

Harnessing the “Wisdom of Employees” from Online Reviews

Panagiotis Stamolampros^{1*}, Nikolaos Korfiatis¹, Konstantinos Chalvatzis¹,
Dimitrios Bouhalis²

¹ Norwich Business School, University of East Anglia, NR4 7TJ, Norwich, United Kingdom.

E-mail: {p.stamolampros;n.korfiatis;k.chalvatzis}@uea.ac.uk

² School of Services Management, Bournemouth University, BH12 5BB, Bournemouth,

United Kingdom. E-mail: dbouhalis@bournemouth.ac.uk

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Introduction

The linkage between employee engagement and satisfaction with customer satisfaction and corporate performance is well established (Kumar & Pansari, 2015). Happy employees offer better service to customers promoting customer loyalty (Salanova et al., 2005). Firms take initiatives to foster employee engagement and measure the effectiveness of their policies through annual staff surveys. However, the reluctance of employees to speak up and share information and the fear of retribution undermines such initiatives (Milliken et al., 2003)

* Corresponding author: Tel: +44(0) 1603 591041. Thomas Paine Study Centre, Norwich Research Park, NR47TJ, Norwich, United Kingdom.

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leading to *employee silence*. Social media platforms with their immediacy and real-time nature can overcome these issues also bypassing managerial intolerance to critical feedback (Holland et al., 2016). Although the effect of social media on selection and recruitment processes has been recognized (Ladkin & Buhalis, 2016) the possibilities they offer as a managerial tool for improving HR practice are unexplored. Harnessing the information content of these “*online voices*” can lead to strategic advantage within a proper organizational context (Miles & Mangold, 2014).

In this research note, we advocate the use of online employee reviews as an alternative source of information that can be exploited to extract useful insights for managerial practice. The advent of employee review platforms also offers research opportunities that extend the typical online reviews perspective of customer service evaluations (e.g., Park et al., 2017). Established practices for measuring employee feedback rely heavily on measurement scales or other forms of *employee voice* channels which are orchestrated and sometimes sanctioned by the organization (Miles & Mangold, 2014). That kind of information requires primary data collection which is costly and time-consuming, encompassing only a limited pool of current employees who opt to participate. Existing practices consider standardized instruments, measuring employee satisfaction, motivation or engagement (Lee et al., 2017). However, these constructs are multidimensional (Matzler & Renzl, 2007) and as such selecting the items to be operationalized is challenging. Items that are not contained within the survey instruments such as the Minnesota Satisfaction Questionnaire will remain unnoticed and their effects unexplored making problematic the interpretation of the results (Jung et al., 2009). Employee online reviews address those limitations as employees anonymously reflect on their experience independently of any management oversight, thus allowing them to articulate on items or concepts that are not measured by predefined scales. The high representation of former employees also offers opportunities for employee turnover research and significant advantage

is that online reviews capture actual departures from a job rather than employee intention to leave. Finally, online reviews that arrive continuously from a plethora of companies allow capturing industry and firm-specific information that can be assessed comparatively.

Recent research has demonstrated the value of this information showing that the numerical part of employees' online reviews can explain variations in corporate performance (Symitsi et al., 2018). In this research note, we showcase how to take advantage of the unstructured part of online reviews using topic modeling and evaluate the prevalence of themes across different industries of the highly heterogeneous tourism and hospitality sector.

Understanding Employee Feedback through Topic Modeling

In our empirical application, we use online employee reviews from tourism and hospitality firms from Glassdoor for the period between 2008 and 2017. Our analysis focuses on the textual content of employee reviews and specifically the feedback to management which is supplied by each employee. A total of 289,921 employee reviews from 11,597 US tourism and hospitality firms formed our dataset, with balanced participation of former (157,641) and current employees (132,280) and equal representation of female (52%) and male (48%) employees with an average age of 29.5 years. Each company had on average 1,354 employees and an annual turnover of \$4.1 million. Compared to existing studies in tourism and hospitality (for example Pan, 2015) our sample has a high representation in terms of different industries, number of firms and employees. Each of the eleven industries found in our sample has a median number of 582 companies and 12,432 employee reviews.

