"Technology in a call center: an asset to managing customers and their needs?"

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Technology in a call center: an asset to managing customers and their needs?

Abstract

In recent years, the service sector has undergone extreme changes in the workplace. In response to this, organizations have attempted to link their information technology developments with telecommunications to re-energize their customer service activities via the call and contact centers. Call centers have received negative publicity concerning how they are managed and have often faced criticism for being too concerned about emphasizing efficiency goals and productivity targets whilst creating extremely stressful working environments and subjecting employees to high levels of monitoring. The hope is that technology can contribute to a better work environment. The study was undertaken within a public sector service environment in Durban, South Africa which comprised of four major call centers employing a total of 239 call center agents. A sample of 151 call center agents was drawn using the cluster sampling technique and a 63% response rate was achieved. These call center agents were responsible for inbound calls only. Data were collected using a self-developed, pre-coded questionnaire of which validity and reliability were statistically determined. Results indicate that agents understand the technology, are able to use it easily in managing customers and their needs and perceive customers as having a preference for personal interaction over self-service in resolving their queries/complaints. Despite agents' technological skills, problems of response time, system reliability and speed were identified. Recommendations made have the potential to enhance the management of customers and their needs.

Keywords: understanding the technology/system, ease of use of technology, personal interaction, self-service.
JEL Classification: L80.

Introduction

This study assesses the influence of technology on call center agents' effectiveness in managing customers and their needs. In particular, it assesses the extent to which call center agents' understanding of the system they use, their ease of use of it and their nature of personal interaction with customers influences the effective management of customers and their needs. It is therefore, hypothesized that there exists significant intercorrelations amongst the sub-dimensions of technology (system under-standing and ease of use and, preference for personal interaction versus self-service) needed by call center agents for effectively managing customers and their needs. The influence of biographical profiles on such perceptions was also evaluated. It was thus, hypothesized that agents varying in biographical profiles (age, race, tenure, educational qualifications, gender, employment status) significantly differ in their understanding and ease of use of technology for effectively managing customers and their needs and, in their perceptions of the preference of clients for personal interaction rather than self-service.

The study is extremely significant because the Internet has become a place of shopping and searching as millions of people access the Web (Timm, 2008). The Internet as a marketing tool offers new and better ways of communicating with people and businesses that will purchase what is being sold (Burke, 2001; Ruyter, Wetzels & Kleijnen, 2000). Unlike other forms of media, the Internet is interactive and this kind of interaction is an essential part of relationship marketing. Within a service context, like the target market in this study, the introduction of technology often empowers the customer to perform the service without being assisted. These advances in communications and information technology have profound effects on the way in which consumers interface with service providers (Fitzsimmons & Fitzsimmons, 2006). However, cognizance must be given to the fact that not all consumers engage in self-service and would rather prefer personal interaction.

Without technology the idea of globalization would not be possible. If a company has a website, this places the firm in a position to reach millions of customers who may be thousands of miles away simply by the click of a button (Cortwell, 2009). Internet based applications can greatly enhance a firm's competitiveness (Messmer, 1999). Whilst a lot of research and information exists about Internet based applications, there is paucity of research regarding the synergy between an effective Internet based application and organizational competitiveness achieved through effectively managing customers and their needs, which this research aims to gain greater insight into.

1. System understanding

Advances in communication and information technology have a profound effect on the way that consumers are interfacing with service providers (Cortwell, 2009; Fitzsimmons & Fitzsimmons, 2006; Messmer, 1999; Metters, Metters, Pullman & Walton, 2006; Ruyter et al., 2000). Firms wishing to

integrate an Internet presence must perform customer service functions through multiple channels such as in-person, traditional mail, phone, web sites, online chat and electronic-mail (e-mail).

