The Mediating Role of Customer Satisfaction on the Service Quality-Loyalty Relationships

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Abstract
This research was conducted in Malaysia. The purpose of the study was to test the mediating effect of customer satisfaction on the service quality-loyalty relationship in the national railway corporation known as Keretapi Tanah Melayu Berhad (KTMB) – Cement Cargo Services. The methodology of this study is using quota sampling, 200 respondents were selected from cement companies, namely Lafarge, YTL, TCB and CIMA, the main users of the service provider. Structured questionnaires were distributed to the selected respondents through a self-administered survey in November 2011. To test the hypotheses, a multiple regression analysis was performed. The results revealed that three dimensions of service quality (tangibles, responsiveness and assurance) has significant positive relationship with customer satisfaction. Further, both service quality and satisfaction have been shown to positively affect the customer loyalty. In addition, this study found that satisfaction partially mediates the service quality dimensions-loyalty relationships. However, the findings may not be generalized to the overall cargo services because the sample is small. In the future, researcher should investigate the overall cargo services (conventional and container) and their effect on satisfaction and customer loyalty. The managerial implications of this study explained that KTMB should improve the service quality. Thus, to sustain in the long run, excellent service quality will generate greater satisfaction with the delivered service, promote repeat purchase, positive word-of-mouth, brand loyalty and finally a high chance for customer loyalty.

Keyword: service quality, satisfaction, loyalty, mediation effects

1. INTRODUCTION

KTMB is a monopoly company providing railway transportation services in Malaysia. The sole provider offers both passengers and cargo services since the company was established in 1901 with the name of Federated Malay States Railway (FMSR). Cargo services is one of the services offered by KTMB which uses freight rail services in Malaysia. Cargo services can be divided into two: container and conventional. Cement, sugar and urea cargo services are conventional services. Meanwhile, container services include Landbridge services, Land Feeder services, South Thai Cargo, Inter Terminal Transfer and Inland Depot.

According to a few executives at KTMB, some companies complained that KTMB was not able to fulfill their promise to deliver goods based on the schedule (Expected Time of Arrival) that both parties have agreed on. In other cases, KTMB received complaints about insufficient amount of wagon to supply sugar to Klang Valley. In addition, the existing cement companies continue to use KTMB services eventhough in some aspects they were dissatisfied with the service. With regards to these complaints, KTMB should pay attention on providing excellent service quality which will result in higher customer satisfaction and increases customer loyalty as suggested by Kumar et al. (2009). Unfortunately, no research was conducted to investigate the performance of KTMB in relation to this three concepts. Thus, the researchers intend to
study the relationship of these three concepts with the knowledge that service behaviour and service quality have proven its role and importance in management/marketing (Hutchinson et al., 2009; Zeithaml et al., 1996).

In this study, the research framework showed the relationships between service quality dimensions, satisfaction and loyalty. The study had four specific objectives: 1) To identify the relationship between service quality dimensions and customer satisfaction; 2) To examine the relationship between service quality dimensions and customer loyalty; 3) To identify the relationship between customer satisfaction and customer loyalty; and 4) To investigate the mediating effect of customer satisfaction on the service quality-loyalty relationship. As such, the findings will contributes to the body of knowledge in the service industry particularly in the logistic industry.

2. REVIEW OF PREVIOUS STUDIES

2.1 Service Quality
“A service is a process consisting of a series of more or less intangible activities that normally, but not necessarily always, take place in interactions between the customer and service employees and/or physical resources or goods and/or systems of the service provider, which are provided as solutions to customer problems” (Gronroos, 2000, p. 46). Fogli (2006, p. 4) on the other hand defined service quality as “a global judgement or attitude relating to a particular service; the customers' overall impression of the relative inferiority or superiority of the organization and its services. Service quality is a cognitive judgement”. The most useful theoretical basis for explaining the process which leads to judgments of satisfaction has proved to be the disconfirmation of expectations paradigm by evaluating or measuring certain variables, mainly the perceptions of results (performance) and certain comparison standards (Saura et al., 2008). In this research, only perception on service quality was measured. No comparison between perception and expectation was conducted. Thus, no discussion on gap analysis is offered.

As stated by Saura et al. (2008), service quality has been a priority theme in both marketing and logistic research since the mid-1980s. From mid-1990s, logistics researches based on marketing principles began to analyze the capacity of logistics to deliver quality and thus generating greater customer satisfaction and loyalty (Richey et al., 2007; Mentzer et al., 2004). Today, the logistics industry is a classical example of service-based industrial development (Chapman et al., 2003). Parasuraman (2002) stated five dimensions of SERVQUAL: tangibles, reliability, responsiveness, assurance and empathy. Further, Zeithaml and Bitner (2003) stated that service quality was a focus evaluation that reflected the customer’s perception of specific dimension of SERVQUAL tangibles, reliability, responsiveness, assurance and empathy.

