CHAPTER 5

RESULTS AND ANALYSIS OF FINDINGS

5.1 Introduction

With the growth of service industries, the interest in evaluating the quality of services and its related issues (e.g. profits, customer and employee satisfaction) has become prominent. Many researchers have been applying a number of tools to clarify the elements in interactions that can lead to improvements in service environments. The most routine evaluation carried out involves methods used to determine external and internal customers' perceptions of the experience, the distribution of questionnaires or use of interviews and focus groups. Due to the uniqueness of the service environment calls for other approaches to evaluate service quality and service climate have increased.

This chapter demonstrates the usefulness and relevance of using basic analytical techniques to measure service quality and service climate. Performance analysis, segmentation analysis and multiple regression analysis provide excellent information for building a customer-focused attitude towards service delivery. The resulting information locates actionable areas for attention by both management and front-line service employees. It gives the organization the opportunity to be responsive to its customers. This approach should entail ample

quality dividends for the organization. Eventually, all parties win – employees and customers.

The analysis of the survey data mirrors how the questionnaires were organized. The data provides profiles of the bank customers and employees who took part in the survey and an overview of the expectations and experiences of each of the respondents. This overview of the survey results focuses mainly on the responses from participating customers when dealing with their favourite banks. It also highlights the information which has the greatest bearing on the work of the participating employees in their organization (bank).

5.2 The pilot study

In the pilot study, there was both positive and negative feedback regarding this technique. Some of them told the researcher their opinion regarding either the questionnaire or the questions asked in both questionnaires straight away after they had read them. Most of them wrote their view in the space provided on the paper and a number of them emailed the researcher to give their ideas regarding the subject matter. The researcher received many types of responses which are summarized in the paragraphs that follow. From the pilot study, the strengths were found to be: (i) freedom in answering the questions and (ii) no strings attached to the format of the questionnaire.

Weaknesses were found to be: (i) timing: respondents needed at least a day to answer the PAT format of questions. It was not easy because respondents needed time to think of any incidents that had satisfied or dissatisfied them; (ii) there were difficulties for the researcher to analyze the various kinds of answers which were not specific to any of the dimensions stated by previous researchers. The technique might need prompts. (iii) The format was difficult to understand, though it had been explained by the researcher in front of the respondents, due to its general questions and the format (which was also used by Johns and Lee-Ross (1995; 1997) and Johns *et al* (1997)). Respondents' attitudes showed that they would prefer an easier format, such as multiple choices or a Likert Scale, rather than having to write freely. (iv) It was hard to distinguish between 'aspects' and 'attributes' while they were thinking of an answer to fill in the questionnaire. (v) There were unclear instructions because of the use of two languages. The researcher tried to find the best wording for each language in order to gain the most feedback from respondents.

Further feedback showed that the context of the service was not clearly defined. The researcher did not specify the service or the specific bank in the pilot study because the intention was merely to seek the strengths and weaknesses of the technique. There were also misunderstandings between products and services. Definition of "service" needed to be clear; either the specific services offered by the bank as promoted in the media or the service that the customers expect bank employees to deliver.

The pilot study results showed that the format of the questionnaire (open-ended) influenced the response rate because the researcher expected to receive the feedback in thirty minutes, whereas only three respondents achieved this target. The other respondents needed more time to fill in the questionnaire and had to be reminded to return the questionnaire more than once. The respondents preferred to describe the services provided by their frequently visited favourite bank in Stirling rather than mentioning any aspects characteristics of a good or a poor bank. These are in sides problems with the expectations part of SERVQUAL.

The size of the questionnaire was reduced to A5 from A4 paper. The questions were made simpler than in the pilot study. The researcher used coloured paper: green for the positive perceptions, pink for negative perceptions and blue for future respondents' expectations. The study showed that the new paper size and coloured paper might influence the response rate, as supported by Munn and Drever (1990). The University of Stirling logo was also used.

5.3 The preliminary study's analytical steps

A series of analyses were conducted to address the objectives of the study. The first analyses were conducted to determine the preliminary study's results from survey items as proposed by Johns and Lee-Ross (1995; 1997) among the two groups of respondents: bank customers and bank employees. The second set

of analyses was concerned with the outcomes from the close ended survey, as discussed in the later sections.

Tables found in this chapter are used to present graphically some of the data. All of the key data is presented in a descriptive form from the survey. Data from unpublished tables is also used in the descriptive part to provide additional details on issues raised in the survey. When referring to the data in the tables, the total number of cases (e.g. the denominators) used in the analysis varies for each question since some respondents did not answer all the questions and not all 'aspects' have 'attributes'. Non-responses were eliminated from the denominator when calculating percentages (%). It follows that some needs identified by subgroups of respondents may not be relevant because the limited number of useable surveys. The steps taken before proceeding to the process of analysing the open-ended questionnaires is explained consecutively.

Firstly, the sources of the data were identified as illustrated (Figure 5.1) are examples taken from the 50th respondents of bank customers and bank employees. Both of the respondents answered the prompts either in one phrase or one sentence in their own style; without preconception any of aspect or dimension (as listed in Table 5.1 and 5.2) in their mind. Then, the responses were collated in the Microsoft Word and Nvivo 7 programmes. The files for each group of respondents featured, as in the above examples, were then categorized and organized into headings and subheadings which are explained in later sections.

Content analysis was carried out, in which the questionnaires were analysed in the chronological order in which the responses were received.

Figure 5.1: Example of responses from the 50th bank customer

The things I expected about the services provided by the bank.
Nil

The things I like best about the services provided by the bank.
Nil

The things I like least about the services provided by the bank

1. It depends on the respective bank. Not all the services are less satisfied.
2. Long queue
3. Bureaucracy
4. Unfriendly staff
5. Staff are not familiar with the services that are being offered

My reasons for the above are…

1. Staff could not answer enquiries completely about any specific products or services
2. Dissatisfied services. No smile
3. ATM always out of cash especially early and late of a month

Gender	Male
Age	27 years old
Frequent visited bank	EON Bank; Maybank
I visited this bank since …	1995
Number of visit from April until June 2005 is …	10 times

Figure 5.2: Example of responses from the 50th bank employee

The things I expected from this organization.
Nil

The things I like best about this organization.

1. Majority of staff are Malays
2. Less aggressive work culture and less pressure
3. Business objectives are clearly defined, easily understand and practise by staff

The things I like least about the organization.
Nil

My reasons for the above are…
I feel very comfortable as long as my service period, in a harmony environment among colleagues and good employer

Gender	Male
Age	33 years old
Tenure	6 years

The technique which had been used in many of the earlier studies was chosen because it allows customers to express their perceptions in their own words and classify them into positive and negative statements. It does have a number of disadvantages for this type of study. For example, the incidents may have taken place some time before the collection of the data and so respondents' perceptions may have been modified or reinterpreted in the light of some further event. As the technique requires respondents to take time and effort to describe situations in words, a low response rate is likely. An additional disadvantage is the difficulty in processing and analyzing material (Stauss, 1993).

5.3.1 Classification of statements

A number of the responses were found to be unusable. Some of the respondents had left one or other of the categories blank. The richness of the remaining anecdotes was, however, surprising. Most respondents described in considerable detail their experiences of the incident in question. Many of the respondents provided anecdotes of less than a hundred words in length; some, however, were very short – on occasions, just a few words, even one word. The average anecdote length was just thirty words.

Each response was numbered and summarized into a list of key words and phrases which encapsulated the customer's experience of the service and employee's experience of working in the respective bank. This was then recorded

in the Excel program. Two sets of data sheets were created, one for the anecdotes relating experiences of good service and poor service; one for the aspects that could be classified to nineteen quality determinants, proposed by Johnston and Silvestro (1990) as a foundation. In most cases, this was a straightforward, though time-consuming, activity. However, there were problems.

Firstly, it was very clear to discern positive and negative statements but when it came to the categorization of statements into dimensions of aspects and attributes, the structure of the responses contributed to the inconsistency of their arrangement because the work done by the researcher alone was quite time consuming and confusing. Secondly, many respondents had used only one word for example efficient, insurance or ATM, specifically in relating their experiences. This did not fit precisely with any of the aspects or attributes because these terms did not serve to explain anything to the researcher.

Thirdly, there were common characteristics between environment and facilities for the employee survey that were highlighted by a difficulty in deciding on the final classification in a number of cases. Both definitions had some concern for surrounding, setting and also atmosphere of the respective bank. To remove these features, it was decided to define environment and facilities as physical features and facilities. Lastly, twenty five statements did not fit, even closely, with any of the aspects; examples were ‘from my own experience’, ‘boredom’ and ‘I am used to it’. These responses had been put under the miscellaneous dimension.

There were four statements that were difficult to put under any of the suggested dimensions; for instance 'Work until I retire in one organization before I build my own business' and 'I work here to survive', also considered as miscellaneous items. These unused items were not employed in the next phase of the study; in the close-ended questionnaire for the customers and employees.

Table 5.1: Example of responses from the bank customer

Dimension	Example of response
Positive statements	
ATM	24 hours ATM transaction. Easy for customer to make any transaction at any time
Corporate image	From my own experience and hope that other banks will deliver good services to each established and potential customers
Customer interaction and counter service	Reliable (each transaction/service rendered can be trusted to be successfully implemented)
Interbank and interbranch network	Save time and do not have to go to other banks, post office or local office to pay bills
Internal organization	Overall, services delivered are okay and bank make it easier for customers
Online and phone banking	All application, cancellation of the services provided by the bank can be done via internet and telephone
Physical features and facilities	Make it easier for me to do any transactions after office hours
	Services are for public
Products and services	Low interest rates for housing and car loan
Rates and charges	Friendly officer with smiley face
Staff	I am satisfied with the services every time I use those
Miscellaneous	services
Negative statements	
ATM	Always have problem with ATM e.g. less cash and broke down
Corporate image	No good service, dissatisfied with their service
Customer interaction and counter service	Going to bank to do certain application is time consuming,
	I would try to avoid this as I think it is rather inconvenient
Interbank and interbranch network	Inconsistent system between banks by using MEPS
Internal organization	Retail banking is customer service oriented and should be sensitive to customers' needs and wants
Online and phone banking	Longer time for transaction at online banking
Physical features and facilities	Many counter but active counters less than half
Products and services	Less facilities provided for Islamic loan (business, housing and personal)
Rates and charges	Transfer money from my account to other account will be charged
Staff	Several time I dealt with counter, free counter staff not willing to help busier counter staff to reduce number of

	waiting customers
Miscellaneous	I don't have to be worried because I know where the best and worst banks in every matter

Table 5.2: Example of responses from the bank employee

Dimension	Example of response
	Positive statements
Benefit, bonus, reward and salary	Bonus and reward make me happy during those seasons
Corporate image	If the organization deliver expected services by customers, it will develop and be respected
Customer service	The customer service officer should be someone who understand and know on what actually they are involved with
Environment	I feel very comfortable as long as my service period, in a harmony environment among colleagues and good employer
Facilities	A bank with outnumber of branches. Big structure, outnumber staff and customers
Internal organization	Provide good advice on products and recommend according to customers' need
Online and phone banking	Online banking, save time
Organization output	Practise merit concept to every task done by staff
Products and services	Be able to deliver excellent services with variety of products
Rates and charges	Provide good service with minimal cost. Charges like loan interest, cheque book, passbook etc are acceptable
Religion	As an Islamic should concern about business regarding shariah
Workforce	Business objectives are clearly defined, easily understand and practise by staff
Miscellaneous	Work until retire in one organization before I build my own business
	Negative statements
Benefit, bonus, reward and salary	Present medical benefits provided by the bank is insufficient due to most recent inflation condition
Corporate image	This bank has been labelling as slow and deliver lousy service
Customer service	Less courtesy for customer service
Environment	None
Facilities	Incomplete infrastructure, office automation and non up to date IT support system
Internal organization	Always change management team
Online and phone banking	None
Organization output	Continuous loss since 2000 until present
Products and services	None
Rates and charges	Insurance reminder charge is not acceptable
Religion	None
Workforce	Ratio executive officer and non executive are imbalance
Miscellaneous	I work here to survive

Tables 5.1 and 5.2 present the examples of positive and negative statements put forward by the respondents: bank customers and employees in the preliminary study. In Table 5.1, there were eleven dimensions found by the

researcher from the customer responses: Automated Teller Machine (ATM); corporate image; customer interaction and counter service; interbank and interbranch network; internal organization; online and phone banking; physical features and facilities; products and services; rates and charges; staff; miscellaneous. In Table 5.2, thirteen aspects were discovered: benefit, bonus, reward and salary; corporate image; customer service; environment; facilities; internal organization; online and phone banking; organization output; products and services; rates and charges; religion; workforce; miscellaneous. The arrangement of these dimensions was by alphabetical order with one example of an item for each of these dimensions.

To concur with Merriam (1998), the criteria that the researcher established for purposeful sampling were those that directly reflected the purpose of the study and guided to the identification of the information-rich case. Thematic analysis was used in the preliminary study. As a result, themes or sub themes that were able to provide understanding of the aspects that were central to the aims of the research were identified. The researcher had to go through each one, highlighting substantive statements – the statements that made a key point, really said something to separate them out. From the substantive statements, the researcher found emergent categories. These emerging themes were then clustered or categorized into main headings; eleven for service quality and thirteen for service climate. Once these themes had been determined, the process was continued of interpreting and drawing meaning from the displayed data.

Now came the more difficult step, the creative stage. The researcher had to go back to the beginning and, going through the highlighted statements, try to derive a set of categories and give each category a simple heading (e.g. 'automated teller machine'), simply listing these categories to begin with. The researcher gained a lot from the first set of answers, more from the next, but progressively fewer as they were all worked through because individuals were making many essentially similar points. During open coding, the researcher began to break down the data into discrete parts, closely examined them, and started to compare them to find similarities and differences. Thus, once the process continued to the strategy, based on open coding, it shifted to the comparison of new data elements, or new conceptual themes; in this case, the previously coded themes were developed along with the reading of the new data from other respondents. This allowed the researcher to cluster the coded themes into categories that shared similar or distinctive conceptual themes. The list of categories could be combined under one heading or, alternatively, split up. As the researcher was compiling the list, there was a sense that some of the headings noted down were not adequate or appropriate in some way. A question mark was placed by those statements that could not readily be assigned to any category. The wording of the category headings was modified so that they fitted the statements better or could now include question marked statements. New categories were added if necessary.

There are two issues that are important to note. Firstly, most of the data was in the Malaysian language, while there were also respondents who employed a mixed use of the English and Malaysian languages. Therefore, the meanings of the findings required translation into proper English. The translation by the researcher was verified by two other Malay-speaking PhD students at Stirling University who were dealing with similar processes of translation during their data analysis. This was undertaken in order to cross check the consistency in the translations with accurate interpretation. Verification with two other Malay speakers was also undertaken to avoid bias where the researcher might project his or her own views into the translation and interpretation of the quotes.

Secondly, the researcher preferred not to use a professional translator in translating the whole transcriptions in order to preserve the meanings of the text from breaking down before the thematic analysis began. In this case, the researcher undertook the translation herself with the help of two other Malay speakers. This was important, as the use of words and context from the open ended questionnaire could only be fully understood by the researcher and respondents. Both of these issues were addressed in order to sustain the reliability and validity of the data in this research.

In the first place, reasons behind the decision to analyze the data manually rather than using computer software were similar to the above. This was to reduce the risk that analysis by using computer software would not be able to locate and

to take into account important situational and contextual factors. Creswell (1998:156) highlights that computer software '*should not be a substitute for close reading of the material to obtain sense of the whole*'. Easterby-Smith (1991:113) argues that '*there is no package that can substitute for the interpretative skills of the researcher, in which the identification of significant themes, patterns and categories still has to be done by the researcher*'. In relation to this, there was the concern that the results would most likely be seen as a quantitative analysis of qualitative data, rather than the results of qualitative data analysis. Besides, the process of using computer software requires the following of several technical procedures with less possibility for the researcher to adopt spontaneous sensible decisions or flexibility in making judgments where necessary.

However, it is also important to note that the choice of manual analysis for the preliminary study was strongly preferable because of the richness of the data in this research. Moreover, the researcher had difficulty in identifying computer software or programmes available in the market that were really suitable for the task required. As noted by Creswell (1998:155), '*not all qualitative researchers see such programmes as relevant to their needs*'. This is without denying the advantage of computer software, which can help to reduce time, especially with the analysis of a large text database (Creswell, 1998), and when the researcher is clearly able to choose the appropriate programmes for the level of sophistication and the sort of analysis that is required (Miles and Huberman, 1994). In this case, manual analysis was the first approach for the researcher since there were no

specific forms of database prepared for use with computer methods to analyse the content of the data before the fieldwork began. Therefore, the choice of manual compared to computer methods of content analysis was one involving a general sense of style and approach believed and expected to be appropriate for the researcher to 'work around' and to have better control of the data during the analysis; could be written up in different ways: qualitative, descriptive, interpretive, analysis of what people said, and as quantitative analysis i.e. levels of agreement and disagreement. If a number of statements could not be classified or were unique, general conclusions or interpretations might be suspect.

5.3.2 Applying NVivo 7 for the preliminary study

The questionnaires designed consisted of a range of open ended questions (qualitative data) that had to be analysed and new scales (some categorical, some interval) that were used for the first time. NVivo 7 was used within this phase to: assist in analysing the open ended qualitative data and assisting validating selected categorical scales used in the instrument. The steps in employing these two purposes are explained in detail in the following section.

5.3.2.1 Using NVivo 7 to analyse the open ended qualitative data

This section illustrates how the tool was used to derive a classification of primary dimensions reported from the responses in the survey database. Firstly,

the single column with all the documented tools was extracted from the original data file and saved as a text file. Then, this file was then exported to NVivo 7 as a document.

Figure 5.3: Example of responses from the 72nd bank customer

<Documents\Bank customers\CustPerc73> - § 2 references coded [8.41% Coverage]

Reference 1 - 1.40% Coverage

¶9: Offline ATM

Reference 2 - 7.01% Coverage

¶13: Good service because services being offered through ATM

Figure 5.4: Example of responses from the 49th bank employee

<Documents\Bank employees\EmpPerc49> - § 2 references coded [18.09% Coverage]

Reference 1 - 8.04% Coverage

¶14: No incentive other than annual bonus e.g. ex-gratia, annual dinner or family day

Reference 2 - 10.05% Coverage

¶15: Individual staff's targets change and increase and sometimes irrelevant to individual monthly salary

A complete data-driven bottom-up approach was used to map these statements with potential tool types. Each line of text was analysed to see if that statement could be associated with a type of tool. A new node was created for every first mention of a tool name and the relevant statements were codified under these nodes. When a statement related to an existing tool node, it was coded under that node, thus populating the different categories as the analysis took place. All statements were coded under only one category. Any doubts or self notes were also captured in the process with NVivo 7 memos. Later, summary statistics of this mapping process were obtained. These details were extracted to Microsoft

Excel and Word, which was then used to derive the relevant graphs and interpretations.

5.3.2.2 Using NVivo 7 to validate selected categorical scales used in the instrument

This section illustrates how the tool was used to test and validate the scale used. A scale already existed to capture the responses in prior established clusters. A frequency distribution was derived to view the number of citations for each of the existing categories of the original scale from within the raw data saved in Microsoft Excel. Then, this file was then exported to NVivo 7 as a document. Single nodes were created within NVivo 7 to correspond with each of the existing categories in the original scale. This time a combined top down and bottom up approach was used to map these statements with modelling objectives. Like before, all statements were coded only once and memos were maintained with any notes when deemed relevant. Summary statistics of this mapping process were derived from NVivo 7. These details were extracted to Microsoft Excel and Word. The original frequencies were adjusted to accommodate the results of this mapping process. Relevant graphs and interpretations were derived from this analysis.

5.3.3 Demographic Analysis

A total of one hundred questionnaires were gathered via mail survey; seventy eight questionnaires were received from bank customers, giving a response rate of 78.00%. After analysis of all returned questionnaires, a total of seventy five questionnaires were usable for analysis.

Table 5.3: Customers' profile

Characteristics	Frequency	Percentage
Gender		
Male	25	33.33%
Female	47	62.66%
Not Mentioned	3	4%
Total	75	100.00%
Age		
Below 20 years old	2	3%
20-29 years old	39	52%
30-39 years old	19	25.33%
40-49 years old	9	12%
50 years old and above	5	6.7%
Not Mentioned	1	1.33%
Total	75	100.00%

Table 5.3 shows the customers' background in this study. It suggests that more than half of bank customer respondents were female. 93.3% of the respondents were established customers, which meant they had been using the products and services of their preferred banks for three years and more.

As noted in the above Figure 5.5, Maybank was the most preferred bank among respondents compared to other rivals in the banking sector in Malaysia. There was a big range between Maybank and its closest competitor, Bumiputra Commerce Bank Berhad (BCBB) and Islamic Bank.

