, on average, become less tolerant of (i.e., satisfied by) a job that does not meet their expectations for desired job characteristics in more recent decades? These questions are central to discussions about how employees have reconceptualized work over the past several decades and is a popular topic in writings about the changing nature of work (e.g., Cascio, 2003; Hollister, 2011). However, little empirical insight has been brought to bear on this topic.

We argue that investigations into questions about socio-temporal changes in people’s responses to their jobs, such as the questions we examine here, have both theoretical and practical importance. First, questions about temporal changes in workers’ responses to their jobs challenge the continued relevance of past theories and empirical findings. As Johns (2006) noted, the organizational sciences have woefully neglected elements of historical and social change, with the consequence that previously-established relationships may change or take on different meanings depending on the context. In this vein, researchers have inquired about whether demonstrated management effects are stable over time or might reasonably be expected to shift as times change (Eisenberger et al., 2019; Wegman et al., 2018). Moreover, the social and organizational sciences have been described as being so firmly grounded in the socio-temporal zeitgeist that findings and theories may have questionable relevance for understanding events

and experiences beyond the historical context in which they emerge (Amis et al., 2020; Gergen, 1973). Testing how relationships have changed across decades might, therefore, hold relevance for how pertinent theories are utilized and tested.

Second, speculations and assumptions about how work is changing guides research attention and priorities. Guidance on writing compelling narratives encourages linkages to recent events and trends (Grant & Pollock, 2011; Thomas & Tymon, 1982). Of articles published in several leading management and organization science journals in the last year, nearly a third cited the changing nature of work as a motivation for the research (Table 1). In a similar vein, one only needs to look at the new constructs added to the literature (e.g., research on generations, protean careers, job crafting) and special issues on the changing nature of work (e.g., Barley et al., 2017; Russell & Adams, 1997) to see that both laypeople and academics believe that how people perceive and react to work is changing.

Third, speculations about the changing nature of work and workers can have important practical implications. For example, Rudolph and colleagues discuss the harmful effects that speculation about generational differences is having on organizational practice (Rudolph et al., 2020). Similarly, expectations of the increasing self-focus of the workforce may have negative impacts on managerial practice by creating unsubstantiated lay theories about workers (Carson, 2005). For example, a recent popular press article writes that “employee expectations are changing” and “employers need to pay attention” in order to address morale issues and maintain competitive advantage (Patrick, 2019). Without empirical evidence, however, organizational leaders are forced to act on speculation, with uncertain results (Thomas & Tymon, 1982).

Following Hoffman et al.’s (2020) recommendation that repeated population-based surveys are the best way to examine change over time (see also Firebaugh, 1978), we utilize

repeated large, population-based surveys in the United States (i.e., US data from the International Social Survey Program, ISSP) from 1989, the earliest questions about desired and actual job characteristics were asked, to 2016, the most recently these questions were asked. In doing so, we address questions about whether the impact of congruence between desired and actual job characteristics on employee satisfaction has changed over 27 years. We interpret our results in terms of the changing employment narrative (Hollister, 2011) as well as with regard to organizational theories that point to fit between the person and the environment as an important phenomenon impacting employees' attitudes on the job (e.g., Kristof, 1996).

The Changing Employment Narrative

Sociologists argue that people's responses to their jobs reflect the broader cultural narratives and ideologies of the time (Kalleberg, 2009; Kalleberg & Marsden, 2013, 2019). From this perspective, an individual's sense of satisfaction from their job may not only be shaped by a sense of whether a job has desired characteristics, but also by the particular socio-temporal lens through which this match is then interpreted (Kalleberg & Marsden, 2019). In this vein, our research concerns how employees *on average* derive satisfaction from their jobs, comparing across the past several decades. We focus here on the United States given that American labor markets are unique in several ways, including in foundational ideologies, labor market practices, and legal institutions (Lopez & Phillips, 2019; see Hollister, 2011 for a comparison of the United States and Europe and the changing employment narrative). Moreover, much of the discussion of changes in the societal conceptualization of work has centered on the United States (e.g., Fullerton & Wallace, 2007). Similar to other research (Hollister, 2011; Kalleberg & Marsden, 2019), we focus on year as a macro-level variable encompassing the societal-level trends in how

people view work (see also Johns, 2006).¹

There is a notion—both in the academic literature and in the popular press—that broader social-economic-cultural trends related to work have changed how people respond to their work. Hollister (2011) described this as a “new employment narrative” that serves the role of story or belief set, which shapes how employees respond to and evaluate their jobs. Buttressed by public media accounts of layoffs occurring even in good economic times and other work-related macro-economic trends (e.g., income inequality, wage stagnation, global competition), this new narrative presents work as increasingly insecure and where employer and employee bonds are on a path of erosion. Although there is objective evidence to support such a narrative (e.g., DiPrete, 2002; Farber, 2009), Hollister (2011) and Fullerton and Wallace (2007) point out that the adoption of this narrative as a perceptual lens has transcended even those whose jobs are not at risk. This is illustrated in the 2016 State of American Jobs survey: 63% of Americans believed jobs were less secure than they were 20-30 years ago and 51% anticipated jobs would become less secure in the future. An earlier survey found that 59% of respondents believed that employees today need to work harder to make a living than 20 or 30 years ago and 39% believed that work-related experiences have become more negative as time goes on (Taylor et al., 2006). In reflecting on these trends, Hollister (2011) argued that:

“it is possible, therefore, the disappearance of long-term employment, even if it was only ever realized by a select group of workers, has created a crisis in the wider population.

¹ It is important to distinguish time as a within-person construct (e.g., aging) versus time as a macro-level societal construct. Our focus (like Hollister, 2011; Kalleberg & Marsden, 2019; Fullerton & Wallace, 2007) is on the latter, whereby time captures societal change in norms and expectations. Historical context could be a specific event (e.g., see Frone’s 2017 comparison of responses to large-scale surveys pre and post the Great Recession), or it could reflect general trends over time capturing how societal norms and values has shifted to a confluence of events and trends. Our focus is on the latter.

The new career models described above emphasize individualized paths and the need to react to new opportunities as they appear.”

As noted by Hollister (2011), one hallmark of this changing narrative of employment is the emphasis on fit, both on the employee as well as on the employer side. From the employee side, broader societal beliefs in the new employment narrative are thought to have left employees with a greater focus on making sure their jobs have ample rewards, especially the characteristics each individual worker particularly desires. For example, Cascio (2003) argued that decreasing loyalty on the part of employers has led employees to approach their work lives as if they are “the chief executive officer (CEO) of ‘Me, Inc.’” (p. 403). This sentiment is echoed by popular accounts that now employees are “openly demand[ing] of management, ‘What is in this for ME?’” (emphasis in original, Goldsmith, 2008, p. 1). Similarly, Abessio et al. (2017) recently wrote, “personal standards in terms of values have gained greater importance in contemporary careers that are increasingly described as more subjective, ‘protean’ and ‘boundaryless’” (p. 241). This new narrative emphasizes the onus on the employee to get what they want from their work (for example, through job crafting, Demerouti, 2014). It is interesting to note that this new narrative of employment is thought to pervade the employment spectrum, suggesting the socio-temporal influences on perceptions of work also extend to the unemployed. For example, Lopez and Phillips’s (2019) research on long-term unemployed workers describes how the emphasis on fit between employee and employer has led the long-term unemployed in the United States to blame both themselves and the system for failures to secure employment.