2.2 Customer satisfaction
Until recently, customer satisfaction continues to draw interest and attention among academics and practitioners alike since it is a necessary precondition to succeed in highly competitive markets. Customer satisfaction is one of the most important outcomes in the marketing literature. It serves to link processes culminating purchase and consumption with post purchase phenomena such as attitude change, repeat purchase, and brand loyalty (Churchill and Surpremant, 1982). Mittal and Kamakura (2001) in addition stated that customer satisfaction is a key factor in the formation of customer’s desires for future purchase.
Customer satisfaction has been defined in many different manners. Taylor and Baker (1994) stated that satisfaction is a major outcome of marketing activity and serves to link processes culminating in purchase and consumption with post purchase phenomena such as attitude change, repeat purchase and loyalty. This definition is supported by Jamal and Naser (2003) and Mishra (2009). Anderson and Fornell (1994) indicated that satisfaction as a global evaluation based on consumption experiences over time or on a set of similar evaluation experience. According to Lee (1995), customer satisfaction can be divided into two, which are definitions driven to outcome and definition driven to process.

Many researchers found that satisfied customers are the key factor to long term business success (McColl-Kennedy and Schneider, 2000; Zeithaml et al., 1996; Kristensen et al., 1992). Previous research had identified that organizations which have superior service quality are market leaders in terms of sales and long-term customer loyalty (Gilbert and Veloutsou, 2006). Saura et al. (2008) indicated that satisfaction has a direct, significant influence on loyalty. In contrast, Pleshko (2009) and Al-Wugayan and Pleshko (2010) pointed out that there is no relationship between customer satisfaction and loyalty.

2.3 Customer loyalty
Singh and Sirdeshmukh (2000) suggested the customer loyalty as “the market place currency of the twenty-first century”. Ndubisi (2005) and Pfeifer (2005) pointed out that the cost of serving a loyal customer is five or six times less than a new customer. Walsh et al. (2005) mentioned that it is better to look after the existing customer before acquiring new customers. Thus, Gee et al. (2008) pointed three advantages of customer loyalty:

i) The service cost of a loyal customer is less than new customers.
ii) They will pay higher costs for a set of products; and
iii) A loyal customer will act as a word-of-mouth marketing agent.

In short, loyalty is best defined as a state of mind and a set of attitudes, beliefs, desires etc. Loyalty is developed by approaches which reinforce and develop a positive state of mind and the associated behaviors (Siddiqi, 2011). Most important, service quality is different from brand loyalty because service loyalty is dependent on the development of interpersonal relationships as opposed to loyalty to tangible products. In addition, intangible attributes such as confidence and reliability are the most important factors to maintain the customer loyalty in the service context.

2.4 Relationship between service quality dimensions and customer satisfaction
The relationship between service quality and customer satisfaction is debatable. Some researchers argued that service quality is the antecedent of customer satisfaction, while others disagree with the findings. Most researchers however revealed that service quality is the antecedent of customer satisfaction (Bedi, 2010; Kassim and Abdullah, 2010; Naem and Saif, 2009; Lee and Hwan, 2005; Jamal and Naser, 2003; Parasuraman et al., 1988). Other studies found that service quality had a positive influence on customer satisfaction (Siddiqi, 2011; Yee et al., 2010; Saura et al., 2008; Sivadas and Baker-Prewitt, 2000; Innis and La Londe, 1994). Further, Lee et al. (2010) found that service quality had a significant positive relationship with customer satisfaction. In telecommunication industry, Gloria (2011) found that high level of service quality had a strong influence on customer satisfaction.

Within the service industries, researchers discovered inconsistent findings on the relationship between service quality dimensions and customer satisfaction. Wang and Lo (2002) who conducted a study in telecommunication industry found that five service quality dimensions
(tangibles, reliability, responsiveness, assurance and empathy) had a significantly positive influence on customer satisfaction. Yeop Yunus et al. (2009) found that reliability, responsiveness, assurance and empathy had effect on customer satisfaction. Ali Shaikh (2009) found that tangible and responsiveness had a positive relationship towards customer satisfaction through a study in the restaurant industry in Pakistan. In the retail banking in Pakistan, Jamal and Naser (2003) found that there is no important relationship between tangible aspects of service and customer satisfaction. This finding supported the previous research by Parasuraman et al. (1991). Mosahab et al. (2010) found that all five dimensions of service quality had positive relationship with customer satisfaction and loyalty. With the positive sign of correlation, an increased in each dimension of service quality, the satisfaction and loyalty also increased. In retail banking in Malaysia, Lo et al. (2010) found a positive relationship between tangibles, responsiveness, assurance and empathy on customer satisfaction. Only reliability is not significant when it is regressed to customer satisfaction. In healthcare, tangibles, reliability, responsiveness, assurance and empathy had a positive relationship with customer satisfaction (Zaim et al., 2010).

