Voicing job satisfaction and dissatisfaction through Twitter: employees’ use of cyberspace

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This article adopts a work orientations perspective to consider how, through the medium of Twitter, employees voice the things they love and hate about their jobs. Using 817,235 tweets posted by 650,958 users in the calendar year 2014, the findings provide new insights into both employee voice and job satisfaction/dissatisfaction as well as an enhanced understanding of the employment relationship. First, the findings indicate that Twitter, in its expression of very personal and individualistic needs, might be considered a new form of employee voice. Second, Twitter captures the positive, the negative and the ambivalence in the notion of job satisfaction. Third, the description of the methodology used to access and analyse Twitter data illustrates how new methodological approaches, particularly those embedded within computer science, may be of value to social scientists in their analysis of ‘Big Data’.

Keywords: Big Data, employee voice, job satisfaction, job dissatisfaction, Twitter, work orientations, social media, employment relationship.

Introduction

While there are extensive literatures on employee voice and job satisfaction, theories are generally located within clearly defined organizational structures. But the advent of social media has changed dramatically the permeability of such structures. Employees, through mechanisms such as Facebook, Twitter or Instagram, now have both the opportunity and the means to voice their satisfaction and dissatisfaction with their jobs, and to a much wider audience than might ever have been envisaged by employers. Such developments have implications for the understanding of voice, job satisfaction/dissatisfaction and the employment relationship.

This article explores employees’ use of Twitter as a channel to voice their positive and negative feelings about their jobs. A work orientations perspective (Goldthorpe...
et al., 1968; Doorewaard et al., 2004; Warr and Inceoglu, 2018) is utilized to explore how, in a short tweet, employees express the things they love and hate about their jobs. This use of Twitter is discussed against the backdrop of the employment relationship. In addition, the methodology used to access and analyse Twitter data draws on the tools and techniques of computer science and may therefore be of value to social scientists in their analysis of ‘Big Data’. The article begins by examining how voice, job satisfaction/dissatisfaction and the employment relationship are understood within the extant literature and how the advent of social media suggests limitations to this understanding. The methodology is then described before the findings and their implications are considered. The analysis shows that employees tweet about issues that have long been considered core to the employment relationship: the type of work that they do, the managers they have, and their relationships with their co-workers and customers. However, their sentiments are often expressed in powerfully emotive terms that are far removed from the anodyne language that has traditionally been used in large-scale quantitative research to capture employee perceptions of satisfaction or dissatisfaction. These revelations provide insights into the types of issues that are at the core of contemporary work and the messages that employees may wish to send—to their managers, their organizations, their colleagues and very many unknown recipients—of their work experiences. As such, the findings contribute to the call for research that explores ‘the phenomenon of employees’ colonization of cyberspace’ and considers ‘how such processes may well shed light on a wider range of issues in unpredictable work environments and the ever more precarious nature of employment’ (Richards and Kosmala, 2013: 76).

**Twitter and employee voice**

Twitter is an online form of microblogging that was launched in 2006. It is a predominantly public forum which means that employees’ tweets are accessible to a very wide audience beyond their own personal networks through retweeting, replying, and adding hashtags. It has been argued that self-presentation is an important aspect of Twitter (Murthy, 2012) and that the often banal content is an ‘important vehicle of self-affirmation’ by providing ‘ways for individuals to assert and construct the self which are contingent on a larger community of discourse’ (Murthy, 2018: 32–33). Indeed, Twitter has been described as a ‘microphone for the masses’ (Murthy, 2011). Employees, through Twitter, have both the opportunity and the means to voice about events in their jobs, no matter how significant or insignificant those events might seem when viewed by others. At the same time, Twitter users may not necessarily represent the general population as there is evidence that they are more likely to be young, male and professional (Mislove et al., 2011; Sloan et al., 2015).

Notwithstanding the advent of social media, theories of employee voice remain organizationally oriented. In human resource management (HRM) and employee relations (ER) research, the focus is on formal voice mechanisms and the structures used to manage employee participation. Voice is regarded as a collective phenomenon with the potential to challenge management (Wilkinson and Fay, 2011). Researchers in the organizational behaviour (OB) discipline focus more on informal voice, viewing it as the discretionary communication of ideas whereby employees voice suggestions, concerns, or opinions about work-related matters in order to improve the functioning of the unit or organization (Morrison, 2014). Morrison proposes that it is useful to distinguish between suggestion-focused voice, problem-focused voice and opinion-focused voice. Suggestion-focused voice is the communication of ideas about how to improve the work unit or organization; problem-focused voice relates to an employee’s expression of concern about work practices, behaviours or ideas that s/he regards as harmful to the organization; while opinion-focused voice is about communicating views on work-related issues that differ from those held by others. However,
none of these mechanisms leave room for employees to express dissatisfaction with their working lives.

