How to provide empathetic responses: Towards emotion assessment of customers' complaints during hotel stay

Abstract. Negative online reviews heavily impact the service sector. These negative contributions stem from negative experiences during the service encounter that are not properly handled by the staff and result in customer dissatisfaction. Organizations seek to reduce the number of negative commentaries posted online. As a solution, we propose an artifact designed to monitor customers' emotions *during* their service experience. Such an early warning system would put service providers in a position to offer empathetic responses leading to successfully service recovery and, therefore, superior online reputation.

Keywords: Digital Data Streams, emotion recognition, service recovery.

1 Introduction

Although the objective of every firm is to deliver a satisfying service experience, this is difficult in people intensive businesses (Boshoff and Allen, 2000). Once service failures occur companies' effort shift to service recovery and redress of the customer experience. Hotels, the context of our work, are a prime example of a people intensive service business. However, the design principles underpinning the proposed artifact are general, thus applicable to other service industries.

A hotel experience is determined by the combination of tangible features (hotel physical characteristics) and intangible features (interactions with personnel) (Sparks and Browning, 2010). Customer satisfaction has a critical impact on the service sector because it determines customers' loyalty as well as word of mouth (WOM) (Bitner et al., 1994). The emotional components of a stay not only influence the level of customers' satisfaction but also guide individuals' reactions in terms of coping behaviors (Gyung Kim et al., 2010). Among the different coping strategies available to customers there is the generation of online reviews on user-generated content platforms such as Yelp or TripAdvisor (Piccoli and Ott, 2014; Piccoli 2016).

Online reviews are commentaries that customers are willing to spontaneously share on third party website or on company website (Mudambi and Schuff, 2010). Different research streams focus on their impact on sales (Hu et al., 2008), trust (Ba and Pavlou, 2002), helpfulness (Mudambi and Schuff, 2010), peer influence (Kumar and Benbasat, 2006), and uncertainty reduction (Chatterjee, 2001).

In the hotel industry, those commentaries not only impact hotel reputation (Sparks and Browning, 2010) and online reservations (Ye et al., 2009) but they also suggest necessary actions to improve service quality (Dellarocas et al., 2007). Moreover, there is a difference between negative and positive reviews both in terms of the aspects discussed (Palese and Piccoli, 2016) and in terms of the impact they have on other customers (Rozin and Royzman, 2001). Specifically, negative reviews result to be shorter and to have a stronger effect. Ubiquitous network connectivity allows customers to write reviews anytime, anywhere. In fact, some customers write reviews even during the service experience (Levy et al., 2013). Furthermore, the device used by the reviewers affect the timeliness and valence of reviews. Reviews written using a mobile are significantly more negative than those written on a computer (Piccoli, 2016).

These negative contributions are the results of events that occur during the service encounter which either go unreported or are not properly handled by the staff.

2 Problem statement

Today, the majority of hotel selection decisions are made online (Min et al., 2014) and half of travelers' purchases are influenced by online reviews (Levy et al, 2013). Negative online reviews are an opportunity for customers to share their emotions and communicate their complaints. Recent work shows that the triggered essential reviewing affordance emerging from smartphone ubiquity results in an increased likelihood of negative reviews (Piccoli, 2016). However, since, service providers can't limit customers' use of mobile devices, or ubiquitous access to user generated content platform, they can't stop customers from posting negative opinions. The only viable solution is to reduce customers' dissatisfaction and relieve negative emotions before the experience is completed or it is communicated to future customers. In fact, during the service encounter, an alert system is critical, since the firm has the opportunity to properly recover (Min et al., 2014). Generally however, hotel operators do not have a full understanding of breakdowns in the guests' service experience so they can't properly handle these complaints (Levy et al, 2013) or respond (Park and Allen, 2013). We contend that sociotechnical artifacts (Silver and Markus, 2013) enable the measurement of customers' emotions before the conclusion of the experience, augmenting the possibility to grasp a deeper sense of complaints' urgency. Consequently, offering the opportunity to remedy service failure and so reduce the amount of triggered essential reviews.

