Insight into consumer experience on UK train transportation services

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Abstract

Customers' experiences are significant in a rapidly changing service context, and this is shaped by the quality of service provided. With social media changing the way consumers engage with service providers, experiences are shared online. This study carried out three analyses of brand-related conversations on Twitter with the aim of exploring consumers' attitudes to and experiences of train operating companies. Firstly, Python was used for the tweet mining and sentiment analysis (n = 1,914,494 tweets) to investigate the polarity between the opinions of commuters. Secondly, tweets were thematically analysed and grouped to understand how consumers experience the service quality. Lastly, content analysis of the tweets was carried out to identify the variations in service quality. Results indicated that there is overall positive customer experience, however, there are variations in service quality dimension across the different train groups, highlight the need to improve service quality at different touchpoints, especially the tangible features of the trains and presence of responsive and emphatic staff. This study further broadens the context of customer experience through eWOM on social media for service brands, contribute towards related literature on sentiment analysis and service brands, providing significant theoretical and practical implications for researchers and managers.

1 Introduction

Providing an enhanced consumer experience is an important management objective (Lemon and Verhoef, 2016), and is crucial for achieving profitability, especially in a highly competitive environment (Chowdhary and Prakash, 2007; Hernon and Nitecki, 2001). When companies try to set themselves apart from their competition, it is paramount they understand the importance of providing a quality service that will enhance their customers' experiences. Despite the importance of service quality, however, there is uncertainty regarding what this term encapsulates. Service quality is thought to be multidimensional as it varies from individual to individual (Korda and Boris, 2010; Brady and Cronin, 2001), and each customer may have a different perception about what quality service looks like. Irrespective of this ambiguity, organisations need to find ways to measure and evaluate their service quality.

If they experience poor service quality, consumers are able to share their experiences via social media. An example of this was when a United Airlines passenger was dragged from an overbooked flight. The event was recorded on mobile phones, shared on Twitter, and spread rapidly online. This electronic word-of-mouth (eWOM) caused huge damage to the airline brand, there were customer breaking their loyalty cards and vowing not to fly with them, asking others to boycott the airline. Their stock was off about 4%, knocking off close to $1 billion off the company's market value, though later recovered but its market value was still off by $250 million (Kottasova, 2017), highlighting the impact of negative eWOM. Nearly one in five posts on Twitter (known as tweets) include a specific brand name, and express positive or negative feelings about a specific brand. The number of monthly active Twitter users is 310 million, and the number of tweets sent per day is 500 million. This means that an average of 100 million tweets mention brands every day (Internet Live Stats, 2018).

This study investigated how social media can be used to measure customer experiences in the context of the United Kingdom train system. The number of train journeys has been increasing as more and more people use trains to travel to work and across the country. The number of rail passenger journeys in the United Kingdom (UK) has more than doubled in the past 20 years, with an average growth of 4% each year (Peluffo, 2017). Train travel is often considered to be more convenient than air travel as there are no queues or security checks, passengers can take an unlimited amount of luggage, and train stations are often in city centres, making them easier to access.

Thanks to social media, commuters can now tweet about their experiences and express their complaints about and compliments to companies, while companies can use social media to contact consumers. Companies can initiate conversations on social media by making announcements and can provide updates to customers. These brand-related conversations on social media are part of eWOM (Hennig-Thurau et al., 2004), which has been found to have an impact on brands and consumers (Erkan and Evans, 2016; Wang et al., 2012; Raassens and Haans, 2017). eWOM is therefore an important topic to consider with regards to service quality and customer experience.

Theoretically, this study uses the Service Quality (SERVQUAL) model to explore brand-related conversations on Twitter following the service research priorities raised by Ostrom et al. (2015) with the aim of exploring consumers' attitudes to and experiences of train operating companies (TOCs). We carried out three different studies to achieve this aim. The theoretical underpinning has guided the process and the development of the research questions. We carried out the first study to understand the commuters' overall evaluation of the service quality from a sentiment point of view. Tweets relating to 27 TOCs were analysed to investigate their sentiments and polarity between the opinions of commuters. To have a qualitative understanding of these opinions beyond just sentiments, Study 2 adopted the five dimensions of SERVQUAL to analyse tweets thematically and grouped them to understand how consumers experience the service quality of these companies. Lastly, Study 3 qualitatively explored the themes generated in Study 2 by carrying out a content analysis to identify the variations in the TOCs service quality.

Our findings reveal sentiment differences in service quality experiences across various train routes and in the context of competition and alternatives available for commuters on train transportation, there is need to improve service quality at different touchpoints, especially the tangible features of the train and presence of emphatics staff. Building on previous works (Deb and Ahmed, 2018; Loo et al., 2010; He et al., 2018), this study further broadens the context of big data in customer experience through eWOM on social media for transportation service providers, contribute towards related literature on sentiment analysis and TOCs in the UK and providing significant theoretical and practical implications for researchers and managers.

2 Literature review

2.1 The railway system in the United Kingdom

The railway system in the UK is the oldest in the world. Railways began in 1825 when British engineer George Stephenson designed the first steam-powered locomotive, The Rocket, in 1825. Steam locomotives helped make Britain one of the most powerful nations in the world (Hoskins, 2010). Even though the industry model changed in the mid-1990s following privatisation, the British attachment to rail travel is clear, and it has the 17th largest and the densest rail network in the world (Smith, 2016).

The ownership model of the rail industry has two operating companies: the freight operating companies (FOCs), who compete for freight contracts, and passenger services that are mostly specified by the government and delivered by train operating companies (TOCs). Although the majority of passenger services in the UK are run by TOCs after they bid for seven to eight-year contracts, there are also open-access operators (OAOs) who have identified an opportunity to run a service that is not currently being provided by the main TOCs, and operate services purely on a commercial basis (i.e. not under a franchise or a concession agreement). Network Rail manages the rail infrastructure, while the Office of Rail and Road (ORR) regulate both TOCs and OAOs in turn (Rail Delivery Group, 2016)

The rail network has witnessed unprecedented growth which is due to an increasing population, long-term demographic shifts, economic growth and suburbanization as a combination of rising house prices and steadily increasing prosperity has led to longer commuting distances (Smith, 2017). Passenger traffic has doubled, and is growing faster than in all other European countries (Knox, 2013). Since 2004, the number of passenger journeys on the UK rail network has increased by 57%, which is higher than the European Union average of 23%. Train journeys across the UK rose by almost 4% overall, increasing by 60 million to nearly 1.7 billion in the last financial year (Shaw, 2015). The system is undergoing one of the biggest investment programmes in its history to provide much-needed extra capacity, more services, and better journeys (Rail Delivery Group, 2016).

The contribution of the UK rail sector to the UK economy is huge. Rail passenger and freight operators in the UK and their supply chains employ up to 216,000 people, contributing around £10.1bn to the UK economy each year. The rail sector plays an important role in providing employment across the UK, both directly in the industry (through employment by TOCs, FOCs, and Network Rail) and indirectly through the supply chain (Rail Delivery Group, 2016). In addition to its economic contribution, the rail sector also provides environmental and social benefits to the UK by increasing journey quality, improving accessibility and air quality, and reducing the number of road accidents (Rail Delivery Group, 2016). The rail sector creates a more productive economy by alleviating congestion in the road network and facilitating the development of clusters of economic activity.