The advent of social media has changed dramatically the perviousness of organizational structures. It is not only the case that new channels for voice—which may or may not be sanctioned by the organization—have emerged, but the way in which voice might be expressed has also changed. As Balnave et al. (2014) point out, users of social media can upload video, photo and text almost instantly with the potential to disseminate this material to a wide audience that is geographically disperse with ‘ramifications for collective as well as individual expressions of voice’ (p. 440). Yet, while it is acknowledged that employee voice mechanisms are evolving and that the targets of voice are broadening as they respond to macro-level changes such as the use of social media (Mowbray et al., 2015), very little research has been undertaken to explore how this is taking place and what the implications are for the conceptualization of employee voice. This leads to research question one: in the context of job satisfaction/dissatisfaction, what is the nature of employee voice when Twitter is the communication mechanism?

Employee voice and job satisfaction

The multi-faceted nature of job satisfaction, as well as the fact that it holds different meanings for researchers from different disciplines, creates levels of complexity in interpreting what workers mean when they pronounce themselves to be satisfied or dissatisfied with their jobs. The literature on job satisfaction is extensive. Two main streams of research—one from psychology and one from sociology—provide a variety of insights. A recent review from a psychological perspective (Judge et al., 2017) traces the early research by Herzberg et al. (1959), which focused on notions of satisfiers and dissatisfiers, to more recent work which builds on this notion in its consideration of attitudinal conflict in which positive and negative evaluations of a job may coexist, thereby leading to ambivalence (van Harreveld et al., 2015). Judge et al. (2017: 366) provide examples such as ‘the consequences for a worker who holds a job that produces positive attitudes because of the positive humanist features like meaning and interesting work, but which also produces negative attitudes because it incorporates low pay and low social status’. Such notions of within and between object variance are not easily captured by standard job satisfaction Likert scales, which require individuals to place their attitudes in a bipolar attitude space. Judge et al. (2017) therefore propose that more grounded theory development is needed to better understand the independence of positive and negative attitude systems where employees may describe negative features of their work for which there is no corresponding positive antipode.

From a sociological perspective, Brown et al. (2012: 1009) distinguish between the subjective approach to job satisfaction that focuses on well-being with the objective approach to job quality, defined as ‘overlapping job characteristics that satisfy work-related needs’. These include elements such as pay, the creative content of work, interest inherent in work, relationships with colleagues, position within the organization/class hierarchy, work influence, skill, etc. Similarly, Rose (2003: 509) suggests that patterns in job satisfaction are the outcome of five different types of influence: the terms and conditions of the employment contract, working hours, monetary rewards, the work situation and workers’ orientations and career aims. The nature of work orientation has been explored in some detail by sociologists (Goldthorpe et al., 1968; Rose, 2003; Warr and Incoglu, 2018). Rose (2003) also suggests that it is necessary to explore both the extrinsic or instrumental aspects of employment, such as promotion, pay or job security as well as the intrinsic quality of work such as relationships with managers and the nature of work itself. A framework has also been proffered (Doorewaard et al., 2004) that integrates work orientations with work motivation. This framework distinguishes between three categories of work orientation: job, people, and money, and includes an indicator of whether these orientations
reflect intrinsic (i.e. the nature of the work, relations with managers) or extrinsic (i.e. pay, promotion, hours of work) motives (Herzberg et al., 1959; Rose, 2003; Doorewaard et al., 2004).

Social scientists have traditionally employed either quantitative or qualitative techniques to garner insights into employees’ work views. Surveys usually confine responses to carefully constructed and predefined questions on specific elements of work and may not necessarily always capture what it is that employees may wish to voice about their satisfaction or dissatisfaction with their jobs. While rich insights are captured from qualitative studies these generally access only small numbers of employees. However, in both cases, responses are, to a greater or lesser extent, mediated by the presence of the researcher. In contrast, Twitter offers ‘an unmediated glimpse into the world of work’ (Schoneboom, 2011a: 133). At present there is limited research exploring how Twitter may be used to voice job satisfaction/dissatisfaction. An analysis of 38,124 tweets of 433 employees in professional jobs (van Zoonen et al., 2016) found that approximately a third of these were work-related and that these referred most frequently to the profession, the organization, work behaviours and in-group communication. The research by van Zoonen et al. bundled the ways in which employees communicated their views using the theme of ‘sentiment’, broken down into personal positive, neutral or negative feelings, emotions or opinions and found that the majority of employees’ tweets were characterized by a neutral sentiment. In the light of these insights, research question two asks: does the advent of Twitter challenge extant theories of job satisfaction?

### Employee voice, job satisfaction and the employment relationship

A recent analysis of the impact of social media on the employment relationship suggests that social media technologies provide a ‘shared space for discontinuous and asymmetric concerns from employment relations actors’ (McDonald and Thompson, 2016: 75). Boundaries between work and non-work and between public and private lives have blurred, thus opening up new possibilities for contestation in the employment relationship (Hurrell et al., 2013; McDonald and Thompson, 2016). From an employee’s perspective, voice opportunities available through social media, such as Twitter, might be viewed as ‘a rationale for communicating work experiences considered authentic to those outside the organisation’. At the same time, how these experiences are framed is of interest to employers who are interested in ‘protecting and promoting a positive brand image to relevant stakeholders’ (McDonald and Thompson, 2016: 80). This might explain why employers are increasing their surveillance of employees through their monitoring of employees—or potential employees—use of social media (Richards, 2008) and such monitoring has the potential to extend employer control into employees’ non-work lives (Hurrell et al., 2013).