Given changes in how employees view work as well as in the ways that organizations reinforce and reward employees, whether the impact of fit between desired and available job characteristics has changed with respect to employee satisfaction is an important empirical

question. As noted above, there is certainly suspicion that this has been the case. Regarding extrinsic job characteristics (e.g., security, pay), Kalleberg and Marsden's (2013) problematic needs hypothesis of societal change in job values argues that because reinforcers such as pay and security have become more difficult to achieve, employees will come to increasingly value these reinforcers. By extension, one might suspect that employees in more recent years may be less tolerant of (i.e., satisfied by) a job that does not have desired extrinsically-motivating job characteristics than employees in decades past. In other words, given the narrative that macro-level trends in employment make it unclear whether 'paying one's dues' at a company will ultimately payoff in terms of greater wages and opportunities (Fullerton & Wallace, 2007; Ritter & Taylor, 1997), people may be particularly attuned to whether their jobs provide desired extrinsic reinforcers.

More intrinsic elements of the job have particularly received increased scholarly and popular attention as part of the new employment narrative. Hall (1996) writes that in contrast to the traditional career contract wherein employees focused on climbing the career ladder, more recent careers are focused on "psychological success, the feeling of pride and personal accomplishment that comes from achieving one's most important goals in life, be they achievement, family happiness, inner, peace, or something else" (p. 8). This idea that employees no longer measure success by their position on the corporate ladder but rather by their ability to follow the "path with a heart" (Hall, 1996) suggests that fit between desired and actual job characteristics related to meaning or interest (i.e., intrinsic job characteristics) may have become more important for job satisfaction in recent decades. Moreover, employees also may have become less tolerant of (i.e., less satisfied by) a job that does not allow them to meet these important intrinsic psychological needs (also Cascio, 2003). Indeed, employees are advised to

craft their jobs to fit their needs and to pursue opportunities that allow them to discover their passions (Craig & Snook, 2014; Wrzesniewski & Dutton, 2001). Against this socio-temporal backdrop, the narrative is that employees may be increasingly dissatisfied by work that is not as intrinsically meaningful as they desire.

The speculation associated with the changing employment narrative concerns the *changing* importance of fit as a predictor of job satisfaction over the past four decades. It is worth noting that the idea that fit itself should impact job satisfaction is a feature of several major theories in management/organizational psychology. Most notably, person-job fit theory emphasizes the congruence between characteristics an individual desires and characteristics offered by the job, suggesting that (a) the particular level of characteristics in which a person experiences congruence and (b) the degree and direction of incongruence should be relevant for satisfaction and other work attitudes (Edwards et al., 2006; Kristof, 1996; Lee & Antonakis, 2014; Stiglbauer & Kovacs, 2018; Wang et al., 2011). It is interesting that research on person-job (and the larger topic of person-environment fit) took off in the mid-late 1990s, which is consistent with the trends in the changing employment narrative Hollister (2011) noted and the idea that socio-temporal observations about work guide research attention and priorities.

An insightful reviewer pointed out that such predictions may also be derived from other theories, such as self-determination theory or social exchange theory, which have elements that concern person-environment congruence. For example, self-determination theory suggests that individuals will be most satisfied with their jobs to the extent to which their jobs provide opportunities congruent with their basic psychological needs (Van den Broeck et al., 2016). To the extent to which desired job characteristics are also expected, the failure to receive these characteristics could trigger job dissatisfaction by indicating a breach of the psychological

contract (i.e., from a social exchange theory perspective; Morrison & Robinson, 1997; Lambert et al., 2003; Wegman & Hoffman, 2020). The relevance of fit is also inherent to job satisfaction theory and research. For example, Fields (2002) categorized job satisfaction as “employee’s affective reactions to a job based on comparing actual outcomes with desired outcomes.”

However, even with these theoretical considerations, there remains an important empirical question about whether people’s equations for job satisfaction have actually changed (in line with the speculation and narratives we have discussed), or whether people’s reactions to the fit between their desired and actual job characteristics has remained the same over time.

Methods for Examining Societal Change in Workers’ Reactions to their Jobs

There are several different methods for testing societal change over time, including panel data, cross-temporal meta-analysis, and repeated cross-sectional surveys. Certainly, each of these strategies has their strengths and limitations. Panel data allows for repeated observations of the same individuals and allows for assessing intraindividual change over time but comes at the risk of sample attrition and greater difficulty separating societal change from age or cohort effects (Hoffman et al., 2020). Cross-temporal meta-analysis makes use of existing research data but has been criticized on methodological and conceptual grounds related to the level of analysis and known bias in existing organizational samples (Rudolph et al., 2020). Finally, repeated cross-sectional surveys were designed with the purpose of monitoring and explaining societal change (Smith, 2008). They have the advantage of capturing societal change through nationally representative samples (Jutz et al., 2018), although the measurement is not always ideal (e.g., limited to items developed by the panel rather than established scales) and surveys are not always equally spaced over time (Hoffman et al., 2020).

In the current study, we utilized United States participants from each of the International Social Survey Program's (ISSP) Work Orientation survey (1989, 1998, 2006, and 2016) data collections, in which a nationally representative sample of respondents were asked questions about desired and actual job characteristics². Research across a variety of disciplines (e.g., sociology, industrial relations, economics, psychology) have used repeated cross-sectional surveys such as the General Social Survey and ISSP (of which the work orientation module is a part) to assess societal-level changes in individual experiences (Kalleberg & Marsden, 2019; Fullerton & Wallace, 2007; Jutz et al., 2018). Kalleberg and Marsden (2019) suggested that because the surveys sample across a range of time periods, comparing relationships across the years can be used to detect changes in aggregate trends (see also Esser & Lindh, 2018; Hajdu & Sik, 2018; Jutz et al., 2018). In addition to large, representative samples, repeated cross-sectional surveys have the unique advantage of allowing for distinguishing societal change from other changes such as age or generation (Firebaugh, 1997). For these reasons, Hoffman et al. (2020) recently stated that "repeated cross-sectional designs are arguably the best available method to examine time-based changes, as the researcher has access to the primary data, the sample sizes are usually quite large, and in many cases the samples from existing databases such as the GSS are nationally representative" (p. 8)

We conducted moderated polynomial regression analyses (Edwards, 2014), which allow us to examine the impact of fit between desired and actual job qualities on satisfaction as moderated by year (Edwards, 2002). Specifically, this approach allows us to test two elements of fit that are implied by the changing employment narrative above—(1) that employees getting

² Unfortunately, although the General Social Survey is asked every year, only the ISSP work module of the General Social Survey included commensurate questions (required for polynomial regression analyses) about desired and actual job characteristics. Our study includes every year in which these questions were asked.

what they want from their job particularly at higher levels of intrinsic and extrinsic job characteristics has changed in how it predicts satisfaction across the decades (i.e., tests of moderation along the line of congruence) and (2) that failure to achieve desired job characteristics have also changed with regard to its association with job dissatisfaction across the decades (i.e., tests of moderation along the line of incongruence). Following Kalleberg and Marsden (2019), we examined characteristics that can be interpreted as capturing intrinsically-rewarding job features (e.g., meaningful work) and extrinsically-rewarding job features (e.g., income). The ISSP database allows us to test the effects of fit because participants evaluate the same job characteristics with regard to their importance and with regard to the extent to which they are provided on the job (i.e., commensurate items; Edwards et al., 1998; Kristof, 1996).

