

WORK DESIGN AND JOB SATISFACTION IN THE MODERN ENTREPRENEURIAL WORKPLACE

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ABSTRACT

The nature of work is changing at a rapid pace with entrepreneurial firms playing a critical role as they create the jobs of tomorrow. Although work design research has a rich history, contemporary work environments remain understudied. In this research, we explore the connection between job satisfaction and work design within new ventures, including firms that have redefined their respective industries. To do so, we took an exploratory approach, leveraging several methods including content coding, machine learning, and hierarchical linear modeling, across a multi-level dataset of entrepreneurial firms, with employee data extracted from Glassdoor.com.

INTRODUCTION

In the modern knowledge economy, recruitment and retention of talent is a fundamental source of competitive advantage. As such, growing, young companies such as Google and Dropbox invest heavily in adjusting work so that their employees can thrive in the workplace. This involves modifying the physical context with things like free food or pet-friendly workspaces, along with intangible work characteristics such as career development opportunities and flexible work arrangements. More generally, entrepreneurial firms are driving work design changes – both in terms of what firms offer and in what employees appreciate (cf. Parker, Morgeson & Johns, 2017). For example, these firms attract a young workforce with modern ideals and aspirations (Ouimet & Zarutskie, 2014). This is in part due to a lack an imprint from prior organizational history (Mathias & Williams, 2018) along with less bureaucracy (Sorenson, 2007). In addition, scholars note that work design theory has yet to sufficiently consider these changes (Parker, 2014) and that a macro-oriented focus on work characteristics rather than task significance is needed (Parker et al., 2017). Further, the relationship to important outcomes is largely unknown (Baron, 2010). For example, these firms often offer extreme levels of job enrichment and job enlargement, which likely influences job satisfaction and performance.

In this research, we take a step towards exploring the connection between work design and job satisfaction in the modern entrepreneurial workplace. We do so by building a unique dataset, which consists of over 17,000 employee ratings of 647 new, high-potential ventures from Glassdoor.com. All firms were created within the last ten years, and include those that have re-shaped their industries, such as Uber, Blue Apron, Groupon, and Airbnb.

Given our purpose to uncover the nature of work design in the modern entrepreneurial workplace, we use an exploratory research design. Specifically, we rely on quantitative content analysis of 16,000 unprompted, free-form employee narratives of the pros and cons of their workplaces, collected in an unobtrusive manner. This is a novel approach within the work design literature and stands in contrast to typical hypothesis testing quantitative research using employee ratings of categories predefined by researchers as well as to small-sample qualitative exploratory analysis.

This research stands to make several contributions. First, we identify the dimensions of work design that are the most salient to a large number of employees across different job titles, companies, and industries. This allows us to potentially uncover hitherto unexplored categories of work design and to do so in a manner that should lead to findings that are robust and generalizable. Second, we link these work design categories to job satisfaction, allowing us to determine the relative importance of various aspects of job design – novel and traditional – for increasing and decreasing job satisfaction. Such research has been explicitly called for (Parker et al., 2017), and contributes to the development of work design theory. It also has straightforward implications for how firms can design work in ways that are more attractive.

THEORETICAL GROUNDING

A key motivation of work design research is to uncover ways to enrich jobs; as such, simplistic jobs that are often repetitive and boring have been central to the majority of these studies (Parker, Knight, & Ohly, 2017). However, the nature of work is changing at a rapid pace across many skill levels – with entrepreneurial firms, in particular, playing a critical role. Not only are they major drivers of new jobs (Shane, 2009), but also offer innovative job features as they compete for top talent.

Entrepreneurial firms are unique in that they lack bureaucratic oversight (Sorenson, 2007), have highly uncertain outcomes (Baron, 2010), and reflect the identities of their founders (Matthias & Williams, 2018). Contrary to established firms, new ventures lack history, which in turn gives the entrepreneur even greater autonomy as they establish the various facets of the firm's work environment. Further, these features are likely to change rapidly as the firm grows, affecting employees in various ways. On the hand, there might be high quality and more specialized positions within the firm (Bennett & Levinthal, 2017), increasingly competitive compensation schemes (Burton, Sorenson & Dahl, 2018), and better human resource systems (Rauch & Hatak, 2016). On the other, the social dynamics of the firm change as leadership evolves (Desantola & Gulati, 2017), which can be especially frustrating to incumbent employees as they find themselves with increased workload due to the lack of firm specific knowledge (Foss et al., 2008) and an onslaught of cultural and communication problems (e.g., Tan & Mahoney, 2008). Thus, entrepreneurial firms can be extreme in terms of work design features (Baron, 2010), where factors like autonomy and challenge come in overabundance, and thus work might not be appreciated in the same ways they would be in established firms.

Due to the small size and rapid change of entrepreneurial firms, organizational level characteristics are likely to be of greater importance. These macro-oriented aspects of work design have been noted as poorly understood antecedents, yet crucial to enhancing modern work design theory (Parker et al., 2017). For example, new ventures adding employees at a rapid rate might go through several iterations of management structure, alternating between flat and hierarchical structures as they find the model most conducive to their organization. As this process unfolds, it will have a large influence on job satisfaction as employees tend to be sensitive to issues around their leadership (Braun, et al., 2013).

