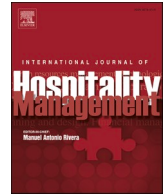


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Leveraging employee online reviews for improving hotel competitiveness in the great resignation

Haiyang Xia^{a,*}, Birgit Muskat^{a,2}, Huy Quan Vu^{b,3}, Rob Law^{c,4}, Gang Li^{d,5}^a Research School of Management, Australian National University, Australia^b Department of Information Systems and Business Analytics, Deakin University, Australia^c Asia-Pacific Academy of Economics and Management, Department of Integrated Resort and Tourism Management, Faculty of Business Administration, University of Macau, Taipa, Macau^d School of Information Technology, Deakin University, VIC 3125, Australia

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ABSTRACT

The Great Resignation has brought significant challenges to the recovery of the hospitality industry from the depression caused by the coronavirus pandemic (COVID-19). Prior studies have revealed that the leading cause of the Great Resignation is negative employee experience. However, few empirical studies have been conducted to obtain deep insights into the negative experiences of hospitality employees. Hotel managers still lack the knowledge to help them resolve the workforce problem and maintain competitiveness during the pandemic. This study proposes a novel framework, named HENEX, that uses data-mining technologies and employees' online reviews about hotels to identify the factors that lead to hospitality employees' negative experiences and changes in these factors caused by COVID-19. We demonstrate the effectiveness of HENEX through a case study that involves major hotels in Australia. The findings could help hotel managers develop strategies to resolve the workforce problem and maintain competitiveness during the Great Resignation period.

1. Introduction

COVID-19 has brought unprecedented challenges to the hospitality industry, which led to millions of employees losing their jobs (Jung et al., 2021; Parvez et al., 2022). As a result of the phaseout of containment measures globally since early 2022, the number of international tourists has climbed to 60 % of the pre-pandemic level (UNWTO, 2022). This has led to an urgent need to refill the vacancies that were created by layoffs in the early stages of COVID-19 (Huang et al., 2021). However, one major problem that has emerged for the hospitality industry in this critical recovery stage is the "Great Resignation," which refers to the phenomenon of employees choosing to stay unemployed or transfer to other industries (Liu-Lastres et al., 2022).

The Great Resignation has influenced all industries, among which the hospitality and tourism industries have been the hardest hit

(Fontinelle, 2022). Some former hospitality employees have chosen to stay unemployed to seek additional qualifications and others have chosen to take a job in the agriculture or retail industries (Croes et al., 2021). This workforce quitting and shuffling phenomenon has resulted in severe workforce shortages in the hospitality industry. Recent data from the Australian Bureau of Statistics show that 51 % of Australian hotels have experienced difficulty recruiting employees (Australian Bureau of Statistics, 2022a). So far, the existing literature has only commenced discussion of the underlying reasons. The related findings point out that although the drivers of the Great Resignation are manifold, its core determinant is an increase in negative employee experience, which has led to low levels of job satisfaction and, in turn, high levels of job turnover (Baum et al., 2020; Liu-Lastres et al., 2022).

Although the aforementioned preliminary findings provide valuable directions for deeply analyzing the Great Resignation, the notion of

* Corresponding author.

E-mail address: haiyang.xia@anu.edu.au (H. Xia).¹ ORCID: 0000-0002-0363-1460² ORCID: 0000-0003-2905-6836³ ORCID: 0000-0003-1947-2879⁴ ORCID: 0000-0001-7199-3757⁵ ORCID: 0000-0003-1583-641X

“negative employee experience” remains vague for hotel managers to formulate potential solutions. Little is known in the existing literature about the factors that have led to hospitality employees’ negative experiences and whether COVID-19 has changed hospitality employees’ focus on these factors (Malik et al., 2022). However, identifying these key factors and the related emerging changes is critical because hotel managers urgently require knowledge about this new phenomenon to help them secure a sufficient workforce to maintain competitiveness (Liu-Lastres et al., 2022). Employees are now becoming one of the scarcest resources not only for hospitality but also for many other industries (Muskat et al., 2019).

Understanding the causes of employees’ negative experiences and thereby formulating efficient human resources (HR) strategies to improve employee retention and attract the required talent has become a high-priority task for hotel managers to maintain competitiveness. However, limited research efforts have been made in the existing literature to gain comprehensive insights into hospitality employees’ negative experiences. Several key questions that perplex hotel managers who want to adjust and improve their HR strategies thereby maintaining competitiveness in the current Great Resignation context remain unanswered. Some examples of these questions are: “What factors have led to hospitality employees’ negative experiences?”, “How did external events such as COVID-19 affect and change these factors?”, and “What are the differences between these factors among employees in different positions and career stages?”.

This study aims to fill these research gaps by answering these key research questions and contributes to understanding the hospitality employees’ experiences during the Great Resignation and help hotels to maintain their competitiveness during and even after COVID-19 by using data-mining techniques and large-volume online reviews from employees. We propose a novel Hospitality Employee Negative Experience understanding framework—HENEX—that can capture the factors comprised of hospitality employees’ negative experiences and the related changes in these factors that are caused by COVID-19. HENEX adopts aspect-level sentiment analysis technology (Schouten and Francinar, 2015) to extract the aspects that cause hospitality employees’ negative experiences and emerging pattern mining technology (Li et al., 2015) to capture the changes and the emerging patterns in these aspects. A customized codebook is developed and then applied to group aspects that discuss the same factors of hospitality employees’ experiences together. We demonstrate the effectiveness of our framework by conducting a case study that involves major hotels in Australia. The findings provide detailed guidance for hotel managers, especially those in Australia, on designing effective HR strategies to resolve the workforce problem and maintain hotel competitiveness by enhancing employees’ experiences and by developing customized job offers to attract potential talents.

The rest of this paper is organized as follows. In Section 2, we review the related studies on the Great Resignation, employee experience, and hotel competitiveness. In Section 3, we present in detail the proposed framework. In Section 4, we describe the case study conducted to understand the negative experiences of Australian hospitality employees. In Section 5, we conclude the study and envisage future directions.

2. Literature review

2.1. The great resignation

The Great Resignation reflects a severe workforce shortage because of employees’ choosing to be unemployed or to transfer to other industries (Fontinelle, 2022). Among the affected industries, the hospitality and tourism industries have been hit the hardest (Liu-Lastres et al., 2022). It is counterintuitive that the Great Resignation has occurred in the current recovery stage of the hospitality and tourism industries because, given the increase in international tourists since early 2022, many vacancies are available in the job market (US Bureau of Labor,

2022). According to past experience, employees normally choose to actively take job opportunities rather than voluntarily stay unemployed or transfer to other industries when confronted with crisis and uncertainty (Wong et al., 2021).

To understand this new phenomenon, some preliminary studies have been conducted in hospitality research to unearth its causes. For example, Baum et al. (2020) found that COVID-19 is not the direct cause of the Great Resignation but an amplifier of the workforce problem in the hospitality industry. Croes et al. (2021) pointed out that after the COVID-19 lockdown, hotel managers made a great effort to create a safe environment for customers; however, they neglected the evolving needs of employees. This negligence compromised employee experience and thus led to high turnover.

COVID-19 has largely changed the factors that lead to employees’ negative experiences. Some employees have shifted their priorities from a lack of career development to poor personal well-being (Liu-Lastres et al., 2022). Some employees shifted their priorities from low monetary rewards to a lack of long-term job security (Croes et al., 2021). Failure to understand these changes has resulted in low levels of job satisfaction, which in turn has led to the current workforce problems (Huang et al., 2021). Recognizing and understanding these changes constitute the first step toward improving employer–employee relationships in the hospitality industry (Baum et al., 2020). However, although researchers have reached a consensus about the importance of understanding the factors that have led to hospitality employees’ negative experiences and the related changes that have been caused by COVID-19, so far, only limited, if ever any, empirical studies have been conducted to comprehensively understand such factors and emerging changes.