Using this database, Olsen et al. (2010) demonstrated that at the same time as workers are increasingly finding their jobs to be more insecure and intense/exhausting, levels of intrinsically-rewarding job characteristics have also risen (see also Westover, 2012). Additionally, Kalleberg and Marsden (2019) examined trends in the importance assigned to intrinsic and extrinsic work values/characteristics across the 1989, 1997, 2005, and 2015 datasets (with fieldwork for these surveys occurring in 1989, 1998, 2006, and 2016, respectively). They concluded that people increasingly desire jobs with intrinsically and extrinsically-rewarding characteristics, and these effects are due to period (i.e., historical time effects) rather than age or generational cohort effects (Kalleberg & Marsden, 2019). However, no studies have examined potential changes in the impact of *fit* between job feature importance and actual job features on job satisfaction as we do here. Notably, Hult (2005) used an ISSP dataset to assess the impact of job characteristic fit on organizational commitment at a single time point, but did not use polynomial regression

analyses nor considered the changing impact of fit. Based on the discussion above, we examine the following research question:

Research Question. How has the impact of fit between an individual's desired and experienced job characteristics on job satisfaction changed across 1989, 1998, 2006, and 2016?

Methods

Participants and Procedure

We used United States participants from the 1989 (Work Orientations Survey I), 1997, (Work Orientations Survey II), 2005 (Work Orientations Survey III), and 2016 (Work Orientations Survey IV) ISSP datasets. As described in the codebooks for these respective years, fieldwork for these surveys took place in 1989, 1998, 2006, and 2016, respectively. All four surveys used a multi-stage stratified random sampling approach wherein households were randomly selected and then one individual in a household participated in the survey. Selected households received an advance letter introducing the study and an incentive was offered to participants. Individuals willing to participate completed either an oral or written survey with the same standardized questionnaires (ISSP Research Group, 1991; 1999; 2013; 2017). After removing unemployed participants, there were 898 US participants in 1989, 865 US participants in 1998; 1016 US participants in 2006, and 936 participants in 2016 for a total of sample size of 3,715 participants. In all four years, approximately half the participants were female (52.7% in 1989; 54.5% in 1998; 52.1% in 2006; 50.3% in 2016). Participants' ages ranged from 18-80 years old with the average age being 39.1 years in 1989, 40.5 years in 1998, 42.6 years in 2006, and 48.6 years in 2016. Finally, participants worked on average 40-45 hours a week (across all years).

Measures

Job characteristics. Across all years, participants responded to the same commensurate items about their desired and actual job characteristics. Participants indicated to what extent six characteristics (job security, high income, good opportunities for advancement, interesting work, helps other people, and useful to society) were personally important in a job (i.e., desired job characteristics) on a 5-pt Likert-type scale ranging from ‘*Not important at all*’ to ‘*Very important*’. Participants also rated these same characteristics in terms of whether they reflected their actual job (i.e., actual job characteristics; e.g., “My job is secure,” “My job is interesting,” “My job is useful to society,” etc.) on a 5-pt Likert-type scale ranging from ‘*Strongly disagree*’ to ‘*Strongly agree*’ (ISSP Research Group, 1991; 1999; 2013; 2017).

Because we have essentially four independent datasets, we were able to perform several tests to examine psychometric validity of these items and the extent to which combining the items into scales would be appropriate. Despite the fact that several studies have used these questions as indicators of intrinsic and extrinsic work values and work qualities (e.g., Kalleberg & Marsden, 2019), less attention has been given to the psychometric properties that might support their combination under these labels. Thus, we began with an exploratory factor approach, utilizing the 1989 data. Exploratory factor analyses (using PAF for extraction and oblimin rotation, available from the second author) for both scales revealed that ‘helping other people’, ‘interesting work’, and ‘work that is useful to society’ loaded together (factor loadings $>.40$ and no cross-loadings) for both actual and desired characteristics, indicating an overall dimension of intrinsically-motivating work characteristics. Questions regarding ‘job security,’ ‘good opportunities for advancement,’ and ‘high income’ loaded together (factor loadings $>.40$ and no cross-loadings) on a second factor for both actual and desired characteristics, indicating an overall dimension of extrinsically-motivating work characteristics. The scree plot and

eigenvalue greater than 1 criteria both suggested this factor solution, and we did not force a certain number of factors.

Although an EFA suggests which factors best reflect the data, statistics such as internal consistency (e.g., inter-item correlations, Cronbach's alpha) and confirmatory factor analyses provide information about the quality of that fit. Unfortunately, although inter-item correlations and item-total correlations for the scales were acceptable (Crocker & Algina, 2008), alphas for the desired and actual extrinsic job characteristics were not ($\alpha = .52$, $\alpha = .65$, respectively). Although these lower alphas are consistent with other measures of extrinsic and intrinsic work value orientations (e.g., Vansteenkiste et al., 2007), we ultimately decided to drop the extrinsically-focused items from the study since it was unclear whether these items could be considered together as a scale. Notably, the alphas for desired and actual intrinsic job characteristic scales were acceptable ($\alpha = .70$, $\alpha = .71$, respectively).

Shifting to a CFA framework, we utilized the 1998 data to confirm the factor structure found in the 1989 data for the desired and actual intrinsic job characteristics. A CFA of the 1997 data focusing on the intrinsic items suggested the two-factor model (desired and actual intrinsic characteristics) had excellent fit ($\chi^2 = 33.563$ [8], $p < .001$, CFI = .984, RMSEA = .052 [.034, .070], SRMR = .022) and that this model fit better than a single factor model ($\chi^2 = 436.511$ [9], $p < .001$, CFI = .737, RMSEA = .200 [.184, .216], SRMR = .115; $\Delta\chi^2 = 402.948$ [1], $p < .001$).

We also explored the temporal invariance of the intrinsic measures across the four time points. For the purposes of our study, comparing differences in relationships between values fit and job satisfaction between years, metric invariance is the most critical measurement variance to obtain. Metric invariance refers to equivalence of item loadings within factors between groups (Putnick & Bornstein, 2016), in other words, the underlying construct is the same for each group

(Cheung & Rensvold, 2002). When found, metric invariance suggests that “relationships between the latent construct and other theoretical constructs may be compared across groups meaningfully” (Coromina & Davidov, 2013, p. 43). To determine metric invariance, we first determined configural invariance model fit (i.e., the same items are associated with the same constructs between groups; Cheung & Rensvold, 2002) and then compared the metric model fit to configural model fit. If metric model fit is not meaningfully different from configural model fit, then metric invariance is achieved (Cheung & Rensvold, 2002; Putnick & Bornstein, 2016). We tested a configural model for the intrinsic characteristics, where each model had two factors: desired job characteristics (items measuring importance) and actual job characteristics. This model showed good overall model fit suggesting we met the requirements for configural model measurement invariance ($\chi^2 = 212.85 [32], p < .001, CFI = .971, RMSEA = .063 [.056, .072], SRMR = .031$) (Cheung & Rensvold, 2002). The metric invariance model for intrinsic items likewise showed good fit ($\chi^2 = 260.92 [50], p < .001, CFI = .966, RMSEA = .055 [.048, .061], SRMR = .078$). Utilizing Cheung and Rensvold’s (2002) recommendation ($\Delta CFI < -.01$) for testing between-group invariance for groups with large sample sizes, this suggests metric invariance was achieved for the intrinsic items model ($\Delta CFI = -.005$). Overall, our measurement invariance tests suggested that we achieved appropriate metric invariance allowing us to move forward with comparing relationships between desired and actual job intrinsic characteristics and job satisfaction across years.

Job satisfaction. Across all years, participants responded to the following item: “How satisfied are you in your (main) job?” (ISSP Research Group, 1991; 1999; 2013; 2017).