2.5 Relationship between service quality dimensions and customer loyalty

Bell et al. (2005) found that service quality had a strong relationship on customer loyalty. According to Chou and Lu (2009), service quality had a positive effect on customer loyalty. Wan Jin (2009) pointed that service quality had a direct and positive relationship with customer loyalty. Research conducted in tourism industry by Al-Rousan et al. (2010) concluded that service quality had a direct effect on customer loyalty. Lee et al. (2010) indicated that service quality significantly had a positive relationship with customer loyalty. Furthermore, Rosemond and Gloria (2011) found that high level of service quality leads to a high level of customer loyalty in Ghana’s telecommunication industry.

Saleeby (2008) found that tangibles, reliability, responsiveness, assurance and empathy had a strong relationship with customer loyalty in the restaurant industry. In retail banking in Malaysia, Lo et al. (2010) found that tangibles and responsiveness had no significant impact on customer loyalty, but reliability, empathy and assurance are shown to have positive relationships with customer loyalty in banking service in Penang.

2.6 Relationship between customer satisfaction and customer loyalty

Customer satisfaction has frequently suggested as the leading determinant of loyalty (Lam and Burton, 2006). Most of the researchers pointed out that there is a positive relation between the service quality dimensions and customer satisfaction and customer satisfaction is positively related to customer loyalty (Saura et al., 2008; Veloutsao et al., 2004; Caruana, 2000). Many researchers found that customer satisfaction is the predictor of customer loyalty (Faullant et al., 2008; Leverin and Liljander, 2006; Terblanche, 2006). Other researchers pointed that there is a strong positive correlation between customer satisfaction and customer loyalty (Mohd Mokhtar et al., 2011; Lee et al., 2010; Saura et al., 2008; Cheng et al., 2008; Story and Hess, 2006; Donio et al., 2006; Bowen and Chen, 2001).

In logistic industry research, Saura et al. (2008) found that customer satisfaction had a direct and positive relationship on customer loyalty. In 2009, Abdel-Maksoud and Kawam who conducted research in the similar field found that customer satisfaction had a significant association on customer loyalty. Recently, Siddiqi (2011) who conducted research in retail banking sector, also found a positive correlation between customer satisfaction and customer loyalty. Naidu (2009) found that healthcare quality affects patient satisfaction, which in turn
influences positive patient behaviors such as loyalty.

2.7 Interrelationships between service quality, satisfaction and loyalty

The effect of service quality on customer loyalty takes on different forms: direct effect, indirect effect through satisfaction, or moderating effect by satisfaction (Caruana, 2000, Zeithaml et al., 1996). Most of the researchers pointed out that there is a positive relation between the service quality dimensions and customer satisfaction and customer satisfaction is positively related to customer loyalty (Veloutsao et al., 2004; Caruana, 2000). Some researchers also found that the service quality and customer satisfaction are predictors of customer loyalty (Tariq and Moussaoui, 2009; Han et al., 2008; Ehigie, 2006).

Evidence of the mediating effect of satisfaction has been found in many service industries (Santouridis and Trivellas, 2010; Cheng et al., 2008; Shemwell et al., 1998; Zeithaml et al., 1996; O’Connor et al., 1991). Caruana (2002) concluded that customer satisfaction play a mediator role in affecting the service quality on service loyalty in Malta’s bank. Mosahab et al. (2010) who conducted research at Sepah Bank in Tehran indicated that satisfaction partially mediated the relationship between service quality and customer loyalty. In 2010, Lo et al. who conducted research in retail banking in Penang Malaysia found that satisfaction has mediating effect on the relationships between service quality dimensions (tangibles, reliability, responsiveness, empathy and assurance) and customer loyalty. The results were consistent with studies done by Ehigie (2006), Lam and Burton (2006), Caruana (2002), and Butcher (2001). Alrubaiee and Alkaa’ida (2011) found the mediating effects of patient satisfaction within the association of healthcare quality-patient trust in Jordan.

