



An assessment of knowledge gap in service quality for air freight carriers



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ABSTRACT

This paper aims at assessing the knowledge gap in service quality for air freight carriers. In this paper, based on the relevant literature and the operational features of air freight carriers, the service requirement attributes (SRAs) for air freight were first investigated. A Knowledge Gap Model (KGM) based on a fuzzy analytic hierarchy process (AHP) approach was then proposed to evaluate the perceived gap on those SRAs between air freight carriers and their customers (air freight forwarders). Finally, as an empirical study, the air freight carriers and air freight forwarders in Taiwan were investigated. The results indicate the top SRAs with higher gaps are: *Cargo delivery perfectly*, *Information system supports* and *Adequate shipping spaces*. The result provides practical information for air freight carriers to improve service quality. Further, The KGM provides a methodology for relevant studies on service quality.

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1. Introduction

Service quality has become an important issue for organizations because it impacts on business performance, returns on investment, customer satisfaction and customer loyalty, leading to affect the cost and profit of organizations (Seth and Deshmukh, 2005). For enhancing service quality, many concept models were developed in the relevant literature, in which one of the most influential models was the service quality gap (Sahin and Samea, 2010).

Regarding the service quality gap, the PZB (Parasuraman et al., 1988) is one of the famous models. In the PZB model, the service quality gap (called Gap 5) is defined as the discrepancy between a customer's expectations for a service offering and the customer's perceptions of the service received. Further, the Gap 5 is broken down into four sub-gaps, named as knowledge gap (Gap 1), design gap (Gap 2), performance gap (Gap 3), and communication gap (Gap 4). In the relevant literature, most studies focused on examining the Gap 5 (e.g. Peiro, et al. 2005; Chen and Chang, 2005; Lai et al., 2009; Meng, 2010; Tsai et al., 2011). However, to improve service quality efficiently, service providers may need to know the individual effect of the four sub-gaps. Among the four sub-gaps, the knowledge gap (i.e. Gap 1) is defined as the differences

between customers' expectations and managers' perceptions on the customer expectations. In PZB model, Gap 1 is the initial gap and is the most important gap (Zeithaml et al., 1990). In practice, the Gap 1 would affect other three gaps (Gaps 2–4). Thus, Gap 1 could provide the direction of improvement for managers and allow them to allocate resources with efficiency. Under resource limitations, this information is very useful for service providers in improving service operations. In the previous research, however, very few studies explored such a topic.

Recently, with the rapid progress in high technologies, the demands of high-tech products get increasing greatly, such as microelectronic and pharmaceutical products. The general features of those high-tech products include high price, small size, light weight and timeliness etc. In practice, the international transportations of those products are usually by air. Thus, the air freight industry in the future economic development will be increasingly important (Shiao and Hwang, 2013). According to the research reports of Boeing company for global air freight, the total shipment quantities will increase threefold and grow at an annual rate of 5.9% over the next 20 years (Boeing, 2012).

For air freight carriers (AFCs), the main shipments come from air freight forwarders (AFFs) consolidating cargoes from shippers. Thus, in practice, the AFFs are the main customers of AFCs. In the relevant literature concerning air freight services, most of studies focus on service requirements of air freight customers (e.g. Wang, 2007; Cheng and Yeh, 2007). Few articles examine the perceived gap on the service requirements between air freight customers and air freight providers. As mentioned above, in practice, the gap

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information may provide corrective directions for air freight providers to improve service operations.

The purpose of this paper is to assess the knowledge gap in service quality for air freight carriers (AFCs). Since AFFs (air freight forwarders) are the main users of AFCs, this paper defined AFFs as the AFCs' customers. In this paper, based on the air freight carriers' operational features and relevant literature, the service requirements attributes (SRAs) for air freight are first investigated. A Knowledge Gap Model (KGM) based on a fuzzy analytic hierarchy process (AHP) approach is then proposed to assess the perceived differences on those SRAs between AFCs and their customers (i.e. AFFs), by which, the AFCs may make policies in improving service qualities. Finally, as an empirical study, the air freight carriers in Taiwan and their customer were investigated. The rest of this paper is organized as follows: Section 2 reviews the relevant literature. Then, the research method is presented in Section 3, by which the research results are discussed in Section 4. Finally, a brief conclusion and some topics for further research are given in Section 5.