Evidence from the literature on blogging, of which Twitter is a variant, suggests that it is ‘primarily about communication’ and ‘allows employees a novel mode of expression’, indicating that ‘whether employees are happy with their work or not, employees seem far from satisfied with current arrangements (whether provided by the organization or not) for discussing and debating their jobs and the challenges they face at work’ (Richards, 2008: 106). Richards indicates that his findings point ‘towards a shifting locus of conflict expression: from workspace to cyberspace’ (p. 9) and that ‘cyberspace can represent a new arena for self-organised conflict expression’ (p. 10). Similarly, Schoneboom (2011b), in an analysis of an incident where a blogger was fired from Waterstones, identifies the blog as a vehicle for communicating dissent. It has been mooted (Richards and Kosmala, 2013: 76) that being cynical about work in their blogs may enable employees to ‘resurrect and galvanize a sense of control and attachment to their own occupational or professional community, while providing distance from corporate culture initiatives’. Klaas et al. (2012: 337) also suggest that social media might be considered a form of justice-oriented voice where voice is used
as revenge to harm the reputation of the employer. However, the limited evidence on this aspect of voice suggests that this might be very much an exception (Martin et al., 2015) and may depend on the influence that employees may have within their social networks.

Linked to the potential to enhance or damage the reputation and brand of organizations is the potential ‘reach’ of employees’ tweets. Evidence suggests that bad news and emotionally charged tweets tend to be shared more often and more quickly than good or neutral (i.e. informative) news (Stieglitz and Dang-Xuan, 2013). While trustworthy and influential individuals have always played a key role in shaping other people’s opinions, the advent of social media has dramatically amplified their reach (Booth and Matic, 2011). The literature on quantitative indicators of influence focuses on two inter-related themes—social media reach and social credibility. An account’s potential reach is not determined solely by the direct followers of that account but by all users who could access the tweets of a given account directly (by following) and indirectly through retweets, hashtags, search and other third-party interfaces on which Twitter is syndicated. Ohanian (1990: 41) defines source credibility as ‘a communicator’s positive characteristics that affect the receiver’s acceptance of a message’. On social media this may include self-generated information (e.g. tweets), other-generated information (e.g. followers’ retweets and replies); and system-generated information (e.g. the number of tweets, followers, lists etc.) (Jin and Phua, 2014). As such, online reach is a key predictor of source credibility. Other mechanisms, such as whether an account is verified by the social networking site (i.e. verified status) and third party social media influence rating systems, such as Klout, have been found to increase both perceived trustworthiness (Abbasi and Liu, 2013) and general source credibility (Edwards et al., 2013) of a Twitter account. Organizations may therefore be more inclined to pay particular attention to what stakeholders with greater reach or perceived source credibility on social media, including employees, reveal on social media because of the potential effects on organizational reputations. This leads to research question three: what are the implications of the voicing of job satisfaction/dissatisfaction for the employment relationship?

Methodology

The study adopts a mixed methods approach, combining data science-based descriptive analytics and content analytics with manual coding. Both quantitative and qualitative data were used to examine specific user characteristics, namely trustworthiness and social reach, through the lenses of verified status and Klout scores. The research methodology can be divided into three main phases as summarized in Figure 1.

Figure 1. Summary of research methodology
Phase 1: Identify, extract and clean data

The data for the study was licensed from DataSift, a commercial data aggregation platform that provides access to the entire Twitter firehose. The DataSift Historical Powertrack API platform was used as it allowed historical search and extraction from the Twitter corpus, provided additional augmented data (e.g. Klout scores), and avoided sampling issues reported by researchers using the limited public Twitter streaming API (Morstatter et al., 2013). This API was queried for all English language tweets featuring the keywords ‘love’ and ‘job’ or ‘hate’ and ‘job’ that were posted from January 1, 2014 to December 31, 2014. The JSON files containing the results were downloaded and converted into a structured database. The initial dataset consisted of 2,121,139 tweets posted by 1,506,863 unique users comprising 1,926,108 original tweets, 195,031 replies and 4,418 retweets. We limited the dataset to the following fields: timestamp, user screen name, summary (bio), verification status, Klout Score and message (tweet).

The dataset contained a substantial number of tweets that were not work-related. To reduce the amount of ‘noise’, tweets meeting the following requirements were extracted from the initial dataset: (i) original tweets, as the study was only interested in what employees tweeted about rather than the conversation(s) they engaged in (n = 195,031); (ii) tweets featuring the exact phrase ‘love my job’ or ‘hate my job’ and/or the hashtag ‘#lovemyjob’ or ‘#hatemyjob’, as these keywords/hashtags were clearly associated with work-related content; (iii) tweets expressing clear emotions (i.e. either hate or love). Our final dataset consists of 817,235 tweets posted by 650,958 users.