3 Kernel theory

A coping strategy is defined as the variety of responses customers generate due their satisfaction/dissatisfaction perception (Gyung Kim et al., 2010). The customer complaint behavior literature has defined four different coping strategies, namely inertia, negative WOM, direct complaining to service provider (voice) and complaining to a third party (Gyung Kim et al., 2010). In this paper, we focus only on the second and third types because they generate Digital Data Streams (Pigni et al., 2016)

accessible to the service provider. The complaint management literature finds that in the majority of cases (75%) customers communicate complaints not correctly handled by managers and staff (Manicklas and Shea, 1997). So, a positive resolution of the customers' complaints before the end of a service experience will consistently reduce the number triggered essential reviews guest will produce after the service.

Fairness theory posits that whenever customers experience service failure, they expect compensation. Customers evaluate compensation's fairness based on factors like speed of recovery, courtesy, empathy, politeness, concern and neutrality affect perception of justice (Gyung Kim et al., 2010). An effective recovery can reverse the outcome of a service failure, leading to repurchase intention, recommendation behavior and customer loyalty (Gyung Kim et al., 2010). The customer complaints literature highlights three elements to address complaints, namely empathy, problem paraphrasing and speed of response (Min et al., 2014).

In this paper, we focus our attention on the empathetic element, because the objective of our artefacts is to determine the customers' level of dissatisfaction before establishing the appropriate recovery strategy. Moreover, problem paraphrasing is an element that mainly relies on human abilities but its effectiveness presupposes an understanding of complainers' emotion. For this reason, we consider the capacity to be empathetic with customers' complaint as the first steps to an efficient service recovery. According to the different emotional status of the customers, different responses and speed of response are required to recover the service failures. Empathy is the ability to provide care and individualized attention to customers and it is one of the service quality dimensions (Parasuraman et al., 1988) necessary to understand and satisfy customers' needs (Drollinger et al., 2006). Companies can be empathetic if they are able to understand customers' emotional state. (Min et al., 2014). An empathetic response demonstrates to customers that the service provider is able to understand their frustration and anger relieving their dissatisfaction (Min et al., 2014).

Despite the importance of service failure and service recovery for organizations, we are not aware of any systems designed to capture and analyze guests' emotions during the service encounter.

4   Method

In the development of our artifact we follow a widely accepted model in design science research, where the entry point of our research is a problem-centered initiation (Peffers et al., 2007). Table 1 details the process in our case.

Table 1. Application of DSR to develop an emotion recognition artifact (Adapted from Turber et al., 2014)

Activity	Method and Evaluation	Outcome
A1 *Identify the problem and motivate*	*Method/Stimulus:* — Service industry is heavily exposed to	*Results:*

	negative customers' opinions — Handling customer complaints properly can reduce negative reviews *Evaluation:* • Literature review and analysis	— Identification of a tangible problem for practitioners and researchers *Status of the activity:* • Completed (see Introduction and Problem statement sections)
A2 *Define objectives of a solution*	*Method/Stimulus:* — Literature review of online reviews, service failure and hotel complaints — Analysis of current complaints handling systems *Evaluation:* • Discussion with hospitality industry expert	*Results:* — Identification of research streams and theories related to the issue *Status of the activity:* • Completed (see Literature review section)
A3 *Design development*	*Method/Stimulus:* — Selection of design principles applicable to this class of problem *Evaluation:* • Discussion of the principles with hospitality expert	*Results:* — Artifact meta-requirements and meta-design principles *Status of the activity:* • Completed (see Design principles and Artifact description sections)
A4 *Demonstration*	*Method/Stimulus:* — Real time customers' emotion assessment of their complaints • *Evaluation:* Dashboard reporting customers' emotions • Text mining analysis	*Results:* — Implementation and validation of artifact functioning *Status of the activity:* • Planned in 2017
A5	*Method/Stimulus:*	*Results:*