Probabilistic topic modeling methods are suitable for the analysis of review text (Korfiatis, et al., 2019). Among several alternative specifications we choose the structural topic model -STM (Roberts et al., 2014), that has the advantage of allowing the incorporation of review metadata such as employee status, or industry on the review-topic proportion, relaxing the restrictive assumption of *exchangeability*, where all employees are considered equally

likely to reflect on any topic. Following previous literature (Stamoulampros et al., 2019) we perform the following preprocessing steps; (a) word text tokenization, (b) elimination of numbers and punctuation marks, (c) removal of stop words, as well as context-specific words such as company names and words attributed to job roles. Finally, part-of-speech (POS) tagging was performed to keep only nouns, adverbs, and adjectives. After pre-processing, the remaining words were lemmatized to their root forms, and a term-frequency filter was applied to keep only terms that appeared in at least 1% of the initial corpus.

The second step included the identification of the number of topics that optimally captured the variability of the corpus. The solution was estimated in R using the STM package (Roberts et al., 2017) based on (a) Held-out likelihood (b) Exclusivity of words to the topic and (c) Semantic coherence of the topic structure. This resulted in K=10 topics and two experts in human resource management, and organizational behavior were recruited to help on topic labeling, using the top loading words and representative reviews of each topic.

Table 1: Topic Solution

Topic #	Topic Label	Prop. (%)	Top 7 Frex Words
1	Employee Treatment	12.52	stop, hire, respect, actually, everyone, people, professional
2	Better Payment	12.17	pay, better, wage, crew, employee, long, member
3	Improve Customer Service	12.03	sure, customer, service, happy, make, good, food
4	Management Structure	11.96	store, manager, upper, management, corporate, position, location
5	Communication	10.18	great, communication, advice, job, need, please, continue
6	Reward Performance	9.15	worker, hard, raise, life, little, much, one
7	Scheduling	8.49	hour, shift, day, schedule, week, time, enough
8	Improve Culture	8.28	culture, team, thing, focus, leader, many, way
9	Care for Staff	7.72	care, staff, guest, experience, place, line, front
10	Training and Turnover Rate	7.49	training, high, turnover, person, new, get, someone

Table 1 provides an outline of the topics, the percentage of the topic prevalence and top loading words for each topic. The most common topic is the attitude of the management towards the employees (*Employee Treatment*) with the second most discussed been the remuneration and pay structure (*Better Payment*). These dominant topics jointly account for a quarter of employee reviews. Another significant topic is the employee's own suggestion for improvements in customer service which accounts for 12% of the information content. Other topics were more critical to management ability, scheduling, cultural issues, communication, and training. The issues arising from the topic solution are known problems in the tourism and hospitality sector and this is a desirable property as it evidences the validity of this source of information. However, as employees discuss freely what matters to them without being constrained in pre-selected categories, the topic proportions also reveal the relative importance of these factors in employee feedback.

An interesting insight that can be generated by this analysis is to examine how these topics vary in importance for each industry. As such multiple correspondence analysis was utilized in order to map topic modeling dimensions to particular industries. Topic loadings for each industry were aggregated in a factor structure which explained 71% of the total variation (Figure 1).