3. RESEARCH METHODS

3.1 Research Model

Research framework is a model that one tries to theorize in making logical sense of the relationship among the several factors that have been identified as important to the problems (Malhotra, 2007). The theoretical framework shows the relationship between variables such as independent variables (service quality dimensions), mediating variable (satisfaction) and dependent variable (loyalty).

Many researchers employed SERVQUAL to measure the service quality (Mosahab et al., 2010; Lo et al., 2010; Ladhari, 2009; Amin and Isa, 2008; Hassan et al., 2003). Figure 1 showed the relationship between service quality, customer satisfaction and customer loyalty. Service quality might affect customer loyalty directly (H2) or indirectly through customer satisfaction (H4).
The framework explained the following:

i) the relationship between service quality dimensions (predictor variables) and customer satisfaction (criterion variable).

ii) the relationship between service quality dimensions (predictor variables) and customer loyalty (criterion variable).

iii) the relationship between customer satisfaction (predictor variable) and customer loyalty (criterion variable).

iv) customer satisfaction (mediator variable) in relation to service quality (predictor variable) and customer loyalty (criterion variable).

### 3.2 Hypotheses development

Based on the research framework, a group of general hypotheses and sub-hypotheses to study the nature of relationship between service quality and customer satisfaction with customer loyalty were developed and tested:

**H1**: Service Quality is positively associated with customer satisfaction.

- **H1 (a)**: Tangibility dimension is positively related to satisfaction.
- **H1 (b)**: Responsiveness dimension is positively related to satisfaction.
- **H1 (c)**: Reliability dimension is positively related to satisfaction.
- **H1 (d)**: Empathy dimension is positively related to satisfaction.
- **H1 (e)**: Assurance dimension is positively related to satisfaction.

**H2**: Service Quality is positively associated with customer loyalty.

- **H2 (a)**: Tangibility dimension is positively related to loyalty.
- **H2 (b)**: Responsiveness dimension is positively related to loyalty.
- **H2 (c)**: Reliability dimension is positively related to satisfaction.
- **H2 (d)**: Empathy dimension is positively related to satisfaction.
- **H2 (e)**: Assurance dimension is positively related to satisfaction.

**H3**: Customer satisfaction is positively associated with customer loyalty.

**H4**: Customer satisfaction mediates the relationship between perceived service quality and customer loyalty.

### 3.3 Research sample

The targeted population of this research was the user of cement cargo; the employees of Lafarge (1,200), YTL (800), TCB (500) and CIMA (1000) with the total number of 3500 staff. Anderson et al. (1998) suggested that the sample size of 100-200 is adequate. Using quota sampling, respondents were selected from Lafarge (80), YTL (40), TCB (20) and CIMA (60) which made up the 200 targeted sample size.

### 3.4 Data collection

Both secondary data and primary data were used to gather the information for the study. Structured survey questionnaire was developed to measure the three concepts. The researchers designed the questionnaires in English. The survey questionnaire consists of three sections. Section A for independent variable contains 22 questions of five service quality dimensions (tangible, reliability, responsiveness, assurance and empathy). Service quality dimensions were measured using SERVQUAL 22 items borrowed from Parasuraman et al. (1988) and modified for the purpose of the study. In this study, SERVQUAL items were used to measure the overall consumer perceptions of service quality. While these scales have been
criticised for conceptual and operational limitations, they remain as a popular instrument for measuring the quality of a particular service. Section B contains 5 questions each for customer satisfaction and customer loyalty. Satisfaction was measured using 5 item statements adapted from Oliver (1997, 1980), Taylor and Baker (1994), Grace and O’Cass (2005) and Wu et al. (2008) which covers both relative and overall satisfaction. Loyalty was measured using five 5 items adapted from Caruana (2002). A five point Likert-type scales, ranking from (1) strongly disagree to (5) strongly agree were used for the service quality, satisfaction and loyalty. Section C contained 5 questions for personal or demographic information.

3.4.1 Pilot test
To ensure that the survey questionnaires will provide good data and results, the researchers conducted a pilot test in October 2011. It is fundamental to pre-test the questionnaire with at least 10 respondents, to ensure that it was clear and not liable to misinterpretation by potential respondents. Generally, the pre-test sample size is small, varying from 15 to 30 respondents for the initial testing (Malhotra, 2007). For this study, a sample of 20 respondents was selected from the cement companies who uses the cement cargo services offered by the KTMB. Using Microsoft Excel, the mean and standard deviation of each items used to measure the variables were calculated.

3.4.2 Fieldwork
Since there is no problem with the pilot test, further fieldwork was conducted. Data collection was done by the self-administered by the researcher. Survey questionnaires were distributed to the respondents in November 2011. There were a total of 200 completed questionnaires at the end of the data collection process, which indicated a 100 per cent of response and completed rate.