Figure 5.5: The most frequently visited banks

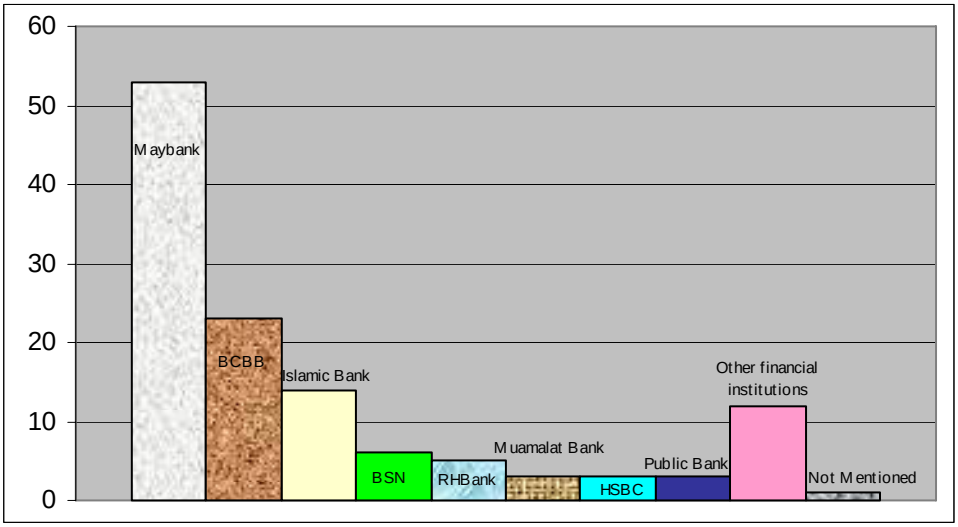
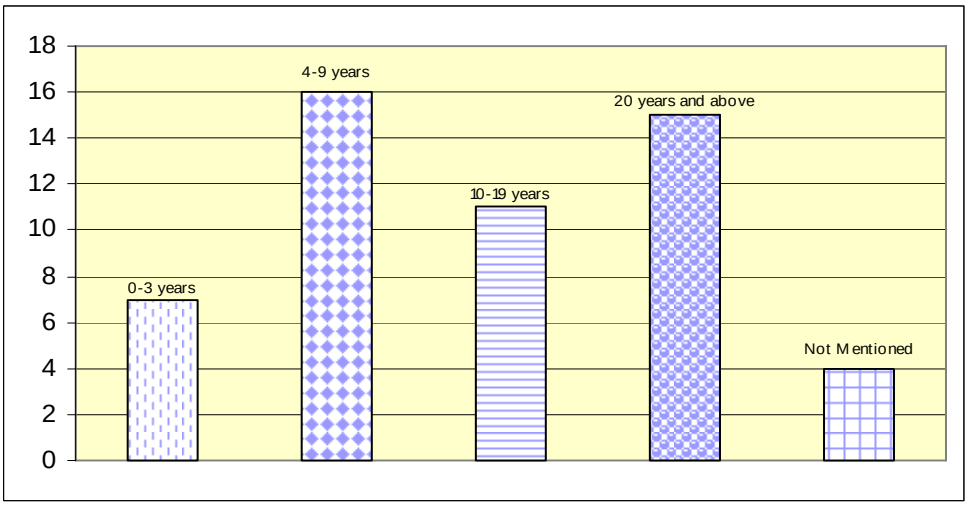


Table 5.4: Employees' profile

Characteristics	Frequency	Percentage
Gender		
Male	18	33.96%
Female	27	50.94%
Not Mentioned	8	15.09%
Total	53	100.00%
Age		
20-29 years old	6	11.32%
30-39 years old	25	47.17%
40-49 years old	16	30.19%
50 years old and above	1	1.89%
Not Mentioned	5	9.43%
Total	53	100.00%

Only fifty three questionnaires were received from bank employees (out of one hundred surveys), which meant a response rate of 53.00%, with all questionnaires available for further analysis. Information on their gender, age and the length of tenure in the participative bank is presented in Table 5.4 and Figure 5.6. 94.22% of respondents were managers, executives and bank officers. More than half of bank employees were female.

Figure 5.6: Respondents' tenure in the banking sector



Most survey respondents had significant experience working for the participative banks. 86.79% percent of the survey respondents had worked for the bank for four years and more.

5.3.4 Dimensional analysis

Manual calculations. In order to ensure that each item proposed by each of the respondent was placed within the appropriate dimension, the researcher decided to do the categorization by manual calculation. Separate tables for 'aspects' and 'attributes' items were created. The researcher needed to be concentrated in doing the analysis in order to produce constant results: the right items that suited the best dimensions. Calculation was redone more than twice, to assure its robustness.

Table 5.5: Customer's 'aspects' only

No. of respondent	Aspects	Attributes
$Customer_{exp}1$	Detailed information for every transaction and products offered [**P&S**] Short time [**CICS**] Friendly officer with smiley face [**St**] Convenience in form of facility provided by the bank and near to housing area [**Pff**] Parking space [**Pff**]	Because I am the bank's customer [**Misc**] Willing to pay extra money for better service [**Misc**] Have right to get the best service [**Misc**]

Note: **P&S** - Products and services **CICS** - Customer interaction and customer service
St - Staff **PFF** - Physical features and facilities
Misc - Miscellaneous

Table 5.6: Customer's 'attributes' only

No. of respondent	Aspects	Attributes
$Customer_{exp}1$	Detailed information for every transaction and products offered [**Accs**] Short time [**Resp**] Friendly officer with smiley face [**Friend**] Convenience in form of facility provided by the bank and near to housing area [**Accs**] Parking space [**Avail**]	Because I am the bank's customer [**Other**] Willing to pay extra money for better service [**Other**] Have right to get the best service [**Other**]

Note: **Accs** - Access **Resp** - Responsibility
Friend - Friendliness **Avail** - Availability

Table 5.7: Employee's 'aspects' only

No. of respondent	Aspects	Attributes
$Employee_{exp}1$	Business based on shariah [**Rel**] Profit [**O/O**] Bonus [**BBRS**] Reward (good performance to be given reward e.g. promotion or cash) [**BBRS**]	As a Muslim, should concern about business regarding shariah [**Rel**] Every profit should be shared with staff [**O/O**]

Note: **Rel** - Religion **O/O** - Organization Output
BBRS - Benefit, bonus, reward and salary

Table 5.8: Employee's 'attributes' only

No. of respondent	Aspects	Attributes
$Employee_{exp}1$	Business based on shariah [**Intgrty**] Profit [**X**] Bonus [**X**] Reward (good performance to be given reward e.g. promotion or cash) [**Cmptnc**]	As a Muslim, should concern about business regarding shariah [**Intgrty**] Every profit should be shared with staff [**Care**]

Note: **Intgrty** - Integrity **X** - Cannot be categorised into any dimension
Cmptnc- Competence

There were eleven dimensions for customer aspects: Automated Teller Machine; corporate image; customer interaction and customer service; interbank and interbranch network; internal organization; online and phone banking; physical features and facilities; products and services offered; rates and charges; staff and miscellaneous with nineteen dimensions for customer and employee attributes, as anticipated in Johnston's (1995) study.

Figure 5.7: Customer responses by aspects and attributes

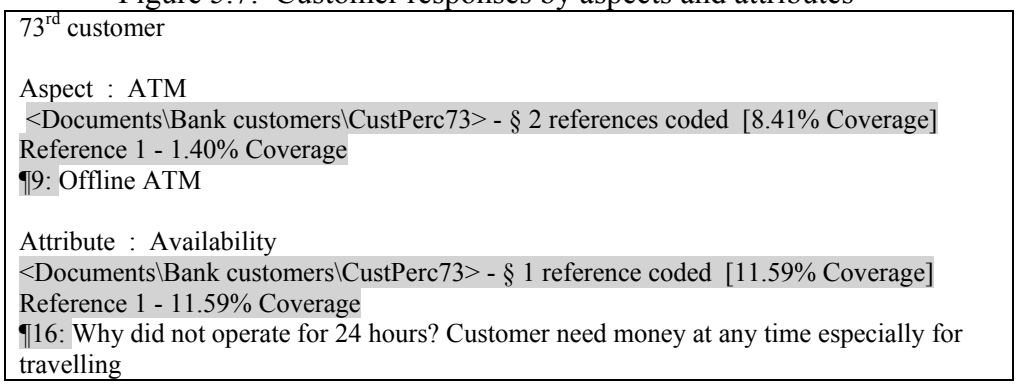
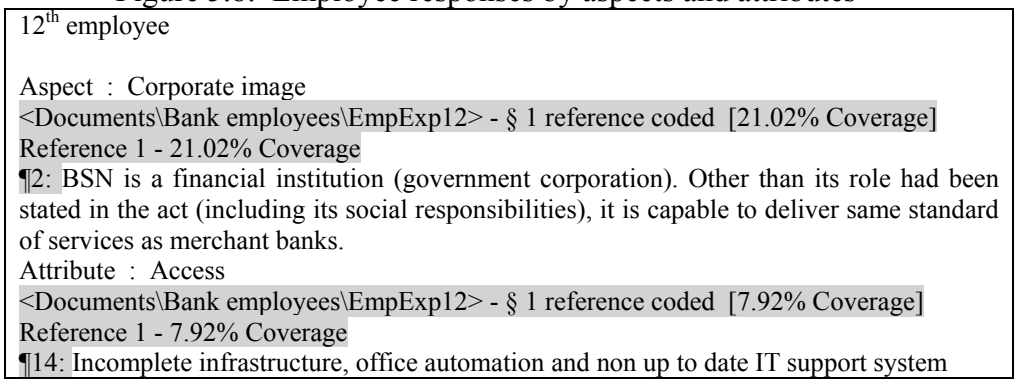


Figure 5.8: Employee responses by aspects and attributes



Nvivo 7. The researcher used this package to assist in analysing the preliminary study's results. Categorisation of the results was achieved by using nodes, which were the containers and coding, representing the responses in this research. It also could store references to source content and simply hold ideas for exploration,

linking or modelling. Examples from customer and employee responses are as in Figure 5.7 and Figure 5.8.

NVivo 7 was chosen for the analysis because of the stability of the results compared to the manual calculation in finding the dimensions. The results were consistent during the stage. The results from manual calculation and package usage were compared to generate the right items for the best dimension, themes that would be used in later stages as a guide to construct close-ended questionnaires for bank customers and bank employees.

Figure 5.9: Responses from the 73rd customer

The things I expected about the services provided by the bank.
Nil

The things I like best about the services provided by the bank.
Nil

The things I like least about the services provided by the bank.
1. Good service but there will be charge. [**Rates and charges**]
2. Offline ATM. [**ATM-Access**]
3. Bank did not operate 24 hours. [**Physical features and facilities-Access**]

My reasons for the above are…
1. Good service because services being offered through ATM. [**ATM-Other**]
2. High service charge for exchange currency rate. [**Rates and charges**]
3. Offline whenever it is the time to pay debt and send money. [**ATM-Access, Rates and charges**]
4. Why did not operate for 24 hours? Customer need money at any time especially for travelling. [**Physical features and facilities- Availability**]

Gender	Male
Age	48 years old
Frequent visited bank	Maybank
I visited this bank since …	2002
Number of visit from April until June 2005 is …	More than 15 times

Johnston (1995) suggested that each anecdote should be numbered and the findings summarized into a list of key words and phrases which encapsulate the

customers' and employees' experiences of the service in the particular banks. As proposed by Johns and Lee-Ross (1995; 1997), the combination of 'aspects' and 'attributes' produced a number of results that are highlighted in the findings section. The results of using the arrangement of manual calculation and software are as in the tables and figures that follow.

Aesthetics, cleanliness, communication and care are the dimensions that did not have any responses from customers. During the 'aspects' analysis, every item had been categorised into its best dimension. Unfortunately, the situation could not be applied during 'attributes' analysis (for both customer and employee responses) because there were a number of responses that could not be put under any dimension because of their tangibility and indistinct meanings, as follow:

<u>Products</u>

$C_{exp}2$	To deal with panel legal firms appointed by the bank. To take up insurance via bank subsidiaries.
$C_{exp}10$	Savings will be used by bank to be invested in a number of activities. Therefore, more profit should be given to savers.
$C_{perc}70$	Most frequent bank provide less facilities than other bank.

<u>Charges</u>

$C_{exp}3$	The bank should not charge unreasonable fee to the customers.
$C_{perc}48$	Bank charge annually for account saver, therefore they should not charge whenever use ATM.
$C_{perc}49$	Nearly all the services should be paid.
$C_{perc}69$	Banks want profit for every service offered.
$C_{perc}73$	High service charge for exchange currency rate.

<u>Satisfaction</u>

$C_{exp}21$	Overall, services delivered are okay.
$C_{perc}32$	I used to it. Never disappointed or regret.

<u>Own experience</u>

$C_{exp}16$, $C_{perc}55$, $C_{perc}59$, $C_{perc}62$ and $C_{perc}68$.

Figure 5.10: Responses from the 12th employee

The things I expected from this organization.
BSN is a financial institution (government corporation). Other than its role had been stated in the act (including its social responsibilities), it is capable to deliver same standard of services as merchant banks. [**Corporate image -competence**]
It must develop suitable with current situation and customers' and public's needs which are more educate and demanding. Even so, BSN is far left behind in many aspects.
[**Internal organization-commitment**]

The things I like best about this organization.
Nil

The things I like least about the organization.
Nil

My reasons for the above are…
1. Weak management, always change management team, different approach every time, bureaucracy and politicking. [**Internal organization-Reliability**]
2. Non arranged training program and less efficient. [**Internal organization-Responsiveness**]
3. Ratio executive officer and non executive are imbalance. [**Workforce**]
4. Incomplete infrastructure, office automation and non up to date IT support system. [**Facilities-Access**]
5. Branch's organization structure is not dynamic/weak and limited, vague staff's career path. [**Internal organization-Security**] [**Workforce-Security**]

Gender	Male
Age	52 years old
Tenure	28.5 years

During the 'aspects' analysis, every item (for employees) was categorised into its best dimension. Availability, attentiveness/help, cleanliness/tidiness, communication, aesthetics, friendliness and functionality were the employee attributes containing no items. There were also items that did not belong to any dimension for bank employees.

Workforce
- Ratio executive officer and non executive are imbalanced
- Result of merged banks between BOC and BBMB. More staff come from our bank

Products and services offered
- Provide ATM, internet banking, money changer and etc.
- Fix pay day and arranged without any delay
- Annual salary increment
- Interest rate for established staff (more than three years): housing loan

- Insurance scheme and health provided
- Annual bonus minimum 2 months or based on performance each sector
- Hospital facilities based on grade of positions
- No incentive other than annual bonus e.g. ex-gratia, annual dinner or family day

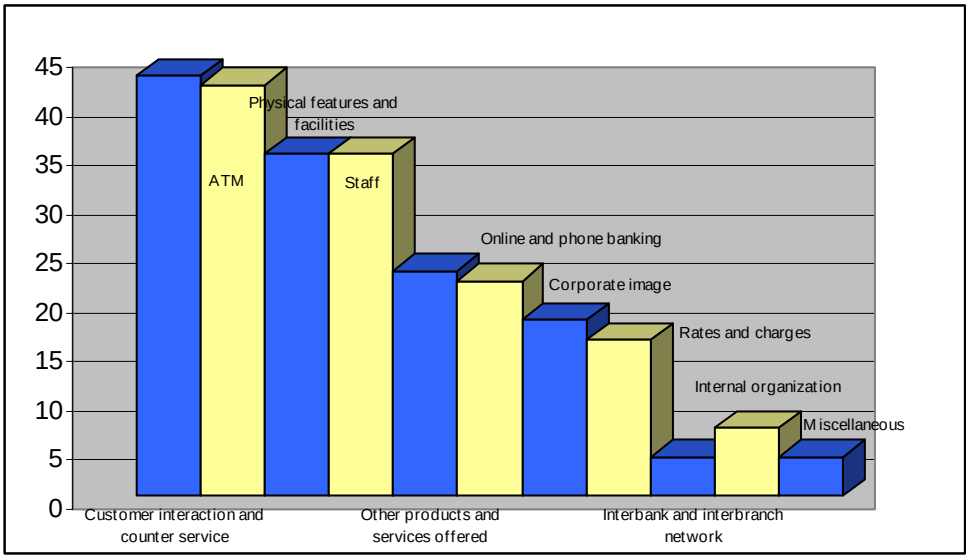
Own experience
$E_{perc}52$

The following analysis only uses frequencies and percentages. Table 5.9 shows figures of items that had been written off as 'aspects' and 'attributes'.

Table 5.9: Responses from respondents

Respondents	Expectations		Perceptions	
	Aspects	Attributes	Aspects	Attributes
Customer	156	127	231	176
Employee	69	63	142	120

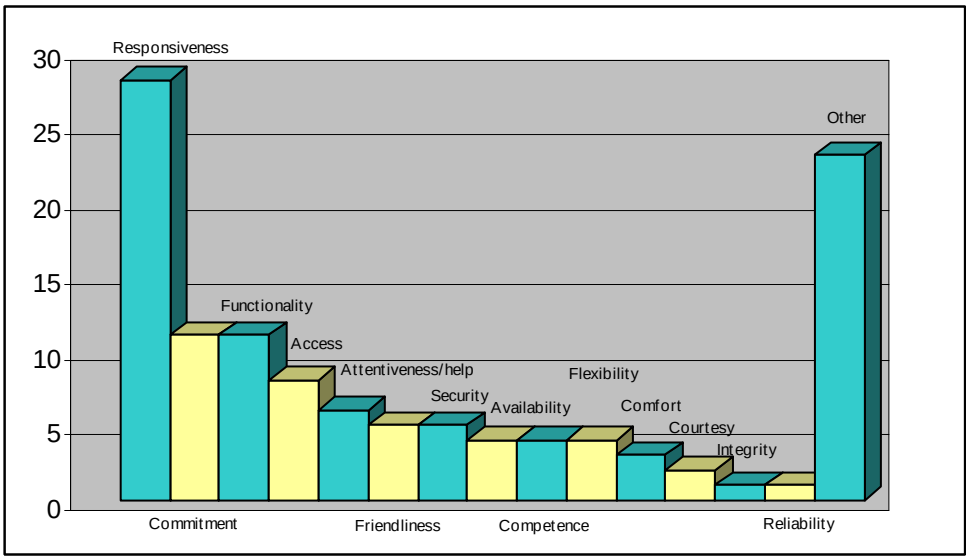
Figure 5.11: Aspects from customers' responses



Figures 5.11 and Figure 5.12 present the 'aspects' and 'attributes' results of arrangement by highest rank to the lowest. The participating customers were very much concerned about interaction while they were dealing with staff at the counter. And the second important issue for them was the ATM, because they

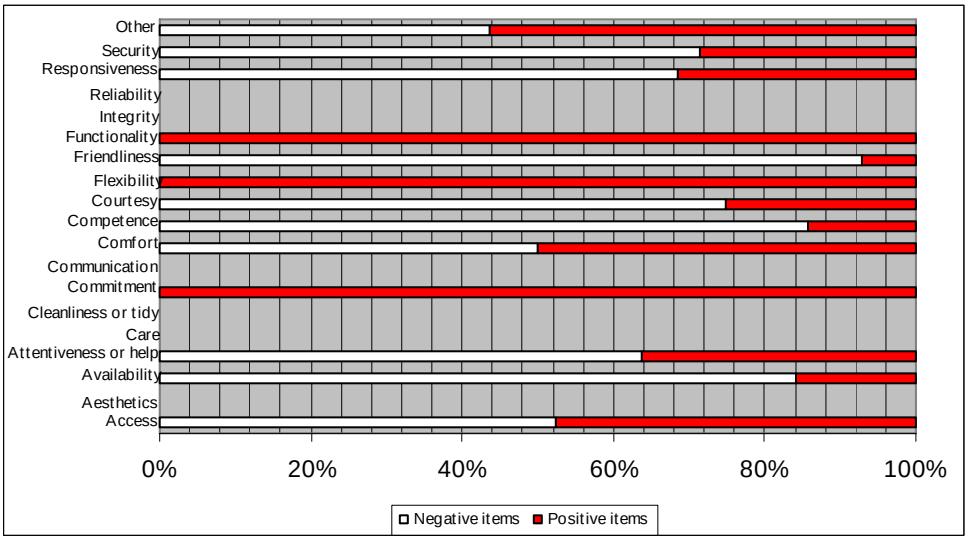
used its services usually after office hours or when did not want to deal with staff directly.

Figure 5.12: Attributes from customers' responses



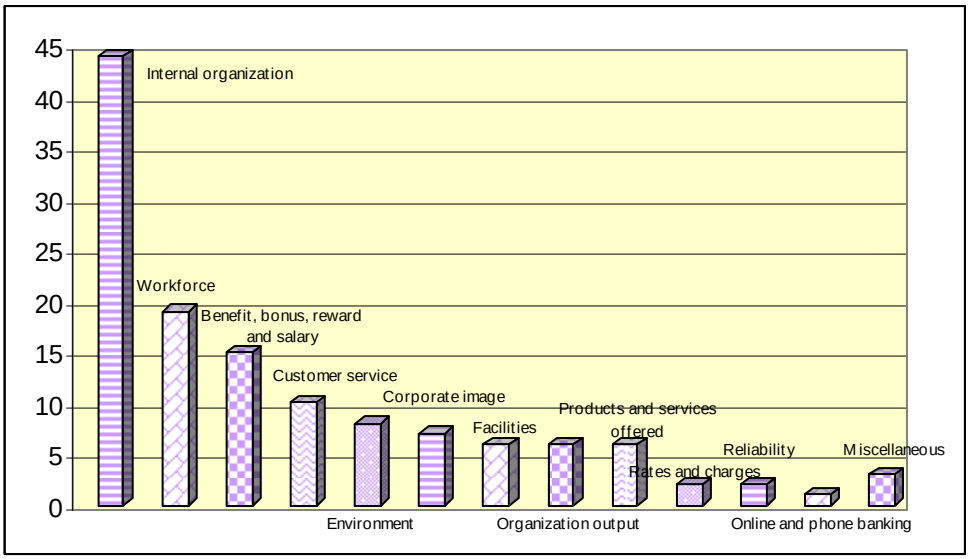
As expected from the previous scholars' findings, responsiveness was the main dimension for customers, while they were less concerned about the integrity and reliability of their preferred bank. In Figure 5.13, the researcher analysed the responses for each dimension by presenting the comparison of positive and negative items. In this matter, only customers' perceptions were considered by referring to Johnston's (1995) study. The negative statements were indicated by customers as dissatisfiers and positive statements as satisfiers. From the respective figure, it seems that there is a balance between dissatisfiers and satisfiers.

Figure 5.13: Frequencies of positive and negative customers' responses in nineteen service attributes



In Figure 5.14, the aspect of internal organization was the priority for the participating employees, while the issue relating to online and phone banking was their last concern.

Figure 5.14: Aspects from employees' responses



In Figure 5.15, it is shown that they were committed to their work more than they cared about the services, products, customers and also the organization.

They also did not worry about the courtesy issue that has been raised by customers, the media and government from time to time. Flexibility of work and the workplace was the last issue to take precedence for them.