Participants rated this item using a 1-7 Likert-type scale ranging from “*Very dissatisfied*” to

“*Very satisfied*”. Debus et al. (2012) established convergent validity of this single item measure of job satisfaction with a multi-item job satisfaction measure.

Control Variables. We explored three important control variables. Research suggests that different age groups and different generations could desire different things from their jobs and thus age or generational effects, and not period effects, might drive differences found across the years (e.g., Twenge, 2010). As such, we included age and generation as control variables in the current study. Generation was calculated by subtracting participant age from the year the respective survey was completed and then coding the participant’s birth year as either part of the Silent Generation (1925-1942), Baby Boomers (1943-1960), Generation X (1961-1981), or Millennial Generation (1982-2000). Controlling for age and generation also means we are able to interpret differences between years in job characteristic fit as period effects, rather than age or generation effects (Firebaugh, 1978). Finally, we also controlled for income quintile in order to control for the possibility that the participants represented in the datasets differed by economic status. Quintiles based on that year’s income distribution helped to ensure we captured participants’ ranking relative to others in terms of available income while avoiding issues related to changes in the value of the dollar over the decades. Income quintiles were calculated by recoding participant’s household income into the income quintile ranges identified for each year (1989, 1997, 2005, 2016) by the United States Bureau of Labor Statistics (1989; 1998; 2006; 2017). We present the moderated polynomial regressions with and without controls (Models 3 and 4 in Tables 3) following recommendations from Becker et al. (2016). Notably, there is little difference when controls are added, thus we interpret the most comprehensive models in the Results (i.e., with controls). This means that effects observed can likely be considered period effects and are unlikely to be attributable to sample differences over time (Firebaugh, 1978).

Analyses

We assessed the data using moderated polynomial regression analyses and response surface methodology (i.e., simple surfaces; Edwards, 2014) to examine the impact of (a) the level of congruence, (b) the degree of discrepancy, and (c) the direction of discrepancy between desired and actual job characteristics over time (Shanock et al., 2010). Polynomial regression analyses have been deemed more appropriate than other methods (e.g., difference scores) to assess the role of fit on an outcome (Edwards, 2002). Moderated polynomial regressions allow researchers to test the extent to which the impact of congruence between two variables on an outcome is influenced by another variable, in this case year (Edwards, 2014).

Below is a typical polynomial regression equation where X indicates the actual job characteristic, Y indicates the desired job characteristic, and Z is the outcome job satisfaction:

$$Z = b_0 + b_1X + b_2Y + b_3X^2 + b_4XY + b_5Y^2 + e \quad (1)$$

However, this equation does not account for the moderator: year. Edwards (2014) provides a polynomial regression equation that takes into account a possible moderator, W; this equation is displayed below:

$$Z = b_0 + b_1X + b_2Y + b_3X^2 + b_4XY + b_5Y^2 + b_6W + b_7WX + b_8WY + b_9WX^2 + b_{10}WXY + b_{11}WY^2 + e \quad (2)$$

This equation works well for moderators that are either dichotomous or are interval. Although time is an interval variable, because we have only 4 time points and want to compare each to the baseline year of 1989, we created a series of dummy-codes with a comparison year. This allows us to see if 1989 findings differ significantly from more recent findings, and to examine when these differences began to emerge. The moderated polynomial regression equation for our study is displayed below (equation 3), where W = 1998 (dummy coded 1=1998, 0 = all other years), V

= 2006 (dummy coded 1=2006, 0 = all other years), and S = 2016 (dummy coded 1=2016, 0 = all other years), with 1989 as the comparison year (i.e., coded as 0 across all three dummy-codes).

In this equation, after the typical polynomial coefficients have been included, the main effect of each year dummy-code is entered followed by the interaction terms between each year dummy-code and each original polynomial coefficient. As with equation (2), X represents actual job characteristics, Y represents desired job characteristics, and Z represents job satisfaction.

$$Z = b_0 + b_1X + b_2Y + b_3X^2 + b_4XY + b_5Y^2 + b_6W + b_7V + b_8S + b_9WX + b_{10}WY + b_{11}WX^2 + b_{12}WXY + b_{113}WY^2 + b_{14}VX + b_{15}VY + b_{16}VX^2 + b_{17}VXY + b_{18}VY^2 + b_{19}SX + b_{20}SY + b_{21}SX^2 + b_{22}SXY + b_{23}SY^2 + e \quad (3)$$

A moderating effect is said to occur if the interaction terms are significant and there is a significant change in R² with the inclusion of the interaction terms (Edwards, 2014). If these conditions are met for any of the year dummy-code interaction terms, then the regression coefficients for those years can be combined back into a simpler quadratic polynomial (see equation 1 above), but this time the regression coefficients take into account each level of the moderator. This is comparable to testing simple slopes in moderated regression. This is indicated in the equation below (equations 4a-c) where each year (W = 1998; V = 2006; S =2016) has its own equation:

$$Z = (b_0 + b_6W) + (b_1 + b_9W)X + (b_2 + b_{10}W)Y + (b_3 + b_{11}W)X^2 + (b_4 + b_{12}W)XY + (b_5 + b_{13}W)Y^2 + e \quad (4a)$$

$$Z = (b_0 + b_7V) + (b_1 + b_{14}V)X + (b_2 + b_{15}V)Y + (b_3 + b_{16}V)X^2 + (b_4 + b_{17}V)XY + (b_5 + b_{18}V)Y^2 + e \quad (4b)$$

$$Z = (b_0 + b_8S) + (b_1 + b_{19}S)X + (b_2 + b_{20}S)Y + (b_3 + b_{21}S)X^2 + (b_4 + b_{22}S)XY + (b_5 + b_{123}S)Y^2 + e \quad (4c)$$

In order to fully explicate the nature of the moderated effects, we also modeled simple surfaces and assessed the slopes and curves along the lines of congruence and incongruence in these simple surfaces for each year that had significant interaction terms. To do so, we used Edwards' (2014) macro-excel sheet to plot the surfaces for each year that significantly moderated job characteristic fit using the coefficients from the simple slopes (i.e., coefficients in equations 4a-c). We used the following equations to calculate each slope and curve of the simple surfaces for each year that significantly moderated job characteristic fit. The slash (/) symbols indicate how the equations are adapted depending on which year is examined:

$$\text{Slopes: } (b_1 + b_9W|b_{14}V|b_{19}S) + (b_2 + b_{10}W|b_{15}V|b_{20}S) \text{ (lines of congruence)} \quad (5a|b|c)$$

$$(b_1 + b_9W|b_{14}V|b_{19}S) - (b_2 + b_{10}W|b_{15}V|b_{20}S) \text{ (lines of incongruence)} \quad (6a|b|c)$$

$$\text{Curves: } (b_3 + b_{11}W|b_{16}V|b_{21}S) + (b_4 + b_{12}W|b_{17}V|b_{22}S) + (b_5 + b_{13}W|b_{18}V|b_{23}S) \text{ (lines of congruence)} \quad (7a|b|c)$$

$$(b_3 + b_{11}W|b_{16}V|b_{21}S) - (b_4 + b_{12}W|b_{17}V|b_{22}S) + (b_5 + b_{13}W|b_{18}V|b_{23}S) \text{ (lines of incongruence)} \quad (8a|b|c)$$

Results

Descriptive statistics, correlations, and alphas are presented in Table 2. Notably, job satisfaction is moderately, positively related to actual intrinsic job characteristics across all four years. Additionally, across all four years, actual intrinsic job characteristics are moderately related to desiring intrinsic job characteristics.