Knox (2013), however, noted that although much has improved since British Rail was privatised in 1993, the railways are still far from perfect. In 2014, London had a much higher number of passengers travelling in and out of the city centre compared to any other city with 563,000 arrivals during morning peak travel times on a typical weekday, whereas Birmingham, Britain's second busiest city, had only 39,000. In addition to this congestion, the public are unhappy with the constant price hikes (Cox, 2014; Morris, 2016). The Trades Union Congress (TUC, 2014) also reported that British commuters spent over three times more of their salary on rail fares than most European passengers, even though poor customer service and delays have been documented. In addition, Walford (2012) reported that the UK's railways "are the most expensive, least comfortable and the least efficient in Europe". Commuters in the north of England, in London, and in the South East are facing delays and disruption to their services due to ongoing strike action by union members, who are involved in a long-running dispute over the role of guards and driver-only operations (Topham, 2018).

As illustrated in Fig. 1, the UK rail network is divided into three sectors: Long Distance, London and South East, and Regional (Peluffo, 2017). Commuters using different sectors will have different experiences on their journey, therefore, this study aimed to provide empirical evidence for understanding consumers' experiences with the TOCs in the UK.
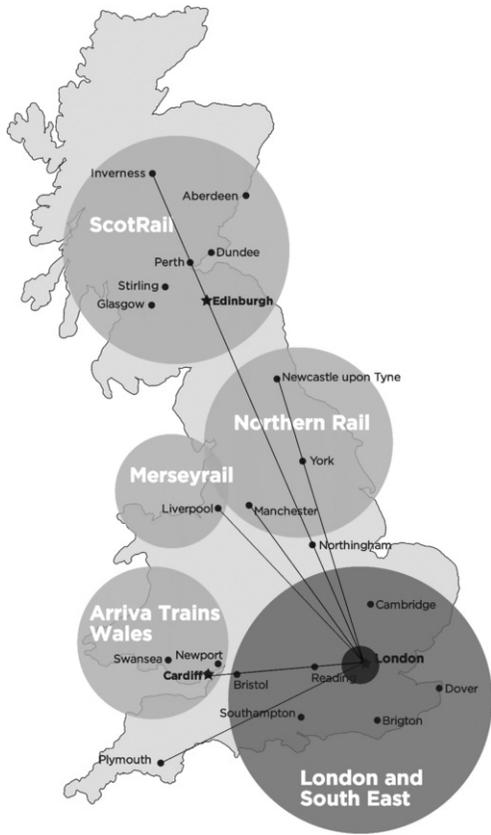

Fig. 1 The UK Rail Network.

2.2 Train service quality

Customers are using the TOCs with an expectation of quality service. Traditionally, service quality refers to the customer's overall evaluation of the service firm's attributes by comparing their expectations with the firm's actual performance (Parasuraman et al., 1988). Service quality has been known to enhance the profitability of a company, especially in a highly competitive environment (Chowdhary and Prakash, 2007). Therefore, TOC must be aware of the quality of the services they are offering and make efforts to improve their services.

Exploring customer satisfaction via various service quality studies has become a key tool in formulating market strategies, as delivering high perceived overall service quality is essential for companies that intend to distinguish themselves from their competitors and sustain their competitive advantages (Staminkov and Dika, 2015; Chowdhary and Prakash, 2007; Wang et al., 2003). To retain and satisfy customers, service organisations need to examine systematically the services they provide from a customer viewpoint and enrich the design of their services and the environment in which their services are delivered (Awad, 2012).

Service quality has been studied extensively in recent decades. A long-tested approach in measuring service quality is the application of the Service Quality (SERVQUAL) model (Lemon and Verhoef, 2016) and the measurement scales developed by Parasuraman et al. (1988). Lemon and Verhoef (2016) argued that there is not yet an agreement on a robust approach to evaluating all aspects of service quality and customers' experience, but credit should be given to the longevity of this model. The basic SERVQUAL model includes five service quality dimensions which account for the customer expectation of service and the customer perception of actual service quality. The five dimensions are reliability, assurances, tangibles, empathy, and responsiveness, and are referred to as RATER.

SERVQUAL remains the guiding model in numerous studies focusing on various organisations in the service sector, such as banks, retailers, and tourism organisations. However, some scholars have criticized it as being too focused on the service process and neglecting the associated technical factors (Kang and James, 2004). Other criticisms include that it is not able to properly measure changes over time in the quality expectations of customers (Cronin and Taylor, 1992; Hsieh and Yuan, 2011), and that it may not be able to be used in all service sectors and may need to be modified to be appropriate for those sectors (Kanning and Bergmann, 2009).

Notwithstanding these limitations, SERVQUAL has been used across research on different services and has been modified to suit different research contexts, including the use of different statistical techniques or the addition or removal of variables from the original model (Rahman et al., 2017). In this study, the model was considered to be suitable based on three reasons. Firstly, it has not been used previously to explore the service quality of the TOCs in the UK. Secondly, the dimensions of SERVQUAL that affect the perceived overall service quality, customer experience and engagement, and its impact upon travellers in the UK, are explored through eWOM, identifying a relationship between service quality and customer engagement on social media. Finally, qualitatively operationalising these dimensions through analysis of tweets is a methodological contribution.

2.3 Consumer experience

Consumer experiences are formed every time a consumer directly or indirectly encounters a brand (Meyer and Schwager, 2007). Similarly, De Keyser et al. (2015, p. 23) described customer experience as comprising the "cognitive, emotional, physical, sensorial, spiritual, and social elements that mark the customer's direct or indirect interaction with (an)other market actor(s)", and Brakus et al. (2009, p. 53) illustrated the responsiveness of customers by describing brand experience as "subjective, internal consumer responses (sensations, feelings, and cognition) and behavioural responses evoked by brand-related stimuli that are part of a brand's design".

When the contact nature of service provision is taken into consideration, there is no reason to ignore the customer experiences generated through a long process of engagement with the service providers and their different touchpoints. Homburg et al. (2017) described touchpoints as contacts between the firm and the customer at distinct points in the experience.

This relates to Swinyard's (1993) description of consumer experiences as the consumers' perceptions of the service at each touchpoint with the firm. Verhoef et al. (2009) concluded that consumers build up their experiences while engaging with the brands through a collection of these touchpoints. This paper establishes a relationship between service experiences that is shaped by the level of engagement with the brands through their different touchpoints. This is also corroborated by Maklan and Klaus (2011), who considered consumer experience to be an assessment of the overall perception of the customers. Indeed, consumers now have multitudes of touchpoints to engage with, resulting in more complex customer journeys (Lemon and Verhoef, 2016).

In addition to social media, the number of potential customer touchpoints is increasing, and it is important to understand how consumer experiences are shaped while engaging with the company. Customer experience can be conceptualised according to three stages: pre-purchase, purchase, and post-purchase (Lemon and Verhoef, 2016). These are closely related to the brand touchpoint wheel (Davis and Dunn 2002).

Pre-purchase is the first stage, and in terms of commuters', it refers to their initial interaction with the brand. This can include enquires made online by less-abled users, ticketing information or even the waiting area at the station. Purchasing is the second stage, and refers to all customer interactions with the brand and its environment during the purchase event itself (Lemon and Verhoef, 2016). This can include the service provided by the ticketing staff or the consumers' experiences on the website or app while buying their tickets. Post-purchase is the final stage, which refers to the commuters' interactions with the TOC after their journey. In this case, they may tweet about their experiences and provide feedback.