Figure 5.15: Attributes from employees' responses

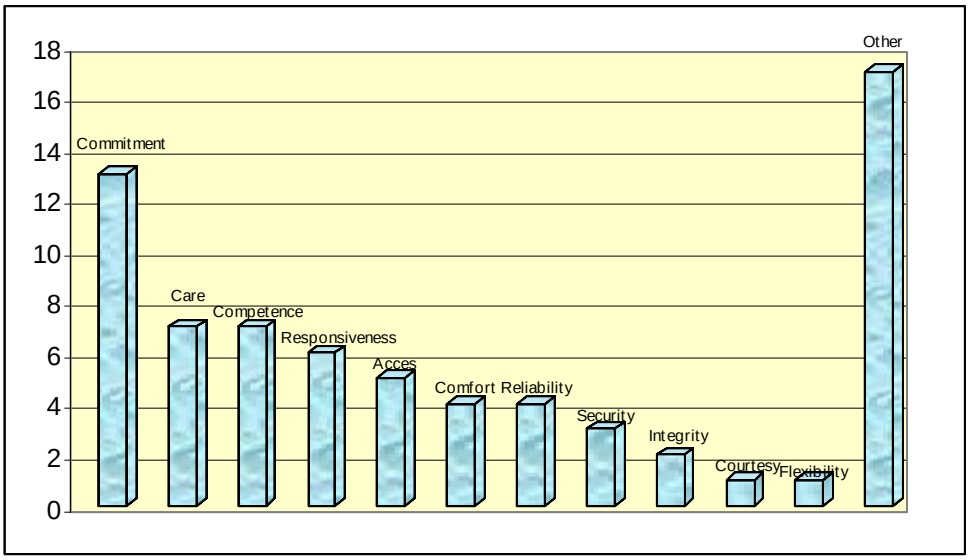
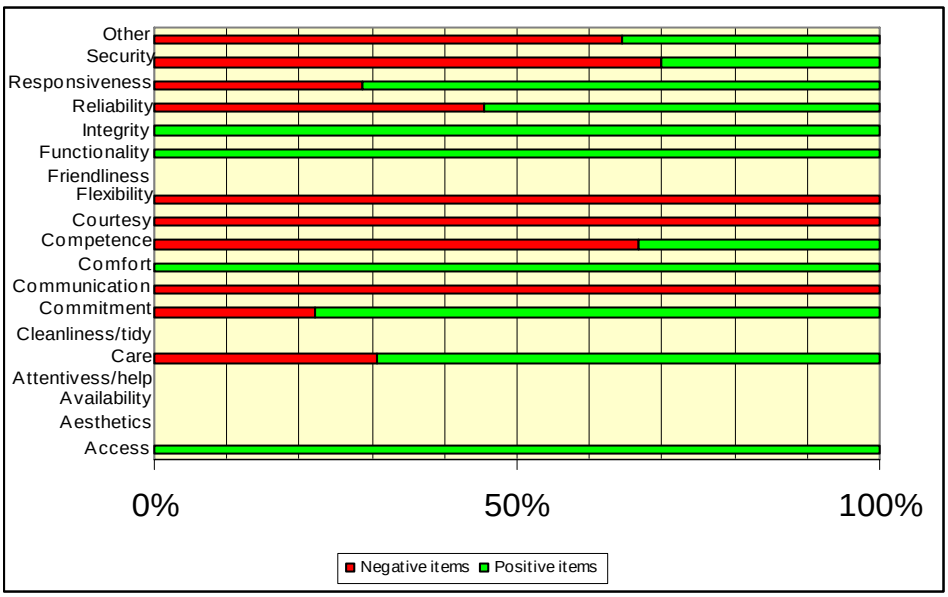


Figure 5.16: Frequencies of positive and negative employees' responses in nineteen service attributes



The meanings of negative and positive items for customers and employees were different. In this case, the dissatisfiers and satisfiers were towards the organization, their workplace. Figure 5.16 presents slightly more dissatisfiers than satisfiers, only concerned with employees' perceptions.

Through this preliminary study, it could be seen that this Profile Accumulation Technique allowed the respondents to answer freely, whether through a single word, short sentences or short essays.

Johns and Lee-Ross (1998) stated that special processing or completion requirements might require different sizes. Typeface (font) and legibility are important and might influence the response rate.

Table 5.10: Colours and questionnaire legibility

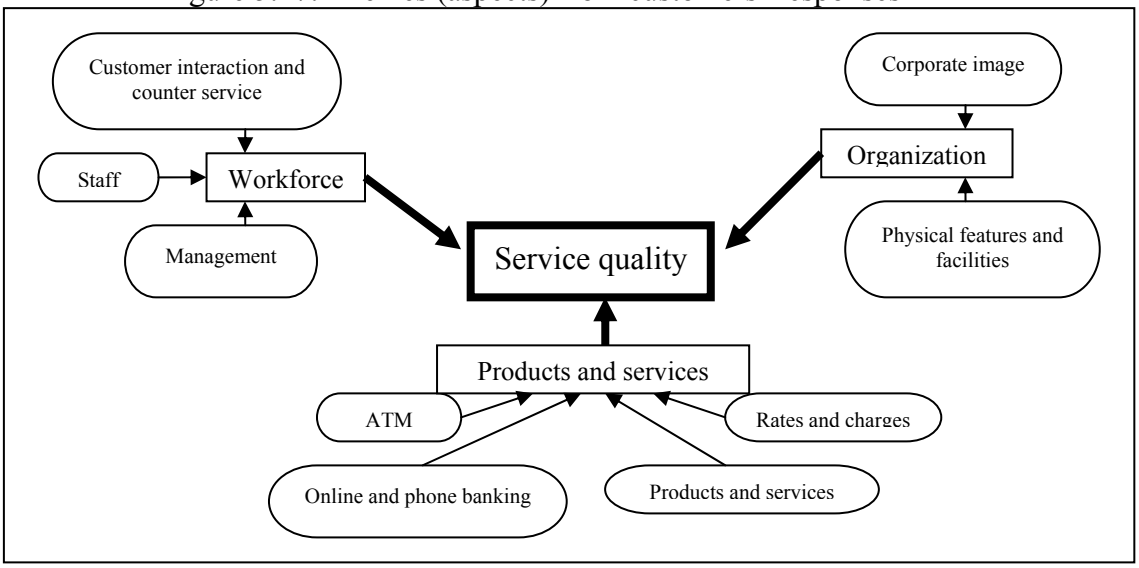
Colour combination	Legibility Loss
Green print on white paper	Slight
Blue print on white paper	Slight
Black print on yellow paper	Slight
Red print on yellow paper	Medium
Red print on white paper	Medium

Source: Johns and Lee-Ross (1998)

Paper quality might improve legibility and increase the chance of forms being returned. Coloured papers and inks might affect legibility, while textured paper conveyed a feeling of quality and status, and hence might increase response rates. From the study in Malaysia, this statement was not supported by the findings. The feedback from respondents and representatives showed that the colour of the paper used (blue, green and pink) and the size of the questionnaire (A5) did not influence the response rate. This happened possibly because

Malaysia is a colourful country, both in terms of culture or environment. Therefore, the questionnaires' colours did not seem noticeable compared to the surroundings. This contradicted the findings of Johns and Lee-Ross (1998). The response rate was influenced by the enumerator; supported by Sureshchandar *et al* (2002), who stated that a high response rate is due to the personal contact approach used, followed by periodic calls over the telephone and personal visits. In fact, most of the respondents did not notice the questionnaires' appearance. This condition cannot be considered as response bias because the representatives did not influence or guide respondents to a certain type of answer. In Malaysia, gracefulness, the way people speak in words and appearances are important features to get close to target respondents

Figure 5.17: Themes (aspects) from customers' responses



Adapted from: Attride-Stirling (2001)

Table 5.11: The arrangement of close-ended questions for bank customer's questionnaire format

No.	Dimension in the preliminary study	Number of items from the responses[a]	No.	Dimension in the survey	Number of item from the literature	Source (Author, year)
1	Automated Teller Machine (ATM)	72	A	Automated Teller Machine (ATM)	5	
2	Corporate image	33	B	Corporate image	17	
3	Customer interaction and customer service	68	C	Customer interaction and customer service	15	
4	Interbank and interbranch network	5				
5	Internal organization	11				
6	Online and phone banking	41	D	Online and phone banking	3	
7	Physical features and facilities	44	E	Physical features and facilities	24	
8	Products and services	28	F	Products and services	27	
9	Rates and charges	28	G	Rates and charges	13	
10	Staff	48	I	Staff	41	
11	Miscellaneous	25				
12			H	Management	39	
	Total	403			184	

Note:
a Items are in positive and negative responses from the customers

Table 5.12: The arrangement of close-ended questions for bank employee's questionnaire format

No.	Dimension in the preliminary study	Number of items from the responses[a]	No.	Dimension in the survey	Number of items from the literature	Source (author, year)
1	Benefit, bonus, reward and salary	26	A	Benefit, bonus, reward and salary	8	
2	Corporate image	7	B	Corporate image	3	
3	Customer service	12	C	Customer service	17	
4	Environment	9				
5	Facilities	13	D	Facilities	11	
6	Internal organization	75	E	Organization	25	
7	Online and phone banking	2				
8	Organization output	7	H	Organization output	2	
9	Products and services	9	I	Products and services offered	7	
10	Rates and charges	1				
11	Religion	4				
12	Workforce	41	J	Workforce	9	
13	Miscellaneous	4				
13			F	Department and branch	4	
14			G	Management	18	
15			K	Myself	29	
	Total	210			133	

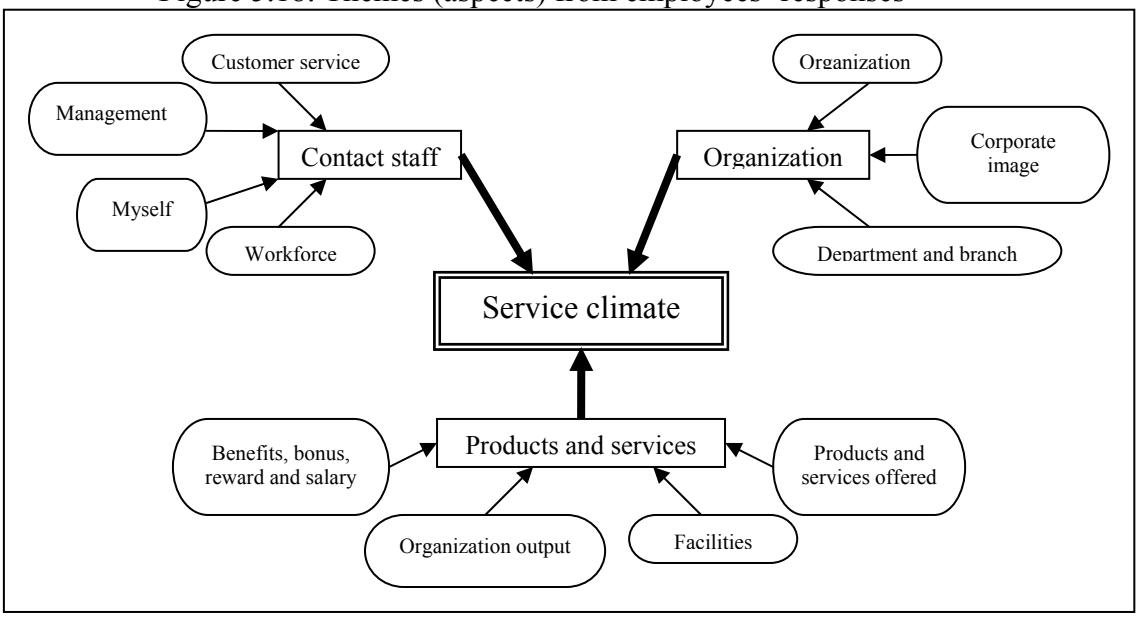
Note:
a Items are in positive and negative responses from the employees

The items for aspects from bank employees' responses were grouped into the eleven dimensions, and for each of the service climate dimensions the perceived performance was derived. Figure 5.17 presents the overall assessment of service quality for the banks selected for the study. From the findings, the researcher had to refer to previous studies by other scholars in the world of literature in order to establish a number of dimensions that might represent the real meaning of service quality in the next phase; close ended questionnaire construction. Therefore, there were several dimensions that needed to be terminated as listed in Table 5.11: interbank and interbranch network; internal organization; miscellaneous. The responses from the respondent customers related to the system between banks, such as MEPS and visa interlink, which could be included under the physical features and facilities aspect. There was one response to be included in the same dimension and one response that could be included under the Automated Teller Machine dimension. Some responses for internal organization could be co-opted into other dimensions, such as under Automated Teller Machine, management and staff. There were twenty five responses that could not be added into any dimension, for instance "boredom", "my own experience" and "willing to pay extra money for better service" because of the ambiguous intent of the respondent as understood by the researcher.

This bank employee survey endeavored to seek the opinion of all of its employees on a wide variety of service climate issues. The responses to questions on employees' opinions of their organization reflected a number of key indicators

of service climate. The items for aspects were grouped into the eleven dimensions, and for each of the service climate dimensions the perceived performance was derived. Figure 5.18 presents the overall assessment of service climate for the banks selected for the study.

Figure 5.18: Themes (aspects) from employees' responses



Adapted from: Attride-Stirling (2001)

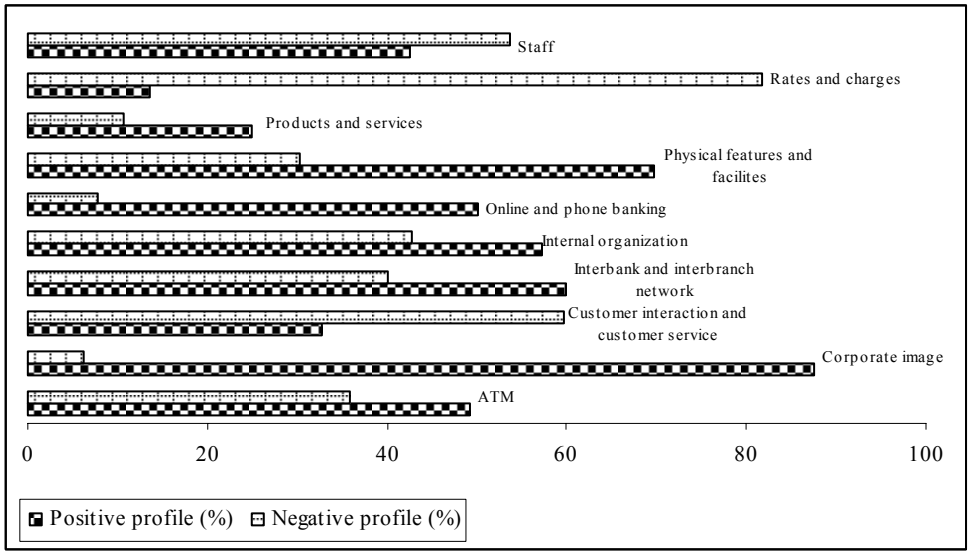
From the results, the researcher needed to establish a number of dimensions that might represent the real meaning of service climate in the next phase; close ended questionnaires were constructed by referring to other previous climate studies. For this reason, several dimensions needed to be deleted: environment; online and phone banking; rates and charges; religion; miscellaneous. Environmental aspects were put under facilities dimensions due to similarity of characteristics. The responses for online and phone banking; rates and charges; religion; miscellaneous were less than five, therefore these dimensions did not appear in the employee's close ended questionnaire.

Table 5.12 represents the results of the arrangement of the responses from the employee's open-ended questionnaire. Attride (2001) proposed a good example in putting together dimensions into models but her model is generic to all cases. In this study, the researcher tried to focus on creating the most suitable model to fit with the research aims and objectives. Three layers of order themes were suggested based on the new arrangement of dimensions in the close-ended questionnaire. The first order theme was service climate, divided into three second level of order themes which were: organization; contact staff; products and services. Consequently, the eleven key measures were divided into those three order themes.

This investigation into a subset of customers: personal bank account holders and personal financees in four organizations not only provided similar results to the broader-based study by Johnston and Silvestro (1990), but gave more pronounced frequencies. This might suggest that for a single organization, although the same factors might apply, a number of the factors are relatively more important than others. The profile suggested by the respondents has ten dimensions which are related to service quality of the participating banks in Malaysia. The profiles dimensions are based on emerging aspects indicated by respondents who evaluated the features at their frequently visited banks. These dimensions were arranged in descending order alphabetically. The positive profiles range from corporate image (87.5%); physical features and facilities (69.7%); interbank and interbranch network (60.0%); internal organization

(57.1%); online and phone banking (50.0%); Automated Teller Machine (49.3%); staff (42.6%); customer interaction and customer service (32.84%); products and services (25.0%); rates and charges (13.6%). Regardless of positive and negative responses, the most mentioned items in the survey by bank customers were Automated Teller Machine; customer interaction and customer service; staff.

Figure 5.19: Positive and negative profile for service quality dimensions

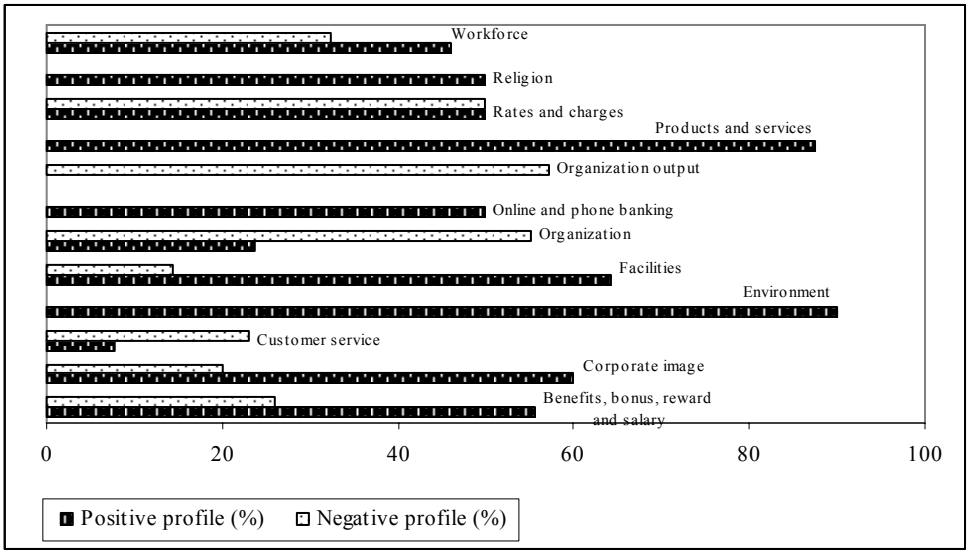


Having considered the positive profile from the responses in the preliminary study, attention now turns to those aspects which were characterised as negative aspects of the profile. The negative profile also has ten dimensions as illustrated in the Figure 5.19. The dimensions in descending order were as follows: rates and charges (81.8%); customer interaction and customer service (59.7%); staff (53.7%); internal organization (42.9%); interbank and interbranch network (40.0%); ATM (35.8%); physical features and facilities (30.2%); products and services (10.7%); online and phone banking (7.9%); corporate image (6.3%). In this case, the three poorest aspects proposed by the respondents were

rates and charges; customer interaction and customer service; staff. 'Unnecessary charges', 'high interest rate for conventional loan' and 'nearly all the services should be paid' are examples categorised as rates and charges. 'Less friendly', 'longer waiting time' and 'incomplete information' are associated to customer interaction and customer service. In addition, items such as 'unattentive', 'certain tellers are inconsiderate' and 'impolite' are examples of staff.

Findings show that there were more positive than negative dimensions pointed out by respondents. Moreover, in comparing the positive and negative dimensions by subtracting positive and negative values, negative balances were found in areas of rates and charges; customer interaction and customer service. The positive differences in other eight dimensions were categorised as no-problem areas while the negative differences were categorised as the potential problem areas, which require the attention of respective parties.

Figure 5.20: Positive and negative profile for service climate dimensions



The profile suggested by the respondents had twelve dimensions related to service climate of the participating banks. The profiles dimensions were based on emerging aspects indicated by respondents who evaluated the features in their organizations. These dimensions in Figure 5.20 were arranged in descending order alphabetically. The positive profiles ranged from environment (90.0%); products and services (87.5%); facilities (64.3%); corporate image (60.0%); benefits, bonus, reward and salary (55.6%); online and phone banking (50.0%); rates and charges (50.0%); religion (50.0%); workforce (46.0%); organization (23.6%); customer service (7.7%). These percentages did not represent the actual number of responses. The most (regardless positive or negative responses) items mentioned from the survey were organization; workforce; benefits, bonus, reward and salary.

Having considered the positive profile from the feedback, interest now turns to those aspects which were classified as negative aspects. The negative profile also has ten dimensions as illustrated in the Figure 5.20. The dimensions in descending order were as follows: organization output (57.1%); organization (55.1%); rates and charges (50.0%); workforce (32.4%); benefits, bonus, reward and salary (25.9%); customer service (23.1%); corporate image (20.0%); facilities (14.3%). The last three poorest aspects proposed by the respondents were organization output; organization; rates and charges. ‘Moderate profit’ and ‘continuous loss’ are examples categorised as organization output. ‘Promotion is limited’, ‘politicking’ and ‘weak management’ are associated to organization. In

addition, an item such as ‘insurance reminder charge is not acceptable’ is an example of rates and charges.

Findings show that there were more positive than negative dimensions pointed out by respondents. Moreover, in comparing the positive and negative dimensions by subtracting positive and negative values, negative balances were found in areas of organization output; organization and customer service. There were nine dimensions categorised as no-problem areas while three negative differences were categorised as the potential problem areas, which demand the interest of particular authorities.

5.4 The main survey

The objective of these sections is to carry out an in-depth analysis of service quality and service climate using the available data from the bank customer and employee survey. The preferred method of analysis varies according to the purpose of the evaluation and the interests of the researcher. This stage aims to determine and evaluate the relationship of service quality and service climate in terms of the variables involved. The level of the analysis that this stage is a continuation from the adaptation of Johns and Lee-Ross’ (1995; 1997) work on the Profile Accumulation Technique with the incorporation of Parasuraman et al’s (1985; 1988) approach and their model.

In this particular stage, the key focus was to analyse the responses of bank customers and bank employees of the four participative banks: Affin Bank, Bank Simpanan Nasional (BSN), Bank Islam and Maybank, to determine and evaluate service quality and service climate, particularly how experiences among the respondents of the groups were constructed and the extent of the relationships affecting their experiences in delivering and receiving services. This study is also concerned with analysis and categorization of interactions and therefore relies on suitable methods. Quantitative measures provide a more comprehensive picture.

For the customer demographic analysis, five main measures were used: gender, age, the highest level of education attained, working sector and duration of being a customer in their frequently visited bank, while the employee demographic section involved only four key measures: gender, age, the highest level of education attained and years of experience working in the banking sector. The service climate and service quality data were examined for evidence of extreme skewness; reliability was checked with the use of Cronbach's Alpha (Cronbach, 1951). Alphas for individual dimensions are displayed in Tables 5.17 to 5.21. Validity analysis involved bivariate correlations between service quality scales, service climate scales and dimensions from both sets.

Performance analysis entailed comparing means of bank customer responses for each bank, both loaners and savers, comparing means across all customers for the nine variables through mean rank scores. Further, comparing

means of bank employee responses for each bank and means across all customers for the eleven variables through mean rank scores. Nonparametric tests used were the Chi square test and Kolmogorov-Smirnov one sample test. Parametric tests used were cross tabulation, paired-samples t-tests; followed by multiple regressions and elaboration analysis. Each measure is described in detail in the relevant following sections.

Figure 5.21: An example of a bank customer from BSN

These questions pertain to quality of your favourite bank/s' services (e.g., ATM; products and servi offered). All statistical reporting will be presented in terms of group data only and individual anonymity is protected.

