

Human Error Analysis to Customer Communication for Realtor Service Quality and The Implications to Personnel Training

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Abstract

The quality of customer service, especially in realtor service, is centered at customer contact and communication. Because of the inherent diversity in customer demands and the consequent service procedures, the analysis of the service errors or failures in customer communication from the human factors perspective may provide an effective alternative toward the quality improvement in customer services beside the SERVQUAL-based approaches. This study investigates the pattern of communication errors occurred in realtor service operations and the associated latent failures for the implications to personnel training for quality services. Customers with realtor service experiences were interviewed to provide detailed description regarding the communication error(s) encountered while dealt with realtors in the past. Among all types of communication errors in realtor services, it is found that the active errors on providing insufficient or incorrect information regarding the target real estates and the communication errors involved in the price negotiation processes are prominent. The analysis of latent failures further reveals the importance on process transparency and the role of the information systems. For modern C2C service settings like realtors, it is recommended that a double customer framework with the emphasis of support information system should be considered for communication error analysis. Implications and suggestions to personnel training for quality improvement in realtor customer service, in terms of system knowledge and process management, are discussed in details.

Keywords: communication error; service quality; realtor service; personnel training

1. Introduction and Background

1.1 Service Quality and Human Error Analysis

For the analysis and measurements of service quality, the Gap model and SERVQUAL developed by Parasuraman et al. (1985; 1988) are well recognized and widely utilized in service industries. However, the validity and limitations of these tools advocate certain serious doubts and challenges (e.g., Carman, 1990; Babakus and Boller, 1992; Cronin and Taylor, 1992). Another research instrument that is also widely utilized for service quality purposes is through the analysis of service errors. Most of the research efforts in this area have been focused on finding service quality dimensions at rather organizational and management levels (e.g., Bitner et al., 1985; Edvardsson, 1988; Bitner et al., 1990; Olsen and Thomasson,

1990; Kelley et al., 1993; Bitner et al., 1994) Little studies, however, have paid attention on error analysis that facilitates quality improvement, i.e., from the process/operational perspective.

Customer services are centered at customer contact and communication (Lovelock, 1985; Lehtinen, 1991). Since the heterogeneity in customer needs as well as the fuzzy dynamics in service context, customer service tasks are different from one another. The heterogeneous and interactive nature of customer service tasks therefore suggests the appropriateness of service error analysis. A previous study in customer service (Chen, 2001) has shown that the errors associated with the communications between customers and service personnel are the major error type in travel agent service operations. Therefore, the analysis of human errors to customer communication may provide useful information towards quality improvement as well as personnel training in customer services.

1.2 Customer Communication and Personnel Training for Service Quality

Recent researches in service quality and marketing have profound discussion on the impacts of customer communication to service quality and the suggestion to personnel training regarding customer contacts. For example, Hennig-Thurau (2000) conducted an empirical research on the importance of communication of customer skills to relationship quality and customer retention. Results gave strong supports to the relevance of skill communication for relationship market success. Furthermore, Hennig-Thurau (2004) pointed out that customer orientation of service personnel is often regarded as a main determinant of service firm's success. This study further proposed that employee's technical skills, social skills, motivation, and decision-making power as the four key elements to employee's customer orientation.

For better customer communications, Korenková (2014) listed the determinants of communication skills of customer care assistant of financial services as the ability to analyze the customer's needs, the attitude to clients, active learning, assertive communication, clear communication, and methods of communication when dealing with complaints. Ihtiyar and Ahmad (2015) examined the impact of intercultural communication competence of service personnel on personal interaction and customer satisfaction in grocery retailing. Their study suggested the significance of intercultural communication competence on service quality in both affective and cognitive aspects. From a different perspective, Lin and Lin (2017) showed that employee nonverbal communication positively influenced customer positive emotions and customer-employee rapport in retailing services. They further suggested that service firms should train and motivate employees to use nonverbal communication to develop and strengthen customer-employee rapport. The importance of customer positive emotions in the service process should be addressed in the customer-employee rapport development process.