During the journey from pre-purchase to post-purchase, the brands have various opportunities to enhance the experiences of their commuters. As discussed earlier, commuters are now able to share these experiences in real time via social media, which provides ample opportunities for consumers to engage with services (Moeller 2010). These advancements also allow services to capture customer intelligence through Big Data approaches, which can assist in the understanding of customer engagement behaviours (Kunz, et al. 2017).

2.4 Consumer-brand relationships on social media

Consumers have found a great opportunity to discuss their opinions and experiences regarding products, services, and brands with their friends and acquaintances via social media (Kozinets, et al., 2010; Moran and Muzellec, 2017; Tafesse, 2015). Social media websites are considered highly appropriate platforms for eWOM (Canhoto and Clark, 2013; Kim et al., 2014; Toder-Alon et al., 2014). In fact, recent studies show that consumers increasingly use social media with the aim of acquiring information about unfamiliar brands (Barreda et al., 2015; Heller Baird and Parasnis, 2011; Naylor et al., 2012).

According to Trusov et al. (2010), social media has increased the number of online reviews written by consumers. Due to this huge interest in social media, marketers have started to attach great importance to this phenomenon. Companies have created official accounts on social media websites, and contact both current and potential customers through the provided facilities (Barreda et al. 2015; Casteleyn et al., 2009; López et al., 2016); In addition, companies can introduce their products and services on their brand's pages. Marketers therefore try to communicate with consumers through different social media websites, such as Twitter, Facebook, and YouTube. Based on the latest statistics, 77% of Fortune 500 companies use Twitter actively, and Twitter is also the most preferred social media website among these companies (Barnes et al., 2013). Having an official account and interacting with customers are important for

marketers (Chu et al., 2016; Chu and Choi, 2011). Through these accounts, marketers can track their customers' experiences of the company.

Both complaints and compliments expressed by customers have the potential to spread easily among large numbers of users on Twitter. Companies that exist on Twitter can track these eWOM conversations and intervene where necessary, however. Twitter and the content generated by customers are therefore critical to companies. This consumer-brand relationship, albeit on a virtual basis online, is considered vital for brands' survival and prosperity as it leads to brand loyalty and contributes to increased repurchase volume and better acquisition rates (Sabrina and Shobeiri, 2016; Giovanis, 2016).

Consumer relationships with brands in different sectors have been explored, e.g. mobile internet services (Giovanis, 2016), retail (Verhoef et al., 2009; Teixeira et al., 2012), telecom services (Izogo, 2017), Cultural sector (Ponsignon et al., 2017) and financial services (Mogaji and Danbury, 2017). To the best of our knowledge, however, studies looking at the relationship between train operating companies and their customers are scarce. When the lack of competition on routes is taken into consideration, it can be seen that consumers have limited choices regarding TOCs. The increasing number of commuters using services, the increase in union strikes, and the concerns surrounding upgrades and disruptions, highlight the need to understand the relationship between TOCs and their customers.

2.5 Conceptual framework

The conceptual framework for this study, illustrated in Fig. 2 is developed based on the SERVQUAL model. In our approach to gain insight into consumer experience on the train services, we focus on the TOC's expectation to provide quality services, measured through and five dimensions of SERVQUAL, consumers engaging with the services and sharing their experiences on social media. As indicators of service quality, the first research question considers the sentiments as shared by the commuters on Twitter while the other two questions probe more in-depth to qualitatively and quantitatively provide evidence of the consumers' experience.
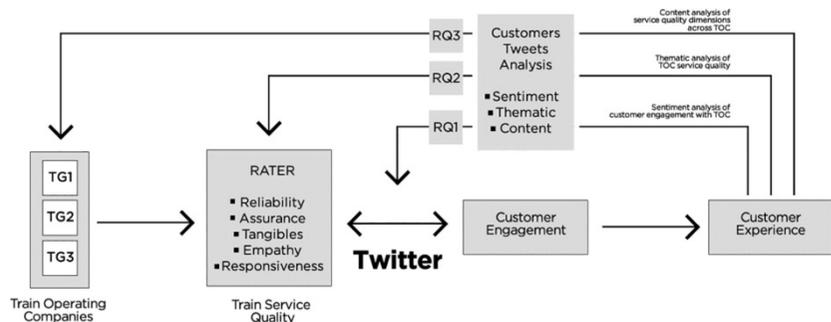

Fig. 2 The Conceptual Framework.

The framework highlights the relationship between the three research questions and brand-related conversation on Twitter as an indication of customers' evaluations of the train services. Each of the TOCs within the three subgroups are providing services for which customers will be assessing the quality. Customers engage with the TOC by sending tweets which form eWOM and user-generated content, giving an indication of their experience, which could be positive or negative.

The analysis of these tweets, as an indication and measure of service quality, is the core of this research. By carrying out sentiment analysis, the positive, negative or neutral attitude expressed within the tweets about the TOCs is identified and provides an understanding of the overall sentiment about train travel in the UK. Also, the thematic analysis reveals customers' experiences of the service quality dimensions of the TOCs, and the content analysis identifies any variations in service quality across the TOC groups.

This study focused on brand-related conversations on Twitter as a form of customer engagement with the TOC. Service providers need to be aware of the overall sentiment towards the quality of their services so that they may be able to identify ways to improve their services and enhance their customers' experiences and engagement, and, as a result, improve profitability.

2.6 Research questions

The three research questions to understand attitudes towards UK train travel are hinged on the three analyses within the conceptual framework.

Using sentiment analysis, Study 1 asked:

RQ1: As an indicators of service quality, what are the commuters' sentiments towards the UK TOCs?

The sentiment analysis in Study 1 will show the polarity in sentiments regarding consumers' experiences, but not the service quality dimensions that shape these experiences. Therefore, Study 2 asked:

RQ2: What are the factors shaping the service quality of TOCs, and how are the commuters describing their experiences?

To further explore the themes generated in Study 2, content of selected tweets is analysed to answer the specific question of variation across the TOCs:

R3: How do these service quality dimensions vary across TOCs?

2.7 Study 1 sentiment analysis

2.7.1 Methodology

Soleymania et al. (2017, p. 5) defined sentiment analysis as 'the automatic method to extract and analyse the subjective judgments on different aspects of an item or entity'. It is a machine learning process that involves the application of natural language processing to identify expressions that reflect authors' opinion-based attitudes towards entities (Li and Hovy, 2017). This process was used to analyse the sentiments in tweets by the UK TOC commuters.

In line with previous methodology adopted for an airline study (Xun and Guo, 2017), we collected customer tweets as a direct reflection of their immediate experiences with the TOCs, i.e. whether they had experienced delays, cancellations, or positive or negative staff attitudes, etc. The advantage of using tweets, instead of online forum messages, is that they reflect consumers' immediate responses to train services. Data mining of social media is relatively immune to ethical clearance critique as the data are publicly available (Mogaji and Farinloye, 2017; Xun and Guo, 2017), and the commuters who tweet are aware of this. For the data analysis, we focused on the aggregate data and did not look at individuals. Therefore, the personal profiles of Twitter users were not collected.

The computer programming language Python was used for the tweet mining and sentiment analysis (Saxton and Waters, 2014) (see Russell, 2011, for a detailed overview). For the tweet mining, we used 'twitterscraper', and for the sentiment analysis, we used Textblob, a natural language processing library package in Python which holds an extended documentation of words and can handle almost every opinion mining task in a fast and easy way. It is used in part-of-speech tagging, noun phrase extraction, sentiment analysis, classification and translation. This library uses machine-learning principles to analyse the words in a statement, tweets in this case, and decide if the overall tweet is positive or negative. A sequence of relative steps for the analysis is presented in the next section and illustrated in Fig. 1.