A. Automated Teller Machine (ATM)	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The services provide by ATM is good.	O	O	O	●	O
Security is guaranteed whenever I use this bank ATM.	O	O	O	O	●
This bank's ATMs always have problems especially during weekends and festive seasons.	O	O	●	O	O

	Very poor	Poor	Average	Good	Very good
Accessible ATM.	O	O	O	●	O
Printing accuracy on slip and clarity appeared on ATM's screen.	O	O	O	●	O

There were steps taken before proceeding to the process of analysing the surveys: the sources of the data were identified - questionnaires from bank customers and bank employees from BSN are given in Figure 5.21 and 5.22 as examples of a portion of the questionnaires; the responses from the surveys in January 2006 were secured; as featured in Figure 5.21 and 5.22, they were then converted into SPSS format, as in the data view shown in Tables 5.13 and 5.14.

Figure 5.22: An example of a bank employee from BSN

These questions pertain to your quality of work life (e.g., customer service; benefits, bonus, reward salary). All statistical reporting will be presented in terms of group data only and individual anonymity is protected.

A. Benefits, bonus, reward and salary	Very poor	Poor	Average	Good	Very good
Opportunity to get a better position in this bank.	O	●	O	O	O
Adequacy of salary.	O	●	O	O	O
Awards and recognition in this bank.	O	●	O	O	O
The performance appraisal process.	O	●	O	O	O
Performance feedback or rewards other than pay or fringe benefits.	O	O	O	●	O
Internal equity or fairness of compensation including salary, hours worked, and fringe benefits.	O	O	●	O	O
External equity (or market competitiveness) of compensation, including salary, hours worked, and fringe benefits.	O	O	●	O	O

Employees are paid enough for the time they spend in public relations for the company (e.g. preparing
for demonstrations).

O	O	●	O	O
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

Table 5.13: An example of bank customer's responses in SPSS format

	CustA1	CustA2	CustA3	CustA4	CustA5
1	4	5	3	4	4
2	4	3	4	4	3
3	5	5	5	5	5
4	4	4	4	4	4
5	9	9	9	9	9
6					

Table 5.14: An example of bank employee's responses in SPSS format

	EmpA1	EmpA2	EmpA3	EmpA4	EmpA5	EmpA6	EmpA7	EmpA8
1	2	2	2	2	4	3	3	3
2	2	3	2	4	3	3	3	3
3	3	4	3	3	3	4	4	4
4	3	3	3	3	3	3	3	3
5	3	2	3	4	4	3	3	3
6								

Then, categories of each dimension were labelled in SPSS data sheets as follows for bank customers: Automated Teller Machine (CustA); corporate image (CustB); customer interaction and customer service (CustC); online and phone banking (CustD); physical features and facilities (CustE); products and services (CustF); rates and charges (CustG); management (CustH); staff (CustI). Dimensions labelled for bank employees were as follows: benefit, bonus, reward and salary (EmpA); corporate image (EmpB); customer service (EmpC); facilities (EmpD); organization (EmpE); department and branch (EmpF); management (EmpG); organization output (EmpH); products and services (EmpI); workforce (EmpJ); myself (EmpK). Lastly, analysis of each dimension was carried out on each group of respondents in which the questionnaires were analysed in order.

5.4.1 Demographic analysis

Sixty five percent of the respondents in the main survey were male and the majority of the respondents were between 20 and 29 years old (refer to Table 5.15). 53.27% of respondents had diplomas and bachelors degrees in their area of interest. They came from various occupational backgrounds and domiciles. The majority, however, were committed to working in private organizations, followed by respondents working in government sectors; all were expected to have several years of working experience.

Table 5.15: Customers' profile

Variables	Affin Bank		BSN		Bank Islam		Maybank	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
GENDER								
Male	14	82.4	52	75.4	46	74.2	88	55.7
Female	3	17.6	16	23.2	16	25.8	69	43.7
Missing	0	0	1	1.4	0	0	1	0.6
Total	**17**	**100.0**	**69**	**100.0**	**62**	**100.0**	**158**	**100.0**
AGE								
Below than 20 years old	0	0	1	1.4	4	6.5	18	11.4
20-29 years old	14	82.4	36	52.2	30	48.4	100	63.3
30-39 years old	3	17.6	21	30.4	14	22.6	27	17.1
40-49 years old	0	0	11	15.9	10	16.1	8	5.1
50-59 years old	0	0	0	0	4	6.5	5	3.2
Missing	0	0	0	0	0	0	0	0
Total	**17**	**100.0**	**69**	**100.0**	**62**	**100.0**	**158**	**100.0**
EDUCATION								
Postgraduate	2	11.8	16	23.1	11	17.8	17	10.7
Bachelor Degree	5	29.4	24	34.8	16	25.8	72	45.6
Diploma	7	41.2	6	8.7	11	17.7	22	13.9
STPM, SPM and equivalent	2	11.8	20	29	22	35.4	46	29.1
Other	1	5.9	1	1.4	1	1.6	1	0.6
Missing	0	0	2	2.9	1	1.6	0	0
Total	**17**	**100.0**	**69**	**100.0**	**62**	**100.0**	**158**	**100.0**
WORKING SECTOR								
Government	4	23.5	17	24.6	20	32.3	48	30.4
Corporation	0	0	1	1.4	2	3.2	9	5.7
Private	4	23.5	20	29.0	24	38.7	51	32.3
Self-employed	3	17.6	14	20.3	12	19.4	13	8.2
Other	6	35.3	9	13.0	4	6.5	22	13.9
Missing	0	0	8	11.6	0	0	15	9.5
Total	**62**	**100.0**	**62**	**100.0**	**62**	**100.0**	**158**	**100.0**

The sample involved in this study was a group of individuals with several years of service experience with their frequently visited bank. Figures 5.23, 5.24 and 5.25 show the charts of duration (in years) of being a customer with their frequently visited bank. In Figure 5.23, Maybank shows a comparatively high number of respondents in all categories. There were no respondents who had been customers between six and fourteen years for the Affin Bank.

Figure 5.23: Customers of the participating banks

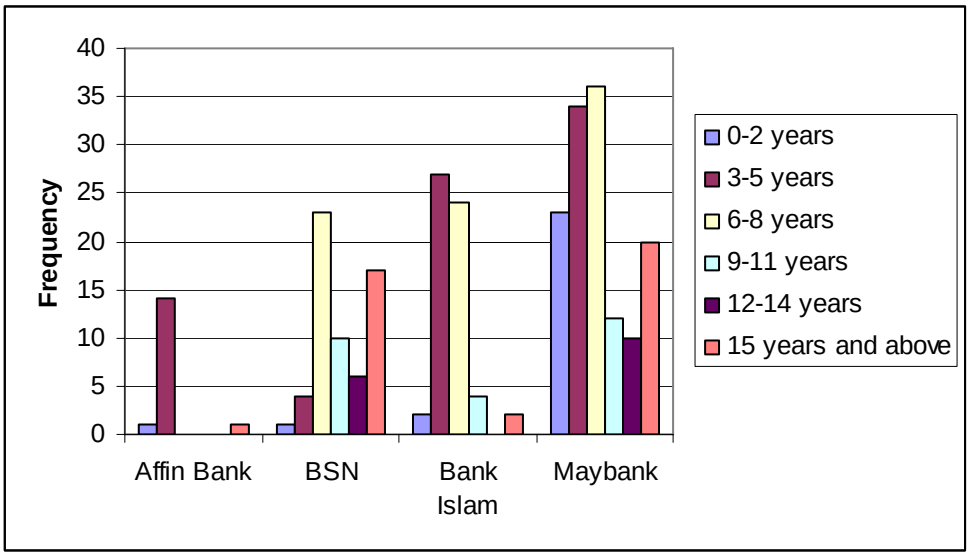
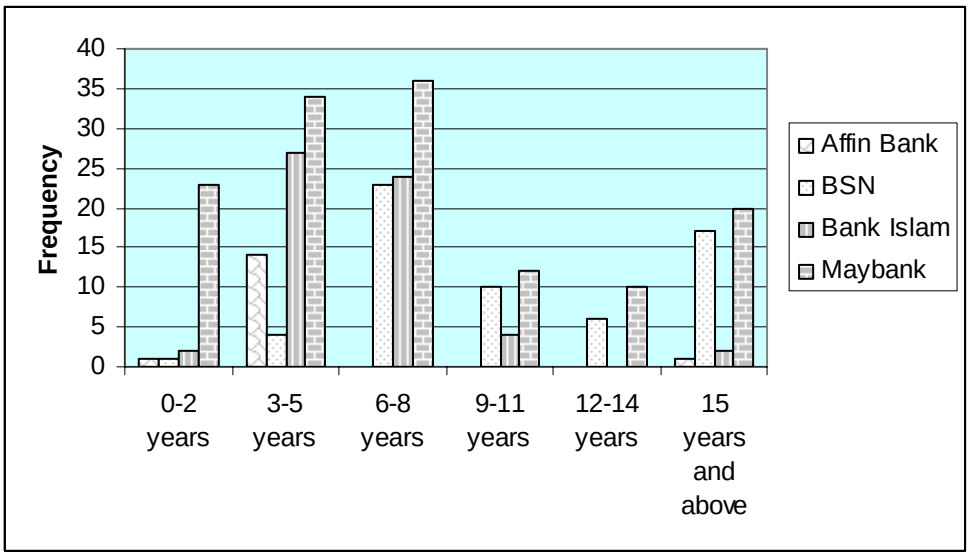


Figure 5.24: Frequency distribution of respondents by each bank



In Figure 5.24, the majority of the respondents had been with the bank for six to eight years, followed by three to five years. The number of respondents for 0-2 years was too small. In figure 5.25, a comparison has been made between loaner and saver respondents. The chart clearly shows that the relationship (in years) between the savers and their participative banks was longer standing

compared to the loaners in all categories. Numbers of respondents were lower for both loaners and savers for the categories of 9-11 years and 12-14 years.

Figure 5.25: Frequency distribution of loaners and savers

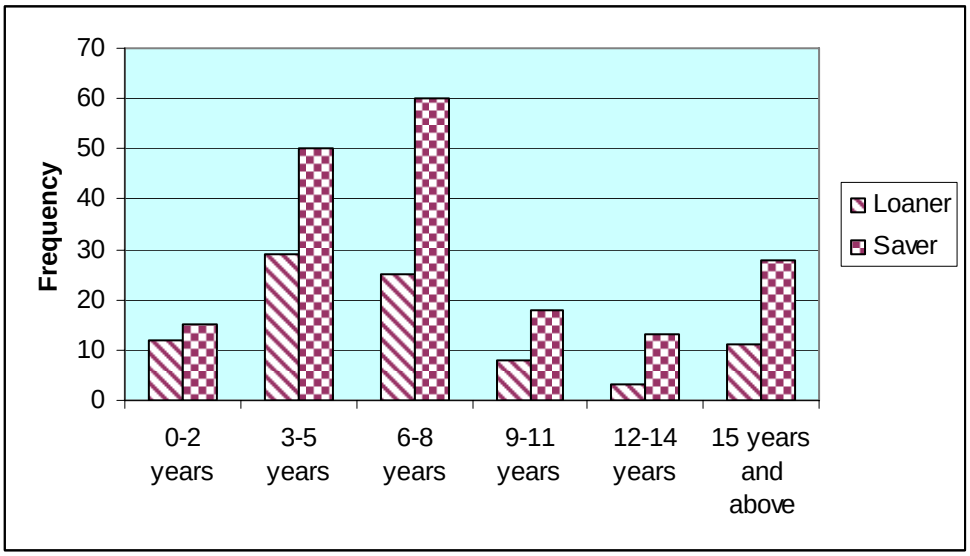


Table 5.16: Employees' profile

Variables	BSN		Bank Islam		Maybank	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
GENDER						
Male	8	47.1	43	66.2	13	23.2
Female	9	52.9	20	30.8	37	66.1
Missing	0	0	2	3.1	6	10.7
Total	**17**	**100.0**	**65**	**100.0**	**56**	**100.0**
AGE						
Below than 20 years old	0	0	0	0	0	0
20-29 years old	9	52.9	26	40.0	22	39.3
30-39 years old	6	35.3	28	43.1	19	33.9
40-49 years old	2	11.8	7	10.8	6	10.7
50-59 years old	0	0	3	4.6	2	3.6
Missing	0	0	1	1.5	7	12.5
Total	**17**	**100.0**	**65**	**100.0**	**56**	**100.0**
EDUCATION						
Postgraduate	17	100	7	10.8	2	3.6
Bachelor Degree	0	0	35	53.8	9	16.1
Diploma	0	0	9	13.8	7	12.5
STPM, SPM and equivalent	0	0	13	20	30	53.6
Other	0	0	0	0	1	1.8
Missing	0	0	1	1.5	7	12.5
Total	**17**	**100.0**	**65**	**100.0**	**56**	**100.0**
YEARS OF EXPERIENCE IN BANKING						

1-5 years	4	23.5	25	38.5	12	21.4
6-10 years	13	76.5	16	24.6	15	26.8
11-20 years	0	0	12	18.4	12	21.4
21-25 years	0	0	2	3.1	4	7.1
26 years and above	0	0	4	6.2	3	5.4
Missing	0	0	6	9.2	10	17.9
Total	**17**	**100.0**	**65**	**100.0**	**56**	**100.0**

Affin Bank refused to take part in the survey, therefore only three banks participated. Table 5.16 presents the information from participating employees in the form of gender, age, education and length of tenure in the banking sector. Genders of participative bank employees in the main survey were distributed in approximately the same ratio (46 for male and 47% for female). The majority of the respondents were between 20 and 39 years old. 43.47% of respondents had diplomas and bachelors degrees in their area of interest. 31.16% had STPM, SPM and equivalent certificates. The two largest groups of respondents in terms of years of experience in the banking sector were as follows: 29.17% had 1-5 years and 31.88% had 6-10 years of experience. Less than ten percent of the respondents had experience of more than 26 years.

Bank Islam's employees seemed more competitive in terms of education and years of experience. It seemed that Bank Islam preferred to engage young employees compared to Maybank and Bank Simpanan Nasional (BSN). Missing values in all cases have been excluded from the analysis. Deletion was based on all variables.

5.4.2 Reliability analysis

Reliability and item analysis may be used to construct reliable measurement scales, to improve existing scales and to evaluate the reliability of scales already in use. Specifically, reliability and item analysis aid in the design and evaluation of sum scales, that is, scales that are made up of multiple individual measurements (e.g., different items, repeated measurements, different measurement devices, etc.). The assessment of scale reliability is based on the correlations between the individual items or measurements that make up the scale, relative to the variances of the items. Cronbach alpha was used because reliability is actually estimated from the consistency of all items in the sum scales; the reliability coefficient computed in this manner is referred to as internal-consistency reliability.

Table 5.17: Cronbach alpha for variables of each bank

Variables	Affin	BSN	Bank Islam	Maybank
A. ATM	0.722	0.769	**0.643**	0.820
B. Corporate image	0.839	0.939	0.809	0.895
C. Customer interaction and customer service	**0.484**	0.864	0.701	0.806
D. Online and phone banking	**0.640**	0.804	0.797	**0.626**
E. Physical features and facilities	0.921	0.939	0.905	0.918
F. Products and services	0.952	0.962	0.888	0.933
G. Rates and charges	0.968	0.941	0.892	0.893
H. Management	0.990	0.979	0.955	0.970
I. Staff	0.937	0.973	0.963	0.965
Alpha	0.980	0.993	0.979	0.987

* Space saver method is used. That is, the covariance matrix is not calculated or used in the analyses.

This test of reliability builds on the logic of the split half method. An alpha of 0.70 and above is normally considered to indicate a reliable set of items (Vaus, 2002). Of the internal consistency measures Cronbach's alpha is the most widely used and is the most suitable. The strength of alpha is that it provides the most thorough analysis of patterns of internal inconsistency.

Table 5.18: Cronbach alpha for variables of loaner and saver

Variables	Loaner	Saver
A. ATM	0.706	0.793
B. Corporate image	0.873	0.904
C. Customer interaction and customer service	0.723	0.811
D. Online and phone banking	0.768	**0.675**
E. Physical features and facilities	0.895	0.927
F. Products and services	0.930	0.940
G. Rates and charges	0.909	0.903
H. Management	0.952	0.977
I. Staff	0.944	0.967
Alpha	0.979	0.989

* Space saver method is used. That is, the covariance matrix is not calculated or used in the analyses.

From the above Table 5.17, there are several dimensions for the customers (e.g. Automated Teller Machine, customer interaction and customer service, online and phone banking) that do not fulfil the rule of this method; but when the researcher evaluated the reliability for the variables of all customers, as presented in Table 5.19, the figures of alpha were shown to be more than 0.70. To conclude, all variables were reliable as a set of items in this study.

Table 5.19: Cronbach alpha for variables of all customers

Variables	
A. ATM	0.774
B. Corporate image	0.900
C. Customer interaction and customer service	0.795
D. Online and phone banking	0.701
E. Physical features and facilities	0.920
F. Products and services	0.938
G. Rates and charges	0.908
H. Management	0.972
I. Staff	0.966
Alpha	0.988

* Space saver method is used. That is, the covariance matrix is not calculated or used in the analyses.

Table 5.20 presents the reliability analysis results for bank employees of each of the participative banks. There were five variables that did not meet the requirements of reliability. Referring to Table 5.21, only two variables (corporate image, department and branch) were not reliable. The researcher did not abandon

those two variables because the main study was a sequential stage from the preliminary study. The eleven variables listed have been strengthened by the findings from the preliminary results.

Table 5.20: Cronbach alpha for variables of each bank

Variables	BSN	Bank Islam	Maybank
A. Benefit, bonus, reward and salary	**0.635**	0.917	0.796
B. Corporate image	**0.136**	**0.493**	**0.418**
C. Customer service	0.909	0.902	0.907
D. Facilities	0.869	0.890	0.904
E. Organization	0.823	0.916	0.870
F. Department and branch	**0.108**	**0.601**	**0.526**
G. Management	0.811	0.878	0.951
H. Organization output	0.964	0.834	0.874
I. Products and services	0.702	0.706	**0.505**
J Workforce	**0.393**	**0.694**	0.831
K. Myself	0.916	0.899	0.913
Alpha	0.951	0.974	0.979

* Space saver method is used. That is, the covariance matrix is not calculated or used in the analyses.

Table 5.21: Cronbach alpha for variables of all employees

Variables	
A. Benefit, bonus, reward and salary	0.879
B. Corporate image	**0.433**[a]
C. Customer service	0.908
D. Facilities	0.893
E. Organization	0.901
F. Department and branch	**0.540**[b]
G. Management	0.917
H. Organization output	0.874
I. Products and services	0.660
J Workforce	0.762
K. Myself	0.906
Alpha	0.976
Alpha is the (bold) item is deleted	0.921[a]
	0.926[b]
	0.917[c]

* Space saver method is used. That is, the covariance matrix is not calculated or used in the analyses.

If the particular variables (corporate image – noted as a); department and branch – noted as b) in Table 5.21 had been abandoned in this study, it might only have had a very small effect on the total alpha; if the researcher had dropped the corporate image variable, the total alpha would have been 0.921. If those two

variables had been discarded, the new alpha would have been 0.917, implying a deviation of only 0.059. As a final point, if either one or two particular service climate variables had been dropped in this study, it would not have made a big impact on the number of alpha and it can be considered to indicate a reliable set of items.

5.4.3 Validity analysis

The researcher was interested in the correlations among multiple variables in the data set. In order to fulfil this research objective, bivariate correlations is the most suitable technique to see the strength or weakness of a relationship between independent and dependent variables involved either in one or both the data sets of service quality and service climate.