2.2. Employee experience and hotel competitiveness

Formally, employee experience is defined as an “employee’s holistic perceptions of the relationship with his/her employing organization derived from all the encounters at touchpoints along the employee’s journey” (Plaskoff, 2017, p. 137). Employee experience includes several categories of factors that determine job satisfaction, which is an important determinant of competitiveness (Delery and Roumpi, 2017). High levels of job satisfaction led to positive employee behaviors, such as high levels of engagement and productivity, which in turn lead to high competitiveness (Roelen et al., 2008). Low levels of job satisfaction led to negative employee behavior, such as lateness and high rates of turnover, which in turn lead to low competitiveness (Zhang et al., 2019). Positive employee experience results in high levels of job satisfaction, whereas negative employee experience results in low levels of job satisfaction (Lemon, 2019). Negative employee experience emerges normally because of employers’ failure to meet employees’ expectations of job-related factors, such as benefits, pay, and company culture (Farndale and Kelliher, 2013; Gheidar and ShamiZanjani, 2020; Plaskoff, 2017).

Development of positive employee experiences is difficult because the factors that trigger employees’ negative sentiments about their job experience are not immutable. Employees who are at different career stages and in different positions emphasize different factors in their experiences, which change over time because of external events such as crises and pandemics (Shambi, 2021; Tessema et al., 2022). Furthermore, the concept of employee experience is vague because many factors can affect an employee’s experience and there have been no uniform factors for understanding employees’ experiences (Malik et al., 2022).

Employee experience has long been considered an important determinant of competitiveness in HR management and broad competitiveness literature. However, it has been somewhat neglected in the existing hotel competitiveness studies, which emphasize improving tourist experiences or reducing operational costs (Tsai et al., 2009). For example, Barros (2005) highlighted that efficient management is the key to improving hotel competitiveness because it can reduce costs and improve employee productivity. Reynolds and Thompson (2007)

pointed out that quality of service, which influences tourists' perceived value, is an important indicator of hotel competitiveness. Xia et al. (2019) demonstrated that improving the uniqueness of products can increase the competitiveness of hotels by satisfying tourists' personalized needs.

The negligence of employee experience has resulted in the hospitality industry being criticized for tough working conditions, such as heavy workloads, limited workforce support, and toxic workplace culture (Sull et al., 2022). Traditionally, hotel managers have "solved" this workforce problem by resorting to temporary and part-time workers (Huang et al., 2021). However, the Great Resignation warns us that such a solution is just a stopgap (Baum et al., 2020; Croes et al., 2021; Liu-Lastres et al., 2022). Understanding and improving the employee experience is an inevitable requirement for hotel managers to maintain their business competitiveness during the pandemic or even post-pandemic stage (Malik et al., 2022) because hotels are now also competing for talent with employers in other industries in which employee experience is emphasized (Croes et al., 2021; Muskat et al., 2019).

2.3. Problem definition

Understanding the factors that lead to negative employee experiences is the key to helping hotel managers formulate efficient strategies to resolve the workforce problem and maintain competitiveness (Delery and Roumpi, 2017). However, this is a complicated task because a large amount of data needs to be analyzed to identify these factors. Prior studies have normally relied on internal surveys to identify these factors (Lu et al., 2016), which require a long time and considerable costs to collect and therefore cannot be conducted frequently enough to support the discovery of emerging changes. Furthermore, internal surveys are more likely to be biased because employees may be reluctant to share their true experiences for fear of retribution (Stamolampros et al., 2019). The anonymity of online social media has eliminated such concerns and enabled employees to share their real job experiences. Therefore, this study has turned to online employee reviews, which are a type of novel big data from which authentic employee experiences can be easily collected on a large scale (Xia et al., 2020).

One major barrier in using online reviews to understand negative employee experience lies in discovering the factors that trigger employees' negative sentiments. Employees may discuss several aspects of their experiences in one review and these may be related to various factors. For instance, for the example review "Really long working hours, I always need to work overtime, but has good promotion opportunities!" the aspects discussed are "working hours," "work overtime," and "promotion opportunities." The first two aspects are related to the "workload" factor and the latter is related to the "promotion" factor. In addition, there are no uniform factors for determining employee experience in the management literature. Researchers have developed various factors for their study purposes. Table 1 presents an overview of factors employed in various prior studies, exhibiting a substantial degree of diversity.

Table 1
Examples of factors used to explore employee experience in the existing literature.

Literature	Investigated Factors
Pangallo et al. (2022)	"Engagement," "Intent to Stay," "Experience VS Expectations," "Inclusion," "Well-being," and "Burnout"
Orillos (2021)	"Culture," "Technology," and "Physical Space"
Yadav and Vihari (2021)	"Cohesiveness," "Vigor," "Well-being," "Achievement," "Inclusiveness," and "Physical Environment"
Yildiz et al. (2020)	"Communication," "Leadership," "Positive Organizational Culture," and "Human Capital's Development Opportunity"
Foresee (2014)	"Job," "Manager," "Teamwork," "Compensation," "Advancement," "Work Support," "Leadership," "Corporate Culture," and "Empowerment"

A problem with the methods used in prior employee-experience studies is that most of them are designed for cross-sectional data but lack the capability to capture the changes and emerging patterns of the factors reflected in longitudinal data. In reality, the factors that influence employee experience change significantly with time and the influence of external events such as COVID-19 (Shambi, 2021). For example, "flexibility of work" was discussed less frequently before COVID-19; however, recent studies have shown that some employees choose to quit the hospitality industry because their jobs are inflexible and do not have remote work options (Liu-Lastres et al., 2022). The present study aims to address the shortcomings of the existing methods by introducing a novel framework—HENEX—that uses data-mining technologies to gain deep insights into hospitality employees' negative experiences from online review data. In HENEX, aspect-level sentiment analysis and emerging pattern mining techniques are used to extract the aspects that lead to hospitality employees' negative experiences and the emerging patterns in these aspects. A customized codebook is then developed to group the aspects into factors. The details of these techniques are presented in the next section.

3. Methodology

In this section, we present our proposed framework, HENEX, for understanding hospitality employees' negative experiences from online