2.7.1.1 Input data TOC handles were used as the keywords (twitter handle of the TOCs), The start and end dates (1 September 2016 and 31 August 2017) are defined as input.

2.7.1.2 Tweet crawler Given the limitations with Twitter's Search API, which is restricted to 180 requests every 15 min with a maximum number of 100 tweets per request which is only available for tweets written in the past 7 days, the Twitter API could not be used to extract the tweets and this was a major issue as we had planned to look at year-long data. Instead we used 'twitterscraper', a Python package that can collect tweets from an earlier time interval. These tweets were extracted from a one-year period between 1 September 2016 and 31 August 2017, and contained the username of a TOC.

2.7.1.3 Pre-processed data To reduce the consequences of noise from the unorganised Twitter data that was crawled, and its implication on the data quality and output, data pre-processing was performed as an optimization approach. Extracted tweets were pre-processed to remove irrelevant or unrelated tweets which may not have provided any sentiment or may have distracted the analyser from interpreting polarity in the most effective way. This process helped conform normal structures which in turn, considerably improved the performance of the machine-learning algorithms (Saleem et al., 2014). In addition, this included tweets by the TOCs themselves, as these tweets were more likely to be either positive or neutral. Instead, the focus was more on the travellers' experiences and their tweets about the service.

2.7.1.4 Classification algorithm This is the supervised learning approach stage in which the program learns from the data given to it, and then uses this learning to classify new observations (Sifium, 2017). The main goal here is to identify the category/class under which new data will fall by using the naive Bayes algorithm classifier. Publicly available tweets involving 27 UK TOCs were divided into three groups: London and South East, regional, and long distance.

2.7.1.5 5 Classified tweets Processed tweets were passed through the classification algorithms based on textblob lexicons. Textblob's sentiment analysis returns two values, polarity and subjectivity. Polarity is the measure of how positive or negative the feeling about a tweet is, and ranges from +1 to −1, with −1 representing very negative, and +1, very positive. Subjectivity is the measure of how subjective or objective a tweet is, and ranges from 0 to 1, with 0 being completely objective, and being completely subjective.

2.7.1.6 Output Here the output of the processed tweets, labelled into sentiments (positive, negative or neutral) using the polarity and subjectivity parameters of TextBlob was prepared in a table, it provides the analysis of travellers' sentiments about their experiences on the TOC. For the plots, we used the 'pandas-highcharts' Python package.

2.7.2 Results

Overall, 2,645,142 tweets were extracted from 27 TOCs during the one-year period. Only 1,914,494 of these were used for the sentiment analysis, however, as the others were from the companies. Tweets with positive sentiments accounted for 30.25% (n = 579,286) of the sample, tweets with negative sentiments accounted for 20.63% (n = 394,989), and tweets with neutral sentiments accounted for 49.11% (n = 940,219). Table 1 provides a breakdown of each of the companies and their number of

tweets.

Table 1 Sentiment Analysis of all the Tweets across different Train Operating Companies.

Tain Group	Train Compnay	Username	Total tweets	accepted tweets	rejected tweets	Positive tweets	% Postive	Negative Tweets	% Negative	Neutral Tweets	% Neutral	Diff (Postive-Negative)	Average
London and South East	Abellio Greater Anglia	greateranglia	216,999	171,097	45,902	49,496	29%	34,746	20%	86,855	51%	9%	
	c2c	c2c_Rail	102,917	69,642	33,275	18,013	26%	13,919	20%	37,710	54%	6%	
	Chiltern Railways	chilternrailway	41,224	29,058	12,166	9678	33%	6604	23%	12,776	44%	11%	
	Gatwick Express	GatwickExpress	23,074	15,930	7144	4196	26%	2998	19%	8736	55%	8%	
	Great Northern	GNRailUK	96,923	68,093	28,830	17,589	26%	16,249	24%	34,255	50%	2%	
	Great Western Railway	GWRHelp	184,623	144,110	40,513	42,239	29%	38,097	26%	63,774	44%	3%	
	Heathrow Connect*	HeathrowConnect	160	160	0	24	15%	70	44%	66	41%	-29%	
	Heathrow Express	HeathrowExpress	9116	6572	2544	2542	39%	1134	17%	2896	44%	21%	
	London Midland**	LondonMidland	72,713	37,844	34,869	12,751	34%	6203	16%	18,890	50%	17%	
	London Overground	LDNOverground	19,031	11,533	7498	3453	30%	2462	21%	5618	49%	9%	
	South West Trains	SW_Help	78,850	74,414	4436	21,103	28%	15,457	21%	37,854	51%	8%	
	Southeastern	Se_Railway	230,849	160,017	70,832	42,364	26%	38,033	24%	79,620	50%	3%	
	TfL Rail	TfLRail	20,608	13,832	6776	3526	25%	4347	31%	5959	43%	-6%	
	Thameslink	TLRailUK	130,717	86,661	44,056	21,628	25%	20,934	24%	44,099	51%	1%	
	Southern	SouthernRailUK	327,160	205,496	121,664	50,254	24%	46,709	23%	108,533	53%	2%	
	Stansted Express	Stansted_Exp	26,102	23,840	2262	13,311	56%	2750	12%	7779	33%	44%	**7%**
Regional	Arriva Trains Wales	ArrivaTW	90,988	66,559	24,429	23,887	36%	12,595	19%	30,077	45%	17%	
	Merseyrail	merseyrail	46,117	35,691	10,426	12,290	34%	7098	20%	16,303	46%	15%	
	Northern Rail	northernassist	152,714	122,527	30,187	35,629	29%	28,090	23%	58,808	48%	6%	
	ScotRail	ScotRail	144,578	100,082	44,496	29,439	29%	20,993	21%	49,650	50%	8%	**12%**
Long-Distnace	CrossCountry	CrossCountryUK	94,144	72,674	21,470	25,133	35%	12,243	17%	35,298	49%	18%	
	East Midlands Trains	EMTrains	96,809	72,312	24,497	25,224	35%	12,297	17%	34,791	48%	18%	
	First Hull Trains	Hull_Trains	9119	6842	2277	2295	34%	1563	23%	2984	44%	11%	
	First TransPennine Express	TPExpressTrains	14,438	4273	10,165	1608	38%	686	16%	1979	46%	22%	
	Grand Central	GC_Rail	14,891	11,650	3241	4499	39%	1694	15%	5457	47%	24%	
	Virgin Trains	VirginTrains	231,200	179,909	51,291	44,096	25%	19,681	11%	59,899	33%	14%	
	Virgin Trains East Coast***	Virgin_TrainsEC	169,078	123,676	45,402	63,019	51%	27,337	22%	89,553	72%	29%	19%

		Total	2,645,142	1,914,494	730,648	579,286	30%	394,989	21%	940,219	49%	10%	

The London South East group has the largest number of TOCs (n = 16) and therefore had the largest number of tweets in the analysis at 58% (n = 1,118,299). Southern Rail had the largest number of tweets (n = 205,496) within this group, which indicates a high level of engagement, and Heathrow Connect had the lowest number of tweets (n = 160) within this group. A higher level of engagement does not necessarily lead to a higher level of consumer satisfaction, however, and the difference between the number of positive and negative sentiments for Southern Rail was just 2% (a positive number indicates more positive tweets, and vice versa). In contrast, Stansted Express had a lower number of tweets, but the highest difference between the number of positive and negative tweets (44%).