The SPSS package computes the Pearson correlation coefficient, an index of effective size. The index ranges in value from -1 to +1. This coefficient indicates the degree to which low or high scores for one variable tend to go with low or high scores for another variable. A score on a variable is a low (or high) score to the extent that it falls below (or above) the mean score on that variable. The overall bank customer and employee data were parametric (Vaus, 2002) and so Pearson's correlation could be applied. Almost always the researcher applies two-tailed tests, which is the default. Two tailed tests were used because a relationship was expected between two variables (e.g. benefits, bonus, salary and

Table 5.22: Bivariate correlations among service quality scales for customer

		Automated Teller Machine	Corporate image	Customer interaction and customer service	Online and phone banking	Physical features and facilities	Products and services	Rates and charges	Management	Staff
Corporate image	Pearson correlation	0.508*	1.000							
	Bonferroni coefficient	0.01								
	N	260	261							
Customer interaction and customer service	Pearson correlation	0.439*	0.775*	1.000						
	Bonferroni coefficient	0.01	0.02							
	N	239	229	240						
Online and phone banking	Pearson correlation	0.415*	0.596*	0.619*	1.000					
	Bonferroni coefficient	0.01	0.02	0.02						
	N	268	258	235	270					
Physical features and facilities	Pearson correlation	0.613*	0.583*	0.601*	0.552*	1.000				
	Bonferroni coefficient	0.02	0.02	0.02	0.02					
	N	218	210	198	217	220				
Products and services	Pearson correlation	0.632*	0.757*	0.721*	0.636*	0.764*	1.000			
	Bonferroni coefficient	0.02	0.02	0.02	0.02	0.02				
	N	254	246	226	252	211	255			
Rates and charges	Pearson correlation	0.379*	0.597*	0.673*	0.499*	0.576*	0.670*	1.000		
	Bonferroni coefficient	0.01	0.02	0.02	0.01	0.02	0.02			
	N	259	249	228	258	210	247	261		
Management	Pearson correlation	0.529*	0.582*	0.523*	0.470*	0.524*	0.692*	0.407*	1.000	
	Bonferroni coefficient	0.01	0.02	0.01	0.01	0.01	0.02	0.01		
	N	254	239	240	247	205	238	241	265	
Staff	Pearson correlation	0.528*	0.616*	0.575*	0.604*	0.559*	0.693*	0.486*	0.528*	1.000
	Bonferroni coefficient	0.01	0.02	0.02	0.02	0.02	0.02	0.01	0.01	
	N	279	261	240	270	220	255	261	265	301

*Correlation is significant at the 0.01 level (2-tailed)

Table 5.23: Bivariate correlations among service climate scales for employee

		Benefit, bonus, reward and salary	Corporate image	Customer service	Facilities	Organization	Department and branch	Management	Organization output	Products and services	Workforce	Myself
Corporate image	Pearson correlation	0.366*	1.000									
	Bonferroni coefficient	0.01										
	N	127	129									
Customer service	Pearson correlation	0.531*	0.761*	1.000								
	Bonferroni coefficient	0.01	0.01									
	N	121	123	123								
Facilities	Pearson correlation	0.619*	0.475*	0.615*	1.000							
	Bonferroni coefficient	0.01	0.01	0.01								
	N	125	123	119	126							
Organization	Pearson correlation	0.679*	0.652*	0.810*	0.663*	1.000						
	Bonferroni coefficient	0.01	0.01	0.01	0.01							
	N	120	121	117	117	122						
Department and branch	Pearson correlation	0.505*	0.469*	0.577*	0.406*	0.691*	1.000					
	Bonferroni coefficient	0.01	0.01	0.01	0.01	0.01						
	N	129	128	123	126	121	132					
Management	Pearson correlation	0.550*	0.503*	0.645*	0.623*	0.722*	0.645*	1.000				
	Bonferroni coefficient	0.01	0.01	0.01	0.01	0.01	0.01					
	N	123	123	119	121	119	124	125				
Organization output	Pearson correlation	0.379*	0.623*	0.739*	0.452*	0.638*	0.374*	0.472*	1.000			
	Bonferroni coefficient	0.01	0.01	0.01	0.01	0.01	0.01	0.01				
	N	128	129	123	124	122	130	124	131			
Products and services	Pearson correlation	0.392*	0.595*	0.765*	0.542*	0.728*	0.366*	0.504*	0.694*	1.000		
	Bonferroni coefficient	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01			
	N	126	127	122	123	121	128	123	129	129		
Workforce	Pearson correlation	0.632*	0.607*	0.642*	0.561*	0.774*	0.714*	0.839*	0.536*	0.545*	1.000	
	Bonferroni coefficient	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01		
	N	123	123	119	121	118	126	121	125	124	126	
Myself	Pearson correlation	**0.165**	0.446*	0.451*	0.407*	0.455*	0.303*	0.562*	0.273*	0.477*	0.439*	1.000
	Bonferroni coefficient	**0.03**	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
	N	**122**	122	117	119	117	123	120	123	123	120	124

*Correlation is significant at the 0.01 level (2-tailed)

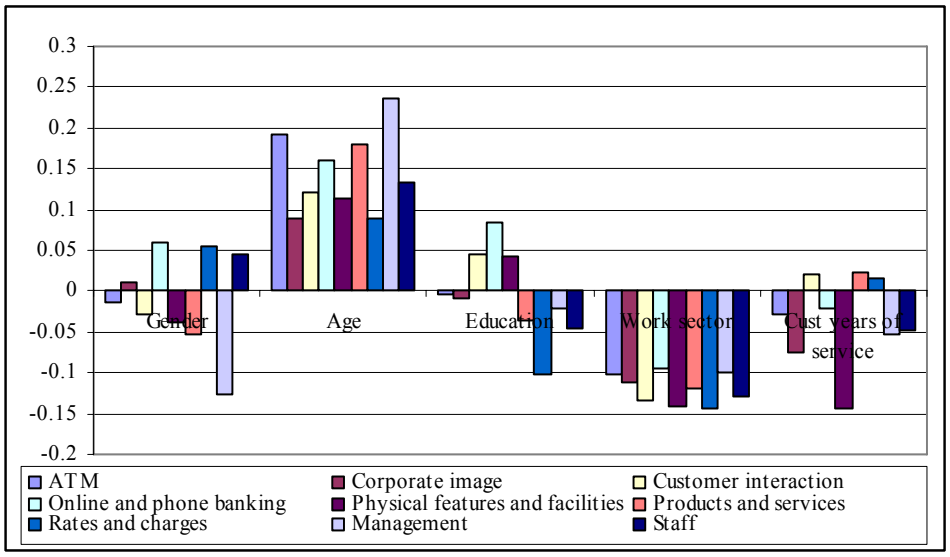
reward with corporate image for employees) but the direction of the relationship was not predicted.

Table 5.24: Bivariate correlations between service quality and service climate

		Service climate	Service quality
Service climate	Pearson Correlation	1	.064
	Sig. (2-tailed)	.	.506
	N	134	110
Service quality	Pearson Correlation	.064	1
	Sig. (2-tailed)	.506	.
	N	110	256

In this study, the Pearson correlation coefficients among variables within a data set (e.g. bank customers) were calculated. As for bank customers, the SPSS data file included the nine service quality variables for the 179 cases. There were 102 cases for bank employees that had been included for the same analysis, which involved eleven main service climate variables. The results of the correlational analyses are shown in Table 5.22 for service quality scales, Table 5.23 for service climate scales and Table 5.24 presents the bivariate correlations between service quality and service climate dimensions. The correlation asterisks (*) indicate the particular correlations which are significant at the 0.01 level, *p* values associated with the significance tests for these correlations and sample size (*N*). A positive sign before a bivariate correlations indicate a negative relationship; and a negative sign correspondingly indicates a positive relationship. This was an effect of converting the negatively skewed distributions to positively skewed distributions before making square root transformations.

Figure 5.26: Pearson correlation of customer's profile and service quality scales

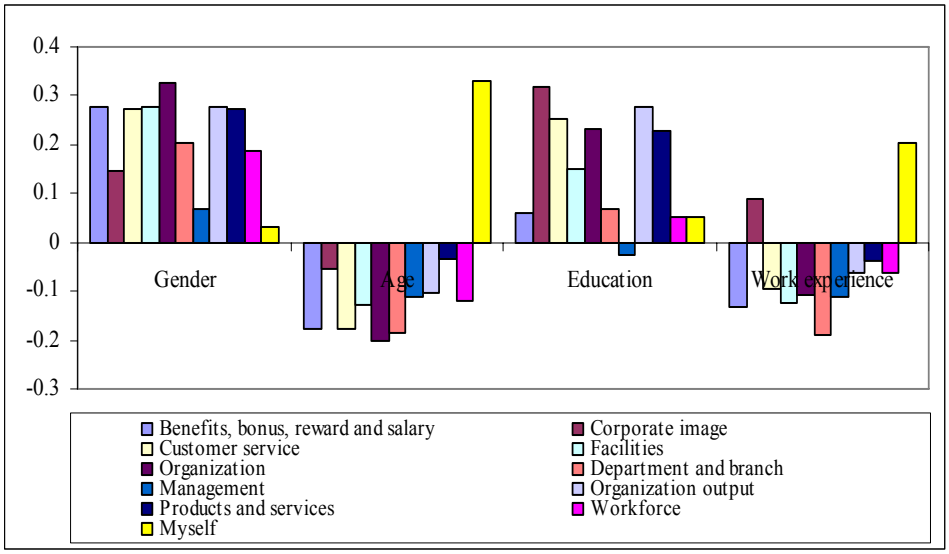


The above Figure 5.26 presents statistically bivariate correlations between gender, age, education, work sector and number of years as customers with their frequently visited banks. It indicated that information for customers with online and phone banking may be more correlated (either positively or negatively) than other dimensions of service quality, followed by management, products and services and the least correlated scale was rates and charges. Correlation coefficients were computed among the nine service quality concept scales. Using the Bonferroni approach to control for Type I error across the 36 correlations, a *p* value of less than .005 divided by 36 can be declared significant. For instance, the correlation between ATM and corporate image was significant, $r(258) = .508$, $p<0.01$. Degrees of freedom, $r = N - 2$. To conclude, all correlations were statistically significant for the bank customer data.

It was interesting to determine the correlations between all possible pairs of variables, that is to say, thirty six correlations for bank customers and fifty five

for bank employees. Figure 5.27 presents as statistically significant the same correlation between gender, age, education and length of tenure of employees. Participative employee with myself was highly correlated (either positively or negatively), followed by products and services; corporate image; benefits, bonus, reward and salary would be the least correlated on the service climate dimension scale.

Figure 5.27: Pearson correlation of employee's profile and service climate scales



Another example, the correlation between benefits, bonus, reward and salary with corporate image was significant, $r(125) = .366$, $p<0.01$. In general, all correlations were statistically significant for the bank employee data, except for between benefits, bonus, reward and salary with the 'myself' dimension.

5.4.4 Performance Analysis

The raw scores for the perceived level of excellence were on a scale from 1 (e.g. strongly disagree) to 5 (e.g. strongly agree) for a number of attributes considered of importance to the respondents; employees and customers. This section forms a logical basis for formulating strategies and tactics to ensure consistent experiences, thus enhancing positive evaluation. The aspects were grouped into the nine dimensions, and for each of the service quality dimensions the average perceived performance was derived. Tables 5.25 to 5.27 present the overall assessment of service quality for the participative banks in this study.

Table 5.25: Variable mean scores for each bank

Dimension	Affin Bank	Rank	BSN	Rank	Bank Islam	Rank	Maybank	Rank
ATM	3.3000	5	3.6647	1	3.6958	2	3.6494	1
Corporate image	3.4132	2	3.4359	6	3.5555	4	3.4943	3
Customer interaction and customer service	3.2540	7	3.4960	4	3.3536	8	3.4371	7
Online and phone banking	3.1845	8	3.3210	9	3.9627	1	3.3604	8
Physical features and facilities	3.2791	6	3.5404	3	3.4376	7	3.5185	2
Products and services	3.3339	4	3.4747	5	3.5000	6	3.4717	4
Rates and charges	3.1250	9	3.3293	8	3.2053	9	3.3557	9
Management	3.4784	1	3.5447	2	3.6568	3	3.4536	6
Staff	3.3950	3	3.3964	7	3.5066	5	3.4553	5

Note:
1. Scores indicated are mean values on a seven-point scale. The higher the scores, the more favourable is the customer's perception of the particular aspect.
2. 1 is the top, 9 is the bottom.

In Table 5.25, all customers had an overall positive perception of service quality (M_{Affin}=3.3070; M_{BSN}=3.4670; $M_{Bank\ Islam}$=3.5415; $M_{Maybank}$=3.4662). Bank Islam showed the highest overall mean compared to the other three local participating banks. As for Affin Bank, the three service quality dimensions of management, corporate image and staff were the most positively scored in the

survey, while rates and charges issues scored least positively. ATM was the most positively scored dimension by BSN and Maybank, while rates and charges was the least positively scored service quality dimension by Bank Islam and Maybank.

Table 5.26: Variable mean scores for loaners and savers

Aspects	Loaner	Saver
ATM	3.300	3.6647
Corporate image	3.4132	3.4359
Customer interaction and customer service	3.2540	3.496
Online and phone banking	3.1845	3.3210
Physical features and facilities	3.2791	3.5404
Products and services	3.3339	3.4747
Rates and charges	3.1250	3.3293
Management	3.4784	3.5447
Staff	3.3950	3.3964

Note: scores indicated are mean values on a five-point scale. The higher the scores, the more favourable is the customer's perception of the particular aspect.

From the loaners' point of view, as presented in Table 5.26, a total of 66.7 percent of respondents perceived that management were able to communicate with customers in a way they would understand (M=3.8222); approximately 43.8 percent of respondents agreed/strongly agreed that their banks offered lower interest for deposits (M=3.5281) as the most rated item for rates and charges. In contrast the savers' opinion was that ATM was the most rated dimension for service quality and 42.3 percent of respondents assessed ease of getting through to the branch on the telephone (M=3.3333) as the item that contributed to the least positively scored dimension.

As can be seen from Table 5.27, all participating customers rated ATM as the best issue to be highlighted in the survey, followed by management, corporate image, physical features and facilities, while online and phone banking seemed to

be the least important aspect in their consideration. Customers had an overall positive perception of service quality (*M* = 3.4475). The three service quality dimensions of Automated Teller Machine, management, physical features and facilities were the most positively scored in the survey, while online phone and banking issues scored least positively. Detailed findings of note from the individual dimensions in descending order of service quality strength were as follows:

Table 5.27: Customer perceptions of service quality

Dimensions respondents perceptions of …	Mean	Rank	Percent disagree/strongly disagree[a]	Percent neither agree nor disagree[a]	Percent agree/strongly agree[a]
ATM	3.6408	1	8.7	14.0	77.5
Corporate image	3.4897	4	9.0	3.1	88.0
Customer interaction and customer service	3.3952	7	7.4	6.3	86.3
Online and phone banking	3.2673	9	20.3	24.8	54.8
Physical features and facilities	3.4967	3	11.2	4.5	84.6
Products and services	3.4699	5	8.4	5.9	85.5
Rates and charges	3.3127	8	17.2	20.3	62.3
Management	3.5054	2	11.0	31.7	57.4
Staff	3.4495	6	9.9	30.9	59.1
Respondents estimate of their evaluation of the service provided by their organization			Percent worse/far worse than they expected	Percent about what they expected	Percent better/far better than they expected

Note: [a] Owing to rounding, category percentages do not total one hundred percent

(a) *ATM* : 70.8 percent agreement/strong agreement that the services provided by ATMs was good (*M*=3.8826), making this the highest rated item in the aggregated findings. A total of 64.2 percent felt that ATMs provided by their frequently visited bank were accessible (*M*=3.7214) and 49.9 percent felt that their bank's ATMs always had problems, especially during weekends and festive seasons (*M*=3.4982).

(b) *Management* : 59.8 percent of agreement was found on the ability of the bank's management to communicate with customers in a way that they would understand (*M*=3.7066) and their neat appearance when working at the counter (*M*=3.6768), while 56.8 percent of respondents felt that honesty and trustworthiness were important in delivering their services (*M*=3.6255). Although management's expression of genuine concern if there had been a mistake in the respondents' account recorded the lowest mean (*M*=3.3140); this item only attracted 36 percent of customers' agreement.

(c) *Physical features and facilities*: Just over 59 percent of respondents agreed/strongly agreed that physical safety, e.g. CCTV, was provided by their frequently visited bank (*M*=3.7952) and 24.4 percent felt that computer system errors did influence service performance (*M*=3.1199).

(d) *Corporate image*: Approximately 60 percent of respondents agreed/strongly agreed that their bank performs the service right the first time (*M*=3.6797) and nearly 55 percent perceived that their bank is honest in delivering the services (*M*=3.6020). A total of 54.2 percent believed that the banks made a contribution to society (*M*=3.5757). In contrast, only 42.9 percent agreed/strongly agreed that there were opportunities for customers to become part-owners (*M*=3.3498).

(e) *Products and services*: 61.2 percent of respondents agreed/strongly agreed that deposits were guaranteed to be secure (*M*=3.6756) and 53.8 percent felt that the availability of an enquiries desk provided by the banks was good/very good (*M*=3.5788). However, only 28.7 percent viewed direct debit timing errors to be

good/very good, while 61.9 percent perceived that this was no more than average (*M*=3.1940).

(f) *Staff*: 66.8 percent viewed that staff neat appearance while working at the counter was good/very good (*M*=3.6755), with only 6.3 percent disagreeing. In total, 58.7 percent reported that their ability to communicate with customers in a way that they would understand was good/very good (*M*=3.6433), and 33.3 percent said that the staff kept them informed about matters of concern to them (*M*=3.1933).

(g) *Customer interaction and customer service*: 67.8 percent trusted the banks' confidentiality of transactions (*M*=3.8154), while 56.9 percent perceived that there was some respect for privacy of the respondents' financial affairs when they dealt with the bank (*M*=3.6512) but only 25.5 percent agreed/strongly agreed that employees had worked there long enough to know and recognise customers (*M*=2.8244).

(h) *Rates and charges*: Almost 41 percent of respondents agreed/strongly agreed that the cost of the services offered by participative banks was reasonable (*M*=3.4139) but only 32.2 percent agreed/strongly agreed that their bank offered low interest on loans (*M*=3.2161).

(i) *Online and phone banking*: 41.3 percent of respondents reported ease of getting through to the branch on the telephone (*M*=3.3274) and 36.5 percent said that it was easy to get through to the bank either via email or telephone (*M*=3.1960).

Table 5.27 provides summaries of the rankings across dimensions for service quality for comparison between the four local participating banks in Malaysia. The respondent customers for Affin Bank and BSN did have the same opinion of the most rated dimension, which was management, and ATM for Bank Islam and Maybank. Online and phone banking was the least important aspect for BSN and Bank Islam respondents; Affin Bank and Maybank's respondents agreed that rates and charges was the least aspect to be highlighted in the survey. To sum up, the three service quality dimensions of myself, corporate image and customer service were the most positively scored in the survey, while benefit, bonus, reward and salary issues scored least positively.

Table 5.28: Variables' mean scores and rank of each bank

Aspects	BSN	Rank	Bank Islam	Rank	Maybank	Rank
Benefit, bonus, reward and salary	3.1912	11	2.9494	11	3.3486	11
Corporate image	3.6470	3	3.7952	1	4.0511	1
Customer service	3.5536	4	3.6834	3	3.8394	2
Facilities	3.3850	6	3.3773	8	3.5854	7
Organization	3.3321	8	3.3338	9	3.5579	8
Department and branch	3.7706	1	3.6359	4	3.6457	6
Management	3.4267	5	3.4673	5	3.3706	9
Organization output	3.2059	10	3.4127	7	3.7059	4
Products and services	3.3529	7	3.4286	6	3.6639	5
Workforce	3.3043	9	3.2675	10	3.3528	10
Myself	3.7200	2	3.7251	2	3.8216	3

Note:
1. Scores indicated are mean values on a seven-point scale. The higher the scores, the more favourable is the customer's perception of the particular aspect.
2. 1 is the top, 9 is the bottom.

The attributes were grouped into the eleven dimensions, and for each of the service climate dimensions the average perceived performance was derived. Tables 5.28 and 5.29 present the overall assessment of service climate for the study.

It was quite surprising that the employee respondents had the same opinion of the least rated dimension, which was benefit, bonus, salary and reward, as did the participating customers (see Table 5.28). As for Bank Islam and Maybank, the collective results showed that corporate image received the highest positive score and, contrary to BSN, this resulted in department and branch as the most rated dimension across eleven key measures of service climate in the survey.

Table 5.29: Employee perceptions of service climate

Dimensions respondents perceptions of …	Mean	Rank	Percent disagree/strongly disagree[a]	Percent neither agree nor disagree[a]	Percent agree/strongly agree[a]
Benefit, bonus, reward and salary	3.1368	11	28.6	12.3	59.2
Corporate image	3.8752	2	3.1	3.1	93.9
Customer service	3.7268	3	6.4	0.0	93.4
Facilities	3.4591	7	16.0	4.0	80.3
Organization	3.4209	8	10.5	0.8	88.5
Department and branch	3.6506	4	5.4	6.1	88.6
Management	3.4243	9	12.8	3.2	84.0
Organization output	3.5000	6	6.2	41.2	52.7
Products and services	3.5103	5	6.3	7.8	86.2
Workforce	3.3061	10	16.0	6.3	77.8
Myself	3.7626	1	0.8	0.8	98.1
Respondents estimate of their evaluation of the service provided by their organization			Percent worse/far worse than they expected	Percent about what they expected	Percent better/far better than they expected

Note: [a] Owing to rounding, category percentages do not total one hundred percent

As can be seen from Table 5.29, employees had an overall positive perception of service climate (M = 3.5248). Corporate image seemed to be the highest rated dimension for service climate by referring to the above ranking. The three lowest rated issues in the survey were organization, workforce, benefit, bonus, salary and reward. Detailed findings of note from the individual dimensions in descending order of service quality strength were as follows:

(a) *Myself*: The three least positive aspects of self evaluation in the minds of staff respondents were meeting regularly with a manager to discuss service

performance (*M*=3.1168); feeling appreciated for work efforts (*M*=3.2482) and discussing quality-related issues with people outside the organization (*M*=3.4000). On the other hand, 87.4 percent of respondents perceived that they were willing to put in a great deal of effort beyond that normally expected in order to help the organization deliver high quality services to their customers (*M*=4.2444). A total of over 87 percent viewed the way they felt about quality as very similar to the way their organization felt about quality (*M*=4.1481).

(b) *Corporate image*: 87.4 percent of respondents reported that providing high quality services to customers should be the number one priority of their organization (*M*=4.2444) and 44.3 percent said that their organization provided excellent services to its customers (*M*=3.4198).

(c) *Customer service*: 4.5 percent of respondents thought unimportant/very unimportant the internal quality of service to customer service (*M*=4.0970), 11.2 percent felt neutral about the issue (*M*=4.0916) and 84.3 percent felt the issue was important/very important to them. The weakest item was prompt and efficient service being given to their respective customers (*M*=3.5038).

(d) *Department and branch*: Almost 90 percent of respondents agreed/strongly agreed that they felt that internal quality service differed from branch to branch (*M*=3.9552) but only 40.3 were satisfied/strongly satisfied with the information they received from management on what was going on in their department (*M*=3.9210).

(e) *Products and services*: 80.9 percent agreed/strongly agreed that quality of service really counted (*M*=4.0076), only 3.9 percent did not feel that way. In total,

21.3 percent agreed/strongly agreed that sometimes they felt that the bank underestimated the importance of the quality of service provided to customers (*M*=2.6641).

(f) *Organization output*: 48.1 percent of respondents viewed that the overall performance in reaching objectives was good/very good (*M*=3.5115) while 46.5 percent believed in their organization's productivity in meeting quotas and targets (*M*=3.4885).

(g) *Facilities*: Approximately 70 percent of respondents felt that office conditions and facilities provided by the banks were good/very good (*M*=3.6842) and 63.4 percent were satisfied with their current workplace environment (*M*=3.6716). However, only 36.3 percent thought equipment and machinery being well-serviced and rarely breaking down to be good/very good (*M*=3.189).

(h) *Organization* : Just over 76 percent of respondents agreed/strongly agreed that the way they felt about quality was very similar to the way their organization felt about quality (*M*=3.8889) and 36.7 percent did not agree/strongly disagreed that the costs involved in monitoring and improving the quality of service outweighed the benefits to the bank (*M*=2.8550).

(i) *Management*: There was 65.4 percent agreement/strong agreement that their respective manager set definite quality standards of good customer service (*M*=3.6767), making this the highest rated item in the aggregated findings. A total of 67.4 percent felt senior managers visibly demonstrated a commitment to quality (*M*=3.6742) but only 27.2 percent felt senior management was consistent in word and deed (*M*=3.0368).

(j) *Workforce*: Agreement (68.1 percent) was found on banks' supporting employees when they came up with new ideas on how to improve customer service (*M*=3.7273) and banks' supporting individual supervisor-subordinate relationships (*M*=3.5455), while 45.9 percent of respondents felt their bank did an excellent job of keeping employees informed about matters affecting them (*M*=3.4737). A total of 25 percent showed disagreement/strong disagreement that the employees sent by personnel were not able to do their jobs well (*M*=2.8712).

(k) *Benefit, bonus, reward and salary*: Just over 42 percent of respondents evaluated as good/very good the issue of internal equity or fairness of compensation, including salary, hours worked and fringe benefits (*M*=3.2889). Only 19.4 rated awards and recognition introduced in the bank as good/very good; in contrast 25.4 percent did not feel the same way (*M*=2.8955).