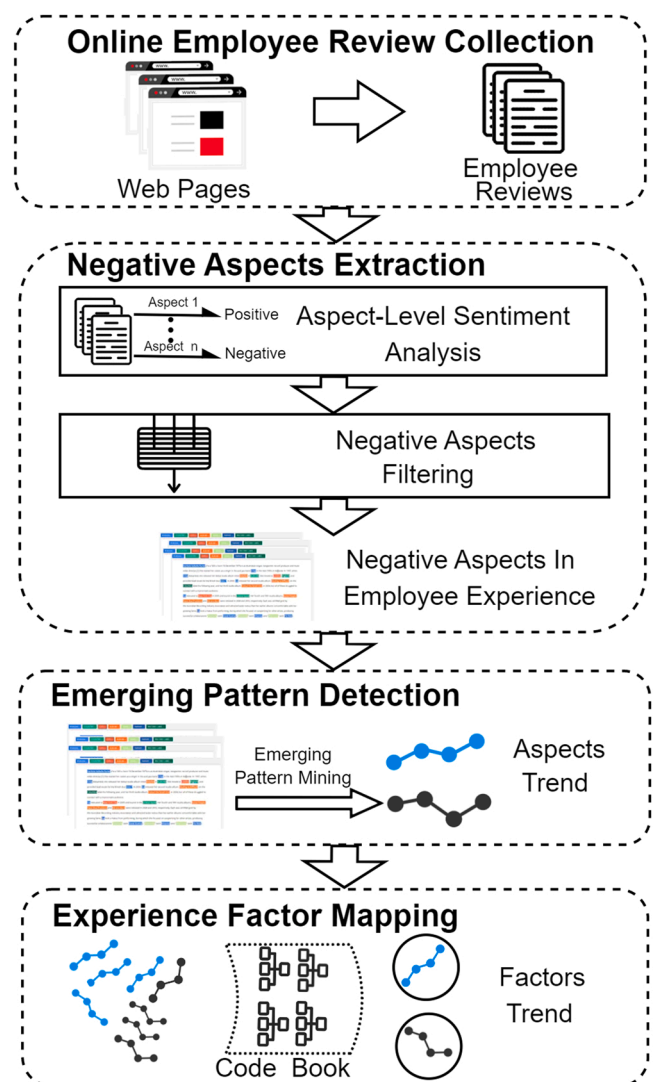


Fig. 1. Overview of the proposed framework HENEX.

employee reviews. As shown in Fig. 1, HENEX comprises four steps: (1) online employee-review collection, in which reviews that describe hospitality employees' experiences are collected from online social media; (2) negative aspects extraction, in which the aspects that trigger hospitality employees' negative experiences are extracted; (3) emerging pattern detection, in which the emerging pattern mining technique is used to detect the changes and emerging patterns in the extracted aspects; and (4) experience factor mapping, in which the aspects in the detected changes are grouped into factors of employee experience according to a customized codebook. Details of these steps are provided in subsequent subsections.

3.1. Online employee-review collection

In light of the popularity of social media, online platforms have attracted significant attention from hospitality and tourism researchers in recent years. These online platforms allow users to share reviews about their authentic experiences and thus have been considered important data sources in many hospitality and tourism studies (Vu et al., 2019). Examples of popular platforms are TripAdvisor (<https://www.tripadvisor.com/>), Agoda (<https://www.agoda.com/>), Seek (<https://www.seek.com/>), and Glassdoor (<https://www.glassdoor.com/>). TripAdvisor and Agoda are designed for tourists to book hotels and tourism products and contain reviews about tourist experiences. Seek and Glassdoor are designed for employees to seek job opportunities and contain reviews about employee experiences.

This study selects job-seeking platforms as the data source because these platforms exclusively provide employee reviews, thereby providing a convenient way to collect data for investigating the experiences of hospitality employees. First, we define a region (e.g., country or city) for data collection by using the location function of these platforms. Since our study requires reviews that reflect hospitality employees' experiences, we then apply the filter function on these platforms to limit the search results to employers in the hospitality industry (i.e., hotels). Hotels that do not have employee reviews are excluded from the data-collection process.

3.2. Negative aspect extraction

The step aims to extract the aspects that contribute to hospitality employees' negative experiences. Aspect-level sentiment analysis that can automatically capture aspects and their corresponding sentiments in the sentences is adopted (Schouten and Frasincar, 2015). In aspect-level sentiment analysis, aspect extraction is formulated as a sequence-labeling problem that aims to label the aspect words in the input sentence. The sentiment-state identification is formulated as a classification problem that aims to classify the aspect terms into three sentiment classes: positive, negative, and neutral (Wang et al., 2019). Several publicly available toolkits can be used to conduct aspect-level sentiment analysis. We chose Sentire for its high accuracy and thorough document. The details of all the algorithm setup, execution steps and related papers are publicly available on GitHub (<https://github.com/evison/Sentires/tree/main>). In Sentire, a novel constrained convex optimization framework was constructed to utilize the review-level sentiment analysis to boost the performance of aspect-level sentiment analysis (Zhang et al., 2014). Extensive studies in conversational AI systems and explainable recommendation models have demonstrated the effectiveness of Sentire in extracting aspects and related sentiments in online reviews (Zhang et al., 2018).

Suppose we have the review "Really long working hours, I always need to work overtime, but has good promotion opportunities!" The toolkit can automatically identify the aspects of "working hours," "work overtime," and "promotion opportunities" that are discussed in the review and the words that are used to describe these aspects and their corresponding sentiments, namely, "long (negative)," "need (negative)," and "good (positive)" respectively. Given that this study aims to

understand the aspects that trigger hospitality employees' negative experiences, we then filter out the aspects whose sentiment is positive or neutral. As Sentire has performed basic pre-processing such as tokenization and case normalization (Sann and Lai, 2020) on the input data, we then employ the following post-processing strategies to fine-tune the extracted aspects for further analysis. First, we fix the typographical errors in the extracted aspects, such as changing "environment" to "environment." Second, we perform stemming to reduce the aspects to their "root" form; for example, the aspect "works" is reduced to "work". Finally, we conduct Part-of-speech (POS) tagging on the extracted aspects to filter out non-noun aspects, such as "discuss" and "though", and leave only noun aspects for further analysis.

3.3. Emerging pattern detection

This step aims to capture the changes and emerging patterns of the aspects that are caused by COVID-19. A popular data-mining technique named emerging pattern mining used for identifying changes and emerging patterns in longitudinal data is used in this step (Komiya et al., 2017). A value, called Support, is first calculated to identify the popular aspects for subsequent processing. Specifically, suppose $A = \{a_1, a_2, a_3, \dots, a_n\}$ is a set of all the extracted aspects. The support of each aspect $a_1 \in A$ can be determined as:

$$supp(a_i, A) = \frac{\varphi(a_i)}{|A|} \tag{1}$$

where φ is a function that counts the frequency of each aspect a_i and $|A| = n$ is the total number of aspects in aspect set A . $Supp(\bullet)$ is an important metric to identify aspects that frequently trigger employees' negative sentiments. Aspects that have larger $supp(\bullet)$ than a user-specific threshold δ are considered frequent aspects and are used for further analysis.

Let $F = \{f_1, f_2, f_3, \dots, f_m\}$ be the set of frequent aspects and $X \subseteq F$ represents a subset of F . Given several employee-experience data groups $G = \{G_1, G_2, \dots\}$, such as pre-COVID-19 group and post-COVID-19 group, the support of X in each group G_i can be denoted as $supp(X, G_i)$. The support changes between groups G_i and G_j can then be measured by the growth rate $GRate(X, G_i, G_j)$, which is defined as:

$$GRate(X, G_i, G_j) = \begin{cases} 0, & \text{if } supp(X, G_i) = 0 \text{ and } supp(X, G_j) = 0 \\ \infty, & \text{if } supp(X, G_i) = 0 \text{ and } supp(X, G_j) \neq 0 \\ -\infty, & \text{if } supp(X, G_i) \neq 0 \text{ and } supp(X, G_j) = 0 \\ \frac{supp(X, G_i)}{supp(X, G_j)}, & \text{if } supp(X, G_i) > supp(X, G_j) \\ \frac{supp(X, G_i)}{supp(X, G_j)}, & \text{if } supp(X, G_i) \leq supp(X, G_j) \end{cases} \tag{2}$$

$GRate(X, G_i, G_j)$ is an efficient metric to measure the changes in support between two groups. Given $\delta_g = 1$ as a growth-rate threshold, X is called an emerging pattern if $\delta_g < |GRate(X, G_i, G_j)| < \infty$, which indicates that X significantly changes between groups G_i and G_j . $GRate(X, G_i, G_j) = \infty$ is called a jumping pattern, which indicates that X appears in one group but not in another. The negative symbol " - " in Eq. 2 indicates a decreased change between those two groups.