While the literature offers several theoretical models concerning work design, substantial gaps remain, which we believe warrants an inductive investigation to discover factors most important to the employees working within these firms. Thus, we seek answers to the following research questions:

(a) Which features of work design do employees tend to focus their attention on and (b) how do these features influence their job satisfaction?

METHOD

Research Design and Sample

Our study's focal point is to define dimensions of work design deemed important by the entrepreneurial workforce and link them to job satisfaction. As such, we constructed a multi-level database of employees nested with their respective firms. First, we located a set of high-impact new ventures (ten years or younger) from the private firm database PrivCo. PrivCo collects data on millions of private firms, emphasizing those of large impact or high potential. Next, we matched this firm-level information with employee data from the website Glassdoor.com, via custom-developed web harvesting software. Glassdoor allows employees to anonymously share both positive and negative aspects of their work experience via free-form text responses as well as 5-point Likert-type rating scales.

These data offer several advantages that are highly relevant to our inquiry. First, our firm sample includes many high-profile new ventures that are redefining the modern workplace. Second, we collected large amounts of employee data, and did so in an unobtrusive manner, which should reduce bias (e.g., Anders, Brusso & Cavanaugh, 2016). As scholars have noted (e.g., George, Osinga, Lavie, & Scott, 2016), there is now tremendous opportunity to research evaluations and opinions of people as they increasingly voice their viewpoints in different forums on the internet. Text narratives covering the "pros" and "cons" of their work experience as well as overall assessment of job satisfaction accompany each employee record, offering robust insights into factors deemed important to employees. The final sample resulted in over 17,854 employees nested in 647 new ventures.

ANALYSIS AND RESULTS

Content Analysis Coding Approach

We followed a multi-step procedure to ensure the accuracy and reliability of our coding measures, drawing inspiration from Shepherd and Williams (2016) who build upon Krippendorff (2004) for quantifying and analyzing textual statements. First, we defined our unit of analysis as the entire narrative left by the employee in its respective category of "pro" or "con". The primary reason is to capture the context of the employee's full narrative, which has the potential to reveal deeper insights in contrast to word count or sentence level approaches. Also, to fully take context into account, we rely on manual coding of the narratives (cf. Shepherd & Williams, 2016) rather than some text analysis tool. Next, we defined our coding categories. We looked to current literature on work design as a starting point (e.g., Morgeson and Humphrey, 2006), and extended these by generating conceptual dimensions using inductive methods for analyzing text (Gioai et al., 2013). To ensure relevance, consistency, and validity of these categories we followed established routines for generating the categories (Weber, 1990). First, two scholars (one with expertise and one a novice) independently reviewed 100 randomly selected records, inductively generating whichever open codes they deemed appropriate. Two other scholars then reviewed these codes and the associated 100 records to consolidate the categories and relate them to established work design concepts, where appropriate. The two initial coders then used these categories (now predefined) to again code the 100 records. Where there was disagreement, all four scholars then conferred to

modify the categories as appropriate. Next two independent coders (novices) were recruited to code the 100 records using these categories. After receiving instructions regarding the purpose of the research and the definitions of the categories, the agreement of the coders was acceptable.

Work Design Categories

After the reliability of the categories was firmly established (e.g., Weber, 1990), our findings suggest that the salient work design aspects deemed important by the entrepreneurial workforce can be categorized into 31 salient categories. These 31 categories, in turn, can be organized more broadly into the following seven thematic constructs: (a) the nature of work; (b) colleagues; (c) leadership; (d) rewards & incentives; (e) philosophical qualities; (f) policies; and (g) firm qualities.

Nature of work includes categories that are directly related to the work being carried out by the employee. This includes the six categories of autonomy (employees given the freedom to define and carry out their work), challenging (a positive stress, related to the difficulty of the work or the workplace), learning (an opportunity to develop knowledge or learn new skills), low stress (a minimal amount of work-related pressure), variety (work that involves several different tasks) and fun (the work itself is felt to be enjoyable).

Colleagues are those categories that relate to the attributes concerning the employee's peers, and includes three individual categories: personal, professional, and support. We distinguish between personal and professional attributes of colleagues, depending on what it is that the respondent likes about their co-workers. Describing a co-worker as nice or funny would be considered a personal attribute because it is not related to the work being done, whereas referring to them as smart or hardworking would be considered a professional attribute, since it relates to their co-worker's ability to perform. The remaining category, support, refers to the help one receives from their co-workers, in completing their work.

Leadership mirrors the colleague's theme, in that we use three categories to distinguish different aspects of management: interpersonal, effectiveness and social support. Interpersonal aspects are those pertaining to the way management acts (their kindness or their charisma), while effectiveness attributes are those related to how they perform (their work-related skills and abilities). Social support is again used to capture the help one receives, except this time from managers. Leadership also includes a feedback category, to account for the feedback one may receive from their boss, related to the work that they are doing.