5.4.5 Nonparametric tests

Choosing the right test to compare measurements is a bit delicate, as the researcher must choose between two families of tests: parametric and nonparametric. Many statistical tests are based upon the assumption that the data are sampled from a Gaussian distribution. These tests are referred to as parametric tests. Tests that do not make assumptions about the population distribution are referred to as nonparametric tests, such as in these three situations: the outcome is a rank or a score and the population is clearly not Gaussian. Examples include class ranking of students and the visual analogue score for pain (measured on a

continuous scale where 0 is no pain and 10 is unbearable pain). Some values are "off the scale," that is, too high or too low to measure. Therefore, values too low are assigned to measure an arbitrary very low value and values too high to measure an arbitrary very high value. Then perform a nonparametric test is performed since the nonparametric test only knows about the relative ranks of the values. The researcher was sure that the population was not distributed in a Gaussian manner. Consider whether the values can be transformed to make the distribution become Gaussian. For example, the researcher might take the logarithm or reciprocal of all values. There are often biological or chemical reasons (as well as statistical ones) for performing a particular transformation.

It is not always easy to decide whether a sample comes from a Gaussian population. Consider these points: (iv) if many data points have been collected (over a hundred or so), the distribution of data need to be looked at and it will be fairly obvious whether the distribution is approximately bell shaped. A formal statistical test (e.g. Kolmogorov-Smirnoff test) can be used to test whether the distribution of the data differs significantly from a Gaussian distribution. (v) Previous data should be looked at as well since what matters is the distribution of the overall population. In deciding whether a population is Gaussian, all available data need to be viewed, not just data in the current survey. Last but not least, (vi) consider the source of scatter. When the scatter comes from the sum of numerous sources (with no one source contributing most of the scatter), a roughly Gaussian distribution should be found.

The choice to use a nonparametric test depends on sample size. Many nonparametric procedures are based on ranked data. Data are ranked by ordering them from lowest to highest and assigning them, in order, the integer values from 1 to the sample size. Ties are resolved by assigning tied values to the mean of the ranks they would have received if there were no ties, e.g., 117, 119, 119, 125, 128 become 1, 2.5, 2.5, 4, 5. For large samples, many nonparametric techniques can be viewed as the usual normal-theory-based procedures applied to ranks. The following table contains the names of some normal-theory-based procedures and their nonparametric counterparts. For smaller sample sizes, the same statistic (or one mathematically equivalent to it) is used, but decisions regarding its significance are made by comparing the observed value to special tables of critical values.

There are advantages of nonparametric procedures, as follows: a nonparametric test make less stringent demands of the data. For standard parametric procedures to be valid, certain underlying conditions or assumptions must be met, particularly for smaller sample sizes. The one-sample t-test, for example, requires that the observations be drawn from a normally distributed population. For two independent samples, the t-test has the additional requirement that the population standard deviations be equal. If these assumptions/conditions are violated, the resulting *p*-values and confidence intervals may not be trustworthy. Nonparametric procedures can sometimes be used to get a quick answer with little calculation. Nonparametric methods provide an air of

objectivity when there is no reliable though universally recognized underlying scale for the original data and there is some concern that the results of standard parametric techniques would be criticized for their dependence on an artificial metric. A historical appeal of rank tests has been that it was easy to construct tables of exact critical values, provided there were no ties in the data. The same critical value could be used for all data sets with the same number of observations because every data set is reduced to the ranks 1,...,*n*. However, this advantage has been eliminated by the ready availability of personal computers. Sometimes the data do not constitute a random sample from a larger population. The data in hand are all there are. Standard parametric techniques based on sampling from larger populations are no longer appropriate. Because there are no larger populations, there are no population parameters to estimate. Nevertheless, certain kinds of nonparametric procedures can be applied to such data by using randomization models.

On the other hand, disadvantages of nonparametric procedures are: such a strong case has been made for the benefits of nonparametric procedures that some might ask why parametric procedures are not abandoned entirely in favor of nonparametric methods. The major disadvantage of nonparametric techniques is contained in their name. Because the procedures are nonparametric, there are no parameters to describe and it becomes more difficult to make quantitative statements about the actual difference between populations. The second disadvantage is that nonparametric procedures throw away information. The sign

test, for example, uses only the signs of the observations. Ranks preserve information about the order of the data but discard the actual values. Because information is discarded, nonparametric procedures can never be as powerful (able to detect existing differences) as their parametric counterparts when parametric tests can be used.

Nonparametric statistics is a field of specialization in its own right. Many procedures have not been touched upon here. These include the Kruskal-Wallis one-way analysis of variance, the Friedman two-way analysis of variance, and the logrank test and Gehan's generalized Wilcoxon test for comparing two survival distributions. It would not be too much of an exaggeration to say that for every parametric test there is a nonparametric analogue that allows some of the assumptions of the parametric test to be relaxed.

5.4.5.1 Chi-Square test

On SPSS, the chi-square tests were done using the crosstabs command, which tabulates the data and then to see the variables that are associated. This performs the basic Pearson chi-square test; detects whether there is a significant association between two categorical variables e.g. ATM and corporate image for service quality. However, it does not say anything about how strong that association might be.

The chi-square statistic tests whether the two variables are independent. To determine whether the generated chi-square value of e.g. 233.986; 14.000; 48.000; 20.625; 85.826 are sufficiently large to reject the null hypothesis, the obtained significance level .000; .122; .000; .008; .000 needs to be compared to the stated level of alpha (e.g., α = .05). If the obtained significance (*p*) value is greater than the stated level of alpha, the null hypothesis will not be rejected. With the obtained values of .000;.000; .008; .000, technically the null hypothesis is rejected in this instance.

Table 5.30: Results of Chi-Square tests for service quality

Dimension	All customer	Affin Bank	BSN	Bank Islam	Maybank
Automated Teller Machine (ATM)	233.986	14.000	48.000	20.625	85.826
Chi-square value	16	9	11	8	15
df	.000	.122	.000	.008	.000
Asymp.Sig.					
Corporate image					
Chi-square value	209.368	1.467	18.207	20.143	90.192
df	41	12	25	14	36
Asymp.Sig.	.000	1.000	.833	.126	.000
Customer interaction and customer service					
Chi-square value	201.433	1.000	5.976	15.800	92.347
df	33	6	17	13	31
Asymp.Sig.	.00	.986	.993	.260	.000
Online and phone banking					
Chi-square value	233.733	8.286	27.034	22.000	117.686
df	11	5	8	8	10
Asymp.Sig.	.000	.141	.001	.005	.000
Physical features and facilities					
Chi-square value	110.973	5.400	14.000	8.722	75.273
df	48	6	27	22	44
Asymp.Sig.	.000	.494	.981	.995	.002
Products and services					
Chi-square value	147.337	6.267	20.667	10.000	75.589
df	51	10	27	19	47
Asymp.Sig.	.000	.792	.802	.953	.005
Rates and charges					
Chi-square value	399.851	16.467	34.148	43.810	122.8
df	33	7	16	16	30
Asymp.Sig.	.000	.021	.005	.000	.00
Management					

Chi-square value	233.928	8.588	29.667	58.458	144.380
df	7	4	6	4	7
Asymp.Sig.	.000	.072	.000	.000	.000
Staff					
Chi-square value	357.076	12.706	35.375	39.452	158.139
df	8	4	5	4	8
Asymp.Sig.	.000	.013	.000	.000	.000

From the above Table 5.30, the results for all customer, supported alternative hypotheses. There were statistically significant differences between the obtained and expected frequencies with regard to service quality for the participating respondent customers. The conditions were different whenever the researcher divided the responses regarding the subgroup; by the specific banks.

To determine whether the generated chi-square value for the first instance, benefit, bonus, reward and salary of e.g. 128.092; 8.882; 33.516; 37.333 are sufficiently large to reject the null hypothesis, the obtained significance level .000; .261; .030; .002 needs to be compared to the stated level of alpha (e.g., α = .05). If the obtained significance (p) value is greater than the stated level of alpha, the null hypothesis will not be rejected. With the obtained values of .000; .030; .002, technically the null hypothesis is rejected in this case.

Table 5.31: Results of Chi-Square tests for service climate

Dimension	All employee	BSN	Bank Islam	Maybank
Benefit, bonus, salary and reward				
Chi-square value	128.092	8.882	33.516	37.333
df	23	7	20	16
Asymp.Sig.	.000	.261	.030	.002
Corporate image				
Chi-square value	86.233	13.706	37.698	11.143
df	8	5	7	6
Asymp.Sig.	.000	.018	.000	.084
Customer service				

Chi-square value	59.707	4.353	23.541	19.911
df	32	10	26	22
Asymp.Sig.	.002	.930	.602	.589
Facilities				
Chi-square value	94.889	4.353	35.295	27.000
df	27	10	21	19
Asymp.Sig.	.000	.930	.026	.105
Organization				
Chi-square value	55.098	3.000	31.000	8.489
df	38	9	30	28
Asymp.Sig.	.036	.964	.415	1.000
Department and branch				
Chi-square value	120.500	7.412	37.250	24.000
df	10	4	8	8
Asymp.Sig.	.000	.116	.000	.002
Management				
Chi-square value	68.824	3.500	16.839	17.787
df	35	11	25	28
Asymp.Sig.	.001	.982	.888	.931
Organization output				
Chi-square value	135.802	9.118	69.111	56.471
df	6	3	6	6
Asymp.Sig.	.000	.028	.000	.000
Products and services				
Chi-square value	113.581	3.647	45.484	24.360
df	18	8	13	12
Asymp.Sig.	.000	.887	.000	.018
Workforce				
Chi-square value	149.175	11.000	74.867	18.400
df	21	7	16	18
Asymp.Sig.	.000	.139	.000	.430
Myself				
Chi-square value	83.097	10.667	30.984	21.333
df	39	10	30	25
Asymp.Sig.	.000	.384	.416	.674

From the above Table 5.31, ten null hypotheses were rejected. There were statistically significant differences between the obtained and expected frequencies with regard to service climate for the participating respondent employees. Only one null hypothesis failed to be rejected, regarding the dimension of organization. The researcher presented the responses in detail; by subgroup, which meant dividing the response regarding the specific participating banks in order to see the differences of results by following the same procedures.

There are other alternative nonparametric statistics that could be used when a comparison of obtained and theoretical distributions is desired. The researcher chose to apply the Kolmogorov-Smirnov test for the sample, examined in the following section.

5.4.5.2 Kolmogorov-Smirnov one sample test

In this service climate and service quality study, supposed that the researcher wished to determine whether the climate and quality scores of the bank customers and employees in the sample were normally distributed. The null hypothesis for the Kolmogorov-Smirnov one-sample test is that the cumulative distribution for the sample variable, $F(x)$, is similar to the theoretical cumulative distribution, $F_0(x)$. The alternative hypothesis would be nondirectional, merely stating that the theoretical and obtained cumulative distributions are different, $F(x) \neq F_0(x)$. The null and nondirectional alternative hypothesis that would follow from the research question that had been generated is proposed as follows:

H_0 : The cumulative distribution of the service quality dimensions scores for the BSN customer in the sample is similar to that of a normal distribution.

H_1 : The cumulative distribution of the service quality dimensions scores for the BSN customer in the sample is not similar to that of a normal distribution.

Table 5.32 presents the output obtained from SPSS. It presents the most extreme absolute, positive and negative differences between the actual and theoretical distributions. In this instance, the management dimension had the most

Table 5.32: K-S test result for BSN customer

	Automated Teller Machine	Corporate image	Customer interaction	Online and phone banking	Physical features and facilities	Products and services	Rates and charges	Management	Staff
Most extreme differences:									
Absolute	0.173	0.094	124	0.112	0.090	0.125	0.159	0.198	0.168
Positive	0.173	0.094	124	0.112	0.090	0.125	0.159	0.183	0.161
Negative	-0.127	-0.86	-0.103	-0.105	-0.71	-0.116	-0.134	**-0.198**	-0.168
Kolmogorov-Smirnov Z	1.340	0.717	0.792	0.854	0.585	0.921	1.166	**1.284**	1.341
Asymp.Sig. (2-tailed)	0.055	0.683	0.557	0.459	0.884	0.364	0.132	**0.074**	0.055

Table 5.33: K-S test result for Bank Islam customer

	Automated Teller Machine	Corporate image	Customer interaction	Online and phone banking	Physical features and facilities	Products and services	Rates and charges	Management	Staff
Most extreme differences:									
Absolute	0.146	0.172	0.120	0.131	0.124	0.149	0.209	0.349	0.255
Positive	0.112	0.108	0.120	0.114	0.113	0.089	0.209	0.276	0.255
Negative	-0.146	-0.172	-0.086	-0.131	-0.124	-0.149	-0.091	-0.349	-0.222
Kolmogorov-Smirnov Z	1.008	1.116	0.711	0.878	0.745	0.943	1.352	2.418	2.011
Asymp.Sig. (2-tailed)	0.261	0.166	0.693	0.424	0.636	0.337	0.052	0.000	0.001

Table 5.34: K-S test result for Maybank customer

	Automated Teller Machine	Corporate image	Customer interaction	Online and phone banking	Physical features and facilities	Products and services	Rates and charges	Management	Staff
Most extreme differences:									
Absolute	0.090	0.073	0.055	0.141	0.089	0.115	0.084	0.207	0.172
Positive	0.090	0.062	0.050	0.107	0.089	0.115	0.072	0.207	0.151
Negative	-0.084	-0.073	-0.055	-0.141	-0.063	-0.062	-0.084	-0.173	-0.172
Kolmogorov-Smirnov Z	1.125	0.881	0.675	1.743	1.028	1.385	1.030	2.598	2.163
Asymp.Sig. (2-tailed)	0.159	0.420	0.753	0.005	1.028	1.385	1.030	0.000	0.000

Table 5.35: K-S test result for BSN employee

	Benefits, bonus, rewards and salary	Corporate image	Customer service	Facilities	Organization	Department and branch	Management	Organization output	Products and services	Workforce	Myself
Most extreme differences:											
Absolute	0.207	0.249	0.178	0.213	0.138	0.246	0.132	0.273	0.147	0.210	0.282
Positive	0.157	0.249	0.131	0.148	0.117	0.169	0.132	0.273	0.140	0.210	0.282
Negative	-0.207	-0.222	-0.178	-0.213	-0.138	-0.246	-0.125	**-0.256**	-0.147	-0.165	-0.156
Kolmogorov-Smirnov Z	0.885	1.026	0.733	0.878	0.533	1.015	0.530	**1.127**	0.605	0.839	1.094
Asymp.Sig. (2-tailed)	0.458	0.243	0.656	0.423	0.939	0.255	0.942	**0.157**	0.858	0.482	0.183

Table 5.36: K-S test result for Bank Islam employee

	Benefits, bonus, rewards and salary	Corporate image	Customer service	Facilities	Organization	Department and branch	Management	Organization output	Products and services	Work force	Myself
Most extreme differences:											
Absolute	0.139	0.172	0.076	0.156	0.122	.0.173	0.072	0.274	0.154	0.172	0.111
Positive	0.096	0.172	0.75	0.107	0.063	0.106	0.06	0.274	0.154	0.172	0.111
Negative	-0.139	-0.162	-0.76	-0.156	-0.122	-0.173	-0.072	-0.187	-0.131	-0.128	-0.061
Kolmogorov-Smirnov Z	1.096	1.363	0.593	1.219	0.958	1.383	0.565	2.171	1.211	1.330	0.868
Asymp.Sig. (2-tailed)	0.181	0.049	0.873	0.102	0.318	0.044	0.907	0.000	0.106	0.058	0.438

Table 5.37: K-S test result for Maybank employee

	Benefits, bonus, rewards and salary	Corporate image	Customer service	Facilities	Organization	Department and branch	Management	Organization output	Products and services	Work force	Myself
Most extreme differences:											
Absolute	0.139	0.151	0.117	0.160	0.062	0.146	0.125	0.254	0.119	0.107	0.112
Positive	0.109	0.151	0.083	0.098	0.062	0.109	0.082	0.201	0.081	0.066	0.112
Negative	-0.139	-0.095	-0.117	-0.160	-0.044	-0.146	-0.125	-0.254	-0.119	-0.107	-0.056
Kolmogorov-Smirnov Z	0.993	1.055	0.786	1.109	0.417	1.040	0.857	1.814	0.841	0.754	0.774
Asymp.Sig. (2-tailed)	0.278	0.215	0.567	0.171	0.995	0.229	0.455	0.003	0.479	0.621	0.588

extreme absolute difference (.198) used to obtain a *z* statistic (1.284). If the significance level (*p* value) of this test statistic is smaller than the stated level of alpha (e.g. α = .05), the null hypothesis that states that the actual and the theoretical distributions are similar is rejected. The generated two-tailed *p* value is larger than the stated level of alpha (.05), indicating that the null hypothesis that the distribution is similar to a normal distribution fails to be rejected. Therefore, the cumulative distribution of the service quality dimensions scores for the BSN customers using the Kolmogorov-Smirnov one-sample goodness-of-fit test indicates that the sample data were normally distributed (K-S *z*=1.284, p=.074). Consequently, the rest of the results of eight other dimensions for BSN and the other two banks, Bank Islam and Maybank, are shown in Tables 5.32, 5.33 and 5.34.

Table 5.35 presents the most extreme absolute, positive and negative differences between the actual and theoretical distribution. In this case in point, the organization output dimension is highlighted because it had the most extreme absolute difference (.256) used to obtain a *z* statistic (1.127). The same condition is applied, if the significance level (*p* value) of this test statistic is smaller than the stated level of alpha (e.g. α = .05); hence the null hypothesis that states that the actual and theoretical distributions are similar is rejected. The generated two-tailed *p* value is larger than the stated level of alpha (.05) at .157, indicating that the null hypothesis that the distribution is similar to a normal distribution failed to be rejected. Therefore, the cumulative distribution of the service quality

dimensions scores for the BSN employees using the Kolmogorov-Smirnov one-sample goodness-of-fit test indicates that the sample data were normally distributed (K-S z=1.127, p=.157). Subsequently, the rest of the results of ten other dimensions for BSN and the other two banks, Bank Islam and Maybank, are shown in Tables 5.35, 5.36 and 5.37.

5.4.6 Parametric tests

The researcher utilized employee data as a group and customer data as a group in order to run through parametric tests due to appropriate sample size; cross tabulations and paired samples t-tests were used to detect any relationship between variables.

5.4.6.1 Cross tabulation

Cross tabulation is the simplest and most frequently used way of demonstrating the presence or absence of a relationship (Bryman and Cramer, 2005). It is a common measure because of its effectiveness and can easily be understood and interpreted, and is also a very flexible method (Alreck and Settle, 1985). The object of cross tabulation is to show whether or not the distributions for one variable differ significantly for each value or level or the other variable (Alreck and Settle, 1985).

Five demographic characteristics were selected for the purpose of demonstrating the use of segmentation analysis. Being the independent variables (X), demographic characteristics such as gender, age, status, education and work sector were at the top of each table. If these X made any difference to the service quality dimensions (Y), then the category of X to which a respondent belongs should make a difference to their responses on the Y variable. As for service quality dimensions versus gender, no two variables were unrelated. Only the management dimension had the greater percentage of differences, which showed the more strongly the variables were related. The remaining eight dimensions showed small percentage differences, which did indicate a relationship between the variables in the sample.

Table 5.38: Transformation of information for bank customer's profile

Characteristics	Former variables	New variables
Education	PhD Master	Postgraduate
	Bachelors Degree	Bachelors Degree
	Diploma	Diploma
	STPM and equivalent SPM and equivalent	STPM , SPM and equivalent
	Other	Other

While cross tabulations can be an effective way of presenting information, they are not appropriate in all circumstances. Vaus (2002) stated that whenever the samples are small, especially if the variables have quite a few categories, this might lead to a large number of cells, resulting in unstable and misleading percentages. This can be reduced by collapsing categories of variables. This solution might applicable in this study because, due to a large number of categories in customer education and duration of being a customer of a frequently

visited bank; the researcher therefore decided to collapse several categories, as in the Table 5.38.

The result is based on disagreement/strong disagreement, which is represented by 1.00 to 2.99; 3.00 to 3.99 for neutral and 4.00 to 5.00 for agreement/strong agreement. Five demographic characteristics were selected for the purpose of demonstrating the use of segmentation analysis. They were gender, age, education, work sector and duration of being the customer of their frequently visited banks. Four contingency tables, as presented in Tables 5.40 to 5.43, were generated by cross-tabulating service quality dimensions against each of the demographic characteristics.

Table 5.39: Transformation of information for bank employee's profile

Characteristics	Former variables	New variables
Education	PhD Master	Postgraduate
	Bachelors Degree	Bachelors Degree
	Diploma	Diploma
	STPM and equivalent SPM and equivalent	STPM , SPM and equivalent
	Other	Other
Length of tenure	1 - 5 years	1 – 5 years
	6 - 10 years	6 - 10 years
	11 - 15 years 16 - 20 years	11 - 20 years
	21- 25 years 26 years and more	21 years and more

As for service climate dimensions versus gender, there was one unrelated variable: myself. Only organization and management dimensions had small percentage differences, which indicated a relationship between the variables in the sample. The greater the percentage of differences, the more strongly the variables

are related, as proved by the remaining eight dimensions. As for service climate dimensions, there were two variables that needed to be collapsed: education and length of bank employee tenure in the banking sector, as presented in the Table 5.39.

As for service quality, the results for service climate scales were also based on disagreement/strong disagreement, represented by 1.00 to 2.99; 3.00 to 3.99 for neutral and 4.00 to 5.00 for agreement/strong agreement. Four demographic characteristics were selected for the purpose of demonstrating the use of segmentation analysis. They were gender, age, education and length of tenure in the banking sector. Three contingency tables, as presented in Tables 5.44 to 5.46, were generated by cross-tabulating service climate scales against each of the demographic characteristics.

5.4.6.2 Paired-samples t test

The researcher chose to manipulate the independent variable using different subjects, called independent means t-test. This test is used when there are two experimental conditions and different subjects have been assigned to each condition (Field, 2000). The data set in this section illustrates the paired-samples t-test for service quality in this study.