Phase 2: Tweets and users classification and statistical analysis

To extract information from the dataset, two automated classifiers were developed in R. First, an occupation classifier using a bag-of-words approach was developed to ascertain the types of individuals who were tweeting about their jobs. The initial list of keywords used to develop the classifier included the full list of occupations provided by the International Standard Classification of Occupations (ISCO, 2018). This list was then manually extended to include position acronyms (e.g. CEO) and titles (e.g. Chief Technology Officer). The vocabulary was pruned to reduce the dimension of the document-term matrix and improve the effectiveness of the classification (Madsen et al., 2004; Leskovec et al., 2014). Second, a topic classifier was developed to identify the work-related topic(s) mentioned in the tweets. The initial list of keywords was identified through manual coding and a bag-of-words approach based on pruning (Madsen et al., 2004), combined with a document-term matrix (Leskovec et al., 2014), was adopted. Two researchers working independently analysed a sample of 2,312 tweets and created categories based on the topic(s) mentioned in the tweets in order to identify keywords. Five themes were identified: working hours, working relationships (with manager, co-workers and customers), pay, working conditions and the nature of the job. These resonated with those found in the work orientations literature and so Doorewaard et al.’s (2004) work orientations framework (2004) was adopted as the basis for categorizing the data. Following the manual coding, the keyword list was extended to include additional words that the same two researchers identified for each category within the most frequently occurring terms in each of the two high-level clusters of tweets (hate and love). This was performed using word frequency analysis in the ‘tm’ package in R (Feinerer, 2018) after removing standard stop words (e.g. ‘and’, ‘to’) so that only meaningful words were counted. All tweets in the dataset were then automatically classified. Table 1 presents the coding scheme. This includes keywords identified in the tweets, the categories used to capture keywords, the definition of these categories, and work orientation.

A series of statistical analyses was performed in order to investigate the relationship between hate/love, work-related topic(s) and users’ characteristics such as trustworthiness and social reach. ‘Verified status’ was used as a proxy for trustworthiness.
Table 1: Coding categories

| Sample keywords                                                                 | Category                      | Definition                                                                                                                                          | Orientation            |
|---------------------------------------------------------------------------------|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| Night; shift; day; flexible; time; hours; part-time; overtime; vacation; holiday; weekend | Working hours                 | Reference to work schedules: Shift work; split shifts; early mornings; overtime; part-time work; erratic hours; zero hour contracts; flexible work | Job-oriented; extrinsic |
| Flexible; competent; awesome; appreciate; coffee; food; TV; leave; quit; cool; friends | Working relationships: boss, co-workers and customers | Explicit reference to positive/negative relationships with boss, manager, supervisor; co-workers, customers, clients: consistent/inconsistent treatment; flexibility/inflexibility; perks (coffee, food, TV time); appreciation of effort/lack of appreciation; socialising; competence/incompetence of manager; awesome boss; praise; recognition | People oriented; intrinsic |
| Free; pay; money; discounts; bonus                                              | Pay                           | Tweets that refer to pay: deductions; low levels of pay; bonuses; perks; pay rises; discounts; holiday pay                                         | Money-oriented; extrinsic |
| Stand; heat; cold; noise; permanent; temporary; contract; busy                  | Working conditions            | Explicit reference to working conditions: physical effort; sitting/standing all day; temperature (hot/cold); noise levels; job security          | Job-oriented; extrinsic |
| Fun; interesting; cool; meaningful; boring; challenging; hard; easy; difficult   | Nature of the job             | Reference to the nature of the work: Valuable; important to society; autonomy/lack of autonomy; fun; interesting                                  | Job oriented; intrinsic |
(Abbasi and Liu, 2013) and Klout Score was used as a proxy for social reach. Klout captures a wider set of features within Twitter and signals beyond Twitter to provide a rating of social reach (Rao et al., 2015). While Klout has been critiqued for its lack of transparency (Gandini, 2014), research suggests that it is a useful proxy for data that is often difficult to source and can be a source of credibility in itself (Bode and Epstein, 2015). A year-long study of 87,675 Klout users showed that users with higher Klout Scores are able to spread information more effectively in a network than those with lower Klout scores (Rao et al., 2015). These elements were in line with this study’s interest in the implications of social reach for both employee voice and the employment relationship.

Descriptive statistics captured the frequency of tweets and users across the two high-level clusters of tweets (hate and love), different levels of users’ social reach, and different topics. A logistic regression was implemented to test empirically the contemporaneous effects of different user characteristics and specific job-related attributes on the probability of a user tweeting positively (i.e. love) or negatively (i.e. hate) about his/her job. Regression coefficients were estimated using both standard maximum-likelihood and robust variance estimator to ensure that results were not affected by observations dependence (Le Cessie and Van Houwelingen, 1994). Results are consistent across different estimation procedures.