3.4. Experience factor mapping

Experience factor mapping aims to develop a codebook that can be used to group the aspects that discuss the same experience factor together and to infer the changes of that factor. Given the lack of widely agreed-upon factors in the literature, we developed a codebook of 11 factors by combing Foresee's (2014) factors and well-known factors in the job satisfaction literature (Roelen et al., 2008). Two of the authors

worked separately to code the detected aspects to respective factors. Their codes show strong agreement with Cohen’s kappa coefficient of 0.82 (Blackman and Koval, 2000). Coding discrepancies were further discussed to reach a consensus. Detailed descriptions of the 11 factors and the related aspects are shown in Table 2.

The aspects listed in Table 2 were identified from our collected data set. Although the data set is large scale and a comprehensive list of identified aspects was constructed, they may not capture all the possible aspects that relate to employee experiences. Future studies that have more comprehensive data sets could identify additional aspects to be added to our developed codebook for their studies.

From Table 2, we can see that each factor contains several aspects; therefore, the aspects of the same factor may change in different directions between the groups. For example, the aspects “hour” and “night work” belong to the factor “workload.” The aspect “hour” may increase significantly, whereas the aspect “night work” may increase slightly. Therefore, we adopt the principle of the “majority,” in which the change of a factor is defined as changes to the majority of its aspects. For cases in which the changes are equal for the aspects of a factor (i.e., no majority), we select the “weakest” changes. For instance, in the above example, the factor “workload” has only two aspects and they show different changes: “increases significantly” and “increases slightly.” We select “increase slightly” as the factor change.

4. Case study

In this section, we present a case study to demonstrate the effectiveness of the proposed HENEX framework. The data collection is presented first, followed by the negative experience analysis, which involves identifying the changes in the related factors and an in-depth analysis that reveals the ways that the types of employees are distributed in the frequently discussed factors. Finally, we present the theoretical and practical implications of the study.

4.1. Data collection

Our data-collection process involves collecting hospitality employees’ reviews from the job-seeking platform Glassdoor. We selected Glassdoor as our data source because it has accumulated a significant number of employee reviews, and their reviews are considered authentic and have been frequently used in recent hospitality studies (Fang et al., 2021; Stamolampros and Symitsi, 2022). The keyword “hotel” was used

in the Glassdoor job filter to select hotels for employee-review collection. The location was set to “Australia” because the Australian hospitality industry is currently suffering from a severe Great Resignation problem (Australian Bureau of Statistics, 2022a). The findings have the potential to help Australian hoteliers resolve the workforce problem and maintain competitiveness by offering deep insights into their employees’ experiences.

We browsed the “Jobs” and “Companies” tabs in Glassdoor to ensure that all Australian hotels on Glassdoor were covered in the employer-selection process. We found 37 hotels and then checked the number of reviews for each hotel. Reviews for hotels that have more than 100 employee reviews were collected. Finally, we obtained 25,413 employee reviews from seven major hotels. This review number is significantly larger than the suggested sample number for high-quality (1 % margin error and 99 % confidence level) quantitative research in large populations (about 14,931; Delice, 2010). In addition to the employee-review text, we collected other information, such as job title, working time, and date of review for the analysis. The data-collection process finished in October 2022.

4.2. Negative employee experience analysis

4.2.1. Negative aspects distribution

Having collected the employee reviews, we conducted negative aspect extraction to extract the aspects that led to hospitality employees’ negative experiences. In total, 169 aspects were extracted, which are listed in Table 2. Fig. 2 shows the top 15 aspects that led to hospitality employees’ negative experiences and their support. We can see that frequently mentioned aspects include “hours” of work, the “work” itself, “pay,” “management,” “salary,” the hotel “company” itself, “leadership,” and “staff,” among others.

4.2.2. Aspect-level emerging pattern analysis

To gain deep insights into the ways that COVID-19 has changed the aspects that lead to hospitality employees’ negative experiences, we classified the collected data into two groups to conduct emerging pattern detection. The first group contains employee reviews until the end of 2019, which constitutes the employee experience before COVID-19. The second group contains employee reviews since 2020, which constitutes the employee experience after the outbreak of COVID-19. One important parameter to be determined for conducting emerging pattern detection is the support threshold δ , which controls whether an aspect is frequent

Table 2
Details of codebook used to map aspects and experience factors.

Factor	Description	Related Aspects
Benefit	Non-monetary reward	benefit, travel benefit, meal, free room, discount, hotel stay, compensation, food, hotel discount, travel perk, room discount, health benefit, perk, incentive, discount program, parking, hotel benefit, employee benefit, room rate, travel discount, contract, employee rate, snack, health care, health insurance, dry cleaning, employee discount, insurance, team building, staff benefit, room
Company & culture	The company itself and related culture	reputation, culture, location, brand, industry, hotel, company culture, organization, hotel chain, customer service, work culture, chain, company value, company benefit, hospitality, reorganization, company
Coworker	Relationship with coworkers	colleague, team, associate, staff, people, coworker, worker, team spirit, team player, teamwork, team member
Flexibility	The freedom, flexibility, and power to perform the job	work remote, schedule, transfer, flexibility, shift, position, department (different), option
Job Management	The content related to the job itself Managers and management	job, work, expectation, franchise programs, customer, skill, challenge, attrition, task, menu, guest management, manager, communication, employee recognition, employer, leadership, structure, management team, management structure, executive, HR personnel, boss, budget, corporate role, CEO, procedure, employee
Pay	Monetary reward	wage, pay, salary, rate, money, disaster pay, tip
Promotion	Promotion and advancement opportunities	growth, opportunity, growth opportunity, advancement, advancement opportunity, career advancement, career option, training opportunity, career advancement, promotion, career growth, development, career opportunity, career progression, development opportunity, exposure, career path, career, career development
Work environment	Physical conditions and atmosphere of the hotel	work environment, environment, office, property, atmosphere, work condition, team environment, ambience, cafeteria, gym, restaurant, facility, amenity, workplace, maintenance, vibe, work atmosphere, transport, canteen, working condition, laundry, equipment, accommodation, employee room
Workload	Amount of work required and allowed leave	work-life balance, hour, time off, stress, break, night work, holiday, overtime, overnight, weekend, furlough, workload, vacation, annual leave, sick leave
Work support	Job training, supervision, and supporting resources	care, resource, training, learning, learning experience, training program, supervisor, online course, learning opportunity