Polynomial Regression Analyses

The results of our polynomial regression analyses are displayed in Table 3. Model 1 provides the main effect polynomial regression analyses (i.e., omnibus tests of fit between valued characteristics and actual job characteristics). Models 2-4 present our moderated polynomial

regression steps. As recommended by Edwards (2014), we entered the year dummy-codes (i.e., moderator) and interaction terms for each year dummy-code in a 3-step hierarchical polynomial regression, with job satisfaction as the dependent variable. Model 3 captures the moderated polynomial regression analysis without controls; Model 4 includes controls. As noted earlier, we included control variables (age, generation, and income) in our moderated polynomial regression analyses specifically to distinguish cohort and age effects (as well as possible confounds related to SES) from our focus on socio-temporal period effects (i.e., year as moderator).

Overall Model. As a baseline, we first ran an overall intrinsic characteristic fit model before examining the extent to which these effects were moderated by year. Results show a significant positive slope along the line of congruence ($b = .66, se = .10, p < .001$) suggesting that job satisfaction increased as congruent intrinsic desired and actual characteristics increased (i.e., receiving and desiring high levels of intrinsic characteristics was more satisfying than receiving and desiring low levels of intrinsic characteristics). Additionally, there was a significant negative curve ($b = -.16, se = .08, p = .042$) combined with a significant, positive slope ($b = .81, se = .11, p < .001$) along the line of incongruence, suggesting that while overall incongruence in either direction of intrinsic desired and actual characteristics contributed on average to decreased job satisfaction (as indicated by the significant negative curve), this effect is stronger for deficiency rather than abundancy. See Figure 1 and polynomial coefficients from Model 1, Table 3. However, it is also important to consider these main effects in light of the moderated effects described next.

Moderating Effects of Year. We observed significant differences in the effects of fit between actual and desired intrinsic job characteristics between 2005, 2016, and 1989, as indicated by the significant change in R^2 and the presence of multiple significant interaction

terms, even with inclusion of controls (see Models 3 and 4, Table 3). This suggests that the relationship between intrinsic job characteristic fit and job satisfaction has changed over time such that fit relationships in 2006 and 2016 differ compared to fit relationships in 1989. No interaction terms with the 1998 year dummy-code were significant, suggesting there were no significant differences in fit relationships in 1997 compared to 1989. Thus, we focus specifically on the years 1989, 2006, and 2016 in our simple surfaces.

In order to test the simple surface polynomial regression coefficients, we created weighted linear combination regression coefficients using the general linear modeling LMatrix function in SPSS (Edwards, 2014). A weighted linear combination was created to reflect each coefficient combination in parentheses from equation 4b (2006) and 4c (2016) above. Effect sizes are presented in Table 4. As previously stated, these coefficients can then be used to model the simple response surfaces for each year and to calculate the slope and curve coefficients for the lines of congruence and incongruence. We created weighted linear combinations to reflect each coefficient in equations 5b|c-8b|c. This gave us the values and significance-test for the slopes and curves along the lines of congruence and incongruence for each year (see Table 4).

There was a significant, positive slope along the line of congruence for 1989 ($b = .68, se = .17, p < .001$) and 2006 ($b = .95, se = .27, p < .001$), but not for 2016 ($b = .15, se = .24, p = .531$). There were not significant curves along the lines of congruence across any of the years. Overall, these findings suggest that congruence at higher (versus lower) levels of actual and desired intrinsic job characteristics was associated with higher (versus lower) levels of job satisfaction in earlier decades, but not in recent years. These findings run counter to the narrative that desiring and receiving high levels of intrinsic job characteristics is associated with greater

satisfaction, especially in more recent years, than desiring and receiving lower levels of these characteristics.

In terms of the line of incongruence, all three years had a significant, positive slope along the line of incongruence (1989: $b = .50$, $se = .20$, $p = .013$, $CI = [.11, .89]$; 2006: $b = 1.43$, $se = .28$, $p < .001$, $CI = [.89, 1.97]$; 2016: $b = 1.03$, $se = .25$, $p < .001$, $CI = [.54, 1.52]$). While there is some overlap, the 95% confidence intervals suggest that the line of incongruence slopes for 2006 and 2016 are meaningfully larger than the line of incongruence slope in 1989. This suggests that the negative impacts of incongruence on satisfaction are more pronounced in 2006 and 2016 as compared with 1989, which supports the narrative that people are less tolerant of a job that does not have desired intrinsic characteristics. In addition, there was a significant negative curve along the lines of incongruence in 1989 ($b = -.32$, $se = .15$, $p = .029$), and a marginally significant effect in 2016 ($b = -.30$, $se = .16$, $p = .059$), but not in 2005. These findings point to the variable effects of having an abundance of intrinsic job characteristics across the years.

Visually, Figure 2 compares the response surface graphs for each year – comparing the impact of desired and actual intrinsically-rewarding job characteristic fit on job satisfaction across 1989, 2005, and 2016. As can be seen in Figure 2 incongruence in the form of lack of actual intrinsic job characteristics when deemed important by participants became more influential in predicting lower levels of job satisfaction in 2006 and 2016. At the same time, the specific level of congruence became notably less important in 2016 compared to the other two years. Although not explicitly part of the changing employment narrative, it is interesting that an abundance of intrinsic characteristics was originally a detractor of job satisfaction in 1989 (as indicated by the significant negative curve along the line of incongruence that year), but

contributed to increased job satisfaction in 2006. In 2016, the marginally significant curvature may suggest that the impact has waned.

Discussion

There has been much speculation that the past several decades have ushered in broad societal-level changes in how people react to their work. In partial support for these arguments, we find that a deficiency of intrinsic job characteristics (i.e., desire for these characteristics is greater than what is available in one's job) is associated with noticeably lower job satisfaction in 2006 and 2016 as compared with 1989.

The findings regarding intrinsically-valued job characteristics are consistent with the notion from both the business press and academic writings that the changing nature of work has shifted how people react to their jobs. In essence, employees in more recent years appear to be experiencing greater dissatisfaction from a job that is not as meaningful as they desire. To some extent, such findings are compatible with the growing emphasis on meaning and agency occurring in both popular and academic discourse around jobs (e.g., Grant, 2007; Parker, 2015; Seligman & Csikszentmihalyi, 2000). However, satisfaction seems to depend more on whether or not people receive desired characteristics, rather than the specific level at which congruence is achieved.

Although the effect sizes found here were small, Cortina & Landis (2009) suggest that effect sizes should be interpreted not only in terms of magnitude, but also in terms of the context in which they are found. In particular, they argue that in the context of questions about broad societal-level influences (such as the socio-temporal influences we model) on individual choices/views (e.g., job satisfaction), even small effect sizes are meaningful. They note that because of “the causal connection between any societal level variable and an individual choice is

very distant and there are a great many factors that drive [individual] choice” that “any nonzero relationship between these variables suggests that social structure exercises a powerful influence” (pg. 299-300). Thus, although our effects (e.g., changes in R^2) are small, they are suggestive that there might indeed be meaningful societal change occurring in line with suggestions by sociological research on the changing nature of jobs as well as the business press. That said, future research should examine these trends with different datasets and narrower timeframes to fully explicate the nature of these trends.