1.3 Critical Incident Technique and Latent Failure Analysis

To investigate problematic issues for quality improvement, Critical Incident Technique (CIT: Flanagan, 1954) is the most common instrument utilized for collecting cases of service failure in service quality research (Bitner et al., 1990; 1994). The failure/error cases collected in the service domain targeted were then categorized in terms of their common features to establish the bases for service quality analysis. That is, a behavioral based service failure categorization is generated.

In order to further investigate the opportunities of quality improvement and personnel training in an interactive and complex customer service setting, it is important to conduct analyses on latent failures, in addition to the conventional failure analyses (Chen 2002). Latent failures are, in a different sense, those adverse conditions that derive from the decisions or activities made by supervisors and managers who are separated in both time and space from the physical system (Reason, 1990; 1997). In fact, Chen (2002; 2006) have already showed meaningful results in applying the active-latent mapping approach to reduce human errors for quality purposes in various service domains. However, the failure analysis frameworks of similar kind but oriented for realtor services, a typical C2C (customer-to-customer) rather than B2C (business-to-customer) service, has not yet been established.

1.4 CAMP Model for Service Error Analysis

In order to develop a framework for service error analysis for the emphasis of customer-service interactions, Chen(2002) proposes the CAMP framework by analyzing the error data from the travel agent services domain. As the letters show, CAMP framework has four basic elements: Customer, Agent, Machine, and Provider. Customer service can be seen as a sequence of activities through which a customer (i.e., the “C”) interacts with a service system (e.g., a travel agency) to fulfill their needs for service. In most service systems, the customer-contact employee, or the service agent (i.e., the “A”), is the primary interface that represents the service system and interacts with the customer. During any customer service encounter, the service agent often also needs to operate a set of machines (i.e., the “M”), mostly computer-based nowadays, in order to perform service transactions and to search for information (such as availability or prices) concerning the potential service requested. Another critical element found for service error analysis for customer services is the “P” – the product provider. For the travel agent service domain, the product provider is defined as the actual travel/lodging/transportation provider such as hotel, car rental services, or airlines, i.e., the provider of the service products.

These four elements – C, A, M, and P – thus form the framework for service error analysis. That is, any service error occurs can be categorized into one of the interactions among these four elements. The problematic interactions and the service tasks involved are where the quality improvement effort should focus on. This CAMP framework has, however, been validated only on the travel agent service domain so far. For better generalization and wider application of this framework, the examinations by different customer service domains are needed. In this study, realtor service domain is selected as another service industry with customer service emphasis.

2. Method

In this study, fifty-seven customers of realtor services were interviewed to provide detailed descriptions of the communication errors encountered while dealt with realtors in the past. An interviewing structure based on the Critical Incident Technique (CIT) and similar to Bitner et al. (1990) is instrumented for data collection.

The context information and the contributions to each of these collected communication errors were then analyzed and categorized. The primary purpose of this study focuses on the investigation of the pattern of

communication error in realtor service operations. The collected communication errors were reviewed and then categorized by their commonality to form a data-driven error pattern for active failures as well as latent failures, which is similar to Chen (2002; 2006).

3. Results and Discussion

A total of 76 cases of service failure incidents were collected through customer interviews. After a preliminary review and screening for communication-related incidents, 65 cases of communication errors form the database of this analysis. These communication error incidents were then further reviewed and identified for the individual attributes of their error natures. A set of error categories was thus generated by clustering the common attributes of these error incidents. Both active error pattern and latent failure pattern (Reason, 1990) were investigated.

3.1 Active Error Analysis

For the analysis on the active error pattern, a two-level framework of communication error pattern, with two main categories – *Information Deficiencies* and *Process Deficiencies* – and eleven subcategories in total, is generated from the error data collected, as shown in Figure 1. Information Deficiencies, which contribute 40% of the error incidents collected, are the error category involved in the failure of the information communicated. Examples of this main category are providing insufficient or incorrect information regarding the houses on sale, or introducing the real estate which do not match the buyer customers' needs.