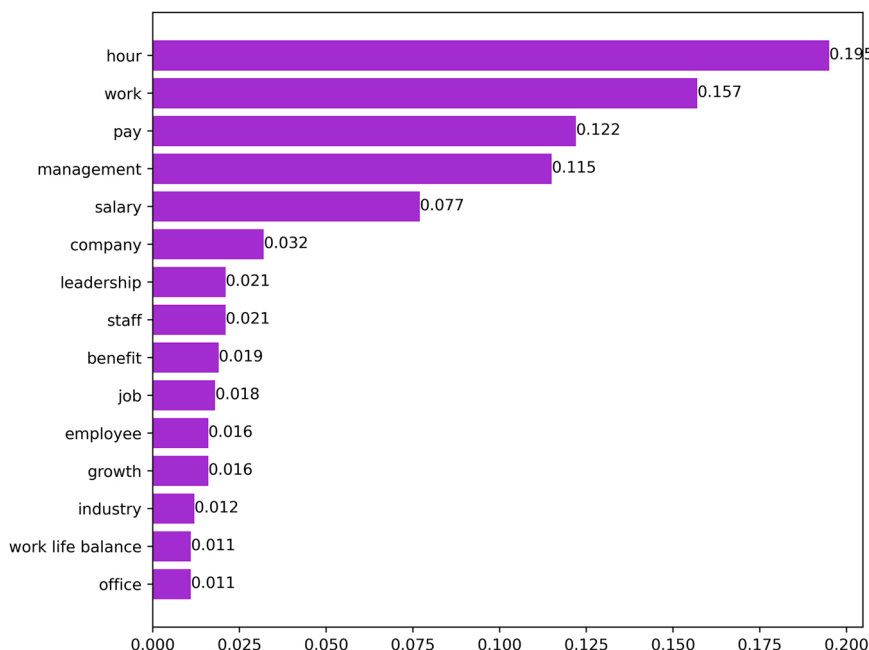


Fig. 2. Frequently mentioned aspects that contribute to hospitality employees' negative experiences and their support.

enough for further analysis. Similar to Li et al. (2015), to discover the optimal δ , we checked the changing of the number of aspects that have a varying δ between 0.001 and 0.01 (see Fig. 3). Given that the number of aspects did not further decrease when δ equals 0.009, we set $\delta = 0.009$ across the experiments.

Next, we calculated the growth rate according to its definition in Section 3.3 and employed the Z-test (Vu et al., 2019) to verify the statistical significance of the discovered patterns. A positive growth rate indicates that an aspect became more frequent in hospitality employees' negative experiences during COVID-19 (corresponding to a negative Z-Score) whereas a negative growth indicates otherwise. Table 3 shows the results of the emerging pattern detection. After the outbreak of COVID-19, consideration of the aspects "compensation," "communication," "employee," "guest," "hotel," "job," "manager," and "team" led to the negative experiences of hospitality employees decreased dramatically (P1–P8) and that of "company" and "work" decreased (P13, P14). This phenomenon is probably because most of the existing hospitality employees are "survivors" of the layoffs and resignations that were caused by COVID-19 and these staff normally have relatively high levels of engagement and positive experiences. Meanwhile, the emphasis on the aspects of "night work" and "stress" that led to negative experiences

in hospitality employees increased significantly (P9, P10) and that of "hour" and "salary" also increased (P11, P12). This is probably because of the Great Resignation, which has resulted in the remaining hospitality employees having to work extra time and take on more responsibilities.

4.2.3. Factor-level emerging pattern analysis

After getting aspect-level analysis results, we mapped the aspects in Table 3 to the corresponding factors according to the codebook that was presented in Section 3.4 to conduct factor-level emerging pattern analysis. The results are presented in Table 4. Overall, after the outbreak of COVID-19, the emphasis on the factor "pay" (P1) that contributed to the negative experiences of hospitality employees increased (\nearrow ; i.e., emerging pattern) and that of "workload" (P2) increased significantly (\uparrow ; i.e., jumping pattern). Meanwhile, the consideration of the factor "company and culture" (P3) that contributed to the negative experiences of hospitality employees decreased (\searrow) and that of "benefits," "coworkers," "job," and "management" (P4–P7) decreased significantly (\downarrow).

To further understand the detailed trends in the changes to these factors after the outbreak of COVID-19, we employed emerging pattern detection again on the three groups that were generated by classifying the employee reviews according to the year of creation: 2020, 2021, and 2022. The trends discovered are presented in Table 5. The emphasis on the factors of "benefits," "job," "management," and "work environment" (P1–P4) that contributed to hospitality employees' negative experiences shows a consecutively decreasing trend from 2020 to 2022 (\Downarrow); however, that of "pay" (P5) shows a consecutively increasing trend (\Uparrow). The consideration of the factor "coworker" (P6) that contributed to hospitality employees' negative experiences decreased significantly in 2021 and was not statistically significant in 2022 (\downarrow). These patterns reveal that in 2022 "pay" became the most prominent factor that led to hospitality employees' negative experiences, whereas other factors such as "management" and "benefits" became less important.

The consideration of the factor "promotion" (P7) that contributed to the negative experiences of hospitality employees increased in 2021 but decreased in 2022 (\curvearrowright) and that of "workload" (P8) decreased in 2021 but increased in 2022 (\curvearrowleft). The decrease in employees' complaints about the "workload" in 2021 is because Australia's border was closed at that time and therefore there were fewer tourists. Further, low occupancy rates and dismal market conditions in 2021 led to an increase in employee concerns about career growth. However, when the border

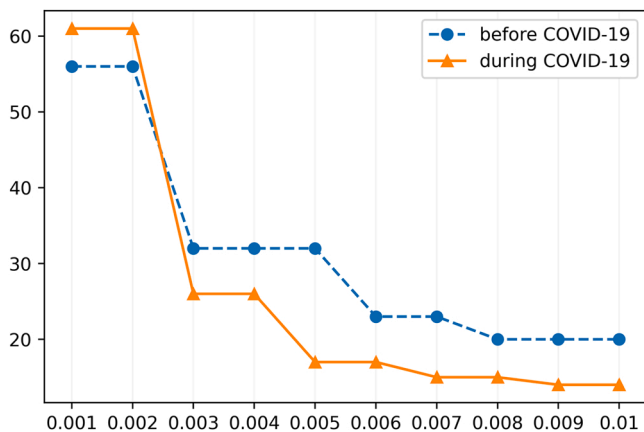


Fig. 3. Changing of the number of aspects that have varying δ .

Table 3
Result of emerging pattern detection before and after COVID-19.

Pattern ID	Aspect	Pre-COVID-19 (Support)	Dur-COVID-19 (Support)	Growth Rate	Z-Score	p-value
P1	Compensation	0.014	0	−∞	2.641	0.008
P2	Communication	0.012	0	−∞	2.444	0.015
P3	Employee	0.031	0	−∞	3.945	0
P4	Guest	0.012	0	−∞	2.444	0.015
P5	Hotel	0.01	0	−∞	2.23	0.026
P6	Job	0.029	0	−∞	3.814	0.0
P7	Manager	0.01	0	−∞	2.23	0.026
P8	Team	0.01	0	−∞	2.23	0.026
P9	Night work	0	0.01	∞	−2.043	0.041
P10	Stress	0	0.01	∞	−2.043	0.041
P11	Hour	0.116	0.267	2.302	−5.692	0
P12	Salary	0.048	0.103	2.146	−3.083	0.002
P13	Company	0.046	0.02	−2.3	2.224	0.026
P14	Work	0.198	0.123	−1.61	3.096	0.002

* Significant at p-value ≤ 0.05.

Table 4
Changes in factors that contribute to negative employee experiences before and after outbreak of COVID-19.

Pattern ID	Factor	Aspect	Aspect change	Factor change
1	Pay	Salary	↗	↗
2	Workload	Stress, Night work, Hour	↑ ↑ ↗	↑
3	Company & culture	Hotel, Company	↓ ↘	↘
4	Benefits	Compensation	↓	↓
5	Coworker	Team	↓	↓
6	Job	Guest, Job, Work,	↓ ↓ ↘	↓
7	Management	Employee, Manager, Communication	↓ ↓ ↓	↓

opened in 2022, the number of international tourists significantly increased, which led to high workloads becoming the dominant factor that contributed to negative employee experience (Australian Bureau of Statistics, 2022b).