Rewards & incentives is a theme consisting of four categories that are perceived to have or add value. This includes compensation (financial pay and benefits), perks (valuable offerings within the workplace), physical environment (the quality, design, and/or functionality of the workplace, including – but not limited to – such things as the building's location, the office cleanliness, and the quality of the equipment), and career opportunities (the possibility for advancement and promotion).

Philosophical qualities are intangible aspects with personal value. This group includes the categories of prosocial meaning (the opportunity to make a difference in the world), personal meaning (the opportunity to grow or further oneself in non-work related ways), well-being (the psychological and physical well-being derived from work), opinions matter (you feel that you are listened to, and can have an influence on the business outside of your own work), and work-life balance.

Policies capture any rules a company puts in place that have a positive effect on its employees. Rather than include a category for every potential type of policy, we instead include those three that occurred frequently enough in the data to be considered worth noting. These frequently occurring policies include flexibility of place and time (the ability to work when and where you want), dog friendly workplaces, and dress codes.

Firm qualities are categories that relate to the firm as a whole. This includes the four categories of culture/climate (which we grouped together, due to the way they typically used interchangeably by respondents), performance (how well the company is doing financially), prestige (the perceived status or reputation one has of the firm), and product (what it is that the company actually produces).

Two alternate themes capture items that do not fit the categories above - external relations (interacting with different stakeholders, such as customers or suppliers) and “great company” (which captures a vague response that cannot be classified further, given the context in which it was provided).

Multi-label Category Coding with Machine Learning

Following the establishment of the categories above, two independent coders then categorized a random set of records, containing approximately 1,000 records each which was then used as a basis to train a multi-label machine learning algorithm (Zhang, Li, Lui, & Geng, 2018), which then was used to predict our full data set. Multi-label learning tasks are a subset of problems where each record can be labeled by multiple categories. For example, a firm might offer both dog-friendly workplaces and attractive physical environments. More specifically, we leveraged the open-source Python library “Scikit-Learn” to implement a Binary Relevance procedure leveraging the Gaussian Naïve Bayes (GNB) algorithm. Binary Relevance is particularly attractive for multi-label text classification tasks because it treats each category as independent from each other. In other words, the algorithm would not assume that dog friendly workplaces also have an attractive physical environment. GNB has the advantage of being straightforward to implement.

We then tuned our processes and algorithm in an iterative fashion with a goal of improving accuracy between the machine and human coders, using 30% of the 2,000 human coded records as the training set, predicting against the remaining 70%. These include standardizing the case of each word and implementing a stemming function to simplify text processing, effectively eliminating the end of words (e.g., “leadership” and “leaders” would become “leader”) – a common practice within natural language processing (Banks, Woznyj, Wesslen, & Ross, 2018). The text was then vectorized using a term frequency/inverse document frequency (TFIDF) process providing a statistical weighting to each set of terms, considering both its occurrence within the record and across all records. Essentially, the TFIDF statistic aims to offer insights into what the text being analyzed is about, within the context of the entire corpus. For an illustration within our study, the work design feature of “challenging work” might salient across many records suggesting that it is not a unique feature of a positive work environment. However, if the employee mentions “challenging work” several times, it is likely a very important feature in this particular case. Other settings include analysis at the word level with an n-gram (sequence of words) ranging between 1 and 4. This resulted in a coding accuracy (computed as a percentage of matched records) of around 70% on average against the fully coded data set. Following the tuning, the entire set of 16,106 was coded by the machine.

Modeling

To test which dimensions had the most effect on job satisfaction, we ran a two level hierarchical model – nesting employees within their respective firms – with the entire set of 31 categories referenced above as independent variables and a set of controls at both levels. For the sake of brevity, we highlight only those with the largest effect sizes. In line with previous studies, dimensions related to self-determination (e.g., Gagne & Deci, 2005) were important factors, as well as the culture and climate of the firm. Dimensions around supportive and engaged leadership were also important factors. The strongest factors however, were found within categories related to the way the employee engages with the workplace – specifically that they feel their opinions matter and they receive high quality feedback from their management. Categories such as perks, compensation, and career opportunities were surprisingly less important.

DISCUSSION AND IMPLICATIONS

Scholars have noted that current theories of work design are not progressing fast enough to address the rapidly changing nature of work (Parker et al., 2017). While there has been phenomenal progress over the years unpacking characteristics that yield high quality jobs (Grant & Parker, 2009), the contemporary workplace, particularly entrepreneurial firms, has been understudied. As a result, our study offers new insights into the work design and entrepreneurship literature.

First, we used a novel approach, leveraging both human and computer assisted methods, to extract the dimensions of work deemed important to employees. In comparison to researcher-defined or single-firm studies, our methods glean insights directly from employees emphasize as important. Second, we estimate how these dimensions of work design relate to job satisfaction, giving a sense of which dimensions matter most. Last, entrepreneurial firms are creating jobs of the future – highlighting the practical insights and potential impact of our findings.

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