Evaluation	─ Interviews with hotel managers and employees after 6 months of the adoption *Evaluation:* • Feedback from hotel managers and employees • Analysis of online reviews text	─ Observational approach: case study application (Hervner et al., 2004) *Status of the activity:* • Planned in 2017
A6 *Communication*	*Method/Stimulus:* ─ Presentation to department faculty ─ Academic conference (research in progress) *Evaluation:* • Feedback from department faculty and from conference reviewers	*Results:* ─ Peer reviewed publication (submission to DESRIST 2017) *Status of the activity:* • Ongoing

5   Design principles

5.1   Meta-requirements

Specification of meta-requirements (MR) is necessary in order to create an artifact that is able to address a class of problem (Walls et al, 1992).

Table 2. Meta-requirements

Meta-requirement	Description
MR1 *Events comprehensiveness*	During their service experience customers can complain in different ways. They can personally go to the front desk, they can call the reception or they can write an online review. All these events need to be properly recorded by the systems
MR2 *Emotion assessment*	Emotion analysis of the recorded complaints, in order to provide an empathetic response to the customer
MR3 *Extreme emotions alert*	Monitor the escalation of customers' dissatisfaction to determine the promptness and problem paraphrasing required in the service recovery.

5.2 Meta-design

The meta-designs (MD) are the different components of the artifact developed in order to address the class of problem highlighted by the meta-requirements derived from the kernel theories. Table 3 describes the meta-design principles associated to each meta-requirement described in Table 2.

Table 3. Meta-design principles

Meta-design	Description	Meta-requirement
MD1 *Data collection*	Every event generated by the customer during his/her stay need to be collected in order to have a comprehensive assessment of his/her frame of mind.	**MR1**
MD2 *Speech recognition*	Emotion recognition is performed on speech complaints. Transcriptions of the conversation are stored for further analyses.	**MR2**
MD3 *Text mining*	Text mining is used to assess customer dissatisfaction on the data collected in text form.	**MR2**
MD4 *Alert Visual assessment*	Employee and managers visualize the dissatisfaction' levels and provide an empathetic response	**MR2 & MR3**

6   Artifact description [Proposed solution]

Service firms must limit customers' dissatisfaction before the experience is concluded to avoid negative online reviews. From the literature reviews we know that is not the service failure itself but instead how complaints are handled that affect customer satisfaction. We know that empathy toward customers is important to successfully recover a service failure. Based on that we defined the design principles necessary to develop an artifact able to analyze the emotional status of costumers. The proposed instantiation includes two separate but complementary parts: data collection and data analysis. The first component requires the firms to have a digital logbook where all complaints are collected and stored. In fact, firms adopting the artifact need to digitize voice complaints made at the front desk, to transcribe internal voice call with the reception and to report online reviews written during stay. Logbooks are a staple of the hospitality industry, they record noteworthy events and are generally paper based. Our artifact requires them to become digital, so that in real time when a complaint is logged the data can be analyzed. Moreover, in order to facilitate their content generation, we propose speech to text transcription of the internal calls.

The second component, data analysis, requires the processing of the different data streams collected. For voice complaints over the phone, a speech emotion recognition software is used. The results of the analysis are reported using an interactive dashboard

displaying customers' frame of mind and its escalation. The dashboard will provide an alert to managers when the level of dissatisfaction of the customers required an immediate intervention. For text complaints, available in the logbook, an advanced text mining algorithm, namely weakly supervised topic model, enables the extraction of customers' emotional status. In fact, the topic model is seeded with a list of words representing different human emotions (e.g., anger, helplessness, sadness).

7 Conclusion

Negative online reviews heavily impact the service sector. These negative contributions stem from service failures that are not properly handled. However, empathetic responses can significantly improve service recovery.

Our artifact's role is to augment service providers' capabilities (Iivary, 2007) to understand customers' frame of mind when a service failure occurs and to grasp complaints' urgency before the experience is concluded. We expect that the knowledge of customers' emotional status by enhancing firms' empathy in handling complaints can reduce dissatisfaction, and so the number of negative reviews or at least limit the triggered essential ones.

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