The TOCs with the highest difference between the number of positive and negative tweets were the airport connecting TOCs, i.e. Stansted Express (44%), and Heathrow Express (21%). This could be due to the fact that they only serve one route, and can therefore manage their operations more easily. Gatwick Express, however, which is also an airport connecting TOC, had only an 8% difference. Therefore, operating a single route is not a guarantee of good consumer experiences.

Four regional TOCs accounted for 17% of the tweets (n = 324,859). Northern Railway had the highest level of engagement, but also had the lowest sentiment difference (6%). Arriva Trains Wales had the highest sentiment difference in the group (17%).

Seven Long Distance TOCs accounted for 25% of the tweets (n = 471,336). Virgin Trains had the highest level of engagement, but Virgin Trains East Coast had the highest sentiment difference (29%), indicating that most of their commuters were happy with their experience. Overall, the Long Distance TOCs are seen in a positive light, with average sentiment difference of 19% compared to London's 7%.

3 Study 2

3.1 Study 2 thematic analysis

Study 1 provided an insight into the polarity between the opinions of commuters as expressed in their tweets, however, there was no real indication of what is really making the customers happy or sad. There was no understanding of the customers' experiences and what caused them to have a positive or negative attitude towards the brands. Therefore, a second study was considered important to provide a qualitative insight into what really makes the customers happy or sad as improving consumer experience is considered crucial in achieving profitability, especially in a highly competitive environment (Hernon and Nitecki, 2001; Chowdhary and Prakash, 2007).

The SERVQUAL dimensions are adopted in Study 2 to examine the service quality of the TOCs. These dimensions are: (1) Reliability, i.e. the ability to perform the promised service dependably and accurately; (2) Assurance, i.e. the employees' knowledge and courtesy and their ability to convey trust and confidence; (3) Empathy, i.e. the care and individual attention given to customers; (4) Tangibles, i.e. the appearance of physical facilities, equipment, personnel, and written materials; and (5) Responsiveness, i.e. the willingness to help customers and provide a prompt service. These dimensions are qualitatively operationalised in the context of the tweets collected to see how consumers describe the quality of the service they receive.

3.1.1 Methodology

Selected tweets from Study 1 were used for the thematic analysis. One hundred tweets from 26 TOCs were randomly selected for four months (September 2016, December 2016, March 2017, and June 2017). Tweets from Heathrow Connect were excluded as there were only 160 tweets throughout the 12-month period. In total, 2,600 tweets from each month (10,400 in total) were saved as PDFs and imported into NVivo10, a qualitative thematic analysis tool.

Braun and Clarke (2006) noted that thematic analysis involves choices that should be made explicit to guarantee the validity and reliability of the study, among which are the identification of themes within the data and the 'level' at which themes are to be identified. Themes within data are identified in a theoretical/deductive/'top down' way as the five dimensions of the SERVQUAL model form the basis of the analysis. This maps onto a more theoretical approach, and data can be identified at a semantic level as the themes are identified within the explicit or surface meanings of the tweets.

The six phases of analysis outlined by Braun and Clarke (2006) were adopted for the data analysis.

- First, the data was read over and over again to gain a better understanding of how commuters engage with the train companies. Braun and Clarke (2006) suggested that, "Immersion usually involves 'repeated reading' of the data, and reading the data in an *active* way - searching for meanings, patterns and so on".

- Second, the initial codes were generated. As the themes were more 'theory-driven', the coding was approached with the SERVQUAL features in mind. The SERVQUAL dimensions were considered as parent nodes in NVIVO during the analysis.

- Third, a search for themes (child nodes) related to the main themes (parent nodes) was conducted, e.g. identifying Wi-Fi and toilet facilities as Tangibles, and cancellations and train delays as Reliability.

- Fourth, the themes were reviewed and refined as it became more evident that some of these themes were closely related, for example, customer service and customer experience. Patton's (1990) dual criteria for judging categories: internal homogeneity and external heterogeneity, were also considered as suggested.

- Fifth, the refined child nodes were considered satisfactory and renamed to fit into the five SERVQUAL dimensions.

- Finally, the report is presented in the next section to demonstrate how consumers express their concerns with regards to the perceived service quality.

3.1.2 Results

3.1.2.1 Reliability It is important to understand that train travel is time-related as commuters have a target time for their journey so they arrive at their destination in time or can catch a connecting train. The reliability of the train service is also crucial as commuters expect the TOCs to provide the services they promise. Trains should arrive at the planned times, but sometimes there are delays and cancellations that shape consumers' experiences. Although it is acknowledged that accidents and incidents may lead to cancellations or delays, passengers were often very angry with the TOCs. They displayed their anger and frustration on social media, especially when there were no updates or if cancellations and delays were becoming increasingly regular. Extracted Tweets for the thematic analysis indicates that they the customers were getting used to the delays and planning for potential cancellations, apparently because there is no alternative. They were not interested, but instead wanted concrete action to be taken to improve the quality of the service.

3.1.2.2 Assurance As a measure of service quality, commuters wanted to be assured that the staff are knowledgeable and courteous enough to convey trust and confidence and to offer good customer service. This was considered an important touchpoint during the commuters' journeys with the TOCs. Commuters wanted to be treated nicely, and they often looked forward to a good service. If they had a bad experience, however, they would use Twitter as an opportunity to reach out to the operators. There were issues with train drivers' strikes or services being cancelled due to driver unavailability. These issues added to the frustration of the commuters.

Engagement with staff at the train station and onboard the train also reflected how commuters measured their experiences with the company. Often, they are willing to tweet their experiences, mentioning that have either treated well or badly. Interestingly, some commuters identified the names of staff members and felt almost excited and happy about their services. Numerous people had listened to the voice of Joe (not his real name) and often tweeted about how this had made their experiences enjoyable.

Although there were good staff members working to enhance the commuters' experiences, there were just as many who did not put in much effort. These staff members were also mentioned on Twitter, and even when the TOCs apologised, commuters felt they deserved more than this and wanted the companies to improve their services.

3.1.2.3 Tangibles Commuters engaged with different tangible features on their journey, from the waiting room at the stations, to the Wi-Fi provided, the food served, and the general ambience of the carriage. The commuters' measured their experiences based on their interactions with these features. For London and South East commuters, the congestion on the trains appeared to be their main concern, especially during peak hours. These commuters publicly displayed their displeasure on social media while sandwiched between other passengers. They felt that the train operators had not made enough effort to alleviate their problems, especially as the first-class carriages were empty and could be scrapped to reduce rush-hour overcrowding.

The general ambience of the train carriages was also a cause of concern, with some commuters complaining about the temperature, smells in the carriages, tattered seats, overflowing litter bins, and the untidy nature of the carriages. In some situations, commuters often complained to and mentioned government officials, such as their MP, to see if they could do something to ease the problem.

A different scenario was found on the Long Distance trains, however, perhaps due to the nature of the services and the routes. Storage facilities, Wi-Fi, toilets, and food availability appeared to be the main concerns. Looking for a place to store luggage on the train appeared to be a cause of stress for some commuters as they thought the TOCs had no concept of luggage space. A fast internet connection was also considered crucial for enhancing commuters' experiences, although some commuters chose to pay for this connection or received it for free in the first class coaches. The food served on the train also shaped consumers' attitudes towards the brands, and commuters wanted to be assured that their needs would be meet while travelling. In addition to other Tangibles, the state of the available toilets within the carriages was also found to shape attitudes towards the TOCs.