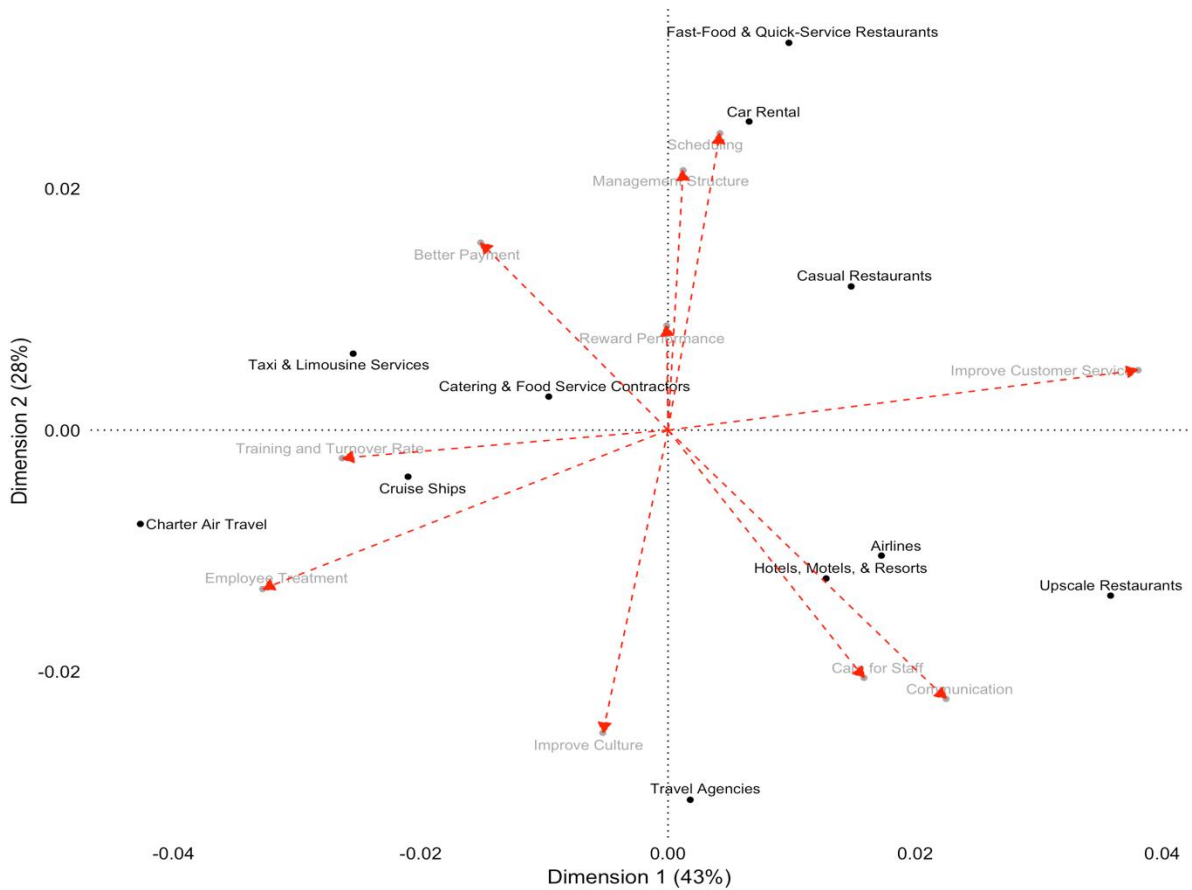


Figure 1: Correspondence Analysis of the topic loadings across the industries in the sample.

Cruise Ships and Charter Air travel tend to load high for the topics related to employee treatment and addressing training and turnover rate. On the contrary, issues associated with caring for staff and communication dominate Airlines, Hotels and Upscale restaurants. Travel agencies seem to suffer from organizational culture issues according to employee feedback while car rental and fast food restaurants seem to suffer from scheduling issues and unsocial working hours.

Conclusions

The research note discusses the informational value of online employee reviews in tourism and hospitality research and practice. Online reviews can complement existing approaches offering access in a pool of opinion highly representative of the industry. The results of our analysis reveal that the unstructured form of reviews through topic analysis can efficiently capture

important topics for employees and is in agreement with previous literature. As such it opens new avenues for researchers and practitioners since the intangible and heterogeneous nature of tourism and hospitality services can be measured with more direct data sources available to the decision makers, than cross-sectional questionnaires.