The finding of change in the impact of intrinsic characteristic fit on job satisfaction across years supports Johns’ (2006; 2018) arguments that specific time period in which data were collected may influence the nature of construct relationships. Johns (2006) argued that historical time should be better incorporated into management research, and our findings certainly echo these recommendations. By examining the change in the nature of the findings against the backdrop of discussions about societal change in how people approach work, our research utilizes the variability in findings across years to speak to potential differences connected to larger “omnibus” trends in how people view work (Johns, 2006). In doing so, our research both sheds light on the nature of fit effects and on potential societal changes in the ways that people respond to intrinsic rewards on the job.

Our findings have implications for theory and research in several areas of organizational science. Specifically, our research indicates that the notion of fit remains relevant for understanding job satisfaction. This supports the continued use of theories with fit elements, and is in line with several other research studies (e.g., Lambert et al., 2003). However, at the same time, predictions about specific types of fit (i.e., fit regarding intrinsic characteristics) may also need to be revised with an eye towards broader societal trends that may shape how people

respond. Taking John's (2006) arguments one step further, this may suggest that theories on how people respond to intrinsic job characteristics could benefit from being augmented to formally include the broader omnibus socio-cultural-economic-temporal context in which these evaluations occur.

Implications for Practice

Hulin (2014) argued that “feelings of belonging or mattering achieved through work ... should be a central panel in the fabric of behavioral science” (p. 10). Our findings indicate failure to meet employees' desires for work that is meaningful has become an important source of dissatisfaction. For those employees who have a particular interest in doing meaningful and impactful work, organizations would do well to provide ample opportunities to achieve these aims. Given the well-documented benefits of intrinsically rewarding work, providing such opportunities are likely to benefit organizations as well (Cerasoli et al., 2014; Grant, 2009). That said, not all employees appear to view intrinsic job characteristics as particularly important. Our findings suggest that, so long as they have experiences in line with their expectations, these employees may also be satisfied. Therefore, organizations may best focus their efforts in helping people to achieve their desired levels of intrinsic job characteristics rather than trying to change desires or oversupply meaningful work.

It is interesting to interpret our findings against claims that employees have become more self-interested over time. Although people appear to be more focused on whether their jobs meet their goals regarding intrinsic characteristics in recent years, it is difficult to conclude that this reflects self-interest given the nature of the intrinsically rewarding characteristics we studied here (i.e., help other people, interesting work, work is useful for society). Thus, the characterization of employees as increasingly selfish may be overstated.

Limitations and Future Directions

Our study has a number of strengths, in particular its use of moderated polynomial regression and simple surfaces to assess the impact of job characteristic fit across years, and its use of multiple nationally-representative samples. However, it is not without limitations. The study used a repeated, cross-sectional survey design rather than a true longitudinal design to test the research questions. Our use of a nationally-representative sample allowed for examining the extent to which changes in the impact of fit existed across the United States workforce, not just white-collar industries typically studied in organizational research (Bergman & Jean, 2016). In a sense, we sample society from several points along these supposed trends, which is appropriate given the assumption that these general trends are occurring over time. Kalleberg and Marsden (2019) suggested that because surveys sample across a range of time periods, comparing relationships across the years can be used to detect changes in aggregate trends (see also Esser & Lindh, 2018; Hajdu & Sik, 2018; Jutz et al., 2018). However, yearly data would certainly help to draw stronger conclusions and to understand the nuances of these dynamics overtime, including possible disruptions to trends as a result of reactions to specific triggering events (e.g., 9/11, the housing market crash from 2007-2009, etc.).

Despite the fact that the items have been used in prior research (e.g., Hult, 2005), we are the first to examine them psychometrically, which adds to the contribution of this research. We found support that the ISSP items in the United States factor together to reflect intrinsically-rewarding job characteristics (desired and actual). There was configural and metric model invariance for these items, enabling meaningful comparisons across time periods. In terms of the single-item measure of job satisfaction used, research has established that single-time measures of overall job satisfaction show acceptable reliability and convergent validity with multi-item

counterparts (Debus et al., 2012; Wanous et al., 1997). In fact, de Boer and colleagues (2004) and Nagy (2002) suggested that single items can be advantageous because they give respondents the opportunity to reflect holistically. It would be beneficial to examine multi-item measures and developed scales as well. Unfortunately, our analyses revealed that items that would seem to be capturing extrinsically-rewarding job characteristics (e.g., security, opportunities for advancement, high income) do not necessarily hold together well (particularly in terms of inter-item consistency), perhaps reflecting the instability and churning experienced across both lower and higher paying jobs since the 1970s (Faber, 2005). Future research might examine other ways of capturing people's responses to extrinsically-rewarding job characteristics over time.

We controlled for age and generation in our moderation analyses in order to distinguish the period effects of interest in the current study from possible cohort and age effects that are often confounded with socio-temporal/period effects. These analyses would not be possible in a true longitudinal design where all participants would age over the course of the study. Additionally, we controlled for income in order to rule out changes in income across samples as the possible source of potential temporal changes. Even with these controls, there may be other conditions that could influence our findings that may be of interest for future research. For example, our analyses took a broad view of workers across occupations. While not the same as blue- vs. white-collar differences, because of changes in occupation coding and occupation availability over the decades, we felt that income rankings provided a reasonable control of differences that may exist tied to socioeconomic status. That said, it is likely that there may be differences over time in how job characteristic fit impacts employee satisfaction depending on the industry or occupation, particularly as work in the United States has moved from manufacturing to more service-based industries (Noe, 2010), and as tech-industries and the

Silicon Valley have boomed in the last 20 years. For example, modern-day corporations such as Google and Facebook have invested considerable resources into providing intrinsically-rewarding characteristics for their employees (e.g., Finkle, 2012). Furthermore, people who seek out jobs in these different industries may also desire different characteristics from their jobs or place different levels of importance on intrinsically- and extrinsically-reinforcing job characteristics. Future research may wish to investigate specific occupational changes over time.

As noted earlier, our research used year as a way of capturing trends associated with how workers conceptualize work. Although much of the discussion surrounding these trends in work has been negative, it is also worth noting that there have also been positive trends in the world of work over the past few decades (Matos et al., 2017). For example, there has been increased emphasis on worker treatment such as through best places to work lists (e.g., Chamberlain & Stansell, 2018). Future research may seek to decompose the changing effects of fit observed here to examine how they relate to specific trends, both negative and positive, and how these trends relate to each other over time. It also would be useful for future research to examine whether similar effects are occurring outside of the United States and to examine the role of macro-economic and cultural contexts, along the lines of Huang and Van de Vliert's (2003) research.

Additionally, although we focus on trends in line with discussions of the changing employment narrative, it would be interesting for research to examine specific events (e.g., the Great Recession) that have punctuated these time points. It may be that these events are viewed as salient signals or indicators of these larger trends. For example, the Occupy Wall Street movement during the Great Recession occurred in response not only to the recession but also to many of the larger trends perceived to be associated with the changing nature of work (Shrivastava & Ivanova, 2015). Interestingly, there are arguments that employees view the

opportunity for meaningful/interesting work as a substitute for the risks they take in terms of pay and advancement (Morgan, Dill & Kalleberg, 2013; although see Huang & Van de Vliert, 2003 for an alternative viewpoint), essentially “pitting” extrinsic vs. intrinsic job characteristics against each other to influence employee attitudes. Future research might test these ideas as well.

Finally, it is likely that workplaces and the broader historical-cultural-political-economic environment surrounding work will continue to change and shape workers’ reactions in different ways. In particular, the COVID-19 crisis reflects a salient macro-level event that may serve to shape how people view their work. Given this, it will be important for research to continue to examine how employees’ perceptions of job satisfaction evolve from desired and experienced job characteristics over time. Along with this future research, it would be valuable to assess these changes from a different perspective: directly asking the individual. There has been little research that has taken a direct person-perspective of the changing nature of work. However, given widespread discourse about how work is changing, it is likely that people’s perceptions of these dynamics may have important effects.