3.1.2.4 Empathy Commuters expected the firm to have their best interests at heart, however, with the rising cost of train travel, consumers did not feel they were receiving a good quality service. Commuters were likely to tweet about the high cost of their journey, the yearly increase, and the poor service they often received from the train operators. They gave indications that they were not receiving individualised attention and that the staff did not understand their needs as they tweeted specific questions about travel, the best ticket to buy, and cancellations on their route.

Coupled with the delays and congestions, commuters felt that they were not receiving good value for money and that the TOCs were extorting them. Some individuals felt angry about this, and often looked for an alternative route or even compared it with other means of transportation, for example, saying it was cheaper to fly to a European city than to buy an hour's train travel. These comparisons were used to justify their anger about the cost of travel, especially for those who had bought

season tickets.

There were also good experiences with TOCs staff members, and less able consumers tweeted their appreciation for the assistant on the platform who helped them get a ramp and access the train. There were instances when the staff checking the tickets drew a smiley face on them or punched a hole in the shape of the heart. It appeared that these small efforts made by company staff enhanced the experiences of the commuters. They tweeted images and emojis to show how excited and happy they were.

3.1.2.5 Responsiveness Commuters wanted to get help as soon as they needed it. They expected the TOCs to tell them when their trains would arrive, especially if a train had been delayed. They would often tweet to ask questions and felt that there should be someone on Twitter who was able to answer their queries. They also felt that the TOCs should be reachable and responsive, especially during rush hour.

The efforts of the TOCs to enhance consumers' experiences during special events were also acknowledged. Commuters wanted firms to be willing to help, and they appreciated TOCs that provided extra carriages during events. They appreciated the gestures of the TOCs that would lead to a more positive attitude towards the brand. Likewise, TOCs that did not plan for such events were considered uncaring.

Some members of staff were considered rude as they only engaged with other staff members and were not responsive to enquiries, especially the conductors. This was unlike the 'Joe' mentioned earlier who mostly engaged with commuters over the public address system, and not necessarily in the carriages. As a post-purchase reflection, passengers often tweeted their customer experience after a journey, e.g. about buying their ticket, the free Wi-Fi on the train, clean toilets, and courteous staff.

4 Content analysis

4.1 Study 3

4.1.1 Study 3 content analysis

Following Study 2, which provided qualitative insight into the experiences of customers on the train, it was important to understand how these SERVQUAL dimensions varied across different TOC groups. Study 3 is a content analysis of 10,400 tweets from Study 2, performed to quantitatively understand how the service quality measures vary across the different train groups.

Content analysis was considered suitable as each tweet can be analysed with regards to the service quality dimension it mentioned and matched with the corresponding train company and group. Krippendorff (2013) described content analysis as a research technique for making replicable and valid inferences from the data to their context. It is considered an effective research method because it provides data that are empirical, systematic and objective (Chan and Cheng 2012).

4.1.1.1 Methodology Each tweet was coded based on the train company group (London, Regional and Long Distance), the Service Quality Dimensions (Reliability, Assurance, Tangibles, Empathy and Responsiveness) and the sentiments embedded in the tweets (positive, negative or neutral). Coders were expected to read the tweets and code if the tweet describes any or all of the service quality measures and if these descriptions were positive, negative or neutral.

In terms of the demographics of the tweeters' profiles, this information was not collected as it was considered personal information not necessary for this study. However, the basic demographics of UK Twitter users can provide insight into the participants tweeting—as of May 2017, more than half of Twitter users in Great Britain were 34 years of age or younger (Statista, 2017). As adopted by Mogaji (2016) while exploring users on Facebook, the participants tweeting can also be viewed as UK-based residents who regularly use the trains as non-residents are not expected to regularly tweet about their daily commute on UK TOCs.

The coding procedure includes training the coders in order to guarantee the objectivity and reliability of the results; four graduate students from a UK University, independent of each other, served as the coders. They were not involved in the research and were not familiar with the design of the study or its purposes. Each of the coders was offered eight hours of training, which began with an explanation of the content analysis method and the processes involved. They were offered the codebooks, and regular meetings were scheduled at which the coding team reviewed each code and definition in the codebook to make sure they were being used consistently. This is the guideline recommended by Kolbe and Burnett (1991) and also adopted by Mogaji (2016). They coded all the tweets for this study and the process lasted for 2 weeks.

As Krippendorff (2013) noted, valid coding relies greatly on data and instrument reliability. The following steps were adopted from Mogaji (2016) to test intercoder reliability:

(1) 100 tweets from 26 train operating companies (randomly chosen from 2600 tweets posted between October and January 2017) were selected to test intercoder reliability between the four coders.

(2) The different categories of analysis were pre-tested, and each coder coded the tweets.

(3) The findings were compared.

(4) An intercoder reliability check was assessed using both Cohen's Kappa and Krippendorff's alpha level of agreement. These ranged from 0.993 to 1.00, which is consistent with Neuendorf's (2002) 'rules of thumb'.

4.1.1.2 Results Of the 10,400 tweets collected for analysis, 58% (n = 6000) are from the London and South East TOCs, 15% (n = 1600) are from the Regional TOCs and 27% (n = 2800) are from the Long Distance TOCs. The five SERVQUAL dimension and embedded sentiments were also considered in the tweets regarding each of the three groups. Table 2 presents the content analysis of the tweets across various sentiments and train groups.

Table 2 Content Analysis of Tweets.

SERVQUAL Dimensions	London N = 6000		Sentiments					
			Positive		Negative		Neutral	
	n	%						
Reliability	2651	44.18	708	27%	1425	54%	518	20%
Assurance	506	8.43	202	40%	275	54%	29	6%
Tangibles	1692	28.21	513	30%	891	53%	288	17%
Empathy	302	5.03	73	24%	74	25%	155	51%
Responsiveness	849	14.15	301	35%	415	49%	133	16%
	Regional N = 1600		Sentiments					
			Positive		Negative		Neutral	
Reliability	94	5.87	42	45%	40	43%	12	13%
Assurance	215	13.44	97	45%	88	41%	30	14%
Tangibles	410	25.63	104	25%	279	68%	27	7%
Empathy	677	42.31	470	69%	68	10%	139	21%
Responsiveness	204	12.75	109	53%	61	30%	34	17%
	Long Distance N = 2800		Sentiments					
			Positive		Negative		Neutral	
Reliability	309	11.03	213	69%	81	26%	15	5%
Assurance	789	28.18	455	58%	231	29%	103	13%
Tangibles	1007	35.97	725	72%	196	19%	86	9%
Empathy	512	18.28	247	48%	119	23%	146	29%
Responsiveness	183	6.54	94	51%	40	22%	49	27%

For the London and South East TOCs, most of the tweets considered Reliability (44.18%) as the most important measure of train providers' service quality; this measure is largely about the prompt arrival and departure of the train. Looking at the overall experience of commuters on this route with regards to the service quality dimensions, they were mostly negative, excluding Empathy, which was also the least mentioned dimension (5.03%); perhaps there is little or less engagement with staff on these busy routes. Further exploring the sentiments of the tweets, a higher percentage (54%) expressed negative experiences in terms of Reliability. Commuters shared how frustrated and angry they were with cancellations, though some commended the TOC for timely arrival (27%)—perhaps as a way of showing how surprised they were with the prompt service.