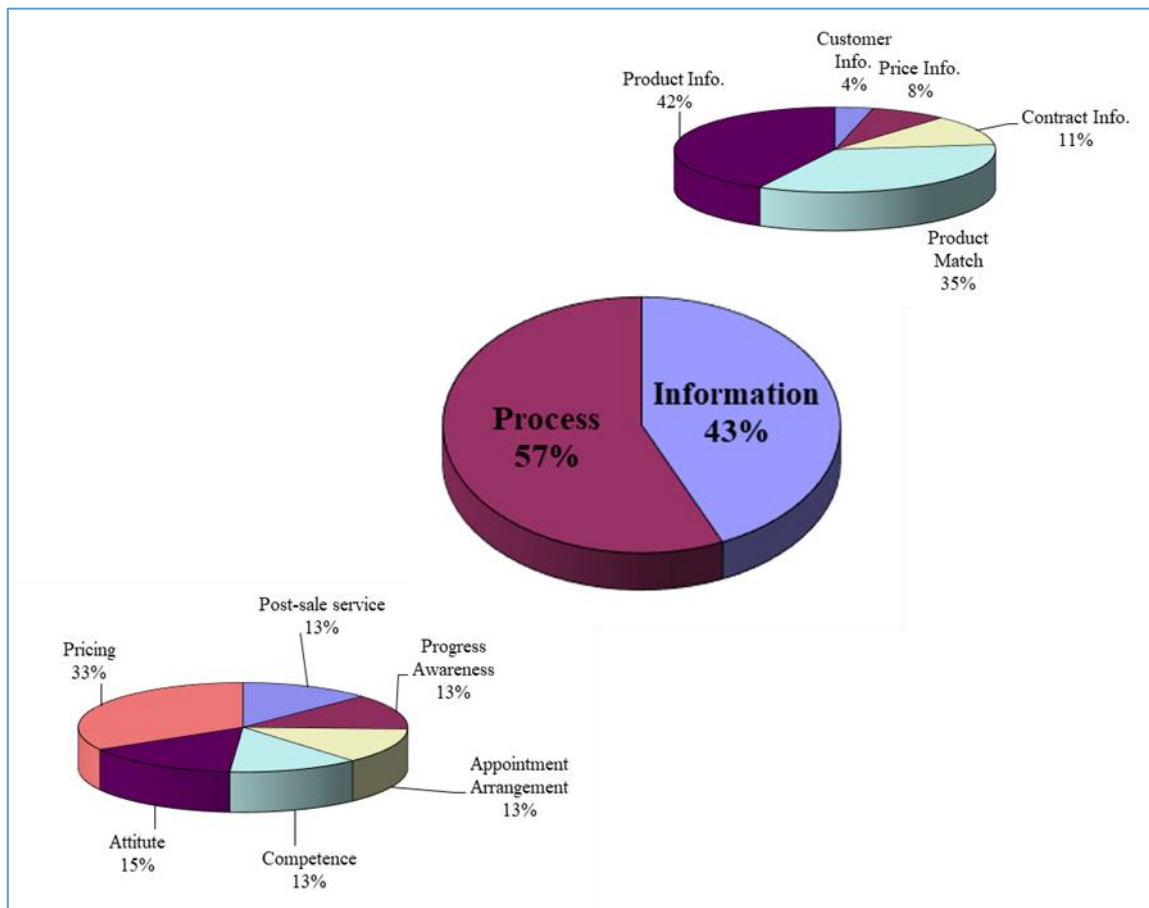


Figure 1. The two-level categorization of active error analysis to realtor customer communications

A further break-down of this Information Deficiency category is depicted in the top-right portion of Figure 1. In the sub-categorization of Information Deficiency, the *Product Information* sub-category, which covers 41% of the error cases in its parent category, is associated with communicating with insufficient or incorrect information about the real estate on sale, i.e., the products in this particular service domain. Under the same main category, *Product Match* is the second largest sub-category and it consists of the communication errors involved in showing buyer customers the real estates not matching their needs, i.e., poor product-customer match. Other subcategories such as *Contract Information* deficiency, *Price Information* deficiency, and *Customer Information* deficiency are identified in this main error category as well.

The other main error category generated in this study is the *Process Deficiency* category. The communication errors in this category are directly related to the service processes in realtor services. As shown in the bottom-left of Figure 1, the errors in this Process Deficiency category may occurred due to questionable price negotiation process, inadequate service attitude, poor post-sale handling, inconvenient appointment arrangement, poor professional competence, or poor progress awareness.