4.3. In-depth experience analysis of different types of employees

4.3.1. Employee distribution on prominent negative factors

From the trends that were reported in the previous section, we found that only the emphases on the “pay” and “workload” factors that contributed to hospitality employees’ negative experiences increased in 2022. We then performed an in-depth analysis to understand which

Table 5
Detailed trends of changes in factors that contribute to negative employee experiences from 2020 to 2022.

Pattern ID	Factor	2020 vs 2021				2021 vs 2022				Trend
		Aspect	Growth Rate	Z- score	p-value	Aspect	Growth Rate	Z- score	p-value	
1	Benefits	Benefit	−∞	2.23	0.026	Compensation	−∞	2.115	0.034	↓
2	Job	Work	−2.027	4.637	0	Room	−∞			
3	Management	Leadership	−3.769	2.63	0.02	Food	−∞			
4	Work environment	Transport	−∞	2.23	0.026	Job	−∞	2.544	0.011	↓
5	Pay	Pay	2.169	−3.51	0	Communication	−∞	2.115	0.034	↓
6	Coworker	Team	−∞	2.23	0.026	Office	−∞	2.997	0.003	↓
7	Promotion	Growth	1.8	0.026	0.312	Pay	2.169	−2.826	0.005	↑
8	Workload	WeekendFurlough	−∞	2.23	0.026	–	–	–	–	↓
			−∞			Growth	−∞	2.997	0.003	↔
						Hour	1.403	−3.225	0.001	○

hospitality employees according to their “job title” and “working time” suffered the “pay” and “workload” issues in their experiences.

Fig. 4 reports the results for the hospitality employees who considered that “pay” leads to negative job experience according to “job title” and “working time.” Fig. 4(c) presents the words that employees used to describe their experiences in the pay-related aspects. Most of the employees considered that they had “low” pay. Fig. 4(a) presents the top five positions (job titles) that emphasized the issue of low pay and the corresponding support, which demonstrates that the top five positions that experience the pay issues are “front desk receptionist,” “guest service agent,” “sales manager,” “front desk associate,” and “customer service representative.” Fig. 4(b) shows the percentage of employees according to their “working time” that emphasized the pay issues. The majority of the employees who emphasized the issue of “low pay” are those who had worked in the hotels for three to eight years, followed by those who had worked for less than one year and between one and three years.

Fig. 5 reports the results for hospitality employees who considered that “workload” leads to a negative job experience according to their “job title” and “working time.” The majority of hospitality employees considered that they had “long” working hours (see Fig. 5(c)). The top five positions that emphasized the issue of workload are “server,” “front desk associate,” “guest service representative,” “sales manager,” and “event manager” (see Fig. 5(a)). Those who had worked in the hotels for one to three years, three to eight years, and less than one year complained more about the “workload” issue (see Fig. 5(b)).

4.3.2. Factor distribution on different types of employees

To help hotel managers further understand the factors that triggered different types of employee negative experiences, we analyzed the factors that the hospitality employees emphasized as leading to negative

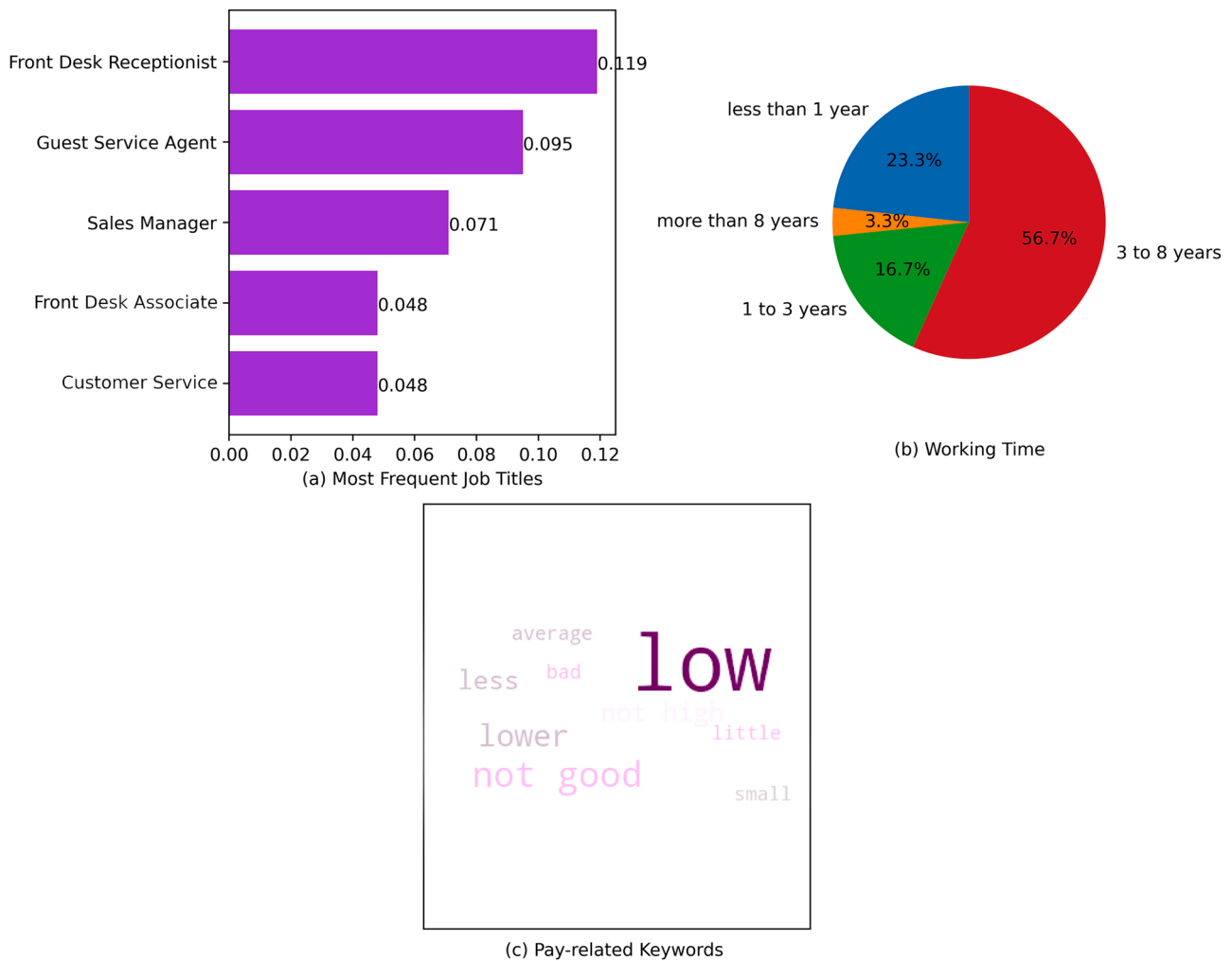


Fig. 4. Hospitality employees who consider that pay leads to negative experiences with respect to “job title” and “working time”.

experiences according to “working time” and “job title.”⁶ From Table 6, we find that “workload” is one of the dominant contributing factors for the employees who had worked in the hotels for eight years or less. “Pay” is another dominant factor for most employees, especially those who had worked for less than one year and between three and eight years in their jobs. Those who had worked in hotels for more than eight years were more concerned about the “job” itself. Some factors appear to only affect the negative experiences of certain groups of employees. For example, “flexibility” contributed to the negative job experiences of relatively new employees (three years or less) but did not have an impact on those who have worked for a longer time. Unlike other groups, new employees (less than one year) did not emphasize benefits as leading to their negative experiences.