However, unlike London and South East TOCs, Empathy (42.31%) is the most discussed measure of service quality on Regional TOCs. The sentiments are also more positive (69%) with few negative experiences (10%), giving the indication that there is more staff engagement on regional trains, and most of these interactions lead to positive customer experiences. This further complements the thematic analysis in Study 2, which highlights a kind relationship between the staff on commuters on the smaller regional routes compared to London and south east TOCs. Tangibles was the only dimension of service quality that was negatively received (68%), with customers expressing their desires for improved train facilities to make the journey more

enjoyable.

The service quality of the Long Distance TOCs was predominantly considered to be positive; the majority of relevant commuter tweets were regarding Tangibles (35.97%), which includes the facilities provided in the train such as WiFi, luggage storage and food. Over half of those tweets (72%) were positive, demonstrating that consumers are happy with these experiences and are willing to share their experiences. Reliability of the service provided was also highlighted by the commuters with more positive tweets (69%). However, Responsiveness (6.54%) was the lowest measure of service quality.

5 Discussion

Three different types of analysis were conducted to gain a holistic understanding of consumer experiences on the UK TOCs. The sentiment analysis gives a horizontal understanding of how commuters engage with the train companies and the variation across different groups, while the SERVQUAL model was used for an in-depth vertical analysis of these tweets to gain a qualitative understanding of what really shapes consumers experiences on their train journeys. Finally, the content analysis provided a quantitative insight for a better understanding of the service quality variations across the different TOC groups.

The thematic analysis of these tweets provided insights into features affecting consumers' experiences, the variations across the different train groups, and opportunities for improvement. It was found that commuters on London and South East TOCs had a general sense of anger as they did not feel they were receiving good value for their money due to the state of the carriages, congestion, and the high cost of travel. For the Regional TOCs, the state of the carriages was a significant concern, while the Long Distance TOCs also needed to improve Tangibles such as storage facilities and internet facilities.

A key consideration when exploring customer experiences is an understanding of the customer journey (Lemon and Verhoef, 2016) and the touchpoints they engage with when interacting with the service providers. Customers have various opportunities to share their experiences on social media, and as a result, there are now more complex customer pathways for brands (Lemon and Verhoef, 2016). Maklan and Klaus (2011) postulated that consumer experiences are assessments of their overall perceptions across different touchpoints, and it is therefore vital for managers and researchers to further explore this area and strategies to improve customer experiences.

Engagement with staff and the extent to which the customer finds it easy to access an appropriate person and/or facility is considered a key customer experience quality (Lemke et al., 2011). Staff providing support at the stations, ticket inspectors checking tickets during the journey, the train drivers and announcers making the journey more interesting adds to the overall measurement of customer experience as the commuters appreciate human nature and a welcoming atmosphere while onboard the train.

With regards to the level of engagement, empathy was lowest in the London and South East TOCs and highest in the Regional TOCs, which highlights the need to improve consumer engagement in London and suburban areas. The busy nature of these routes could be the reason for these differences, and this offers an opportunity to consider and see how London and South East TOC staff can engage with commuters.

The negative sentiments regarding the reliability of trains in London further highlight the challenge of the TOCs in making sure they provide reliable services and ease the stress of the commuters. Commuters were fined after being forced to stand in first-class carriages due to overcrowding, leading to the call to scrap first-class carriages on busy suburban routes in a bid to reduce rush hour overcrowding (Gregory, 2017).

The results of these analyses show that the experiences of commuters on the Regional and London and South East routes are more likely to be shaped by the cost of travel, especially regarding season tickets, congestion on the trains and the need for more carriages to cater for the huge number of passengers. Commuters on long-distance routes, however, are more interested in Tangibles, such as Wi-Fi and it is not surprising that commuters will want to use it for digital activities along with other types of multitasking to increase their value of travel time savings (VTTS) (Varghese and Jana, 2018) and consecutively have significant impacts on transportation policies and experiences.

With the influence of social media, consumers are more willing to share their experiences with companies, which can influence the success or failure of the company, the negative comments shared by unsatisfied customers can be detrimental to companies, and on social media, any negative comment can go viral and reach millions of users within a very short period (Cakim, 2009; King et al., 2014). In fact, some researchers have found these negative conversations to more influential than the positive ones (Chevalier and Mayzlin, 2006; Mittal et al., 1998).

To provide a holistic customer experience, brands must be aware of the surrounding services that affect their services (Teixeira et al. 2012), e.g. power failures, incidents on the track, or adverse weather conditions. Lemon and Verhoef (2016) highlighted the social nature of customer experiences and the fact that other customers can influence these experiences, e.g. by playing loud music in a quiet coach. Service providers must put plans in place to improve their service failure and to reassure customers of the quality of services.

Although commuters have been experiencing bad service, which leads to a negative attitude towards the TOCs, it is important to understand this in the context of competition and the alternatives available. Unlike other services, e.g. airlines, banks, and electricity providers, train customers cannot switch companies as train services are franchised for a set period of around eight years. This further condemns customers to years of hardship if the company is not willing to do much to help them. In addition, commuters rely on train travel from suburbs to urban centres for work; suburban commutes are longer, and homeownership rates in the suburbs are higher and given the relatively long commutes that many workers undertake, their travel behaviour can he inherently affected (Morris and Zhou, 2018) and if companies do not pay much attention to the opinions of customers and invest in improving

customer experiences at different touchpoints, negative word of mouth may hinder their business prospect as Abrams (2015) noted that consumers are can use their voices and share their opinions to help shape the best possible outcome for rail passenger services. Viral social media campaigns and petitions could stop companies from taking over new franchises.

6 Conclusion

In the literature, customers' traditional WOM and eWOM tend to be treated as marketing constructs that relate to product/service evaluation or customer purchase decision making (Xun and Guo, 2017). This study has considered eWOM in an operational context, however, by analysing tweets from UK commuters to understand the state of UK's TOCs and highlight areas in need of improvement. The results indicate that overall there is a positive attitude towards the UK train brands, although there are variations across different train groups. These variations play a critical role in consumer travel experiences, and therefore provide empirical evidence to support the situation of the train transportation industry in UK.

Unlike other services industries, train transportation had not been explored. Considering the increasing number of commuters, the projected growth across regions, and the anticipated service quality issues due to the increase in demand, this research offers a theoretical contribution towards the existing knowledge of consumer experiences and attitudes.

The study also highlights the possibilities that Twitter offers to its users regarding communicating with the TOCs and publicly sharing compliments and complaints. This is consistent with previous research that indicates that emotions are voluntarily projected on social media and online forums, albeit both negative and positive emotions (Chu and Choi, 2011; Mogaji, 2016; Haavisto and Sandberg, 2015). These public declarations on social media should be of great concern for companies and advertisers, most importantly because it transfers the power to shape brand images from the hands of advertisers to consumers' online connections (Muntinga et al., 2009) and may tarnish the reputation of the TOCs (Schweitzer, 2014).

Sentiment analysis is closely associated with computer science and information technology; however, this study provides insight into using artificial intelligence, natural language processing, and big data in management research. It provides a different approach to data collection and analysis and another perspective towards understanding consumers' emotions towards brands on a very large scale. A simple search on Twitter about a service provider may find a greater number of negative tweets because the algorithms highlight tweets that have a higher number of replies, retweets, or favourites. Sentiment analysis is able to explore deeper than the superficial tweets and provide a deeper insight into positive tweets that may not have received a lot of engagement. Human analysis of these tweets may be necessary (as was conducted in Studies 2 and 3) to gain a better understanding of these sentiments within their context.