The researcher used histograms as a way to present the differences scores of means for each paired-samples for the dimensions of service quality and

Table 5.40: Service quality dimensions versus customers' age

Variables	Categories	Less than 20 years old	20-29 years old	30-39 years old	40-49 years old	50 years old and above	Total
A. Automated Teller Machine	1.00-2.99	10	9.5808	10.3448	0	0	24
	3.00-3.99	60	58.6827	39.6552	46.1538	50	149
	4.00-5.00	30	31.7365	50	53.8462	50	106
B. Corporate image	1.00-2.99	5.5556	8.6957	12.963	4.5454	0	23
	3.00-3.99	83.3333	81.3665	77.7778	68.1818	83.3333	208
	4.00-5.00	11.1111	9.9379	9.2593	27.2727	16.6667	30
C. Customer interaction and customer service	1.00-2.99	10.5263	8.1081	9.3023	0	0	18
	3.00-3.99	84.2105	85.1351	79.0698	77.2727	87.5	200
	4.00-5.00	5.2632	6.7568	11.6279	22.7273	12.5	22
D. Online and phone banking	1.00-2.99	20	19.7531	25.4545	8	37.5	55
	3.00-3.99	70	62.963	61.8182	44	12.5	161
	4.00-5.00	10	17.284	12.7273	48	50	54
E. Physical features and facilities	1.00-2.99	16.6667	10.6061	11.1111	10.5263	0	24
	3.00-3.99	77.7778	75.7576	75.5556	57.8947	83.3333	164
	4.00-5.00	5.5556	13.6364	13.3333	31.5789	16.6667	32
F. Products and services	1.00-2.99	10.5263	8.3333	6	12.5	0	21
	3.00-3.99	84.2105	80.7692	82	45.8333	83.3333	198
	4.00-5.00	5.2632	10.8974	12	16.6667	16.6667	35
G. Rates and charges	1.00-2.99	17.3913	8.9385	12.9032	7.1429	0	30
	3.00-3.99	60.8696	64.8045	58.0645	35.7143	44.4449	180
	4.00-5.00	21.7391	26.257	29.0323	57.1429	55.5556	91
H. Management	1.00-2.99	10.5263	16.4557	26.4151	8.6957	12.5	45
	3.00-3.99	78.9474	71.519	64.1509	56.5217	75	181
	4.00-5.00	10.5263	12.0253	9.434	34.7826	12.5	35
I. Staff	1.00-2.99	19.0476	9.2025	19.1489	4	0	29
	3.00-3.99	57.1429	62.5767	38.2979	28	33.3333	142
	4.00-5.00	23.8095	28.2209	42.5532	68	66.6667	94

Table 5.41: Service quality dimensions versus customers' education

Variables	Categories	PhD	Bachelor	Diploma	STPM, SPM and equivalent	Other	Total
A. Automated Teller Machine	1.00-2.99	9.3023	7.3394	14.2857	7.5000	0.0000	24
	3.00-3.99	48.8372	60.5505	45.2381	0.5000	66.6667	148
	4.00-5.00	41.8605	32.1101	40.4762	42.5000	33.3333	105
B. Corporate image	1.00-2.99	15.7895	7.6190	9.7561	6.9444	0	23
	3.00-3.99	68.4211	81.9048	82.9268	58	100	207
	4.00-5.00	15.7895	10.4762	7.3171	12.5000	0	29
C. Customer interaction and customer service	1.00-2.99	15.1515	5.1020	7.8947	7.5758	0.0000	18
	3.00-3.99	72.7273	89.7959	78.9474	81.8182	100.0000	199
	4.00-5.00	12.1212	5.1020	13.1579	10.6061	0.0000	21
D. Online and phone banking	1.00-2.99	32.5	16.8224	20.9302	18.6667	0	54
	3.00-3.99	47.5	64.486	55.814	62.6667	66.6667	161
	4.00-5.00	20	18.6916	23.2558	18.6667	33.3333	53
E. Physical features and facilities	1.00-2.99	15.625	8.046	10.8108	12.9032	0	24
	3.00-3.99	71.875	75.8621	81.0811	70.9677	0	163
	4.00-5.00	12.5	16.092	8.1081	16.129	0	31
F. Products and services	1.00-2.99	5.1282	7.767	10.2564	10.1449	0	21
	3.00-3.99	79.4872	73.7864	79.4872	75.3623	100	198
	4.00-5.00	15.3846	13.5922	10.2564	2.1004	0	34
G. Rates and charges	1.00-2.99	20.5128	12.381	20	19.4444	33.3333	44
	3.00-3.99	66.6667	73.3333	62.5	69.4444	66.6667	180
	4.00-5.00	12.8205	14.2857	17.5	11.1111	0	35
H. Management	1.00-2.99	13.8889	8.1818	12.8205	13.5135	0.0	29
	3.00-3.99	41.6667	58.1818	48.7179	52.7027	100	141
	4.00-5.00	44.4444	33.6364	38.4615	33.7838	0	93
I. Staff	1.00-2.99	6.6667	8.8496	10.8696	13.3333	0	30
	3.00-3.99	55.5556	63.7168	52.1739	60	75	178
	4.00-5.00	37.7778	27.4336	36.9565	26.6667	25	90

Table 5.42: Service quality dimensions versus customers' work sector

Variables	Categories	Government	Corporation	Private	Self employed	Other	Total
A. Automated Teller Machine	1.00-2.99	6.4103	8.3333	8.6957	11.4286	7.6923	21
	3.00-3.99	51.2821	33.3333	53.2609	42.8571	66.6667	134
	4.00-5.00	42.3077	58.3333	38.0435	45.7143	25.691	101
B. Corporate image	1.00-2.99	5.7971	0	13.7931	8.8235	5.2632	21
	3.00-3.99	76.8116	90.9091	78.1609	76.4706	86.8421	190
	4.00-5.00	17.3913	9.0909	8.046	14.7059	7.8947	28
C. Customer interaction and customer service	1.00-2.99	4.4118	8.3333	12	0	8.1081	16
	3.00-3.99	80.8824	83.3333	84	88.4615	83.7838	182
	4.00-5.00	14.7059	8.3333	4	11.5385	8.1081	20
D. Online and phone banking	1.00-2.99	14.6667	8.3333	30.6818	21.2121	17.9487	53
	3.00-3.99	53.3333	58.3333	62.5	63.6364	61.5385	147
	4.00-5.00	32	33.3333	6.8182	15.1515	20.5128	47
E. Physical features and facilities	1.00-2.99	7.9365	11.1111	9.3333	23.0769	10.7143	22
	3.00-3.99	69.8413	77.7778	82.6667	65.3846	78.5714	152
	4.00-5.00	22.2222	11.1111	8	11.5385	10.7143	27
F. Products and services	1.00-2.99	4.1096	9.0909	9.7561	16.129	5.5556	19
	3.00-3.99	78.0822	63.6364	80.4878	67.7419	86.1111	182
	4.00-5.00	17.8082	27.2727	9.7561	16.129	8.3333	32
G. Rates and charges	1.00-2.99	17.8082	8.3333	23.5294	12.9032	16.2162	44
	3.00-3.99	61.6438	75	69.4118	77.4194	70.2703	163
	4.00-5.00	20.5479	16.6667	7.0588	3.2258	13.5135	31
H. Management	1.00-2.99	7.8947	16.6667	13.9535	15.625	2.7027	26
	3.00-3.99	48.6842	25	50	43.75	81.0811	127
	4.00-5.00	43.4211	58.3333	36.0465	40.625	16.2162	90
I. Staff	1.00-2.99	5.618	16.6667	11.4583	17.0732	5	27
	3.00-3.99	53.9326	16.6667	67.7083	53.6585	75	167
	4.00-5.00	40.4494	66.6667	20.8333	29.2683	20	84

Table 5.43: Service quality dimensions versus the frequently visited banks

Variables	Categories	0-2 years	3-5 years	6-8 years	9-11 years	12-14 years	15 years and more	Total
A. Automated Teller Machine	1.00-2.99	13.0435	4.4776	7.5	5.4545	25	13.8889	24
	3.00-3.99	56.5217	58.209	55	50.9091	43.75	44.4444	147
	4.00-5.00	30.4348	37.3134	37.5	43.6364	31.25	41.6667	106
B. Corporate image	1.00-2.99	9.0909	4.918	5.1948	11.7647	18.75	15.625	23
	3.00-3.99	63.6364	90.1639	81.8182	80.3922	81.25	56.25	206
	4.00-5.00	27.2727	4.918	10.3896	7.8431	0	28.125	30
C. Customer interaction and customer service	1.00-2.99	8.6957	3.3333	4.6875	14.5833	25	0	18
	3.00-3.99	78.2609	91.6667	89.0625	79.1667	68.75	71.4286	199
	4.00-5.00	13.0435	5	6.25	6.25	6.25	28.5714	22
D. Online and phone banking	1.00-2.99	13.0435	16.6667	20	27.7778	12.5	26.4706	55.
	3.00-3.99	47.8261	60.6061	70.6667	53.7037	81.25	41.1765	160
	4.00-5.00	39.1304	22.7273	9.3333	18.5185	6.25	32.3529	53
E. Physical features and facilities	1.00-2.99	4.7619	3.5714	6.4516	14.2857	28.5714	25	24
	3.00-3.99	71.4286	82.1429	80.6452	76.1905	57.1429	50	163
	4.00-5.00	23.8095	14.2857	11.2903	9.5238	14.2857	25	32
F. Products and services	1.00-2.99	8.6957	3.3333	10.8108	7.8431	12.5	10.3448	21
	3.00-3.99	73.913	83.3333	79.7297	86.2745	75	51.7241	198
	4.00-5.00	17.3913	13.3333	9.4595	5.8824	6.25	37.931	34
G. Rates and charges	1.00-2.99	17.3913	14.2857	11.1111	30.1887	18.75	15.625	45
	3.00-3.99	56.5217	74.6032	77.7778	64.1509	62.5	59.375	179
	4.00-5.00	26.087	11.1111	11.1111	5.6604	18.75	25	35
H. Management	1.00-2.99	12	4.2857	11.1111	10	12.5	26.6667	29
	3.00-3.99	60	54.2857	50	66	62.5	26.6667	140
	4.00-5.00	28	41.4286	38.8889	24	25	46.6667	94
I. Staff	1.00-2.99	4	8.9744	12.9412	3.5088	6.25	21.0526	30
	3.00-3.99	64	61.5385	60	66.6667	56.25	44.7368	179
	4.00-5.00	32	29.4872	27.0588	29.8246	37.5	34.2105	90

Table 5.44: Service climate versus age

Variables	Categories	20-29 years old	30-39 years old	40-49 years old	50 years old and above	Total
A. Benefit, bonus, reward and salary	1.00-2.99	20	28.8462	42.8571	40	36
	3.00-3.99	72.7273	61.5385	42.8571	40	80
	4.00-5.00	7.2727	5.7692	14.2857	20	10
B. Corporate image	1.00-2.99	0	0	26.6667	0	4
	3.00-3.99	47.2727	56	33.3333	40	61
	4.00-5.00	52.7273	44	40	60	60
C. Customer service	1.00-2.99	0	4.1667	40	0	8
	3.00-3.99	60.7843	68.75	20	40	69
	4.00-5.00	39.2157	27.0833	40	60	42
D. Facilities	1.00-2.99	7.4074	16.3265	42.8571	20	19
	3.00-3.99	79.6296	73.4694	50	80	90
	4.00-5.00	12.963	10.2041	7.1429	0	13
E. Organization	1.00-2.99	0	14	42.8571	25	13
	3.00-3.99	90.1961	80	50	75	97
	4.00-5.00	9.8039	6	7.1429	0	9
F. Department and branch	1.00-2.99	0	3.9216	20	20	6
	3.00-3.99	66.6667	64.7059	40	20	78
	4.00-5.00	33.3333	31.3725	40	60	44
G. Management	1.00-2.99	7.8519	20.8333	21.4286	0	14
	3.00-3.99	92.5926	70.8333	64.2857	80	97
	4.00-5.00	5.5556	8.3333	14.2857	20	10
H. Organization output	1.00-2.99	3.5714	3.9216	20	0	7
	3.00-3.99	44.6429	62.7451	40	60	66
	4.00-5.00	51.7857	33.9333	40	40	54
I. Products and services	1.00-2.99	5.4545	2	26.6667	0	8
	3.00-3.99	69.0909	84	53.3333	60	91
	4.00-5.00	25.4545	14	20	40	26
J. Workforce	1.00-2.99	5.5556	18.75	40	0	18
	3.00-3.99	85.1852	75	60	80	95

	4.00-5.00	9.2593	6.25	0	20	9
K. Myself	1.00-2.99	0	0	7.6923	0	1
	3.00-3.99	85.4545	76.5957	30.7692	40	89
	4.00-5.00	14.5455	23.4043	81.5385	60	30

Table 5.45: Service climate versus education

Variables	Categories	Postgraduate	Bachelor	Diploma	STPM, SPM and equivalent	Other	Total
A. Benefit, bonus, reward and salary	1.00-2.99	26.9231	25.5814	43.75	27.5	0	36
	3.00-3.99	69.2308	72.093	37.5	60	100	80
	4.00-5.00	3.8461	2.3256	18.75	12.5	0	10
B. Corporate image	1.00-2.99	7.6923	0	6.25	2.5	0	4
	3.00-3.99	57.6923	69.0476	18.75	35	0	61
	4.00-5.00	34.6154	30.9524	75	62.5	100	60
C. Customer service	1.00-2.99	11.5385	2.5	13.3333	5.2632	0	8
	3.00-3.99	61.5385	80	40	39.4737	0	69
	4.00-5.00	26.9231	17.5	46.6667	55.2632	0	42
D. Facilities	1.00-2.99	15.3846	14.2857	26.6667	13.1579	0	19
	3.00-3.99	80.7692	80.9524	60	65.7895	100	90
	4.00-5.00	3.8462	4.7619	13.3333	21.0526	0	13
E. Organization	1.00-2.99	12.5	11.9048	14.2857	7.8947	0	13
	3.00-3.99	83.3333	80.9524	78.5714	81.5789	100	97
	4.00-5.00	4.1667	7.1429	7.1429	10.5263	0	9
F. Department and branch	1.00-2.99	7.6923	4.6512	12.5	0	0	6
	3.00-3.99	57.6923	62.7907	68.75	57.1429	100	78
	4.00-5.00	34.6154	32.5581	18.75	42.8571	0	44
G. Management	1.00-2.99	4.1667	7.5	13.3333	19.5122	0	14
	3.00-3.99	91.6667	85	80	68.2927	100	97
	4.00-5.00	4.1667	7.5	6.6667	12.1951	0	10
H. Organization output	1.00-2.99	11.5385	4.7619	6.25	2.381	0	7
	3.00-3.99	53.8462	66.6667	31.25	45.2381	0	66

	4.00-5.00	34.6154	28.5714	62.5	52.381	100	54
I. Products and services	1.00-2.99	11.5385	2.381	6.6667	7.3171	0	8
	3.00-3.99	65.3846	83.3333	60	70.7317	100	91
	4.00-5.00	23.0769	14.2857	33.3333	21.9512	0	26
J. Workforce	1.00-2.99	16	10	20	17.0732	0	18
	3.00-3.99	80	82.5	60	78.0488	100	95
	4.00-5.00	4	7.5	20	4.88	0	9
K. Myself	1.00-2.99	0	0	0	2.5641	0	1
	3.00-3.99	62.5	83.3333	71.4286	71.7949	100	89
	4.00-5.00	37.5	16.6667	28.5714	25.641	0	30

Table 5.46: Service climate versus work experiences in banking sector

Variables	Categories	1-5 years	6-10 years	11-20years	21 years and more	Total
A. Benefit, bonus, reward and salary	1.00-2.99	19.5122	34.1463	34.7826	38.4615	35
	3.00-3.99	78.0488	60.9756	56.5217	38.4615	75
	4.00-5.00	8.439	4.878	8.6957	23.0769	8
B. Corporate image	1.00-2.99	0	2.439	0	15.3846	3
	3.00-3.99	55	51.2195	39.1304	38.4615	57
	4.00-5.00	45	46.3415	60.8696	46.1538	57
C. Customer service	1.00-2.99	2.7778	7.3171	4.7619	23.0769	8
	3.00-3.99	66.6667	63.4146	47.619	38.4615	65
	4.00-5.00	30.5556	29.2683	47.619	38.4615	38
D. Facilities	1.00-2.99	7.5	15	18.1818	46.1538	19
	3.00-3.99	82.5	77.5	59.0909	53.8462	84
	4.00-5.00	10	75	22.7273	0	12
E. Organization	1.00-2.99	2.7027	12.5	17.3913	27.2727	13
	3.00-3.99	89.1892	80	73.9130	72.7273	90
	4.00-5.00	8.1081	7.5	8.6957	0	8
F. Department and branch	1.00-2.99	2.439	2.3256	4.3478	23.0769	6
	3.00-3.99	68.2927	60.4651	60.8696	30.7692	72

	4.00-5.00	29.2683	37.2093	34.7826	46.1538	42
G. Management	1.00-2.99	2.5	12.8205	27.2727	16.6667	14
	3.00-3.99	95	79.4872	59.0909	66.6667	90
	4.00-5.00	2.5	7.6923	13.6364	16.6667	9
H. Organization output	1.00-2.99	2.5	9.5238	0	15.3846	7
	3.00-3.99	52.5	42.8571	66.6667	46.1538	61
	4.00-5.00	45	47.619	33.3333	38.4615	51
I. Products and services	1.00-2.99	7.6923	2.381	4.3478	23.0769	8
	3.00-3.99	76.9231	73.8095	73.913	69.2308	87
	4.00-5.00	15.3846	23.8095	21.7391	7.6923	22
J. Workforce	1.00-2.99	7.8947	15	21.7391	30.7692	18
	3.00-3.99	89.4737	53.5	73.913	61.5385	90
	4.00-5.00	2.6316	7.5	4.3478	7.6923	6
K. Myself	1.00-2.99	0	0	4.3478	0	1
	3.00-3.99	80	81.5789	60.8696	54.5456	83
	4.00-5.00	20	18.4211	34.7826	45.4545	28

service climate because they become an effective, practical working tool in the early stages of t test analysis. Though there should be answers in analyzing characteristics of the histogram (e.g. information about width defines the variability and the shape of the histogram), the researcher was not bound to these attributes because each histogram for each dimension had been arranged in alphabetical order. But the significant change in one histogram indicates that there was something going on in the process, which causes a predicament.

Figures 5.28 and 5.29 present the difference scores between pairs of dimensions matched with the range of histograms to be between +0.4 to -0.4 for service quality across nine dimensions and +1.0 to -1.0 for service climate across eleven dimensions. Thirty six paired-samples t-tests were conducted to evaluate whether customers were more concerned with e.g. Automated Teller Machine or corporate image. The result indicated that the mean concern for ATM (M = 3.6331, SD = .6271) was significantly greater than the mean concern for corporate image (M = 3.4919, SD = .4714), t(259) = 4.056, $p < .01$. The 95% confidence interval for the mean difference between the two ratings was .0727 to .2098. Table 5.47 showed the results of the paired-samples t-tests for the bank customers in this study. All the pairs of dimensions showed that they were positively correlated, ranging from .379 to .775. Corporate image-customer interaction and customer service (.775); physical features and facilities-products and services (.764); customer interaction and customer service-products and services (.757) possessed the strongest correlations whilst ATM-online and phone banking (.415); rates and

charges-staff (.407); ATM-rates and charges (.379) presented the weakest correlations among all scales.

The following data set in this particular section illustrates the paired-samples t-tests for service climate in this study. Fifty five paired-samples t-tests were conducted to evaluate whether customers were more concerned with e.g. benefits, bonus, reward and salary or corporate image. The results indicated that the mean concern for benefits, bonus, reward and salary (M = 3.1407, SD = .603) was significantly greater than the mean concern for corporate image (M = 3.8766, SD = .5472), t(126) = -12.77, p < .01. The 95% confidence interval for the mean difference between the two ratings was -.8499 to -.6219. Table 5.48 showed the results of the paired-samples t-tests for the bank employees in this study. From this particular table, it can be seen that all pairs of scales exhibited positive correlations, ranging from .165 to .839. The three weakest correlations belonged to the pair of department and branch-myself (.303); organization output-myself (.273); benefits, bonus, reward and salary-myself (.165). The three most positive correlated dimensions were management-workforce (.839); customer service-organization (.810); organization-workforce (.774)

5.4.7 Multiple regression analysis

Figure 5.28: Difference scores for paired-samples t-test (customer)

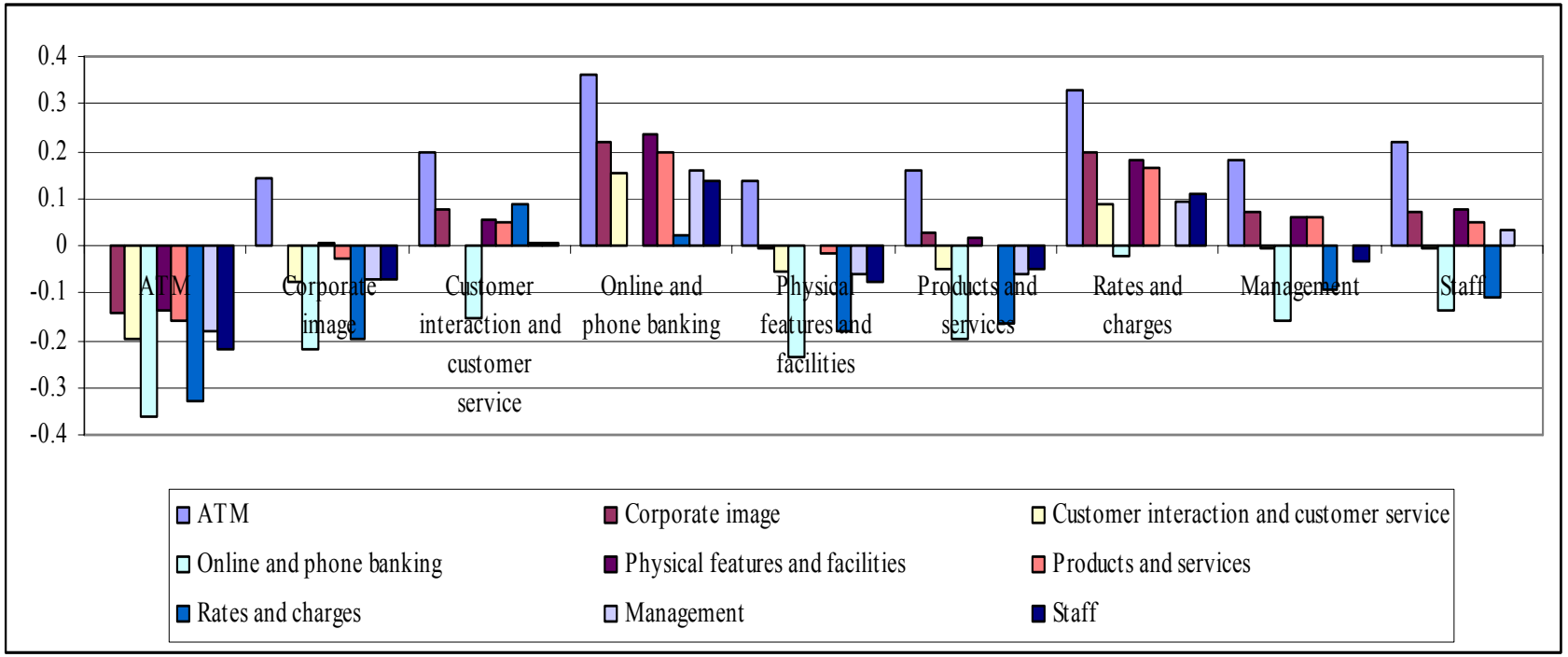


Figure 5.29: Difference scores for paired-samples t-test (employee)