Hate was categorized as a binary variable equal to 1 if a tweet contained the phrase ‘hate my job’ or the hashtag '#hatemyjob', or 0 otherwise. Klout Scores, which range from 0 to 100, were classified based on terciles; users with a score of >66.66 were classified as high, those with a score of 33.33 or less were scored as low, and those in between were classified as medium. The binary variable (Klout(Low) < =33.33) was not included in the regression model to prevent potential multicollinearity and was therefore used as a baseline to interpret the effects of Klout(Medium) and Klout(High). Verified Status was coded 1 if a user had a verified account, or 0 otherwise. Other explanatory variables were coded 1 if a tweet mentioned any of the five factors presented in Table 1 and 0 otherwise.

Phase 3: Results validation

The aim of the third phase was to validate the results of the statistical analysis, particularly in relation to users with higher reach (i.e. users with high Klout Scores). Two additional coders working independently manually classified a subset of 1,929 tweets posted by users with high Klout scores to verify the validity of the automated classification (i.e. hate vs. love, and job dis/satisfaction factors). The revised classification was then used within the same regression model presented above and findings were consistent.

Results

Manual and machine classification

The occupation classification revealed that 20 per cent of the sample (127,155 users) provided occupational details. Table 2 shows the breakdown of occupations with 16.30 per cent identifying themselves as managers. The largest group was that of professionals, which encompassed a very diverse range of occupations such as actors, dancers, artists, nurses and doctors. The breakdown of occupations is broadly similar to that found in a recent study using a UK classification system (Sloan et al., 2015). This noted an unusually high representation of creative occupations, also found in our sample. They suggest that Twitter is ‘used by people who work in the creative industries as a promotional tool’ (p. 8). Our data support this suggestion as some of those describing themselves as actors and dancers in our sample included media as part of their tweets.

The initial manual inspection provided valuable insights into the wide range of work experiences about which individuals tweeted. Some individuals attached
video or web links to their tweets. While some of these showed innocuous pictures of work, others led to explicit pornographic sites that provided a snapshot of the type of work undertaken by the presumed sex workers in the sample. Table 3 provides some sample ‘love my job’ and ‘hate my job’ tweets from the various categories identified. A number of tweets in the dataset (n = 31,215) did not contain a clear expression of love or hate. A sample of these tweets is presented in Table 4.

These sample tweets show the extent to which ‘love’ or ‘hate’ for a job is to a large degree conditional. For example, tweets expressed love for the job, but at the same time signalled hate when, for example, working long hours or fighting fatigue, dealing with death or dealing with rude bosses or customers. Tweets that mentioned overall dissatisfaction for the job also indicated love for certain aspects of it, such as for coworkers. These were removed for the main statistical analysis since they did not convey clear emotions and therefore could not be expressed as a binary variable (i.e. where 1 = hate and 0 = love).

Statistical analysis

Table 5 reports the total number of tweets and users by satisfaction category (i.e. Hate or Love), and by user social reach based on the Klout Score categories described above. The table shows that 658,763 tweets (80.6 per cent) were associated with job satisfaction (Love), while only 158,472 tweets (19.4 per cent) were associated with job dissatisfaction (Hate). The ratio between positive (i.e. Love) and negative (i.e. Hate) tweets is similar for medium and low Klout Score users. In the case of users with a high Klout Score, only 118 of the tweets (5.8 per cent) expressed job dissatisfaction. The average level of user activity is very low (1.26), with slightly higher levels of activity among the high and medium Klout Score users (1.35 and 1.34 respectively). The findings suggest that more influential users are more likely to be in the Love category, but also that Twitter users do not tweet frequently about loving or hating their jobs. Table 6 reports the means and standard deviations of all variables for the full sample across both Love and Hate categories.

The table shows that less than one per cent of tweets in the dataset originated from verified users and these were mostly associated with job satisfaction. It also shows that the average Klout score fell just inside the Medium Klout category, which is the most represented in the dataset. Of the different job-related topics included in the classification framework, working hours was the most mentioned in the full sample, followed by pay and relationships with managers. Similar patterns are found in both the Hate and Love categories.

Table 2: Breakdown of occupations

| Occupation                                       | No. of users | %     |
|-------------------------------------------------|--------------|-------|
| Managers                                        | 20,731       | 16.30%|
| Professional                                    | 77,620       | 61.04%|
| Technicians and associate professionals         | 19,567       | 15.39%|
| Clerical support workers                        | 264          | 0.21% |
| Service and sales workers                       | 5,148        | 4.05% |
| Skilled agricultural, forestry and fishery workers | 22           | 0.02% |
| Craft and related trades workers                 | 1,919        | 1.51% |
| Plant and machine operators, and assemblers     | 711          | 0.56% |
| Elementary occupations                          | 219          | 0.17% |
| Armed forces occupations                        | 954          | 0.75% |
| Total                                           | 127,155      | 100.00%|