Fitzsimmons and Fitzsimmons (2006) identify five modes of technology's contribution to the service encounter: (1) Mode A is a technology free service encounter where the customer is in physical proximity to, and interacts with, the human service provider, for example, a hairdresser or a chiropractor; (2) Mode B is a technology assisted service encounter because only the service provider has access to the technology to improve the quality of face-to-face service. For example, a visit to an optometrist; (3) Mode C is a technology facilitated service encounter because both the customer and the service provider have access to the same technology. For example, a financial consultant in consultation with a client can refer the client to a computer model to illustrate projected returns; (4) Mode D is the technology mediated service encounter because the customer and the service provider are not physically together and, thus, the communication is no longer a traditional face-to-face encounter. Communication is usually enabled through a telephone call to access services such as calling for technical help from a distant call center; (5) Mode E is the technology generated service encounter because the human service provider is replaced entirely with technology that allows the customer to self-serve. This mode is becoming common as firms attempt to reduce the cost of providing a service.

Electronic-service (E-service) alone is not a hundred percent sure-fire strategy for handling queries. It can be seen as a cost effective measure as it enables self-service, Web, blogs, e-mail and live chat. Yet, e-service is not a substitute for old fashioned phone calls and direct human contact (Keaggy & Hurst, 2002; Schiffman & Kanuk, 2004; Timm, 2008). It is important to understand that the Internet is a moving target, with a hardware life cycle of about five years and software life cycles of even shorter times, with updates occurring frequently; hence, staying updated is expensive. Many firms have rushed to migrate customer service to the Web and have in the process encountered service failures. Ignoring the human side of customer service can turn what looks like a low cost service alternative into a costly mistake. Technology also poses the challenge for the firm to have a well-maintained, state-of-the-art equipment and qualified and competent people to operate it, leading to constant training of staff (Lucas, 2005).

Many firms see technology as a way of reducing staff costs and, therefore, cut back on jobs. As pointed out

earlier the rate of technological advancement is always changing thereby placing extra stress on firms and staff to keep up with these changes. Constant training and the increased demand to perform leads to extreme levels of stress and is a contributing factor to the high turnover rate of call center staff and for customer defection (Lucas, 2005; Reichheld & Sasser, 1990). In addition, due to customer fears of fraud and violation of privacy, consumers are reluctant to disclose information like identity numbers, and credit card account information, addresses and personal data online, which contributes to their paranoia and hinders online communication (Schiffman & Kanuk, 2004). They usually prefer to speak to an agent (Lucas, 2005).

Keaggy and Hurst (2002) engaged in a face-off about whether the use of web blogs was considered as a legitimate business tool. Blogs are a new variation to chat rooms and the Internet and is simply a journal maintained by a firm or an individual. Bloggers are very influential in shaping a firm's image. Blogs also assist in sharing information between the firm and the customer or between fellow customers (Clegg, 2010; Schiffman & Kanuk, 2004). Keaggy proposes that it is effective as it increases employee communication and knowledge, saves time and resources and builds the firm's reputation and confidence. Keaggy found that consumers often complain about receiving too many e-mails but with the use of blogs no messages get deleted. Hurst found that although blogs are popular they are not of much value to the firm as there a millions of blogs that contain postings by random authors. He argues that the information contained in these blogs only holds value if the customer takes the time to read it. He supports the use of e-mailed newsletters to customers as a more effective tool. Perez (2004) investigated Dell Incorporated's drive to open IT support hubs worldwide in order to improve service delivery to buyers. Dell has implemented an Enterprise Command Center (ECC) worldwide that will be staffed around the clock and will act as central repositories of service events in each geographic area.

Timm (2008) recommended five useful tips to grow an e-service and make it a good experience for customers to enjoy: (1) Track customer traffic. By monitoring the click path of the customer the firm can track the service resolution and abandonment rates, average time to connect to the site and frequent requests. This information will enable firms to improve their service offering to the customer. In a study of the different software programs available, Borck (2004) found that these programs must have customer-chat amenities such as color coded text and