From Table 7, we find that “workload” contributed more to negative job experiences for most employees across various positions. “Pay” had a significant impact on the negative experiences of front desk agents, sales managers, and front desk receptionists. Front desk agents and general managers highlighted that “management” contributed greatly to their negative job experiences. Some factors only affect the negative experiences of employees in specific positions, such as “benefit” for sales managers, “company & culture” for front office managers, and “work environment” for general managers.

⁶ There are more than 1100 positions in our data. For demonstration purposes, we report only the results for the top six most frequent positions.

4.4. Discussion and implications

The case study demonstrated the application of our proposed framework HENEX to understand the factors that led to hospitality employees’ negative experiences and their changes in Australia. The findings reveal detailed patterns about the ways that COVID-19 has affected and changed the factors that contribute to hospitality employees’ negative experiences. The identified knowledge is useful for hotel managers to develop HR strategies to resolve the current workforce problem to maintain competitiveness. This study has several theoretical implications.

First, this study serves as a novel attempt to holistically understand different types of hospitality employees’ perceptions of negative experiences in the context of the pandemic. Previous studies have put much focus on understanding tourist experiences (e.g., Gao et al., 2022; Zhang et al., 2021); however, limited efforts have been made to understand employees’ perceptions of negative experiences in the hospitality industry. Given the essential role of employees in the hospitality industry, this study is therefore an important extension to the existing literature on experience understanding in the hospitality industry.

Our results contribute to existing literature with detailed factors that lead to different types of hospitality employees’ negative experiences. For example, our findings reveal that employees who worked in hotels for three to eight years, one to three years, and less than one year are under higher pressure of low “pay” and high “workload”. These findings explained the high-turnover intentions of mid-career and Generation Z

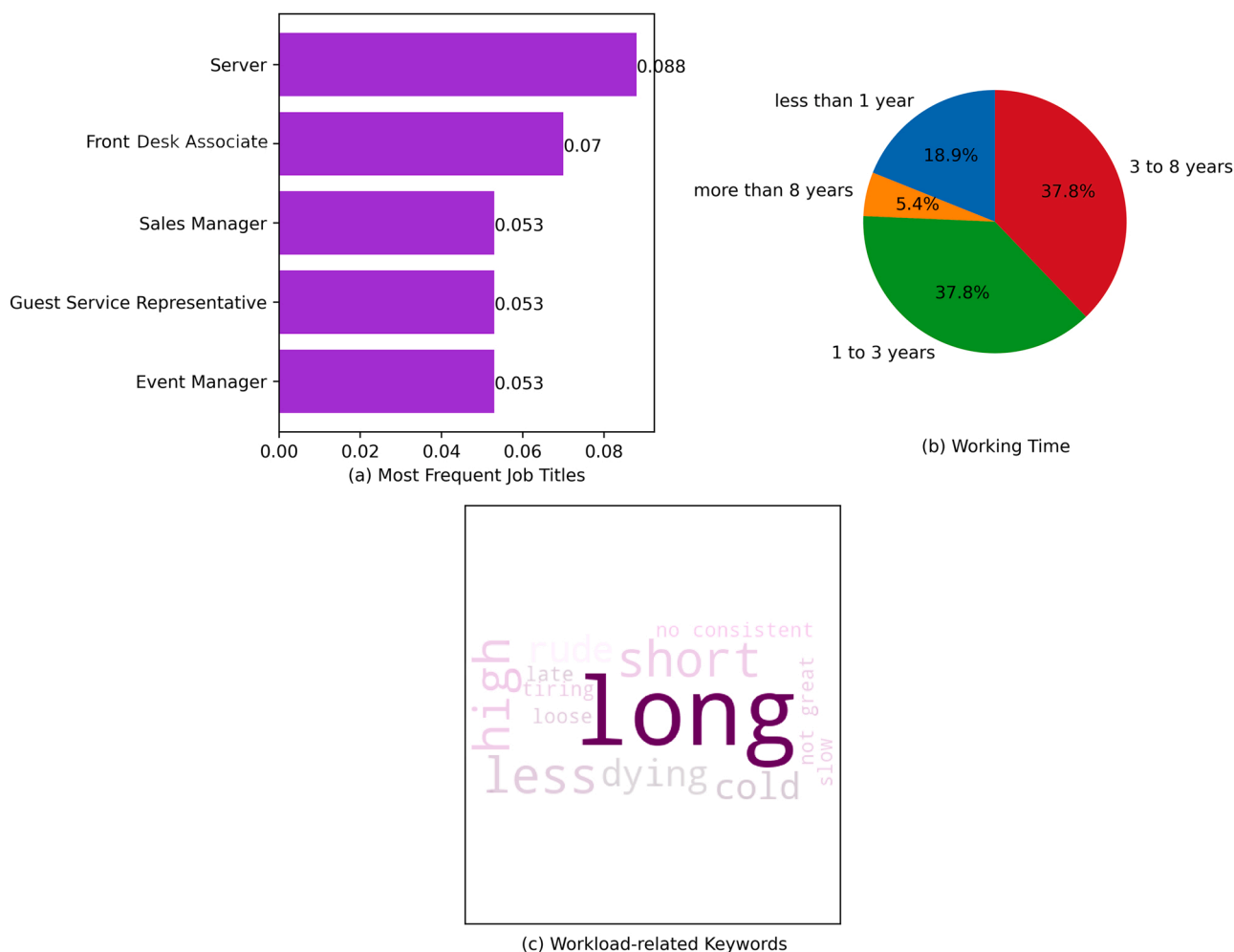


Fig. 5. Hospitality employees who consider that workload leads to negative experiences with respect to “job title” and “working time”.

Table 6
Factors that lead to hospitality employees’ negative experiences with respect to “working time”.

Factor	Less than 1 year	1–3 years	3–8 years	More than 8 years
Benefits	–	0.042	0.038	0.065
Company & culture	0.044	0.042	0.015	0.032
Coworker	0.044	0.056	0.031	0.032
Flexibility	0.015	0.014	–	–
Job	0.118	0.169	0.123	0.226
Management	0.132	0.141	0.154	0.194
Pay	0.221	0.155	0.331	0.194
Promotion	0.015	0.014	0.023	0.065
Work environment	0.029	0.028	0.015	0.097
Workload	0.382	0.324	0.262	0.097
Work support	–	0.014	0.008	–

employees in the hospitality industry reported in recent research (Cook, 2021). Our findings also demonstrate that the majority of employees who have negative experiences are those in subordinate positions, such as front desk receptionist, front desk associate, and customer service representative. This observation is consistent with the existing literature that raised concerns about the working conditions of hospitality front-line workers (Chen and Qi, 2022; Kang et al., 2015). We contribute novel insights to these studies by showing that some management positions, such as sales manager, have been also highly vulnerable to the pandemic. These novel findings offer valuable potential directions for

future research on the experiences of hospitality employees across various positions. Second, this study contributes to the existing literature with detailed insights on the Great Resignation which reflects the workforce problem in the hospitality industry after the outbreak of COVID-19. Previous studies indicated that the Great Resignation is related to employees’ negative experiences (Croes et al., 2021; Liu-Lastres et al., 2022). However, so far, little knowledge exists regarding the underlying cause of the employees’ negative experiences and how COVID-19 influences employees’ negative experiences. This study fills this research gap and reveals detailed factors that lead to hospitality employees’ negative experiences and the changes in these factors from a longitudinal perspective in the context of COVID-19. Our findings demonstrate that the consideration of low “pay” and high “workload” leading to the negative experiences of hospitality employees increased significantly and have become the most prominent factors contributing to hospitality employees’ negative experiences in 2022. This is consistent with the existing literature that has demonstrated that low pay and high workload are the main causes of the Great Resignation in the hospitality industry (Chen and Qi, 2022; Cook, 2021). Our findings complement existing studies with several less-discussed factors that contribute to hospitality employees’ negative experiences such as co-workers and the job itself.