Electronic copy available at: https://ssrn.com/abstract=3614738
| Category                  | Love my job                                                                                                                                                                                                 | Hate my job                                                                                                                                                                                                 |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Working hours             | **Boss pushed out our 11 pm call to 12am! Joy. I love my job. I love my job. I love my job. They’re letting us leave early to go home and watch USA play soccer**                                                                 | **Boss changed my fucking days. Now I’m working 5 days a week for two months and can’t change it. Fuck sake. I hate my job. I fuckn hate my job. Just when I’m almost done getting ready, my stupid job called to tell me I have to cover tonight’s shift! Fckn bs! ????** |
| Working relationships     | **I may complain about work, but I really do love my job. I couldn’t ask for better managers**                                                                                                               | **Ever since we got new managers I HATE my job almost a year of working at the same place and I haven’t even gotten a raise from minimum wage? i hate my job to begin with. it’s just 10x’s worse when i get rude ass customers??** |
| Customers                 | **So many people hate on their job but i love my job, it gives me hope and seeing customers happy is what gives me life**                                                                                       | **Fucking hate my job!! How can so many incompetent people get employed!!!**                                                                                                                                  |
| Co-workers                | **I love my job and the people I work with so I don’t mind working overtime**                                                                                                                                | **Why did i agree to work this week who cares if i need money, i hate my job**                                                                                                                                  |
| Pay                       | **I’ve been getting paid the past 6 hours and all I’ve done is sit in my hotel room. Man I love my job. I don’t have to work for the rest of the week but I’m still getting paid for all those days??**                          | **What a punishment i hate my job but i want money**                                                                                                                                                           |
| Working conditions        | **Crazy day at work but I love my job. I love my job. Its so easy. Right now i’m being paid for sitting down, eating Lays Cheesy Garlic Bread Chips, And Browsing Social Networks**                                      | **Gosh I hate my job when it’s too hot. I’m going home. I’m so cold my bones are aching. I’m probably dying. Who knows. Who cares. Good night. I hate my job. I’m so tired and I truly hate my job** |
| Nature of the Job         | **Tired but fulfilled. I love my job. What an awesome days work. I love my job. I love my job! Don’t know another job. that’s so much fun**                                                                      | **I hate my job, and I hate that I will be there ALL DAY. I have no fun at work anymore ??**                                                                                                                |

Table 3: Sample tweets in each category
| Category          | Love my job but …                                                                 | Hate my job but …                                                                 |
|-------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| Working hours     | Why did I volunteer to work 7 and a half hours on Monday ?? I love my job but damn that’s a long shift. I really love my job but I hate that it takes an hour to get there each way and so by the time I’m home I’ve done a 11 hour day and am dead. I love my job but it’s hard to remember why I do, on a 16 hr Monday. | I want more hours, but I hate my job. I hate this job so much. But seeing my sweet bosses face makes me not want to quit. I hate my job but hey it’s Friday. I wouldn’t wish this job on my worst enemy. Actually, yes, yes I would. |
| Working relationships | Boss I love my job but hate my boss cause she has a rude way of talking to people. Anybody in any type of retail business? I love my job but not my boss. I’m a hard worker, quicker learner. I need a new retail job. | I hate my job but the boss telling me not to come is even worse. I need the money to fly for the PaleyFest! And then to NY; my latest idea:) I hate my job but I love my boss. When I walked in today, she said, “So I assumed you’d need Feb 3rd off & already put you on PTO that day.” |
|                   | Customers These motherfers that shop at my job are so lazy and ruthless lmao.. I love my job but I can not stand these people. I love my job when I do stock, windows, etc. but helping customers? No. | The only part about my job I hate is dealing with rude customers. Besides that, I absolutely love my job. #BestManagementEver |
|                   | Co-workers Yeah, I like to talk shit about my co-workers, but I love my job and I thank god for giving me the chance to have one. | I seriously hate my job more then I ever thought possible! I have the greatest group of kids but I can’t stand my coworkers! |
|                   | Pay I mean I love my job Honestly I do but I need to get paid more. I love my job but some days when I come home with so many bruises from kids’ bites, I just feel like I don’t get paid nearly enough lol. I love my job but damn can I start getting this REALLLL money already?! Just a few more hours!!!!! | I hate my job but I can’t quit because I’m too in love with the people I work with ?????? u gotta luv everythin abt the job |
|                   | Working conditions I love my job but sometimes you just sit and cry then take a breath and go on. 97 bucks later I’m finally home from work. I love my job but I’m tired. Nothing will ever compare to a long hot shower after a long stressful day at work. absolutely love my job but today was rough! | Greatest love/hate relationship with my job bc I love my coworkers, but I hate the fact that I’m always exhausted. A lot of days I hate my job. But there’s something awesome about sitting on my ass watching someone else work |
and Love sub-samples suggesting that such factors are relevant to expressions of both job satisfaction and dissatisfaction. Finally, the nature of the work was mentioned more in the Love (mean = 0.032) than in the Hate dataset (Mean = 0.014).

Table 7 reports the results of the logistic regression. In this analysis, the Klout score and verified status variables were included first in the model, followed by each of the work orientations in a second step.

The analysis shows that most of the results were significant, with the exception of working conditions ($p > .05$). It shows that users with medium Klout scores were more likely to express job dissatisfaction compared to users with low Klout scores. It also shows that users with high Klout scores were less likely to express job dissatisfaction compared to those with Low Klout Scores. In addition, users with verified status were less likely to tweet expressions of job dissatisfaction. The results also show that, among different job features, Relationship with Boss is the only one that was positively and significantly related to job dissatisfaction. The results further show that users are less likely to tweet about the nature of their job (an intrinsic job orientation) when expressing job dissatisfaction. The other work orientations that were significantly and negatively associated with job dissatisfaction were those mentioning co-workers, followed by customers, working hours and pay.