canned dialogues to speed up responses to FAQs. In addition, online queue information that can be sent to customers' desktops to inform them of where they are in the queue should also be implemented; (2) benchmark service levels. Firms with good customer care sites benchmark and compare themselves against competitors. Benchmarking requires keeping careful statistics on existing service levels which can be used to set future targets. Typical services monitored include, average time to respond to e-mails, average time to respond to page requests, site uptime, average time to respond to web chat enquiries and the number of resolved and unresolved enquiries per day; (3) teach the site to learn. Make sure to update information on a regular basis. Check to see what does not work or what is missing, what click paths end in dissatisfied customers and what new questions your customers are asking. An adaptive, dynamic site lets customers know that the firm is listening and responding to their needs; (4) build on-going e-relationships. Successful human relationships are two sided. Sometimes people initiate communication that builds the relationship and sometimes they reciprocate to others. Firms can offer e-mail notifications to customers about changes in products, catalogues or content provided that they have information to do so first from the customer. Firms must avoid spamming as this can damage a relationship (Fichter & Wisniewski, 2010); (5) end high for better loyalty. This last tip is designed to leave the customer on a high note, thinking positively about the company. Before a customer logs off from a website, the firm should always thank the customer for the visit. In order to rebuild goodwill offer a peace token such as a discount on the next visit, or additional service coverage of some sort (Rowley, 2006).

2. Ease of use

E-business came about as a result of a convergence of several technologies. A website can serve different purposes for different businesses. According to Metters et al. (2006), reports indicate a decline in customer satisfaction with most services. Customers grow irate with automated phone systems and a host of new terminology encountered during Internet encounters. As a result, many customers encounter long waiting times with e-mail queries and, misunderstandings arise as a result of e-mails. Metters et al. (2006) propose that a service company must question the importance of their Internet presence by asking the following questions: (1) Will customers buy anything or get all the information they need on the site? (2) Will customers return? (3) Will customers understand the business concept? (4) Will the business be able to handle inbound and

outbound call volumes? (5) Will customers prefer self-service or human contact? (6) Will the Internet customer service be in-house or provided by a third party? (7) What are the metrics and goals for customer service?

To address these questions one must look at the fundamentals of Internet service design. When customers interact with Internet services their communication is task-specific (Clegg, 2010). The task could relate to an enquiry, purchase intent or a complaint. Customers prefer speed and accuracy in any service encounter.

Clegg (2010) supports the idea of a firm setting up a blog as it connects the firm to customers instantly. She suggests that a firm can maximise their reach by setting up blogs via social media sites such as Twitter, Facebook and LinkedIn. Clegg (2010) looked at the role of the Internet within an insurance organization. She found that insurers are looking for ways to drive improvements within the firm such as through claims intake via the web, claims data download, faster turnaround for claims and real-time updates. On the one hand, forward thinking carriers are benefitting from claims efficiencies by focusing on collaboration, cost saving, cutting-edge technology and clarity in the claim's lifecycle. Agencies, on the other hand, are focusing on customer service (satisfaction), cost of doing busi-ness, company reputation for innovation and claims agility. Clegg (2010) further supported the use of the Internet in speeding up the claims process. Fichter and Wisniewski (2010) offer advice in terms of website design. They suggest that good, accessible content is critical for every website. Firms should avoid long sentences and paragraphs and break up information for consumers to comprehend. The personality of the website is also important, in that the interaction between the firm and customers should be friendly and personal. They further suggest that user-testing is very important. Firms must monitor the top five or ten areas that are frequently visited and refine and improve on them so as to make the system more user-friendly. Site navigation should also be quick and easy.

Timm (2008) recommends that by following a few simple action tips, a firm can improve its service on the Web, which are supported by other researchers as well.

Action 1: Be there and be quick. Ensure that your site is up and running and that the website opens quickly and easily for the customer (Clegg, 2010; Fichter & Wisniewski, 2010). Maintain the website and avoid a situation where a customer tries to access the site and it is down.

Action 2: Make site navigation simple. Web customer service should be one click away. Once customers log onto a home page they should be able to get assistance immediately. Ensure that site navigation is quick, simple and obvious. Customers should always have ways to get back to a specific page to enhance their experience and not wonder around in a counterproductive maze (Fichter & Wisniewski, 2010).

Action 3: Respond quickly. Response times are expected to be immediate. Waiting more than three seconds for a computer screen to refresh is unacceptable (Perez, 2004). Even more important is the quick turnaround time for customer enquiries. E-mails should have a response time of twenty four hours or less and web chat should have the pace of live conversation (Lu & Zhang, 2003).