For ease of explanations, the acronyms used in this paper are listed as follows:

SRA	Service requirement attribute
AFC	Air freight carrier
AFF	Air freight forwarder
TG	Tangibles
TC	Transportation capability
CV	Convenience
PS	Personal service
CI	Consistency Index
CR	Consistency Ratio
$a\omega$	AFF's perceived important weight on SRA
$c\omega$	AFC's perceived unimportant weight on SRA
KGM	Knowledge Gap Model
KGI	Knowledge Gap Index

2. Literature reviews

2.1. The service quality gap in service industry

In relevant studies concerning service quality gap, the PZB model (Parasuraman et al., 1988) is frequently used. The PZB model proposes five gaps, shown in Fig. 1, to define the service quality of a service industry.

Gap 1: the difference between customer expectations and manager perceptions on the customer expectations. This gap occurs when service providers fail to accurately identify customer expectations. Thus, it is referred to as Knowledge Gap.

Gap 2: the difference between manager perceptions on customer expectations and service quality specifications. This gap occurs when service providers fail to design right service standards. Thus, it is referred to as Design Gap.

Gap 3: the difference between service quality specifications and the service actually delivered. This gap occurs when service providers fail to deliver their service to the service standards. Thus, it is referred to as Performance Gap.

Gap 4: the difference between service delivery and what is communicated to customers about the service. This gap occurs when service providers fail to match their service performance to their promises to customers. Thus, it is referred to as Communication Gap.

Gap 5: the gap between a customer's perception of their

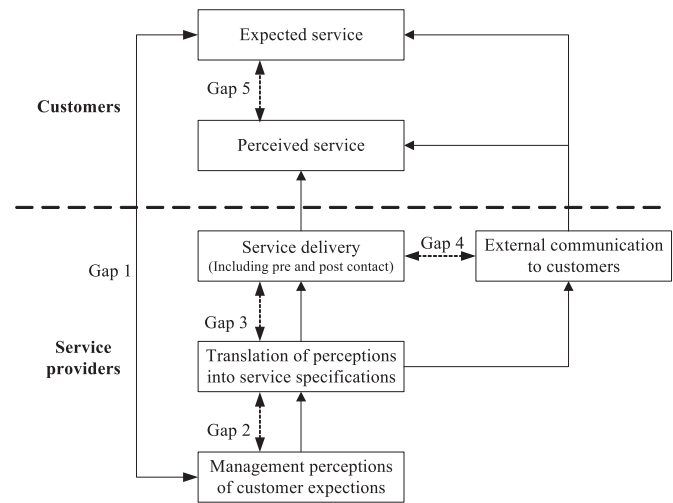


Fig. 1. The service quality gaps in PZB model.

experience and the customer's expectation of the service. This gap is the summation of the previous 4 gaps (Gap 1, Gap 2, Gap 3 and Gap 4), so it is referred to as Service quality Gap.

In the relevant literature, several revised models were proposed to modify the PZB model. For example, Frost and Kumar (2000) proposed an internal service quality model to examine the service quality gap (Gap 5) between front-line employees (named internal customers) and managers (named internal service providers). In the model, the service quality gap contains two sub-gaps, named as Internal Performance Gap and Internal Knowledge Gap. Compare to the PZB model, the former is same as the Gap 3, and the latter is a new gap, which is named as Gap 6. Further, Luk and Layton (2002) broke the knowledge gap of PZB into two sub-gaps. One is the knowledge gap between front-line employees and managers, and the other one is the knowledge gap between customers and front-line employees. The former is same as the Gap 6 in PZB model, and the latter is a new gap, named as Gap 7. Sum up the above two revised models, the Gap 5 of PZB is extended to have 6 sub-gaps: Gap1–4 and Gap 6–7. However, all of the above revised models for PZB just proposed a concept. There is a lack of empirical study to explain how to apply those revised models in real cases.

2.2. The service quality in air freight

In the relevant literature on the service quality of air freight, most studies focus on air cargo carriers or air cargo logistic providers. For example, for the former, Wang (2007) discussed the improvement in service quality for the air cargo sector of China Airlines. The paper identified three service quality dimensions with 20 service requirement attributes (SRAs) to measure the service quality of air cargo carriers. The three dimensions were *Professionalism*, *Physical service* and *Correctness and positivity*. The result indicated the top 3 SRAs in need of improvement for China Airlines are: *Prompt handling of import/export work*, *Willingness to help solve customer service* and *Standard operating procedures*. Hsu et al. (2009) examined the factors affecting firms' selection of air carriers. In the article, six factors were extracted: *Product characteristics*, *Values*, *Inventory cost*, *Shipping charges*, *Shipping distance* and *Time*. The results showed shippers with high product value and short delivery distance focus on the shipping charge and prefer choosing the air cargo carrier that offers more flights. Park et al. (2009) Evaluated the competitiveness of air cargo express services. The study proposed six service constructs with 26 SRAs to measure the competitiveness of air cargo express. The six

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