Conclusions

The current study offers an empirical assessment of the claims that researchers, the popular press, and society more broadly have been making about socio-temporal changes in how employees derive satisfaction from their jobs. Our findings provide some evidence to support this speculation—employees do in fact appear more dissatisfied in more recent years than in the past by jobs that do not meet their desires for intrinsically-rewarding job characteristics. These findings point to the importance of considering the socio-temporal context when examining how employees respond to their jobs.

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Table 1.

Papers motivated by the changing nature of work published in selected journals in 2020.

Journal	% articles stating a CNOW motivation	Example Text
<i>Group & Organization Management</i>	50% (12/24)	“Despite its benefits, trust can be difficult to maintain, especially in fast-paced ever-changing modern environments characterized by high uncertainty, growing globalization, an expansion of the sharing economy, and increases in temporary work.” Williams et al., 2020
<i>Journal of Applied Psychology</i>	32% (47/146)	"Employees are more actively involved in and responsible for the management of their careers now than they have been in the past." Greco et al., 2020
<i>Personnel Psychology</i>	39% (11/28)	"Today’s fast-paced change and increasingly dynamic and decentralized work make proactive employees highly valuable to organizations seeking creative solutions to problems.” F. Li et al., 2020
<i>Journal of Management</i>	34% (19/56)	“To make high-quality decisions and adapt successfully to dynamic business environments, managers increasingly rely on input from their employees to maintain organizational health and functioning (Morrison, 2014).” C. Li et al., 2020
<i>Academy of Management Journal</i>	25% (18/72)	“The use of external labor markets has become ubiquitous as workers and firms frequently look to outside organizations to find and fill jobs” Rafflee et al., 2020
<i>Total</i>	33% (107/326)	

Note. Journal articles were indicated as citing the changing nature of work as the motivation for the research if trends in work, organizations, or workers were noted in introductory paragraphs (before the first sub-heading) of the article. Of the 107 that cited the changing nature of work, the majority focused on long(er) term trends as opposed to events related to the COVID-19 pandemic (95/107 articles were unrelated to the COVID-19 pandemic).

Table 2

Descriptive Statistics and Correlations for All Job Characteristic Measures and Job Satisfaction, Overall and Separated by Year

<i>Overall</i>	M (SD)	1.	2.
1. Desired intrinsic charac.	4.26 (.59)	(.70)	
2. Actual intrinsic charac.	4.03 (.73)	.35***	(.71)
3. Job satisfaction [±]	5.43 (1.20)	.09***	.42***
<hr/>			
<i>By Year: 1989</i>	M (SD)	1.	2.
1. Desired intrinsic charac.	4.10 (.60)	(.70)	
2. Actual intrinsic charac.	3.89 (.74)	.34***	(.71)
3. Job satisfaction [±]	5.44 (1.13)	.07*	.43***
<hr/>			
<i>By Year: 1998</i>	M (SD)	1.	2.
1. Desired intrinsic charac.	4.20 (.59)	(.72)	
2. Actual intrinsic charac.	3.91 (.77)	.34***	(.73)
3. Job satisfaction [±]	5.35 (1.23)	.12***	.43***
<hr/>			
<i>By Year: 2006</i>	M (SD)	1.	2.
1. Desired intrinsic charac.	4.40 (.54)	(.69)	
2. Actual intrinsic charac.	4.14 (.69)	.33***	(.68)
3. Job satisfaction [±]	5.47 (1.25)	.12***	.41***
<hr/>			
<i>By Year: 2016</i>	M (SD)	1.	2.
1. Desired intrinsic charac.	4.32 (.59)	(.69)	
2. Actual intrinsic charac.	4.15 (.73)	.32***	(.71)
3. Job satisfaction [±]	5.46 (1.21)	.04	.43***

Note. Job satisfaction was assessed using a 1-7 scale, all other measures were rated using a 1-5 scale. Cronbach's alphas are presented along the diagonal.

* $p < .05$; *** $p < .001$

Table 3

Moderated Polynomial Regression Results for Intrinsic Desired and Actual Job Characteristics, Controlling for Age, Generation, and Income Quintiles.

	Model 1 b (SE)	Model 2 b (SE)	Model 3 b (SE)	Model 4 b (SE)
Intercept	4.85 (.06)***	4.91 (.07)***	4.98 (.11)***	5.32 (.15)***
Actual Characteristics	.75 (.07)***	.75 (.07)***	.61 (.13)***	.59 (.13)***
Desired Characteristics	-.06 (.09)	-.06 (.09)	.08 (.15)	.09 (.15)
Actual Characteristics ²	-.05 (.02)*	-.05 (.02)*	-.04 (.05)	-.04 (.05)
Desired*Actual Characteristics	.05 (.05)	.05 (.05)	.12 (.09)	.10 (.09)
Desired Characteristics ²	-.05 (.04)	-.05 (.04)	-.17 (.08)*	-.17 (.08)*
Year: 1998		-.09 (.06)	-.31 (.15)*	-.26 (.15)^
Year: 2006		-.10 (.05)^	-.42 (.19)*	-.33 (.20)^
Year: 2016		-.12 (.05)*	.14 (.18)	.29 (.18)
Actual Characteristics*Year98			.16 (.18)	.16 (.18)
Desired Characteristics*Year98			.12 (.22)	.11 (.22)
Actual Characteristics ² *Year98			.03 (.07)	.03 (.07)
Actual*Desired*Year98			-.15 (.13)	-.15 (.13)
Desired Characteristics ² *Year98			.05 (.11)	.06 (.11)
Actual Characteristics*Year06			.60 (.21)**	.60 (.21)**
Desired Characteristics*Year06			-.34 (.27)	-.33 (.27)
Actual Characteristics ² *Year06			-.08 (.07)	-.08 (.07)
Actual*Desired*Year06			-.30 (.14)*	-.29 (.14)*
Desired Characteristics ² *Year06			.36 (.13)**	.35 (.12)**
Actual Characteristics*Year16			-.01 (.19)	.00 (.19)
Desired Characteristics*Year16			-.52 (.26)*	-.53 (.26)*
Actual Characteristics ² *Year16			-.04 (.07)	-.03 (.07)
Actual*Desired*Year16			.12 (.13)	.12 (.13)
Desired Characteristics ² *Year16			.17 (.12)	.18 (.12)
Age				-.00 (.00)
Generation				-.13 (.03)***
Income Quintiles				.03 (.02)^
ΔR		.001	.008**	.006***
R ²	.186***	.188	.196	.202

Note. N = 3272; Year: 1997 = 1997 dummy code; Year: 2005 = 2005 dummy code; Year: 2016 = 2016 dummy code.