Action 4: Provide communication alternatives. The more high-tech the world becomes, the more some people crave high touch service or non-electronic contact of some sort. At some point customers can become frustrated with self-serve options and may seek human contact. The solution may be to provide communication alternatives like e-mail, web chat, two-way interactive video or even telephone services (Keaggy & Hurst, 2002).

Action 5: Pay attention to form and function. Customer care sites must be functional and visually pleasing, but not too 'over the top'. Graphic designers, usability engineers, database administra-tors, content experts and programmers are all critical role players. The most customer-friendly sites avoid unnecessary clutter and maintain a simple, functional site (Fichter & Wisniewski, 2010; Lu & Zhang, 2003; Timm, 2008).

3. Personal interaction

Depending on the nature of their task some customers may have no problems using an automated system but others may require some degree of human contact. When dealing with customer complaints, Metters et al. (2006) find that the customer may e-mail their complaint to the company; however, the e-mail offers the least effective vehicle for customer complaint resolution due to miscommunication and time lags (Timm, 2008). The best way to handle complaints is through real time interaction with a skilled agent. The customer must always be given the option of contacting the company instead of forcing them to self serve. Many firms have, thus, turned their attention to customer call centers, a place where a customer can access a person via a variety of means. Call centers normally operate twenty four hours a day, seven days a week, thereby creating fewer barriers to communication (Burke, 2001). Traditional call centers employ a large number of agents to handle a few accounts. This saves the firm resources because they are able to forecast how many agents are needed based on a labor-scheduling model. These models assume that all employees perform the same tasks and, on average spend a specified amount of time per call. It also assumes that employees focus on one customer at a time and that customers are responded to in real time. Since this concept of doing business is relatively new, only informal rules of thumb guide these operational strategies.

4. Self-service

There are many opportunities for self-service suggesting that provider motivation and customer benefits can grow this mode of business (Hsieh, 2005). Customers tend to be more accepting of this mode as a result of increased opportunity for customization, accuracy, convenience and speed. According to Fitzsimmons and Fitzsimmons (2006), due to the increase in the cost of human labor, inroads have been created for self-service technology (SST). The emergence of this technology has the potential to bring about an end to low wage, unskilled, non-value-added service jobs. The firm has the advantage of serving more customers with fewer resources; thus, reducing costs while the customer has the ability to customise a product or service for personal use at a time convenient to himself/herself (Borck, 2004; Hsieh, 2005; Malgeri, 2007; Ruyter et al., 2000).

Hsieh (2005) identified three primary goals that firms may strive towards by entering the self-service arena. They firstly strive to enhance the customer's service by assisting them with queries without tying up the firm's human resources. Indeed if this is executed correctly it has the potential to save the firm money (Malgeri, 2007). Secondly, the firm can enable direct transactions, such as customer orders and exchanges, without any direct interaction with an employee. Finally, through online educational guidance custo-mers can train themselves to use the site.

Hsieh (2005) identified numerous factors that can affect the adoption and use of self-service technology, namely, quality of products, services offered by the firm, cost of the product, presentation of services, design of self-service technology, the self-service technology's ability for service recovery, promotion of self-service technology, the way the firm manages and prevents self-service technology failure, alternative uses for the same service (competitors) and, the firm's ability to keep the self-service technology updated and to improve it continuously.

Girman, Keusch and Kmec (2009) undertook a study on the use of vending machines within a University campus environment, and attempted to track the amount of faults that were experienced by the users of these machines. They found that although no official complaints were lodged with the service provider, regular inspections carried out by maintenance crew detected faults with some of the machines. They also investigated the use of pay phones that worked with coins and prepaid cards and again discovered that these phones did have defects present, although no official complaints were received. Girman, Keusch and Kmec (2009) highlighted the importance of periodic checks as long as complaint rates were low, in order to maintain a level of service quality when firms embrace self-service technology. The service provider must conduct these checks because minor failures may not always be reported but can dissuade first-time users from using the self-service technology in the future.