Except for the identification of less-discussed factors, our findings also reveal interesting changes in these factors. For example, our findings show that the emphasis on high “workload” in causing negative employee experience decreased in 2021 and then increased in 2022, rather than increasing continuously. This may be because the workload

Table 7

Factors that lead to hospitality employees' negative experiences with respect to "job title".

Factor	Front desk agent	Sales manager	Server	Front office manager	General manager	Front desk receptionist
Benefits	–	0.182	–	–	–	–
Company & culture	–	–	–	0.143	–	–
Coworker	0.077	–	0.1	–	–	–
Job	0.077	–	0.1	0.143	–	–
Management	<u>0.231</u>	0.091	0.1	–	<u>0.286</u>	–
Pay	<u>0.308</u>	<u>0.364</u>	–	0.143	0.143	<u>0.714</u>
Promotion	–	–	–	0.143	0.143	–
Work environment	–	–	–	–	0.143	–
Workload	<u>0.308</u>	<u>0.364</u>	<u>0.7</u>	<u>0.429</u>	<u>0.286</u>	<u>0.286</u>

of hospitality employees is highly correlated with the number of tourists, which is influenced by containment measures (Gursoy and Chi, 2020). Further, we find that factors such as "management" and "coworker," which contributed to hospitality employees' negative experiences before COVID-19, become less prominent after the outbreak of COVID-19. These findings highlight the changing nature of the factors that determine employees' experiences and the importance of dynamic monitoring these factors (Boswell et al., 2009; Shambi, 2021; Tessema et al., 2022).

Third, this study complements the existing hospitality competitiveness literature with a novel methodological framework—HENEX—that can obtain deep insights into employees' experiences. Most of the existing hospitality competitiveness literature focused on improving the tourist experience (Barros, 2005; Reynolds and Thompson, 2007) while neglecting the employee experience, even though talented employees and their experiences have been considered an important determinant of competitiveness in the broad management literature (Muskat et al., 2019). This study is among the early attempts to address this research gap. Furthermore, our developed codebook lays the theoretical foundations for subsequent studies into the factors that can be used to understand hospitality employees' experiences.

This study contributes to existing hotel competitiveness literature by highlighting the pivotal role of employee experience in contributing to hotels' competitiveness during and even after the pandemic. COVID-19 has significantly changed employees' attitudes toward their career and personal development (Gursoy and Chi, 2020). Employees have become more open to job opportunities in other industries. Hotels are now not only competing with their peers but also with employers in other industries who can provide better experiences (Cook, 2021; Liu-Lastres et al., 2022). We argue that these changes provide an opportunity for hotel managers to rethink the way to deal with the long-existing workforce shortage problem. Hotels should eliminate their long-term poor reputation for low pay, high workload, and tough working conditions (Baum et al., 2020; Croes et al., 2021). Improvement of the employee experience will long be an important task for hotel managers to maintain business competitiveness. This study, therefore, calls for more future research endeavors on this important but underexplored research direction.

Moreover, this study provides several practical implications. To begin with, our findings provide detailed guidance for hotel managers to develop targeted HR strategies to improve employee experience and thereby maintain competitiveness in the great resignation. Specifically, the findings in Tables 4 and 5 emphasize the pivotal role of low "pay" and high "workload" in creating hospitality employees' negative experiences in the current Great Resignation context. This suggests that for hotel managers who want to improve their employees' experience, increasing pay and reducing workload are currently the most effective ways. The findings in Figs. 4 and 5 provide further guidance for hotel managers in prioritizing the issues of "pay" and "workload" for different types of hospitality employees. For example, it is suggested that hotel managers take high priority in improving the pay of employees in positions such as "front desk receptionist," "guest service agent," "front desk associate," and "customer service representative" and employees

who have worked in hotels for three to eight years and less than one year. In terms of workload, it is suggested that hotel managers take high priority in reducing the workload of employees in positions such as "server," "front desk associate," and "guest service representative" and employees who have worked in hotels for one to three years and three to eight years.

Furthermore, our findings provide detailed guidance to hotel managers on how to develop targeted offer packages to attract skilled individuals to address crucial vacancies in the Great Resignation context. For example, our results suggest that for hotels that want to recruit employees who have worked in the hotel industry for less than one year or one to three years, hotel managers could highlight the low workload in the job offer. For hotels that want to recruit employees who have worked in the hotel industry for three to eight years, negotiating higher pay could be highly attractive. For hotels that want to recruit general managers, the low workload and good management practices of hotels could be attractive.

5. Conclusion

Given the gradual phasing out of pandemic-related containment measures worldwide, tourist mobility has started to increase again; however, the recovery of the hospitality industry has not been as smooth. One major problem that has emerged in the current state is the Great Resignation, which reflects a severe workforce problem. Prior studies have revealed that the leading cause of the current workforce problem in the hospitality industry is negative employee experience, which triggers a high level of turnover. However, very few empirical studies, if ever any, have been conducted to deeply understand the causes of hospitality employees' negative experiences in the current pandemic context to help hotel managers to solve this workforce problem and to maintain competitiveness.

One major barrier to understanding the causes of hospitality employees' negative experiences is the complexity of capturing the changes and emerging patterns of enormous factors that determine employee experience. This complexity makes traditional methods somewhat impractical. To overcome this barrier, we have proposed a novel employee-experience understanding framework, HENEX, which uses data mining technology and online employee reviews. In HENEX, the factors that lead to negative employee experiences and the related changes that are caused by COVID-19 are identified through aspect-level sentiment analysis and an emerging pattern mining technique. The knowledge that can be used to develop targeted HR strategies to resolve the workforce problem and maintain hotel competitiveness was discovered in the employees' negative experiences understanding process.

This research has demonstrated the effectiveness of the proposed framework by conducting a case study that includes major hotels in Australia. Findings reveal several detailed patterns of the factors that lead to Australian hospitality employees' negative experiences and the related changes. These discovered patterns provide detailed insights that can help hotel managers, especially those in Australia, to understand the employee experience and maintain their competitiveness in the current

Great Resignation context.

Our proposed method has certain limitations that could be the starting point for future research to better understand job experiences in hospitality and tourism. First, the main research findings are based on data collected from Glassdoor. We acknowledge though, that not all hotels might be listed on this platform, or might not yet have obtained sufficient employee reviews. Thus, future studies could mitigate this sample selection bias by integrating employee reviews from other similar online platforms, such as Seek (<https://www.seek.com/>) and Indeed (<https://www.indeed.com/>). Furthermore, this study did not differentiate different types of hotels such as different star ratings. However, frequently, different types of hotels treat their employees differently. Therefore, investigating the fine-grained difference in employee experiences in different types of hotels constitutes an interesting extension of this study. Finally, although the aspect-level sentiment analysis could extract the aspects and identify the corresponding sentiments with reasonably high levels of accuracy, because of the technical limitations of data-extraction APIs and machine-learning research, it cannot ensure that all the aspects and sentiments are correctly extracted and identified. Future studies could advance this research by improving the accuracy of aspect extraction and sentiment identification with human assistance.

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Declaration of Competing Interest

None.

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