^p < .10; ***p < .001

Table 4
 Simple Surface Polynomial Regressions and Lines of Congruence and Incongruence for Intrinsic Job Characteristics Calculated Using Weighted Linear Combinations

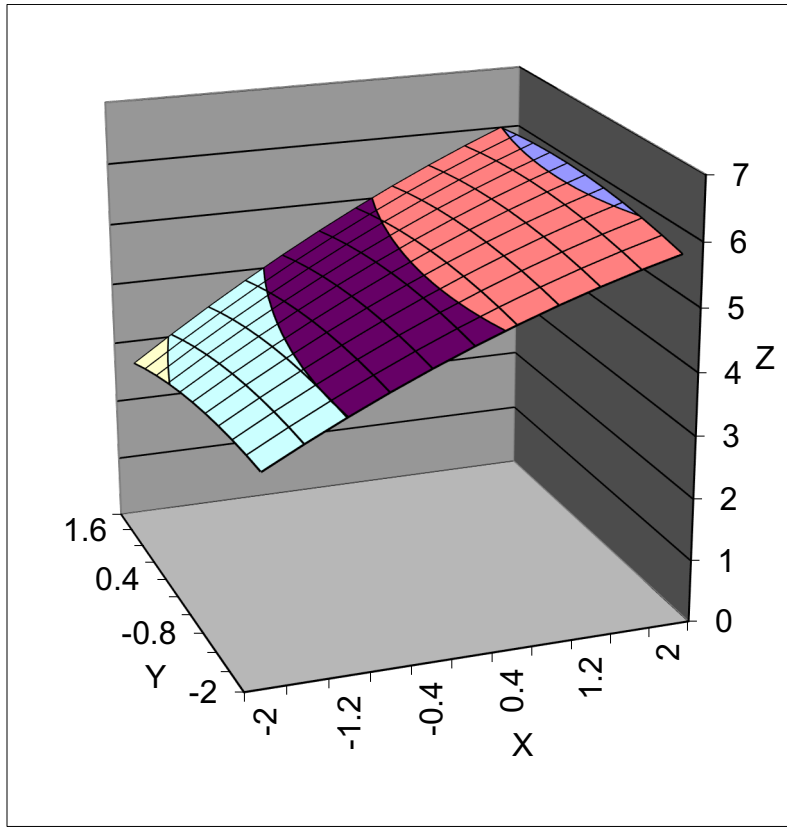
Weighted Linear Combination	Simple Slope: 1989	Simple Slope: 2006	Simple Slope: 2016
Intercept	5.67 (.66)***	5.00 (.21)***	5.61 (.21)***
X/X*M	.59 (.12)***	1.19 (.16)***	.59 (.14)***
Y/Y*M	.09 (.14)	-.23 (.22)	-.44 (.21)*
X ² /X ² *M	-.04 (.04)	-.12 (.06)*	-.08 (.05)
X*Y/X*Y*M	.11 (.09)	-.19 (.10)^	.23 (.09)**
Y ² /Y ² *M	-.17 (.08)*	.17 (.10)^	.003 (.09)
<i>Congruence Line</i>			
Slope	.68 (.17)*** [.34, 1.01]	.96 (.27)*** [.44, 1.48]	.15 (.24) [-.32, .63]
Curve	-.10 (.08) [-.26, .06]	-.13 (.11) [-.34, .09]	.16 (.11) [-.05, .36]
<i>Incongruence Line</i>			
Slope	.50 (.20)* [.11, .89]	1.43 (.28)*** [.89, 1.97]	1.03 (.25)*** [.54, 1.52]
Curve	-.32 (.15)* [-.61, -.03]	.24 (.18) [-.11, .59]	-.30 (.16)^ [-.61, .01]

Note. X = actual job charac.; Y = desired job charac.; M = Year 1989, 2005, or 2016 dummy codes

^p < .10; *p < .05; **p < .01; ***p < .001

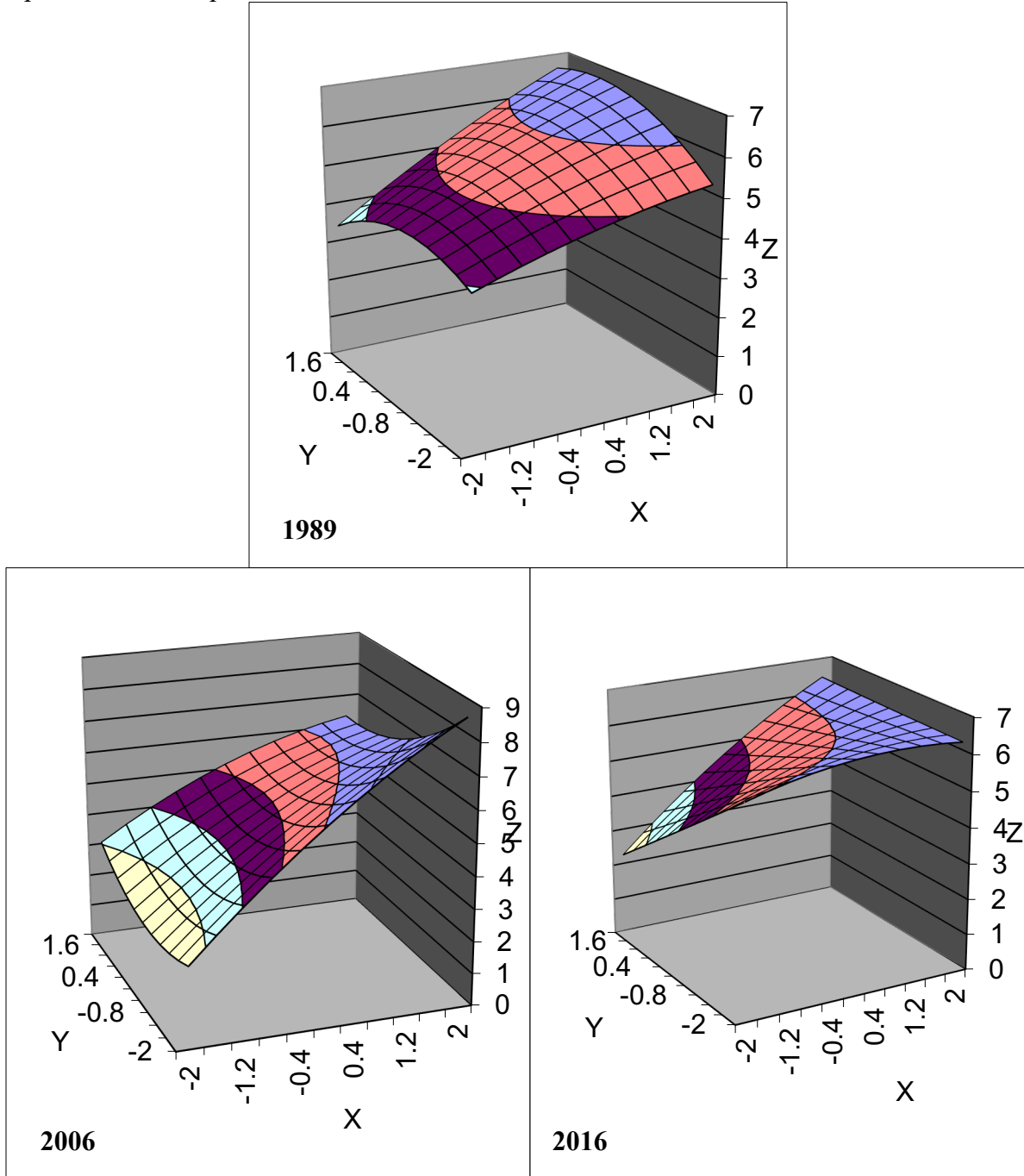
Figure 1

Response Surface for Overall Main Effects of Intrinsic Job Characteristic (In)Congruence on Job Satisfaction



X = actual intrinsic job characteristics; Y = desired intrinsic job characteristics; Z = job satisfaction

Figure 2
Simple Surface Comparisons of 2006 and 2016 to 1989 for Intrinsic Job Characteristics.



X = actual intrinsic job characteristics; Y = desired intrinsic job characteristics; Z = job satisfaction