According to Timm (2008), more than two thirds of customers stop doing business with a company because of poor access to services and information. He recommends that in order to facilitate communication, firms can develop a database containing frequently asked questions (FAQs) to assist customers online. FAQs are efficient and effective but the problem encountered by customers is that they have to read through a few hundred questions before encountering a question that will assist them in their query so yet again this is not entirely efficient for a self-serve customer. Sophisticated web sites can do multiple word searches to try and enhance the experience for the customer.

5. Research methodology

5.1. Respondents. The population comprised of 239 call center agents employed by a Public Service organization within its four call centers in the Durban area (South Africa). According to Sekaran's (2003) population-to-sample size table, a corresponding minimum sample of 148 was needed, thereby confirming the adequacy of the sample of 151 call center agents. The probability sampling technique of cluster sampling was used. According to Sekaran (2003), in cluster sampling, groups or chunks of elements that have heterogeneity among members within each group are chosen for study. The adequacy of the sample was determined using the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (0.801) and the Barlet's Test of Spherecity (718.502, $p = 0.000$) to assess the influence of technology on call center agents' effectiveness in managing customers and their needs, which respectively indicated suitability and significance. The results

indicate that the normality and homoscedasticity preconditions are satisfied.

In terms of the composition of the sample, there were more females (57%) than males (43%). The majority of the sample were between 20-29 years (67.5%), followed by 30-39 years (20.5%) and then 40-49 years (10.6%), thereby indicating that the sample is predominantly young, which is typical of employment in a call center environment. Black agents constituted the majority (55.6%), followed by Indian (25.2%), Colored (15.9%) and then White (3.3%) employees. The majority of the agents were in service for 1-3 years (51.7%) with more or less an equal distribution of years of service in the other categories (1-11 months, 4-6 years and 7 years and over). The majority of the agents have a high school qualification (56.3%) followed by those with a diploma (36.4%), whilst only 7.3% has a university degree. More agents are employed on a full-time (66.2%) as opposed to a part-time basis (33.8%).

In terms of call center variables, the majority of agents take an average of 100-109 calls a day (21.2%), followed by 70-79 calls a day (19.9%), have a waiting time (length of time a customer waits on the line before his/her call is answered by an agent) of 0-5 minutes (55.6%), have an abandonment rate (number of callers that eventually disconnect) of 0-5% (86.1%), secure a talk time (duration of call) of 0-5 minutes (84.2%), a wrap-up time of 0-5 minutes (98.7%) and report a queue time of 0-5 minutes (96.7%).

5.2. Measuring instrument. Data were collected using a self-developed, pre-coded, self administered questionnaire consisting of two sections. Section A dealt purely with the biographical (gender, age, race, tenure, education and employment status) and operational data of call center agents. Section B related to the sub-dimension of technology and tapped into agents' understanding and ease of use of the system and, perceptions of clients' preference for personal interaction versus self-service. Whilst Section A was nominally scaled with precoded option categories, Section B required respondents to rate each of the 12 items using the Likert scale ranging from strongly disagree (1) to strongly agree (5). The questionnaire was formulated on the basis of identifying recurring themes that surfaced while conducting the literature review. Six items related to agents' understanding and ease of use of the system, for example, 'I fully know how to use the software systems adopted in the call centre' and 'The software adopted is user-friendly'. Six items measured agents' perceptions of clients' preference for personal interaction versus self-service, for example, 'I rarely encounter customers reporting difficulties using the technology such as the self-

service systems offered' and 'Customers prefer to speak to me rather than use the technology to serve themselves'. These ensured face and content validity. Furthermore, in-house pretesting was adopted to assess the suitability of the instrument. Pilot testing was also carried out on twenty call center agents to test the appropriateness of questions and their understanding thereof. No inadequacies were reported and the final questionnaire was considered appropriate in terms of relevance and construction. The research was only conducted after ethical clearance was obtained for the study and upon completion of the pilot study.