### Discussion

The first research question concerned the nature of employee voice when Twitter is the communication mechanism. The findings showed that the tweets were predominantly positive. This is perhaps surprising as some research on blogging has suggested that this mechanism provides employees with the opportunity to vent about the negative aspects of their jobs, to seek justice, or to distance themselves from corporate culture (Richards, 2008; Klaas et al., 2012; Richards and Kosmala, 2013). At the same time, this finding is in line with research which shows that social media users are more likely to share content with a positive or neutral rather than negative sentiment (van Zoonen et al., 2016) and that negative online utterances tend to be deemed inappropriate and incongruent with self-views, particularly if the content is related to their professional life (Marwick and Boyd, 2011). The higher percentage of positive tweets among highly influential users also supports this view. This is consistent with the argument that self-presentation and self-affirmation are important aspects of Twitter (Murthy, 2012,
| Group                             | Variable                  | Full dataset |          | Hate  |          | Love   |          |
|----------------------------------|---------------------------|--------------|----------|-------|----------|--------|----------|
|                                  |                           | M            | SD       | M     | SD       | M      | SD       |
| User characteristics             | Verified                  | 0.004        | 0.060    | 0.001 | 0.023    | 0.004  | 0.065    |
|                                  | Klout                     | 34.743       | 10.556   | 35.512| 9.391    | 34.558 | 10.809   |
| Job-oriented/extrinsic           | Working hours             | 0.161        | 0.368    | 0.142 | 0.349    | 0.166  | 0.372    |
| People-oriented/intrinsic        | Boss                      | 0.046        | 0.210    | 0.057 | 0.232    | 0.043  | 0.204    |
|                                  | Co-workers                | 0.013        | 0.013    | 0.007 | 0.084    | 0.014  | 0.117    |
|                                  | Customers                 | 0.016        | 0.124    | 0.009 | 0.092    | 0.017  | 0.131    |
| Money-oriented/extrinsic         | Pay                       | 0.048        | 0.215    | 0.046 | 0.201    | 0.049  | 0.216    |
| Job-oriented/extrinsic           | Working conditions        | 0.030        | 0.170    | 0.030 | 0.171    | 0.030  | 0.170    |
| Job-oriented/intrinsic           | Nature of the Work        | 0.028        | 0.165    | 0.014 | 0.116    | 0.032  | 0.175    |
Second, there was little evidence of the collectivism that has been associated with employee voice in the HRM/ER literature (Wilkinson and Fay, 2011). For example, there was very little retweeting or evidence of efforts to build a community interested in pursuing a particular work-related agenda. There was also little evidence of the suggestion or opinion-focused use of voice to improve organizational functioning in the ways proposed by OB scholars (e.g. Morrison, 2014). While the negative tweets did focus on work problems such as working hours, the supervisor/manager and the work itself, these were focused on personal needs with little interest or concern for organizational improvement. This finding is in line with prior research that indicated a significant relationship between job dissatisfaction and the use of social media to voice concerns at work among Generation Y (younger) employees, although not among older employees (Holland et al., 2016). In its expression of very personal and individualistic needs, Twitter might therefore be considered a new form of employee voice that focuses on individual agency, but not necessarily in the political way that has been suggested in research on blogging (Schoneboom, 2011a; Richards and Kosmala, 2013). Thus, while the content of these tweets may be regarded as banal to the observer (Murthy, 2018), this may not be the case for those experiencing joy or tribulation in their jobs.

The second question asked whether the advent of social media challenges extant theories of job satisfaction. With regard to the value of the frameworks that have been used to classify and understand job satisfaction (Goldthorpe et al., 1968; Rose, 2003; Doorewaard et al., 2004), the findings suggest that these continue to be valuable and applicable. Indeed, the types of issues about which individuals tweeted are very similar to those found in Rose’s (2003) analysis of a large-scale sample of employees. At the same time, some differences do exist. First, the data point to the existence of job dissatisfaction which is often lost in contemporary enthusiasm for positive aspects of work. Second, the language used to voice aspects of job satisfaction/dissatisfaction through Twitter is very different to the anodyne and managerialist language that is often found in quantitative studies of job satisfaction. Employees utilized extensive, elaborate and emphatic language with the use of words such as ‘amazing’, ‘awesome’, ‘best’, and ‘great’ in their description of positive features of their work. Expletives were used to some extent in the positive tweets but to a far greater extent in the negative tweets. Where individuals elaborated on why they ‘hate their job’, they used negative language and a large number of expletives. Thus, through Twitter, employees are enabled to voice how they feel about their jobs and to use impassioned language to express