As the data suggest, the *Pricing* processes are most problematic in this Process Deficiency category. The majority of the communication errors in this Pricing sub-category were involved in poor communication among the seller customer, the buyer customer, and the realtor during the price negotiation process. Poor customer satisfaction and distrust in realtor services are the typical consequences of this type of

communication error. As most of the interviewed customers suggest, better communication practices, such as transparent and responsive negotiation process or sound pricing policy, among the three parties (the buyer, the seller, and the realtor) are needed. It is also recommended that direct communication between the buyer customer and the seller customer in the negotiation process may well reduce the doubts associated and thus improve customer satisfaction.

Other sub-categories in this Process Deficiency category also provide valuable avenues for quality improvement. For example, the error incidents in the *Attitude* sub-category emphasize the significance in the effect of realtor's attitude toward service communication, beyond the well-recognized links between service attitude and customer satisfaction. The communications associated with *Post-sale Services* and *Appointment Scheduling* are also subject to error, therefore attention should be paid in these peripheral services for quality realtor services.

3.2 Latent Failure Analysis

For the analysis of latent failures to the 65 cases of communication errors collected, Figure 2 depicts the classification results. It is apparent that the majority of the collected incidents (64%) are related to *Inadequate Service Policies*. Providing dishonest information on prices or house conditions in order to increase profit or attract/manipulate customers is the primary issue (not shown in Figure 2) in this category. As many of the interviewees pointed out, such type of dishonest practice may attract many innocent customers in the short-run, but the customers usually discontinued their businesses as soon as they apprehended the truth. Therefore, providing customers honest and up-to-date information may not only benefit the business in the long-run but may also reduce the chance for false decision-makings by the customers. Poor process transparency, for price negotiating processes in particular, is another major issue here in this latent failure category. Therefore, managerial interventions in enhancing customer's understanding and awareness of the whole service process, for both buying side and selling side, are recommended. An effective engineering intervention for the reduction of this type of latent failures may focus on designing effective communication mechanism among the three essential human elements – the buyer customer, the realtor, and the sell customer - for critical service processes such as the price negotiation processes.

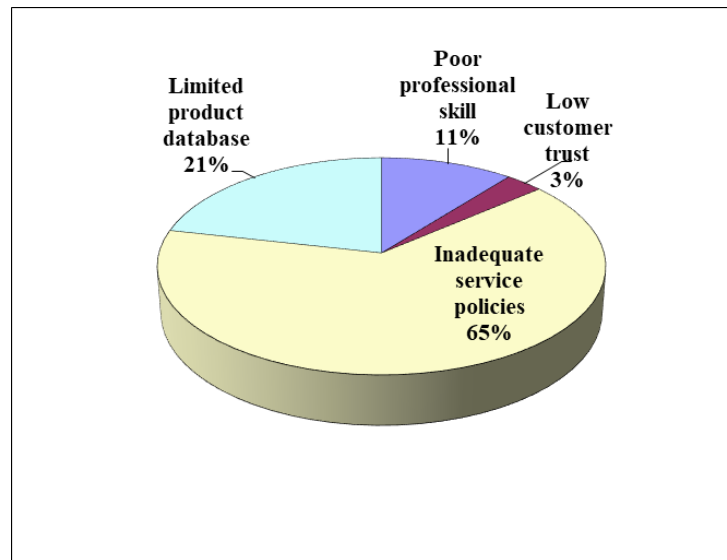


Figure 2. The categorization of the collected latent failures

The second largest category of the latent failures collected is *Limited Product Database*. In this category, latent failures exist as the database of available houses/apartments did not satisfy the decision-making needs of the buyer customers. There are two dimensions to this dissatisfaction/limitation: the amount/size of choices available and the degree of details regarding any choice interested. The recommending interventions to these database problems are therefore two-fold: 1) by well expanding the size of the database of the real estate available through extensive market research or cross-company cooperation in database sharing; and 2) by collecting the information regarding any available real estate as detailed as possible. The quality intervention or further research from the customer experience perspective for this type of latent failures may focus on how to present or organize the database for better illustrations and decision-makings.