5.3. Measures/statistical analysis of the question-naire. The validity of the questionnaire was assessed using Factor Analysis. A principal component analysis was used to extract initial factors and an iterated principle factor analysis was performed using SPSS with an Orthogonal Varimax Rotation. In terms of the validity, 2 critical ingredients for call center agents' effectiveness in managing customers and their needs were identified in terms of the influence of technology (3.351 and 3.048 relating to under-standing and ease of use of system and clients' preference for personal interaction versus self-service respectively). The items were also reflected as having a very high level of internal consistency and reliability, with the overall Cronbach's Coefficeint Alpha being 0.84 with item reliabilities ranging from 0.82 to 0.84.

5.4. Administration of the measuring instrument. The survey was confined to the call center agents employed within the four call centers in Durban, South Africa. The online survey was administered to a sample of call center agents in Durban, South Africa using QuestionPro. The agents were asked to completely answer Sections A and B of the questionnaire and then submit their responses via QuestionPro return mail. Informed consent was obtained by an authorization letter that accompanied the questionnaire. All participation was voluntary and confidentiality was secured.

5.5. Statistical analysis of the data. Descriptive statistics (mean, variance, standard deviation) and inferential statistics (correlation, *t*-test, ANOVA) were used to evaluate the objectives and hypotheses.

6. Results

6.1. Descriptive statistics. Agent's perception of their understanding of, and use of, technology in managing customers and their needs effectively were evaluated using a 1-5 point Likert scale. Agents' perceptions of the preference of clients for personal interaction rather than self-service was also evaluated. The higher the mean score value, the more effective the use of technology in managing customers and their needs and, the greater the preference of clients for personal interaction rather than self-service (Table 1).

Table 1. Descriptive statistics – sub-dimensions of technology

Sub-dimension	Mean	Std. deviation	Minimum	Maximum
System's understanding and ease of use	4.036	0.6761	2.00	5.00
Personal interaction versus self-service	3.295	0.7994	1.33	5.00
Overall Score	3.666	0.6434	1.75	5.00

Table 1 indicates agents believe that they have a high level of understanding of the technological system and are able to use it effectively in managing customers and their needs (Mean = 4.036). They also perceive clients as depicting a greater preference for personal interaction than using self-service (Mean = 3.295). Furthermore, the mean score value (Mean = = 5 - 3.295 = 1.705) reflects that there is only a small proportion of clients who engage in self-service; hence, there is room for improvement with regards to making the self-service technology more attractive and effective in managing customers and their needs.

In order to assess the areas of strength and improvement, frequency analyses were conducted for both of these sub-dimensions of technology. In terms of system's understanding and ease of use, 39.7% of the agents agreed and 48.3% strongly agreed that they were fully computer literate. Furthermore, 41.1% of the agents agreed and a further 43.7% strongly agreed that they fully knew how to use the software systems adopted in the call centre. However,

6.6% of the agents disagreed and a further 3.3% strongly disagreed that they always dealt with electronic queries/complaints within 24 hours of receiving them. Furthermore, 9.3% of the agents disagreed and a further 6.6% of the agents strongly disagreed that the software is fast and reliable.

In terms of personal interaction versus self-service, 18.5% of the agents disagreed and 13.2% of the agents strongly disagreed that web based e-services are more effective for addressing customer needs than talking to an agent. Furthermore, 23.8% of the agents disagreed and another 13.2% strongly disagreed that web based communication facilitates communication between the firm and the customer better than an agent can.

6.2. Inferential statistics. *Hypothesis 1: There exists significant intercorrelations amongst the sub-dimensions of technology (system's understanding and ease of use and, preference for personal interact-tion versus self-service) needed by call centre agents for effectively managing customers and their needs.*

Table 2. Pearson correlation (r): intercorrelations of the influence of technology ($N = 151$)

Sub-dimension	r/p	System's understanding and ease of use	Preference for personal interaction versus self-service
System's understanding and ease of use	r p	1	
Preference for personal interaction versus self-service	r p	0.518 0.000**	1

Notes: ** $p < 0.01$.

Table 2 indicates that the sub-dimensions of technology needed for effectively managing customers and their needs significantly intercorrelate with each other at the 1% level of significance. Therefore, hypothesis 1 may be accepted. The result indicates that agents' understanding of the technology and their ability to use it in managing customers and their needs has contributed to clients preferring personal interaction from agents in resolving issues rather than utilizing the self-service technology.