An interesting insight for managers in these industries is that the adaptation of management practices and improvement initiatives needs to be adjusted vertically (across business units) rather than horizontally (across the organization). The results of the analysis also provide an argument against the “*one size fits all*” approach (Hom et al., 2017) in the management of service employees across tourism and hospitality industries and as such the incorporation of insights from satisfaction surveys in managerial practices need to be adjusted accordingly.

References

- Holland, P., Cooper, B. K., & Hecker, R. (2016). Use of social media at work: a new form of employee voice? *The International Journal of Human Resource Management*, 27(21), 2621–2634.
- Hom, P. W., Lee, T. W., Shaw, J. D., & Hausknecht, J. P. (2017). One hundred years of employee turnover theory and research. *Journal of Applied Psychology*, 102(3), 530.
- Jung, T., Scott, T., Davies, H. T., Bower, P., Whalley, D., McNally, R., & Mannion, R. (2009). Instruments for exploring organizational culture: A review of the literature. *Public Administration Review*, 69(6), 1087–1096.
- Korfiatis, N., Stamolampros, P., Kourouthanassis, P., & Sagiadinos, V. (2019). Measuring service quality from unstructured data: A topic modeling application on airline passengers’ online reviews. *Expert Systems with Applications*, 116, 472–486.
- Kumar, V., & Pansari, A. (2015). Measuring the benefits of employee engagement. *MIT Sloan Management Review*, 56(4), 67.

- Ladkin, A., & Buhalis, D. (2016). Online and social media recruitment: Hospitality employer and prospective employee considerations. *International Journal of Contemporary Hospitality Management*, 28(2), 327–345.
- Lee, T. W., Hom, P. W., Eberly, M. B., Li, J. (Jason), & Mitchell, T. R. (2017). On the next decade of research in voluntary employee turnover. *Academy of Management Perspectives*, 31(3), 201–221.
- Matzler, K., & Renzl, B. (2007). Assessing asymmetric effects in the formation of employee satisfaction. *Tourism Management*, 28(4), 1093–1103.
- Miles, S. J., & Mangold, W. G. (2014). Employee voice: Untapped resource or social media time bomb? *Business Horizons*, 57(3), 401–411.
- Milliken, F. J., Morrison, E. W., & Hewlin, P. F. (2003). An exploratory study of employee silence: Issues that employees don't communicate upward and why. *Journal of Management Studies*, 40(6), 1453–1476.
- Pan, F. C. (2015). Practical application of importance-performance analysis in determining critical job satisfaction factors of a tourist hotel. *Tourism Management*, 46, 84–91.
- Park, S., Nicolau, J. L., & others. (2017). Effects of general and particular online hotel ratings. *Annals of Tourism Research*, 62, 114–116.
- Roberts, M. E., Stewart, B. M., & Tingley, D. (2017). stm: R Package for Structural Topic Models. Retrieved from <http://www.structuraltopicmodel.com>
- Roberts, M. E., Stewart, B. M., Tingley, D., Lucas, C., Leder-Luis, J., Gadarian, S. K., ... Rand, D. G. (2014). Structural Topic Models for Open-Ended Survey Responses. *American Journal of Political Science*, 58(4), 1064–1082.
- Salanova, M., Agut, S., & Peiró, J. M. (2005). Linking organizational resources and work engagement to employee performance and customer loyalty: the mediation of service climate. *Journal of Applied Psychology*, 90(6), 1217.

- Stamolampros, P., Korfiatis, N., Kourouthanassis, P., & Symitsi, E. (2019). Flying to Quality: Cultural Influences on Online Reviews. *Journal of Travel Research*, 58(3).
- Symitsi, E., Stamolampros, P., & Daskalakis, G. (2018). Employees' online reviews and equity prices. *Economics Letters*, 162, 53–55.