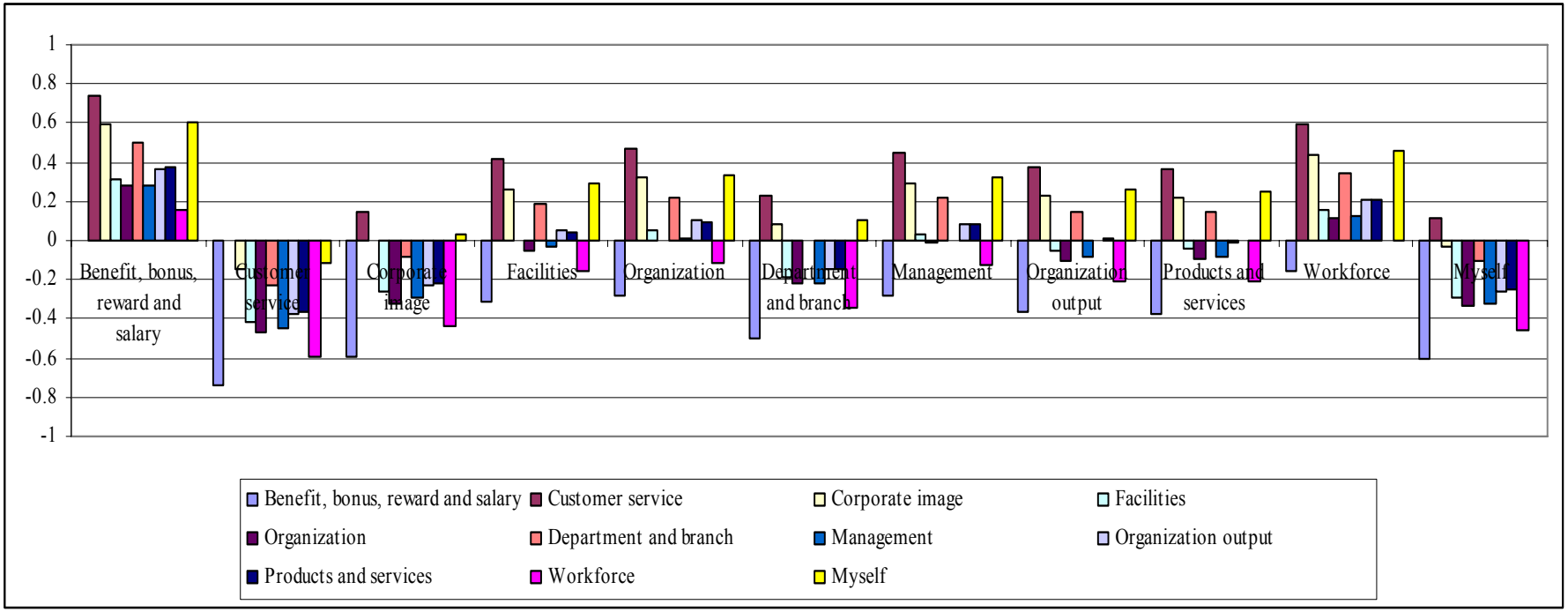


Table 5.47: Results of paired-samples t-test for service quality

Pairs	Correlation	Std. deviation	df	Sig.(2-tailed)
ATM – corporate image	.508	.5615	259	.000
ATM – customer interaction	.439	.5875	238	.000
ATM – online and phone banking	.415	.7015	267	.000
ATM – physical features and facilities	.613	.4947	217	.000
ATM – products and services	.632	.4943	253	.000
ATM – rates and charges	.379	.6527	258	.000
ATM – management	.529	.6386	253	.000
ATM – staff	.528	.6058	278	.000
Corporate image – customer interaction	.775	.2936	228	.000
Corporate image – online and phone banking	.596	.5333	257	.000
Corporate image – physical features and facilities	.583	.4180	209	.783
Corporate image – products and services	.757	.3238	245	.190
Corporate image – rates and charges	.597	.4582	248	.000
Corporate image – management	.582	.5468	238	.039
Corporate image – staff	.616	.4932	260	.017
Customer interaction and customer service – online and phone banking	.619	.5441	234	.000
Customer interaction and customer service – physical features and facilities	.601	.3997	197	.054
Customer interaction and customer service – products and services	.721	.3213	225	.016
Customer interaction and customer service – rates and charges	.673	.3874	227	.001
Customer interaction and customer service – management	.523	.5775	239	.938
Customer interaction and customer service – staff	.575	.5201	239	.882
Online and phone banking – physical features and facilities	.552	.5622	216	.000
Online and phone banking – products and services	.636	.5176	251	.000
Online and phone banking – rates and charges	.499	.6148	257	.544
Online and phone banking – management	.470	.6964	246	.000
Online and phone banking – staff	.604	.5791	269	.000
Physical features and facilities – products and services	.764	.3146	210	.474
Physical features and facilities – rates and charges	.576	.4411	209	.000
Physical features and facilities – management	.524	.5856	204	.147
Physical features and facilities – staff	.559	.5420	219	.039
Products and services – rates and charges	.670	.4086	246	.000

Products and services – management	.692	.4912	237	.063
Products and services – staff	.693	.4513	254	.068
Rates and charges – management	.407	.6656	240	.026
Rates and charges – staff	.486	.5876	260	.002
Management - staff	.528	.6357	264	.385

Note : The results including paired samples correlations and paired samples differences in the above table.

Table 5.48: Results of paired-samples t-test for service climate

Pairs	Correlation	Std. deviation	df	Sig.(2-tailed)
Benefits, bonus, reward and salary – corporate image	.366	.6494	126	.000
Benefits, bonus, reward and salary – customer service	.531	.5436	120	.000
Benefits, bonus, reward and salary – facilities	.619	.5004	124	.000
Benefits, bonus, reward and salary – organization	.679	.4477	119	.000
Benefits, bonus, reward and salary – department and branch	.505	.5427	128	.000
Benefits, bonus, reward and salary – management	.550	.5312	122	.000
Benefits, bonus, reward and salary – organization output	.379	.7062	127	.000
Benefits, bonus, reward and salary – products and services	.392	.5995	125	.000
Benefits, bonus, reward and salary – workforce	.632	.4665	122	.000
Benefits, bonus, reward and salary – myself	.165	.6496	121	.000
Corporate image – customer service	.761	.3645	122	.000
Corporate image – facilities	.475	.5422	122	.000
Corporate image – organization	.652	.4228	120	.000
Corporate image – department and branch	.469	.5212	127	.000
Corporate image – management	.503	.5153	122	.000
Corporate image – organization output	.623	.5360	128	.000
Corporate image – products and services	.595	.4603	126	.000
Corporate image – workforce	.607	.4505	122	.000
Corporate image – myself	.446	.5128	121	.011
Customer service – facilities	.615	.4500	118	.000
Customer service – organization	.810	.2899	116	.000
Customer service – department and branch	.577	.4329	122	.038
Customer service – management	.645	.4128	118	.000

Customer service – organization output	.739	.4536	122	.000
Customer service – products and services	.765	.3305	121	.000
Customer service – workforce	.642	.4003	118	.000
Customer service – myself	.451	.4743	116	.507
Facilities – organization	.663	.3882	116	.125
Facilities – department and branch	.406	.5308	125	.000
Facilities – management	.623	.4453	120	.502
Facilities – organization output	.452	.6373	123	.355
Facilities – products and services	.542	.4751	122	.311
Facilities – workforce	.561	.4585	120	.000
Facilities – myself	.407	.5040	118	.000
Organization – department and branch	.691	.3394	120	.000
Organization – management	.722	.3302	118	.715
Organization – organization output	.638	.5077	121	.021
Organization – products and services	.728	.3277	120	.002
Organization – workforce	.774	.2885	117	.000
Organization – myself	.455	.4161	116	.000
Department and branch – management	.645	.3966	123	.000
Department and branch – organization output	.374	.6485	129	.014
Department and branch – products and services	.366	.5111	127	.002
Department and branch – workforce	.714	.3407	125	.000
Department and branch – myself	.303	.4939	122	.016
Management – organization output	.472	.6060	123	.109
Management – products and services	.504	.4709	122	.063
Management – workforce	.839	.2727	120	.000
Management – myself	.562	.4228	119	.000
Organization output – products and services	.694	.4813	128	.774
Organization output – workforce	.526	.5776	124	.000
Organization output – myself	.273	.6750	122	.000
Products and services – workforce	.545	.4370	123	.000
Products and services – myself	.477	.4429	122	.000
Workforce – myself	.439	.4436	119	.000

Note : The results including paired samples correlations and paired samples differences in the above table.

Multiple regression analysis was run to determine the relative contributions of the nine dimensions in influencing overall service quality and eleven dimensions of service climate perceptions and propensity to recommend. There are a number of ways in which variables can be entered into a model; blockwise entry, forced entry and stepwise method (Field, 2000). The regression equation can be interpreted and used in two ways: to compute estimates of one variable when only the value of the other is known and to obtain some insights or understanding of the relationship between the variables (Alreck and Settle, 1985).

As a general rule for blockwise entry, known predictors from previous research studies should be entered into the model first in order of their importance in predicting the outcome. After that, the researcher can add any new predictors into the particular model.

As for the stepwise method, it is based on a purely mathematical criterion. The criterion used selects the best predictor that has the highest simple correlation with the outcome. Then, it selects the second predictor that has the largest semi-partial correlation with the outcome. Many writers argue that this takes many important methodological decisions out of the hands of the researcher e.g. models derived by computer take advantage of random sampling variation (Field, 2000).

Forced entry is the most appropriate method for this study because it relies on good theoretical reasons for including the chosen predictors, which in this case

were nine dimensions for service quality and eleven dimensions for service climate. But the experimenter makes no decision about the order in which variables are entered because all predictors are forced into a model simultaneously.

There are three applications of multiple regressions that require different analytical strategies: one set, unordered sets or ordered sets of predictors (Green et al, 2000; Green and Salkind, 2008). In this study, the researcher only focused on one set of predictors; as the research questions do not differentiate among predictors, the predictors are treated as a single set.

Table 5.49: Multiple regressions for service quality

Independent variables	**Dependent variables (servqual$_1$)**		
Constant	-0.014	df	9.140
Automated Teller Machine	0.188	F	5.519
Corporate image	0.329	R	0.512
Customer interaction and customer service	-0.231	R^2	0.262
Online and phone banking	0.048	Adjusted R^2	0.214
Physical features and facilities	0.409	Durbin Watson	1.691
Products and services	0.130	p	.000
Rates and charges	0.128		
Management	0.042		
Staff	-0.046		

Multiple regression analysis was conducted to evaluate how well the strength measures predicted service quality for bank customers. The predictors were the main nine strength indices, as presented in Table 5.49 and the criterion variable was the overall service quality index.

The linear combination of strength measures was significantly related to service quality index; F(9, 140)=5.519, p= .000. The sample multiple correlation coefficient was 0.512, indicating that approximately 26.2% of the variance of the service quality index in the sample can be accounted for by the linear combination of strength measures. The regression equation with all nine strength predictors was significantly related to the service quality index, R^2=0.262, adjusted R^2=0.214. The Bs, as labelled on the output, are the weights associated with the regression equation. According to these B weights, the regression equation is as follows:

$$\text{Service quality} = -0.014 + 0.188_{ATM} + 0.329_{CI} - 0.231_{CICS} + 0.048_{OPB} + 0.409_{PFF} + 0.130_{PS} + 0.128_{RC} + 0.042_{Mgmt} - 0.046_{St}$$

Although this equation yields predicted dependent variable scores, the weights are not useful for understanding the relative importance of the predictors. Weights are more interpretable if the dependent and independent variables are standardized to have a mean of 0 and a standard deviation of 1 (*z* scores). These standardized weights are labelled Beta on the output. The prediction equation for the standardized variables is as follows:

$$Z_{\text{Service quality}} = 0.145_{ATM} + 0.175_{CI} - 0.109_{CICS} + 0.040_{OPB} + 0.230_{PFF} + 0.069_{PS} + 0.076_{RC} + 0.033_{Mgmt} - 0.036_{St}$$

From the equation, the physical features and facilities dimension remained the strongest predictor for service quality. In the other hand, the customer interaction and customer service dimension is the least contributor for service quality.

The F-ratio is a measure of how much the model has improved the prediction of the outcome compared to the level of inaccuracy of the model. A good model should have a large F-ratio (greater than one at least). For bank customers, the F-ratio is 5.519. The exact magnitude of this F-ratio can be assessed using critical values for the corresponding degrees of freedom. R^2 represents the amount of variance in the outcome explained by the model (sum of squares) relative to how much variation there was to explain in the first place (total sum of squares). This adjusted R^2 value indicates the loss of predictive power or shrinkage. It also tells how much variance in Y would be accounted for if the model had been derived from the population from which the sample was taken.

The size of Durbin Watson statistics depends on the number of predictors in the model; this employee study involved nine predictors. As a very conservative rule of thumb, values of less than 1 or greater than 3 are definitely cause for concern. Referring to Table 5.49, Durbin Watson figures 1.691.

Table 5.50: Multiple regressions for service climate

Independent variables	**Dependent variables (servclim$_1$)**		
Constant	-0.115	df	11. 90
Benefits, bonus, reward and salary	0.067	F	10.923
Corporate image	0.055	R	0.756
Customer service	0.113	R^2	0.572
Facilities	1.081	Adjusted R^2	0.519
Organization	0.255	Durbin Watson	2.547
Department and branch	0.141	p	.000
Management	-0.031		
Organization output	-0.117		
Products and services	-0.209		
Workforce	-0.216		
Myself	-0.056		

The second multiple regression analysis was conducted to evaluate how well the strength measures predicted service climate for bank employees. The predictors were the main eleven strength indices, as presented in the Table 5.50 and the criterion variable was the overall service climate index.

The linear combination of strength measures was significantly related to service quality index: F(11, 90)=10.923, p= .000. The sample multiple correlation coefficient was 0.756, indicating that approximately 57.2% of the variance of the service climate index in the sample can be accounted for by the linear combination of strength measures. The regression equation with all nine strength predictors was significantly related to the service quality index, R^2=0.572, adjusted R^2=0.519. The Bs, as labelled on the output, are the weights associated with the regression equation.

$$\text{Service climate} = -0.115 + 0.067_{\text{BBRS}} + 0.055_{\text{CI}} + 0.113_{\text{CS}} + 1.081_{\text{Fac}} + 0.255_{\text{Org}} + 0.141_{\text{D\&B}} - 0.031_{\text{Mgmt}} - 0.117_{\text{OO}} - 0.209_{\text{P\&S}} - 0.216_{\text{Wf}} - 0.056_{\text{Mys}}$$

According to these B weights, the regression equation is as the above. Although this equation yields predicted dependent variable scores, the weights are not useful for understanding the relative importance of the predictors. Weights are more interpretable if the dependent and independent variables are standardized to have a mean of 0 and a standard deviation of 1 (*z* scores). These standardized weights are labelled Beta on the output. The prediction equation for the standardized variables is as follows:

$$Z_{\text{Service climate}} = 0.053_{\text{BBRS}} + 0.040_{\text{CI}} + 0.075_{\text{CS}} + 0.720_{\text{Fac}} + 0.141_{\text{Org}} + 0.085_{\text{D\&B}} - 0.019_{\text{Mgmt}} - 0.103_{\text{OO}} - 0.126_{\text{P\&S}} - 0.130_{\text{Wf}} - 0.029_{\text{Mys}}$$

In the equation, the facilities dimension remained the strongest predictor for service climate in this study. On the other hand, the workforce dimension was the weakest contributor for service climate. The adjusted R^2 value indicates the loss of predictive power or shrinkage. It also tells how much variance in Y would be accounted for if the model had been derived from the population from which the sample was taken.

The size of Durbin Watson statistics depends on the number of predictors in the model; this employee study involved eleven predictors. As a very conservative rule of thumb, values of less than 1 or greater than 3 are definitely cause for concern. Referring to Table 5.50, Durbin Watson figure is 2.547.

5.4.8 Elaboration analysis

Although the two phases of this study did not investigate causal relationships as an objective of the research, the researcher wished to know the reasons underlying the nature of the relationship between service quality and service climate. Therefore, the technique of elaboration analysis developed by Kendall and Lazarsfeld (1950 in Vaus, 2002) suited the purposes to go into the detail of the relationships involved in this study to see to what extent this was due to the influence of other variables. In order to employ this technique, there were three variables at a time: X, Y and Z. For example, previous bivariate analysis might have indicated a relationship between each of nine dimensions (X) with

service quality (Y), consequently, elaboration analysis below explores the reasons for this relationship. It could be due to the third variable, called a test variable and symbolized as Z, which is the different categories of gender, age, education, work sector or duration relationship between bank customers and the participating banks.

There are different approaches to using the logic of elaboration analysis; partial correlation coefficients are used in examining conditional relationships as appropriate with the researcher's intent. Pearson's correlation would be used to summarize the relationships. It is readily available as a partial correlation that can be used in the same manner as in partial gamma and partial Kendall tau (Vaus, 2002). The researcher examined the initial relationship between nine dimensions proposed in the main survey with service quality and saw patterns of conditional correlation compared to the zero order correlation coefficient supported with standard error mean and significance level accepted below .05.

The first controlling variable to be tested was gender. Only twenty two percent or in other words, only two dimensions (online and phone banking; rates and charges) had conditional coefficients lower than the zero order coefficient but all results were statistically significant ($p < .05$) for both zero order and conditional correlations. It is difficult to say that the relationship between the dimensions and service quality is partly spurious or partly indirect. Other test variables were age and work sector; it could be figured out from Table 5.51,

showing the conditional relationships that they are all weaker than the zero order relationship. All results were statistically significant ($p < .05$) for both zero order and conditional correlations. Therefore, the relationship between the dimensions and service quality is partly spurious or partly indirect. The remaining part of the initial relationship is either direct or to be explained by some other variable.

Seven dimensions (customer interaction and customer service; rates and charges) had conditional coefficients higher than the zero order coefficient in the case of connections of duration between bank customers and their participating banks but all results were statistically significant ($p < .05$) for both zero order and conditional correlations. Seventy eight percent of the results supported the relationship between the dimensions and service quality being partly spurious or partly indirect. The variance the dimensions and service quality being partly spurious or partly indirect. The variance in coefficient differences of zero order and conditional for education as a test variable showed that the relationship is specific to a certain subcategory in each dimension, which explains that interaction effects existed.

The primary relationship between the eleven dimensions proposed in the main survey with service climate sees the patterns of conditional correlation compared to zero order correlation coefficient supported with standard error mean and significance level accepted below .05 (see Table 5.52). Firstly, gender was tested as the controlling variable between eleven dimensions and service climate,

Table 5.51: Zero order and conditional (Pearson) correlations of demographic profiles by service quality dimensions

Dimension	Gender		Age		Education		Work sector		Years of service	
	Zero order correlation	Conditional correlation	Zero order correlation	Conditional correlation	Zero order correlation	Conditional correlation	Zero order correlation	Conditional correlation	Zero order correlation	Conditional correlation
Automatic Teller Machine	.396	.400	.396	.381	.394	.395	.355	.343	.396	.391
Corporate image	.390	.391	.390	.379	.387	.387	.334	.322	.390	.379
Customer interaction and customer service	.323	.329	.323	.309	.320	.324	.303	.286	.327	.328
Online and phone banking	.316	.313	.316	.313	.313	.308	.302	.295	.330	.322
Physical features and facilities	.460	.464	.460	.447	.457	.470	.445	.432	.463	.459
Products and services	.442	.454	.442	.426	.439	.450	.423	.408	.450	.446
Rates and charges	.320	.316	.320	.310	.323	.332	.349	.330	.327	.328
Management	.324	.343	.324	.299	.322	.328	.311	.293	.325	.317
Staff	.341	.342	.341	.331	.339	.347	.307	.285	.352	.347

Table 5.52: Zero order and conditional (Pearson) correlations of demographic profiles by service climate dimensions

Dimension	Gender		Age		Education		Work experience	
	Zero order correlation	Conditional correlation	Zero order correlation	Conditional correlation	Zero order correlation	Conditional correlation	Zero order correlation	Conditional correlation
Benefits, bonus, reward and salary	.468	.431	.468	.448	.468	.469	.448	.433
Corporate image	.352	.331	.352	.339	.352	.320	.331	.343
Customer service	.446	.406	.446	.423	.446	.427	.427	.417
Facilities	.729	.708	.729	.721	.729	.722	.725	.718
Organization	.525	.486	.525	.506	.525	.508	.515	.506
Department and branch	.425	.397	.425	.401	.425	.422	.410	.386
Management	.449	.436	.449	.429	.449	.464	.430	.415
Organization output	.281	.211	.281	.268	.281	.246	.256	.260
Products and services	.322	.268	.322	.309	.322	.299	.306	.305
Workforce	.417	.385	.417	.399	.417	.413	.397	.396
Myself	.274	.278	.274	.329	.274	.281	.247	.278

resulting in ninety one percent conditional correlation coefficients being lower than the zero order coefficient with statistical significance ($p < .05$). This interpreted like the rest of the result as above: relationship between dimensions and service climate is partly spurious or partly indirect. The second test variable was age and only one variable showed a negative result in differences between zero order and conditional coefficient. Therefore ninety one percent of the results suggested that a weaker relationship exists between conditional and zero order relationship even though they were all statistically significant ($p < .05$). As for education and work experience as the test variables, eighty two and seventy three percent of the results supported the relationship between dimensions and service climate as being partly spurious or partly indirect.

5.5 Summary

To trace the association of variables and reasons that lead to a particular end has become a systematic procedure: from pilot to preliminary study and main survey; open ended to close ended questionnaires; analyses in the preliminary study to a number of consecutive examinations. The analyses brought about in the main survey and preceding section have demonstrated a number of results that might lead to numerous views on the subject of service quality and service climate involving bank customers and employees in the participating banks specifically and in the banking industry in general. From a theoretical point of view, however, the process involved in order to acquire the above outcomes can seldom be

considered exhaustive even if it suited the researcher's intention because there were limitations in this study. These details will be explained in the chapter that follows.