3.5 Data Analysis
Using SPSS 18.0, the completed data were analysed. Both descriptive and inferential statistical tools were used to analyzed the data.

3.5.1 Reliability
Reliability is the extents to which a variable or set of variables is consistent in what it is intended to measure (Hair et al., 2007). The current study used multiple items in all constructs. As such, the internal consistency method should be applied to see the intercorrelation between individual items used to measure the same construct. As pointed by Nunnally and Bernstein (1994), the Cronbach’s alpha with acceptable cut off point 0.70 demonstrates that all attributes are internally consistent. Thus, the nearer is the Cronbach’s alpha value to one, the higher is the internal consistency.

3.5.2 Hypotheses Testing
As suggested by Baron and Kenny (1986), regression tests were conducted to test the hypotheses by running these four steps: (See Table 4)

Step 1: Service quality dimensions regressed to customer satisfaction.
Step 2: Service quality dimensions regressed to customer loyalty.
Step 3: Customer satisfaction regressed to customer loyalty
Step 4: Both service quality dimensions and customer satisfaction regressed to customer loyalty.
4. RESEARCH FINDINGS

4.1 Respondent profiles
Out of 200 respondents who completed the survey questionnaires, 52 percent is male and 48% is female. In terms of education, 82 percent of the respondents have Diploma and Degree qualification and can be considered as knowledgeable employees. Almost 75 percent of them hold non-management position and the respondents are servicing in operation, marketing, human resource and finance department. About 44 percent of the respondents have been working with the companies between 5-10 years which indicated that the employees of the cement companies are considered senior staff and should have a lot of experience in dealing with the service provider. (Refer to Table 1)

4.2 Pilot Test
The result of the pilot test shows that all items used to measure the independent and dependent variables have a mean score of 3.0 and above. Almost all the items have a standard deviation value of 0.50 and above (see Table 2). As such, the similar survey questionnaires were distributed to the 200 targeted sample respondents in November 2011.

Table 1: Respondent Characteristics (n=200)

<table>
<thead>
<tr>
<th>Profile</th>
<th>Description</th>
<th>Number of Respondents</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENDER</td>
<td>Male</td>
<td>104</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>96</td>
<td>48</td>
</tr>
<tr>
<td>QUALIFICATION</td>
<td>Certificate level</td>
<td>22</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Diploma level</td>
<td>82</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td>Bachelor level</td>
<td>80</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Master level and above</td>
<td>16</td>
<td>8</td>
</tr>
<tr>
<td>POSITION</td>
<td>Non-management</td>
<td>149</td>
<td>74.5</td>
</tr>
<tr>
<td></td>
<td>Management</td>
<td>51</td>
<td>25.5</td>
</tr>
<tr>
<td>DEPARTMENT</td>
<td>Operation</td>
<td>57</td>
<td>28.5</td>
</tr>
<tr>
<td></td>
<td>Marketing</td>
<td>53</td>
<td>26.5</td>
</tr>
<tr>
<td></td>
<td>Human Resource</td>
<td>46</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Finance</td>
<td>44</td>
<td>22</td>
</tr>
<tr>
<td>YEAR OF SERVICE</td>
<td>Under 5</td>
<td>60</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>5-10</td>
<td>87</td>
<td>43.5</td>
</tr>
<tr>
<td></td>
<td>More than 10</td>
<td>53</td>
<td>26.5</td>
</tr>
</tbody>
</table>

Table 2: Minimum (Min.), Maximum (Max.), Mean and Standard Deviation (SD) Values

<table>
<thead>
<tr>
<th>Items</th>
<th>Item No.</th>
<th>Min.</th>
<th>Max.</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Quality</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Tangibles</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Modern equipment</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>3.60</td>
<td>.84</td>
</tr>
</tbody>
</table>
Table 3 shows that the Cronbach’s alpha for 22 items used to measure the service quality dimensions were very high (0.94). Each dimension of service quality scored more than 0.70 on the Cronbach’s alpha (tangibles = 0.77; reliability = 0.89; responsiveness = 0.85, assurance = 0.79; empathy = 0.80). Both customer satisfaction and customer loyalty had 0.91 and 0.84 Cronbach’s alpha values respectively. According to Sekaran (2006), the closer Cronbach’s alpha is to 1, the higher its internal consistency reliability. A reliability less than 0.60 is considered poor, those in the 0.7 range, is acceptable and over 0.80 is good. Since the scores