Conceptualising the drivers and consequences of customer experiences, conducting customer journey analysis, carrying out customer experience measurements (thematic analysis of tweets), and adopting new techniques for data collection and analysis (data mining and sentiment analysis), this study has contributed towards the research agenda for customer experience raised by Lemon and Verhoef (2016) and further corroborates the findings McCollKennedy et al. (2015) highlighting the evolving and dynamic nature of service experience which is enhanced by interaction and relational activities. We hope this will further stimulate research into transportation services.

In addition, this study further extends the SERVQUAL method, especially within the train operating services sector, and highlights the possibilities of operationalising the five dimensions to qualitatively explore consumer experiences with UK's TOCs. Quantitative measures are often adopted in SERVQUAL, but this study explored the verbal feedback of commuters as qualitative data.

Even though customer experience is conceptualised in three stages: pre-purchase, purchase, and post-purchase (Lemon and Verhoef, 2016). As a theoretical contribution, it is crucial to introduce another stage, at least in train transportation services, which we call the 'in-purchase' stage. This is the stage between purchase (e.g. of a ticket) and post-purchase (e.g. after the journey). The in-purchase stage is crucial as evidence from our study suggests that the experiences of the commuters during their journey are crucial and are not covered by this existing typology.

To further illustrate this, the disturbing scene where a United Airlines passenger was dragged from an overbooked flight was an in-purchase customer experience for the passenger that was dragged, so also other passengers that witnessed that compared to the Southwest Airlines flight attendant – Martha Cobb who went viral in the hilarious safety video that left plane passengers in fits of laughter with her wisecracking safety talk before take-off. (Dassanayake, 2014). This further makes us agree with the notion that customer experiences may be different for a services company and requires an entire and holistic customer journey approach (Lemon and Verhoef, 2016) and not just at the three distinct touch points.

In addition, as mobile technology put control in the hands of the consumers, thereby changing the focus of services marketing. Consumers are becoming more informed and demanding, which requires an enhanced form of customer support service engagement (Methew, 2016), suggesting the need for brands to consider the benefits of technology for developing more autonomous and dynamic customer experience which can positively affect different co-creation experience dimensions of the service (Ostrom et al., 2015; Verleye, 2015).

The study also has significant implications for operations, services, brands, and social media managers. Operations managers will need to have a better overview of their services, identify key aspects in each stage, understand

the consumers' pain points, and see how to improve them, especially the tangibles. It could be the congestion, the reduced carriages, ambience of the carriages or the cold waiting rooms at the Stations.

TOCs have stated their desire to have driver-only operation (DOO), whereby the train driver opens and closes the doors and dispatches the train from a station (Peters, 2017). This would mean a reduced level of engagement with commuters, no conductor to assist less abled commuters, and no-one to deal with onboard emergencies. The implications of this should be considered with regards to empathy and responsiveness as measures of service quality.

Brand managers can gain insight into how customers feel about their services, make every effort to address these issues, reassure their customers, and build trust in their services. They should make effort towards ensuring effective commitment to service quality to drive positive eWOM. As brands make efforts to improve their services, the effectiveness and beneficial features of the services should be communicated as well. Consumers should feel that the brands are more efficient, emphatic, and ready to solve their problems.

Furthermore, brand managers need to work towards getting their profiles verified and engaging more with consumers as there are many parody accounts that can confuse commuters. For example, Heathrow Connect's Twitter handle is @HConnectHelp, which is not a verified account, whereas @HeathowConnect is a verified parody account asking for longer, cleaner trains, more space for luggage, frequent traveller cards, and a direct service for terminals 4 and 5. Often, these parody accounts share negative experiences about the brand, which is another reason for brands to take charge of their communication strategies.

How customers feel about the competence of staff or the way they deal with angry customer complaints shapes the experiences of the customers (Jerger and Wirtz, 2017; Lemke et al., 2011), an example of this is the role of 'Captain Joe', whose announcement always makes commuter feels happy about their journey, highlighting how such an emotional work from a train driver can influence customers' attitudes. This indicates the need to acknowledge the efforts of staff who engage with customers at different touchpoints and making sure they are well trained to deal with situations in this rapidly changing service context. They should be able to provide information and answer queries while treating customers with courtesy.

As indicated by the analysis, commuters appeared more demanding and wanted immediate replies to their tweets. Some companies are taking this on board, for example, Southern states that they are 'here to help you with your journey needs 24 h a day', and CrossCountry states that they are 'here to help 24/7! Closed Christmas Day & Boxing Day'. Not all companies offer 24-hour services, however, such as Arriva Trains Wales who are 'Here to help 7am–8 pm Mon to Fri, 8am–8 pm Sat & Sun 11am–8 pm, and Grand Central Rail who are 'here to help with any travel needs from 6am–10 pm (Mon-Sat) & 8am–10 pm (Sun)'. These companies should reconsider their limited services, however, especially as responsiveness and empathy are measures of service quality.

The negative impact of private transport on public health and the environment cannot be ignored (Haustein et al., 2018), there are cost imposed on the society such as pollution, congestion, and damages (Morris and Zhou, 2018) suggesting the need to improve the service quality of the public transport system and TOCs to encourage the commuters' voluntary changes of travel behaviour to be more environmentally friendly with their commuting. Public transport has the potential to reduce the number of private vehicles in the cities (Deb and Ahmed, 2018) and as congestion remains one of the most prevalent transport problems in big cities around the world (Haustein et al., 2018) the environmental benefits of train transportation cannot be ignored but consumers must feel they are better off using the public transport than using their private cars as an improvement of the public transport is necessary to reduce the dependency on the private cars (Deb and Ahmed, 2018).

7 Limitations

The fact that this study is based on real-life responses from social media network users can be considered one of its main strengths, but several limitations still need to be addressed.

Unlike other data gathering methods, the exact demographics and location of the tweeters' profiles were not extracted. The qualitative data that was extracted can still be considered valid, however, as it was from real Twitter users who were interested in engaging with the TOCs. The study acknowledges that data mining and sentiment analysis are rapidly growing areas, and that there could be additional and more up-to-date analytical methods available that could perform a better analysis, however, we are confident of the rigour of this study.

In addition, as with any automated process, sentiment analysis is prone to error and often needs a human eye to watch over it as we did in Study 2 and 3. The machine might not be able to categorize some words properly such as pun or satires or when a positive word is used in same sentence with a negative words and more so it's important to acknowledge that human's expression doesn't fit into just three categories of positive, negative or neutral sentiments but as Bannister (2015) noted, the insight that can be gained from large datasets (millions of Tweets) will overshadow the concerns about reliability at a granular level (a single Tweet).

The study restricted itself to the analysis of tweets about the UK's TOCs, but a comparatively large sample of tweets was analysed. The results may not be generalisable, but the findings shed light on factors shaping consumers' attitudes towards brands. Further research should try to analyse customer attitudes towards other transportation brands, and should conduct an international analysis of attitudes towards train brands in Europe. In addition, since tweets from TOCs accounts were excluded from the analysis, further studies can compare tweets from TOCs and their consumers which also their replies, the studies of Schweitzer (2014) will be relevant as the author explored tweets from the companies.

Uncited references

Dixon et al. (2010), Reichheld (2003).

Acknowledgment

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.tbs.2018.09.004.

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Appendix A. Supplementary data

The following are the Supplementary data to this article:

Highlights

- Three analyses of commuters' tweets to explore experience on train services.

- Tweet mining and sentiment analysis to investigate the polarity between the opinions.

- Thematic and Content Analysis of tweets to identify variations in service quality.

- There is an overall positive customer experiences on UK Train Transportation.

- Variations in service quality dimension across the different train groups.

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