### Table 7: Logistic regression analysis for ‘hate my Job’

|                        | Model 1       | Model 2       |
|------------------------|---------------|---------------|
|                        | B (SE)        | p-Value       | B (SE)        | p-Value       |
| Klout (medium)         | .279 (.006)   | 0.000         | .275 (.006)   | 0.000         |
| Klout (high)           | −.418 (.069)  | 0.000         | −.414 (.07)   | 0.000         |
| Verified status        | −1.45 (.085)  | 0.000         | −1.45 (.085)  | 0.000         |
| Working hours          | −.166 (.008)  | 0.000         | −.166 (.008)  | 0.000         |
| Working relationships  |               |               |               |               |
| Boss                   | .295 (.012)   | 0.000         | .295 (.012)   | 0.000         |
| Customers              | −.694 (.029)  | 0.000         | −.694 (.029)  | 0.000         |
| Co-workers             | −.715         | 0.000         | −.715         | 0.000         |
| Pay                    | −.087 (.013)  | 0.000         | −.087 (.013)  | 0.000         |
| Working conditions     | .028 (.016)   | 0.094         | .028 (.016)   | 0.094         |
| Nature of the job      | −.844 (.023)  | 0.000         | −.844 (.023)  | 0.000         |
| Pseudo $R^2$           | 0.0037        | 0.0087        | 0.0037        | 0.0087        |
| N                      | 817,235       |               | 817,235       |               |

2018).
these feelings. A similar use of language emerges in many qualitative studies but, as Schoneboom (2011b) has pointed out, Twitter provides an unmediated view of the nature of work with opinions and emotions expressed without any prompting from researchers to determine the parameters of employees’ views. Third, the fact that individuals reported on the nature of their jobs by using the terms ‘hate’ and ‘love’ suggests that the notion of positive and negative attitude systems that originated with Herzberg is still relevant. However, there were a large number of tweets where individuals did not simply state that they loved or hated their jobs but indicated that their love or hate was not absolute; they might love or hate their jobs overall but at the same time also love or hate a particular element of their job. This points to an ambivalence that has been identified as an important emerging area in job satisfaction research (van Harreveld et al., 2015) and also suggests that the mining of Twitter data can provide a valuable way of identifying the factors that drive distinctly positive or negative attitudes (Judge et al., 2017). In this way, Twitter might be viewed as a new channel through which workers may express satisfaction or dissatisfaction or ambivalence with aspects of their jobs, thus shedding new understanding on the experience of work.

The third research question asked about the implications of voicing job satisfaction/dissatisfaction for the employment relationship. One of the fears of employers is that their employees will use social media to vent publically about their jobs and that negative views will have a correspondingly negative impact on organizational reputation. The data suggests first of all that employees are more likely to tweet positively about their jobs in ways that are beneficial to employers in enhancing their reputations. Analysis of the Klout score also showed that those who are likely to have greater social reach tend to tweet that they love rather than hate their job. When employees tweet negatively about hating their jobs it is more likely to be a one-off event rather than a concerted effort to challenge or paint a damaging picture of their employers. There was also no evidence of attempts by employees to network with others or form communities that could be described as displaying concerted resistance to employer activities. Thus, there was no evidence of contestation of the employment relationship that has been mooted as a potential impact of social media (Hurrell et al., 2013; McDonald and Thompson, 2016). However, while organizational reputations may remain fairly intact, it was evident that many difficulties exist for employees in negotiating their daily work lives. Working hours are often at the whim of the employer with some individuals forced to work several jobs to put together a viable income; managers and bosses, from their positions of power, may make employees’ working lives either reasonable or impossible; the work itself may be difficult and undertaken in distressing working conditions. The surfacing of these factors to a wider audience therefore challenges the boundaries of the employment relationship. While working conditions and management philosophies have traditionally been the remit solely of the organization, through Twitter they are brought out to a wider audience and provide the potential for a shared experience of working life.

Limitations

While this study is in many respects ground-breaking, it has a number of limitations. First, the effect size found in the statistical analysis was small. This finding is not unusual in studies using Big Data and reflects the sheer size and complexity of these datasets, which makes it impossible to compare such effects with studies using alternative methodologies such as surveys (Matz et al., 2017). Big Data does, however, provide researchers with opportunities to gain insights which would not otherwise be available. Second, the data suggest that only a small percentage of the population investigated were active Twitter users, yet capturing accurately the broader population of users who actively or latently participate as listeners remain difficult due to the syndication of Twitter feeds. Thus, the true extent of the reach of work-related tweets is largely indeterminable without substantial cost and technical...
effort. Third, while we were able to analyse some tweets by occupation to provide insights into the types of individuals who were using Twitter, only 20 per cent of tweets provided occupational details. In addition, Twitter is much more likely to be used by younger people and by professionals (Sloan et al., 2015) and so the data may be more representative of this section of the workforce rather than more widely generalizable.

Conclusions

In its exploration of ‘the phenomenon of employees’ colonisation of cyberspace’ (Richards and Kosmala, 2013: 76), the research provided new insights into aspects of employee voice and job satisfaction/dissatisfaction that are core to understanding the nature of the employment relationship. While there are complexities in dealing with Big Data, at the same time it provides exciting new opportunities for researchers interested in learning more about the experience of work.

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