<table>
<thead>
<tr>
<th>Physical facilities</th>
<th>1</th>
<th>3</th>
<th>5</th>
<th>3.60</th>
<th>.84</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff neat in appearance</td>
<td>1</td>
<td>4</td>
<td>5</td>
<td>4.40</td>
<td>.52</td>
</tr>
<tr>
<td>Material associated with customers’ services</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>3.80</td>
<td>.92</td>
</tr>
</tbody>
</table>

2. Reliability

| Time promise | 1 | 3 | 5 | 3.90 | .57 |
| Problem solving | 1 | 4 | 5 | 4.30 | .48 |
| Dependable in term of perform service correctly | 1 | 4 | 5 | 4.30 | .48 |
| Dependable in term of emergency care | 1 | 4 | 5 | 4.30 | .48 |

3. Responsiveness

| Competent in providing accurate services | 1 | 3 | 5 | 4.30 | .68 |
| Tell exactly when services are provided | 1 | 3 | 5 | 4.40 | .70 |
| Prompt services | 1 | 3 | 5 | 4.30 | .82 |
| Always willing to help customer | 1 | 3 | 5 | 4.30 | .68 |
| Good respond | 1 | 3 | 5 | 4.40 | .70 |

4. Assurance

| Staff behavior | 1 | 3 | 5 | 4.20 | .63 |
| Feel safe | 1 | 4 | 5 | 4.40 | .52 |
| Consistently courteous | 1 | 3 | 5 | 4.20 | .63 |
| Staff knowledge and skill | 1 | 3 | 5 | 4.40 | .70 |

5. Empathy

| Individual attention | 1 | 3 | 5 | 4.40 | .70 |
| Up to date information | 1 | 3 | 5 | 4.20 | .63 |
| Understanding customer need | 1 | 3 | 5 | 4.00 | .82 |
| Customers best interest at heart | 1 | 4 | 5 | 4.40 | .52 |
| Convenient operating hours | 1 | 4 | 5 | 4.90 | .32 |

Customer satisfaction

| Satisfying experience in KTMB | 1 | 3 | 5 | 4.00 | .67 |
| KTMB does a good job of satisfying my company need | 1 | 3 | 5 | 4.10 | .74 |
| The right choice to use KTMB services | 1 | 3 | 5 | 4.10 | .74 |
| I satisfied with my company decision to use KTMB services | 1 | 3 | 5 | 4.30 | .68 |
| Overall, my company satisfied with KTMB services | 1 | 3 | 5 | 4.30 | .68 |

Customer Loyalty

| KTMB services as top priority | 1 | 3 | 5 | 3.90 | .74 |
| Use KTMB services in the future | 1 | 3 | 5 | 3.70 | .68 |
| Using KTMB services more than 5 years | 1 | 2 | 5 | 4.10 | .99 |
| KTMB deserves my company loyalty | 1 | 3 | 5 | 4.30 | .68 |
| My company loyalty to KTMB has grown stronger | 1 | 4 | 5 | 4.60 | .52 |

4.3 Reliability test

Table 3 shows that the Cronbach’s alpha for 22 items used to measure the service quality dimensions were very high (0.94). Each dimension of service quality scored more than 0.70 on the Cronbach’s alpha (tangibles = 0.77; reliability = 0.89; responsiveness = 0.85, assurance = 0.79; empathy = 0.80). Both customer satisfaction and customer loyalty had 0.91 and 0.84 Cronbach’s alpha values respectively. According to Sekaran (2006), the closer Cronbach’s alpha is to 1, the higher its internal consistency reliability. A reliability less than 0.60 is considered poor, those in the 0.7 range, is acceptable and over 0.80 is good. Since the scores
for service quality, customer satisfaction and loyalty were above 0.80, they can be considered as very good.

Table 3: Reliability coefficient, mean and standard deviation (SD)

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Number of items</th>
<th>Cronbach’s alpha</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service quality</td>
<td>22</td>
<td>.94</td>
<td>4.17</td>
<td>11.44</td>
</tr>
<tr>
<td>Tangibles</td>
<td>4</td>
<td>.77</td>
<td>3.86</td>
<td>2.61</td>
</tr>
<tr>
<td>Reliability</td>
<td>5</td>
<td>.89</td>
<td>4.18</td>
<td>3.23</td>
</tr>
<tr>
<td>Responsiveness</td>
<td>4</td>
<td>.85</td>
<td>4.22</td>
<td>2.46</td>
</tr>
<tr>
<td>Assurance</td>
<td>4</td>
<td>.79</td>
<td>4.15</td>
<td>2.26</td>
</tr>
<tr>
<td>Empathy</td>
<td>5</td>
<td>.80</td>
<td>4.14</td>
<td>2.97</td>
</tr>
<tr>
<td>Customer Satisfaction</td>
<td>5</td>
<td>.91</td>
<td>4.02</td>
<td>3.23</td>
</tr>
<tr>
<td>Customer Loyalty</td>
<td>5</td>
<td>.84</td>
<td>3.93</td>
<td>2.91</td>
</tr>
</tbody>
</table>

4.3 Hypotheses Testing

Multiple regressions were performed using the four (4) steps as suggested by Baron and Kenny (1986). Table 4 explained the outcomes of the statistical analysis.