7. Influence of biographical data

The influence of the biographical variables (age, race, tenure, gender and employment status) on agents' perceptions of the use of technology for managing customers and their needs effectively was assessed using ANOVA and t-tests (Table 3, see Appendix).

Hypothesis 2: Agents varying in biographical profiles (age, race, tenure, educational qualifications, gender, employment status) significantly differ in their understanding and ease of use of technology for effectively managing customers and their needs and, in their perceptions of the preference of clients for personal interaction rather than self-service.

Tables 3 indicates that agents varying in biographical profiles (age, race, tenure, educational qualifications, gender, employment status) do not differ significantly in their understanding and ease of use of the technology adopted for effectively managing customers and their needs. These agents varying in biographical profiles also do not differ significantly in their perceptions of the preference of clients to engage in personal interaction with them in resolving their problems rather than using the self-service technology. Hypothesis 2 may therefore, be rejected.

8. Discussion of results

The results of the study indicate that agents believe that they have a good understanding of the system and are able to use it with ease in responding to customers' queries. The implication is that the technology is effective in ensuring the spontaneous response to customer concerns. Despite this, however, the study found that agents did not always deal with electronic queries/complaints within 24

hours of receiving them. Evidently, a break in effective management in customers' queries/complaints occurs which must be further addressed. In a similar study, Seddon (2001) found that resolution at the first point-of-contact in call centers varied but was never higher than 65 percent and was as low as 21 percent in financial services organizations. Gettys (2007) found that the majority of calls could not be resolved on the first call and required some research by agents taking longer than 24 hours. Whilst the issues of work ethic and attitudes may be explored the results of the current study also found that call center agents disagreed that the software was fast and reliable. However, Jack, Bedics and McCary (2006) believe that technology allowed firms to automate many time consuming and labor intensive processes. According to Totty (2004), call centers continue to adopt new technologies such as internet access with web pages for self-help service, e-mail interaction and support, instant messaging support and skills based routing which assists with operations and customer satisfaction.

The study also reflected that agents disagreed that web based e-services are more effective for addressing customer needs than talking to agents. The agents also disagreed that web based communication facilitates interaction between the firm and the customer better than an agent can. Similarly, Budhwar, Varma, Malhotra and Mukherjee (2009) in their study on call centers operating in India, found that despite a high emphasis on high-tech processes being adopted, these call centers were often referred to as "new-age sweatshops" and the people working there as "cyber coolies" which often leads to high employee turnover and dissatisfaction. However, contrary to these findings, Jack et al. (2002) deduced that one of the main advantages of Internet based call center functionality is that instead of customers waiting in a call queue, the web offers customers non-obtrusive and easy ways to address their question. The internet has enabled call centres to give more control to the customer for the level of service desired. Customers can open their own trouble tickets, read and search knowledge bases of Frequently Asked Question's (FAQ's), download manuals and guides 24 hours a day, seven days a week (Support Industry.com, 2002). However, in the

current study it was clearly observed that customers have a preference for personal interaction as opposed to the self-help technology. The implication is that organizations need to constantly obtain feedback from their customers on how they may improve their website and web-service and make navigation easier. Strategies should also be adopted to enhance self-service, for example, through website competitions.

Recommendations and conclusion

In today's fast paced business environment the idea of globalization would not be possible without technology. If managed correctly, a customer call center can contribute to customer satisfaction and retention in the long run but many organizations fail to capitalize on their operations and procure the long term rewards. In the past when customers had a query they would call to call center and once the agents obtained a host of information, only then were they in a position to handle queries. Today though, technology has expedited this process. The research supports the view that system's understanding and ease of use of technology adopted by agents do indeed expedite the process of handling customer queries through the call center. In addition, the research supports the view that personal interaction with agents is favored over self-service by customers depending on the nature or the type of query that the customer is fielding. One does not necessarily dominate the other. In order for the call center to serve as an effective mechanism for the organization to maintain effective contact between themselves and their customers, proper maintenance and control of technology has to be implemented and facilitated on a regular basis. Figure 1 depicts the influence of the