3.3 Model Modification and the Implications to Personnel Training

As to the re-examination to the CAMP framework proposed by Chen (2002), similar categorization framework is reached in this study. The primary modification/customization to this framework for this particular service domain is the P element. That is, the product provider (P) in the original CAMP framework becomes another type of customers (C) who provide their real estates for sale. In order to distinguish the customers with different roles in this type of customer service functions, the Provider type of customers would be better labeled as C_{SELL} ; and the buyer customers can be clearly defined as C_{BUY} , rather than the original C's. Therefore, the original CAMP framework can be modified/customized to the C_{SELL} -(A-M)- C_{BUY} framework (see Figure 3), which clearly emphasizes the role of "middlemen" for realtor in such C2C business settings.

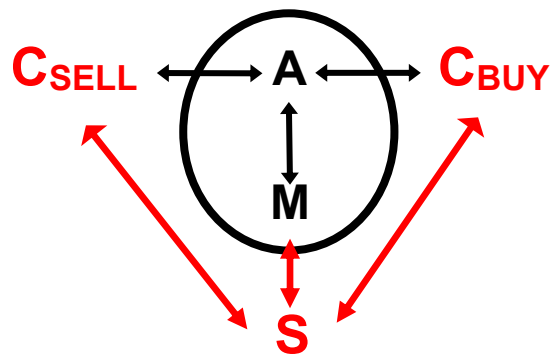


Figure 3. The modified framework for realtor services

Another recommending model modification is the emphasis of the support system (S). As the results of both active error and latent failure analysis suggest, the support system in realtor services should consist the real-time databases of real estates, the customer oriented online information regarding service processes and service policies, and online management systems of customer personal accounts. The design of this support system (S) should be targeted into three distinguish user groups: buying/renting customers, saling customers, and the realtors. Through this support system, each of the three user groups can access the information they need directly with real-time updates at their convenient times and locations.

As the categorization results in active error analysis suggest, it be effective that personnel training for realtor services emphasize on the familiarity of the detailed and up-to-date information regarding the marketing real estates (including pricing) as the first priority. The competence of decision-making power, as stressed by Hennig-Thurau (2004), towards product-customer matching is also crucial for personnel training, as the analysis reveals. It may also be beneficial to promote realtor training regards the capabilities in service process management particularly in appointment setting, pricing, contracting, and post services. For the implications to personnel training, the latent failure analysis of this study indicates that the competence and integrity to providing customers honest and up-to-date information regarding the values and conditions of marketing real estates is crucial. Realtor personnel need to believe in the benefits of such service practices towards a productive short-term customer-personnel rapport as well as a sound long-term customer relationship. Maintaining customer's awareness of process transparency, either through providing accurate and sensible information regarding contracting and post-services to customers or enabling non-verbal communication skills promoted by Lin & Lin (2017), is also recommended for the personnel training of realtor services by this analysis.

4. Conclusions

This study investigates the pattern of communication errors occurred in realtor service operations and the associated latent failures for the implications to personnel training for quality services. Customers with realtor service experiences were interviewed to provide detailed description regarding the communication error(s) encountered while dealt with realtors in the past. As a result, a two-level framework of communication error pattern, with two main categories – information deficiencies and process deficiencies

– and eleven subcategories in total, is generated from the error data collected. Among all types of communication errors in realtor services, it is found that the errors on providing insufficient or incorrect information regarding the target real estates and the communication errors involved in the price negotiation processes are prominent. The analysis of latent failures further reveals the importance on process transparency and the role of the information systems.

For C2C services like realtors, two major modifications to the CAMP model originally proposed by Chen (2002) are suggested by this error analysis. First, a double customer framework is recommended by both replacing the provider element (P) with C_{SELL} and redefining the original customer element (C) as C_{BUY}. The other major modification to the original model is the amending of support system (S). Besides channelling with service agents (A) through the already existed internal service machine (M), this support system (S) should be able to interface directly with the two customer groups – C_{BUY} and C_{SELL}.

As a summary, for the implications to personnel training in realtor services, the emphasis are recommended on:

- 1) the familiarity of the detailed and up-to-date information regarding the marketing real estates;
- 2) The competence of decision-making power towards product-customer matching;
- 3) the capabilities in service process management particularly in appointment setting, pricing, contracting, and post-sale services;
- 4) the competence and integrity to providing customers honest and up-to-date information regarding the values and conditions of marketing real estates; and
- 5) the ability in maintaining customer's awareness of process transparency.