Table 4: Results of Multiple Regression
Step 1: Service quality dimensions and customer satisfaction

In Step 1, service quality dimensions were regressed towards customer satisfaction. The B values for tangibles, reliability, responsiveness, assurance and empathy were more than zero. Thus, all dimensions had positive relationship with customer satisfaction. Based on t-value and p-value, tangibles (t = 2.34; p = 0.02), responsiveness (t = 4.02; p = 0.00) and assurance (t = 2.73; p = 0.00) had significant positive relationship with customer satisfaction. Reliability dimension (t = 1.76; p = 0.08) on the other hand had a partial significant relationship (p > 0.05 but p < 0.10) with customer satisfaction and empathy (t = 0.88; p = 0.38) had no significant relationship. Based on the findings, H1 (a), H1 (c) and H1 (d) were fully accepted, while H1 (b) was partially accepted and H1 (e) was rejected. Responsiveness turned up as the most important dimension, followed by assurance, tangibles and reliability. The results are consistent with the previous research results conducted on other services industry (Yeop Yunus et al., 2009; Ali Shaikh, 2009; Saura et al., 2008; Wang and Lo, 2002).

The R value was 0.75 which explained the strong relationship between the service quality dimensions and customer satisfaction. The R-square value was 0.56. The score indicated that 56 percent changes in customer satisfaction can be explained by the service quality dimensions.

Step 2: Service quality dimensions and customer loyalty

When service quality dimensions were regressed towards customer loyalty, all dimensions except reliability had positive relationship with loyalty. Based on t-value and p-value, only tangibles (t = 3.74; p = 0.00) and responsiveness (t = 3.67; p = 0.00) were significantly related to customer loyalty. Overall, service quality had a positive relationship with customer loyalty (p = 0.00). The relationship between the service quality and customer loyalty was strong (R = 0.68). The R-square value was 0.46. Thus, the score indicated that 46 percent changes in customer loyalty can be explained by the service quality. The F value was 32.4 and very significant (p =

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>β</th>
<th>t</th>
<th>Sig.</th>
<th>B</th>
<th>β</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tangibles</td>
<td>.21</td>
<td>.19</td>
<td>3.0</td>
<td>0.03</td>
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<td>Reliability</td>
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<td></td>
<td>-1.1</td>
<td>0.27</td>
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<td>Responsiveness</td>
<td>.22</td>
<td>.18</td>
<td>2.12</td>
<td>0.04</td>
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<td></td>
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<tr>
<td>Assurance</td>
<td>.02</td>
<td></td>
<td>.26</td>
<td>0.80</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Empathy</td>
<td>.09</td>
<td>.09</td>
<td>1.02</td>
<td>0.31</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer</td>
<td>.63</td>
<td>.70</td>
<td>13.7</td>
<td>0.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfaction</td>
<td>.41</td>
<td>.46</td>
<td>6.27</td>
<td>0.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Significant - *p<0.10, **p<0.05, ***p<0.01
0.00). The result pointed that service quality was a predictor of customer loyalty thus supporting H2 and is consistent with previous research (Rosemond and Gloria, 2011; Al-Rousan et al., 2010; Lee et al., 2010; Chou and Lu, 2009; Wan Jin, 2009; Bell et al., 2005).

Step 3: Customer satisfaction and customer loyalty
Step 3 was run by regressing customer satisfaction to loyalty. It was found that customer satisfaction had positive relationship on customer loyalty (β = 0.63). The Beta value result for customer satisfaction is equal to 0.63 which means changes in customer satisfaction explained changes in customer loyalty by 70 percent. The T-value was 13.7 and significant (p = 0.00). The relationship between the customer satisfaction and loyalty was strong (R = 0.70). The R-square value was 0.49. Thus, the score indicated that 49 percent changes in customer loyalty can be explained by customer satisfaction. The F value was 187.64 and very significant (p = 0.00). As such, customer satisfaction had significant positive relationship with loyalty and H3 was supported. This finding is consistent with the previous research findings (Mohd Mokhtar et al., 2011; Lee et. al., 2010; Abdel-Maksoud and Kawam, 2009; Faullant et al., 2008; Cheng et al., 2008; Saura et al., 2008; Leverin and Liljander, 2006; Terblanche, 2006; Donio et al., 2006; Story and Hess, 2006).