sub-dimensions of technology (system understanding and ease of use and, preference for personal interaction versus self-service) on the management of customers and their needs. The model presents recommendations for enhancing each of the critical ingredients (system's understanding and ease of use; preference for personal interaction versus self-service) so that each could have a positive and rippling effect on the other thereby, ultimately enhancing the management of customers and their needs (Figure 1). It is evident that whilst agents' understanding of the technology and ease with which they operate it is imperative in assisting customers, the manner in which they assist customers (rapport, friendliness, response time) is just as important. Equal cognizance must also be given to maintaining a self-service system that is user-friendly and effective. Undoubtedly, the agents' understanding of, and effective use of, the technology as well as the customers' satisfaction with the interaction (be it personal or self-service) has the potential to enhance the effective management of customers and their needs. Evidently, e-service is not a substitute for direct human contact but certainly is an asset that complements and facilitates personal interaction in managing customers and their needs. In addition to taking cognizance of the recommendations, it is imperative to note that the management style of the organization and the characteristics of employees themselves are central to ensuring a healthy work environment that supports performance and effectiveness. Constructing the correct work setting to enhance call center effectiveness is as much the employees' responsibility as it is management's.
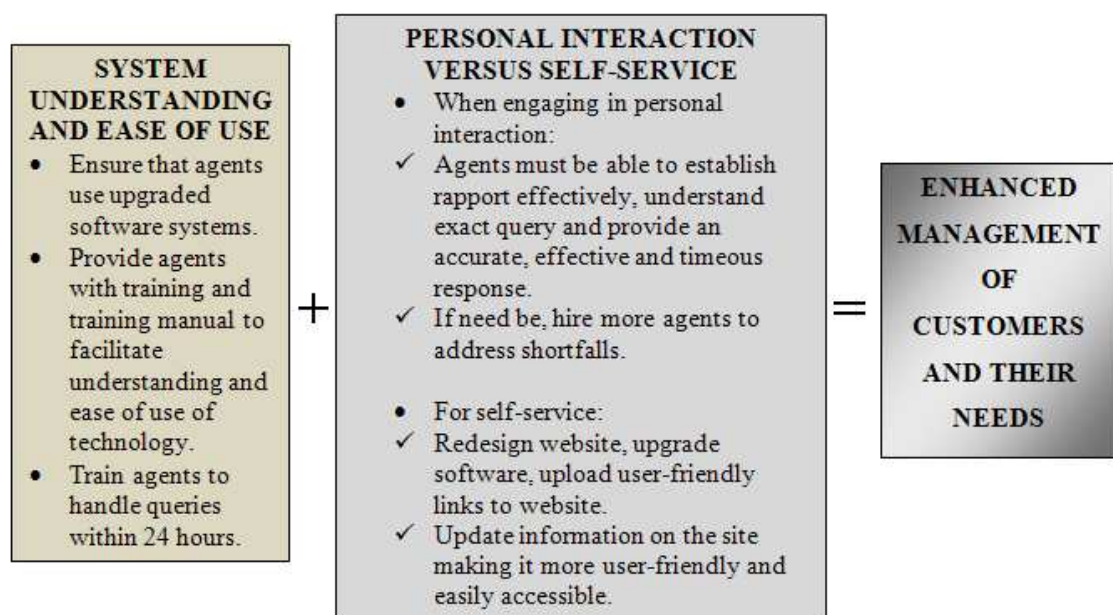

Fig. 1. Recommendations to improve the sub-dimensions of technology in order to effectively manage customers and their needs

Recommendations for future research

This study was undertaken within a public service call center organization and hence, the results of the study have internal validity in this institution. In order to enhance generalizability, it would be advantageous to undertake a similar study in other call center environments in a variety of service environments in both the public and private sectors. This study also includes a call center environment where only in-bound calls are made and hence, it would be useful to assess similar dimensions in an out-bound call setting as speaking to someone who has chosen to interact with you is completely different from speaking to someone who was not expecting your interaction. It will also be interesting to note if there are similarities with regards to the technology adopted by inbound and outbound agents within the public and private sector service organizations.

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