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6. References

- [1] Babakus, E. & Boller, G. W. 1992. "An Empirical Assessment of the SERVQUAL Scale." *Journal of Business Research*, 24, 253-268.
- [2] Bitner, M. J., Booms, B. H., & Mohr, L. A. 1994. "Critical Service Encounters: The Employee's Viewpoint." *Journal of Marketing*, 58(October), 95-106.
- [3] Bitner, M. J., Booms, B. H., & Tetreault, M. S. 1990. "The Service Encounter: Diagnosing Favorable and Unfavorable Incidents." *Journal of Marketing*, 54(1), 71-84.
- [4] Bitner, M.J., Nyquist, J.D., & Booms, B.H. 1985. "The Critical Incident as a Technique for Analyzing the Service Encounter," In *Services Marketing in a Changing Environment*, T.M. Bloch, G.D. Upah, V.A. Zeithaml (eds.), Chicago: AMA, 35-41.
- [5] Carman, J. 1990. "Consumer Perceptions of Service Quality: An Assessment of the SERVQUAL Dimensions." *Journal of Retailing*, 66(1), 33-55.
- [6] Chen, A.-C. 2001. "Human Error and Customer Service – in Travel Agent Services," *Ming Chi*

- Institute of Technology Journal, 33, 151-158.
- [7] Chen, A.-C. 2002 “An Ergonomic Framework for the Human Error Analysis for Quality Customer Services.” Proceedings of the 2002 Annual Meeting and Conference of the Ergonomics Society of Taiwan, Hsinchu, Taiwan, 283-287.
- [8] Cronin, J. J. & Taylor, S. A. 1992. “Measuring Service Quality: A Reexamination and Extension.” *Journal of Marketing*, 56(July), 55-68.
- [9] Flanagan, J. C. 1954. “The Critical Incident Technique.” *Psychological Bulletin*, 51(July), 327-58.
- [10] Hennig-Thurau, T. 2000. “Relationship quality and customer retention through strategic communication of customer skills.” *Journal of Marketing Management*, 16(1-3), 55-79.
- [11] Hennig-Thurau, T. 2004. “Customer orientation of service employees: Its impact on customer satisfaction, commitment, and retention.” *International journal of service industry management*, 15(5), 460-478.
- [12] Ihtiyar, A., & Ahmad, F. S. 2015. “The impact of intercultural communication competence on service quality and customer satisfaction.” *Services Marketing Quarterly*, 36(2), 136-152.
- [13] Korenková, M. 2014. “Statistical Evaluation of Communication Skills of Customer Care Employees in Banks. Business,” *Management and Education*, 12(2), 318.
- [14] Lehtinen, J. 1991. “Service Quality: Multidisciplinary and Multinational Perspectives: An Experimental Study of Service Production Processes in Different Cultures.” In S.W. Brown, E. Gummesson, B. Edvardsson, B. Gustavsson (Eds.) *Service Quality: Multidisciplinary and Multinational Perspectives*. 135-142.
- [15] Lin, C. Y., & Lin, J. S. C. 2017. “The influence of service employees’ nonverbal communication on customer-employee rapport in the service encounter.” *Journal of Service Management*, 28(1), 107-132.
- [16] Lovelock, C. H. 1985. “Developing and Managing the Customer-Service Function in the Service Sector.” In J.A. Czepiel, M.R. Solomon, C.F. Surprenant (Eds.) *The Service Encounter: Managing Employee/Customer Interaction in Service Businesses*. 265-280.
- [17] Parasuraman, A., Zeithaml, V. A., & Berry, L. L. 1985. “A Conceptual Model of Service Quality and Its Implications for Future Research.” *Journal of Marketing*, Fall 1985, 4941-50.
- [18] Parasuraman, A., Zeithaml, V. A., & Berry, L. L. 1988. “SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality.” *Journal of Retailing*, 64(1), 12-37.
- [19] Reason, J. 1990. *Human Error*. Cambridge, UK: Cambridge Univ. Press.

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