Step 4: Service quality dimensions, customer satisfaction and customer loyalty
In step 4, service quality dimensions and satisfaction were regressed towards customer loyalty. The results indicated that customer satisfaction partially mediated the relationship between tangibles and loyalty (β = 0.26, p = 0.00 – Step 2; β = 0.19, p = 0.03 – Step 4). Customer satisfaction partially mediated the relationship between responsiveness and loyalty (β = 0.33, p = 0.00 – Step 2; β = 0.18, p = 0.04 – Step 4). However, customer satisfaction failed to mediate the relationship between reliability (β = -0.09, p = 0.27), assurance (β = 0.02, p = 0.80) and empathy (β = 0.09, p = 0.31) and loyalty.

The R value was 0.74 which shows strong relationship between service quality and customer satisfaction on loyalty. The R-square value is 0.55 which indicated that 55 percent changes in customer loyalty can be explained by service quality and satisfaction. The F value is equal to 39.3 and was significant. (p = 0.00). The result indicated that both service quality and customer satisfaction were predictors of customer loyalty. Customer satisfaction meanwhile partially mediates the service quality-loyalty relationship. This finding is consistent with Mosahab et al. (2010).

5. CONCLUSION

The results of this research showed that tangibles, responsiveness and assurance were significant predictors to customer satisfaction. In addition, tangibles and responsiveness were found to be significant predictors to loyalty. In addition, the researchers found both service quality and satisfaction had a significant positive relationship with customer loyalty. Further, satisfaction partially mediated the relationship between tangibles-loyalty, and between responsiveness-loyalty. Responsiveness dimension turned up as the most important predictor of customer satisfaction, followed by assurance and tangibles.

5.1 Recommendations
In this study, tangibles and responsiveness have significant relationship with customer satisfaction and loyalty. Tangibles refer to the physical environments and surroundings represented by objects as well as subjects. Responsiveness is the willingness to help customers and provide prompt service. These findings suggested that the willingness of the
service provider to assists its customers by delivering fast and efficient services is very important. In addition to that, diverse features of the service that provide confidence to customers are considered as very important. Further, the physical environments and surroundings represented by objects as well as subjects are also important to customers in the logistics industry. In contrast, the readiness of the service provider to provide personal attention to each customer was unimportant.

In the future, KTMB Cargo services should improve their service quality to produce a greater customers’ satisfaction. KTMB must deliver the customer’s product on time as promised and KTMB must make sure that customers’ products are in a safe condition when the product reaches its destinations. Rahman (2006) stated that the most important component of logistics service quality is “on time delivery”. To achieve that, KTMB Cargo needs to have log books to make sure that they deliver customers’ product on time and with the same quantity when the product reaches its final destination. While for the safety of the product, they need to prepare a suitable mechanical containers, tankers and wagons that have been approved by the quality service control of KTMB. They should also pay some attention to the availability of different sizes of containers, tankers and wagons in delivering products to different destinations.

Because of the high degree of perceived risk stemming from customers’ inability to evaluate outcomes of services, assurance is a vital marketing strategy. KTMB Cargo services should improve the way they handle customers’ problems. Staffs of KTMB Cargo should always be confident, full of information as well as polite in dealing with the customers. This will lead to long-term relationship between customers and service provider and finally it leads to customers’ satisfaction and loyalty toward KTMB.

KTMB Cargo services can improve its customers’ level of loyalty by giving top priority to the Cargo train movement. KTMB should provide another railway track just for KTMB Cargo so that products can be delivered on time and will not disturb the movement of Commuter and Intercity tracks. By providing these facilities (tangibles), the satisfaction level of customers will be increased along with their loyalty.

5.2 Limitation
This research was conducted in one department of the cargo service which was cement cargo department (conventional service). Thus, the findings may not be generalized to the overall cargo services because the sample was small. In the future, researcher should investigates the overall cargo services (conventional and container) and their effect on satisfaction and customer loyalty. In addition to that, since the SERVQUAL has some limitations, future research may consider to use a new multidimensional model known Logistics Service Quality (LSQ) which includes a set of dimensions known as timeliness, condition and accuracy of the order, quality of information, availability and quality of contact personnel (Rafid and Jaafar, 2007; Richey et al., 2007; Mentzer et al., 1999).

References


