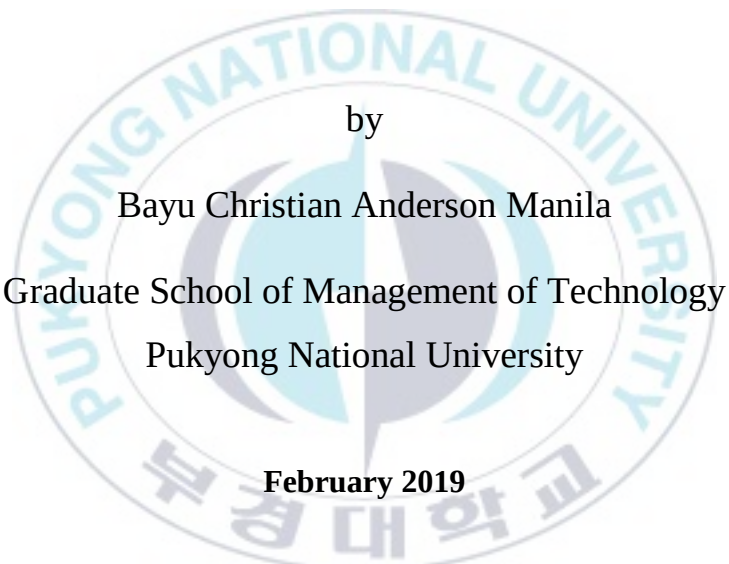
Thesis for the Degree of Master of Management of Technology

The Investigation of Priorities of Retail Service Quality: A Case of Retail in Indonesia



by

Bayu Christian Anderson Manila

Graduate School of Management of Technology

Pukyong National University

February 2019

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소매업 서비스 품질의 우선순위 선정에 관한 연구: 인도네시아 사례를 대상으로

Advisor: Prof. Dongphil Chun

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Bayu Christian Anderson Manila

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Bayu Christian Anderson Manila

Approved by:

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(Chairman) Hong Tak, Lim

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(Member) Min Kyu, Lee (Member) Dong Phil, Chun

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Bayu Christian Anderson Manila

Graduate School of Management of Technology

Pukyong National University

Abstract

The competition in retail marketing that increases every year, it has forced firms to think about strategies due to customer expectations and demands are also increasing. In terms of retail industry in entire countries like Indonesia, that recorded high growth rate. Therefore, this study aims to identify the most critical factors in retail-related in service quality through analysis of five criteria. To identify the priorities, we conducted a survey of 30 respondents in Manado by questionnaires using the analytic hierarchy process method. Five variables such as physical aspect, reliability, personal interaction, problem solving and policy were considered for this research. The analysis has conducted with expert choice software 2000 in order to analyze criteria toward the customers in retail service quality. We found that in all thirty respondent, problem-solving criteria has the most important. By male perspective, they considered policy is the most important criteria among the others. Whereas by female perspective, they prefer those personal interaction criteria that the most important. According to age < 30 years old, they inclined to a personal interaction that has the most important criteria, meanwhile categories age of 30 years old respondents considered that reliability is the most important criteria. This study may have major implications for research the retail industry in the future, to consider towards on some perspective based on gender, age, etc., as benchmarks to improve the capability to get the place in customers as for sustain the company revenue in the future. Also, this research can be a recommendation in order to pick out also focused on variables of priority in their development retail and internal management.

Keywords: Retail, Service Quality, Customer Satisfaction, Customers, Revenue, Decision Making, Management

소매업 서비스 품질의 우선순위 선정에 관한 연구 :
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Bayu Christian Anderson Manila

부경대학교 기술경영전문대학원

초록

매년 증가하는 소매 마케팅의 경쟁은 기업들로 하여금 고객의 기대와 수요에 대한 대응 전략에 대해 생각하도록 요구하고 있다. 인도네시아는 최근 소매업 영역에서 높은 성장률을 기록하고 있다. 따라서 본 연구는 5 가지 기준을 분석하여 서비스 품질에서 소매 관련 가장 중요한 요인을 파악하는 것을 목표로 한다.

우선 순위를 식별하기 위해, 계층분석적 의사결정 방법론(Analytic Hierarchy Process, AHP)을 적용하였고, 설문지를 통해 인도네시아 Manado 지역의 30 명의 소비자에게 답변지를 확보하였다. 본 연구를 위해 물리적 측면, 신뢰성, 개인적 상호작용, 문제 해결 및 정책과 같은 다섯 가지 변수를 고려했다. 분석을 위하여 전문 소프트웨어인 Expert Choice 2000 을 사용하였다. 분석결과, 30 명의 답변 결과 중 문제 해결 기준이 가장 중요하다는 것을 발견했다. 남성의 경우, 정책이 상대적으로 가장 중요한 기준이라고 생각했으며, 여성의 경우, 개인적 상호작용이 상대적으로 중요한 요인으로 밝혀졌다. 30 세 미만에 있어서, 개인적인 상호작용을 중시하는 경향이 있는 반면, 30 세 이상의 응답자들은 신뢰성이 가장 중요한 요인이라고 생각했다.

본 연구는 향후 기업 수익을 유지하기 위해 고객의 입지를 강화할 수 있는 참고자료로서 향후 소매업계의 연구에 큰 영향을 미칠 수 있다. 또한, 본 연구의 결과를 통하여 소매업 확장과 내부 경영에서 우선순위의 변수에도 초점을 맞추도록 권고할 수 있다

I. Introduction

The development of various store formats has been a key trend in the intense scene of retail competition. Nowadays, customers can choose from a broad array of competing categories, including supermarkets, department stores, outlets, specialty retailers, etc., that offer various benefits to match the needs of different segments and meet different shopping situations (Amorim and Saghezchi, 2014). In the present era of intense competition, monitoring and improving service quality is highly essential for developing efficiency and business volume (Anderson and Zeithamal, 1984; Babakus and Boller, 1992; Garvin, 1983; Meesala and Paul, 2016). In both manufacturing and service industries, quality improvement is the principal factor that impacts consumer satisfaction and consumer purchase intention (Oliver, 1980; Meesala and Paul, 2016).

The increasing of competition in the marketing of products has forced companies to think about differentiating strategies for the purpose of attracting and retaining customers (Kasiri et al., 2016). Because, among the differentiation strategies that have been used by companies is the personalization of products to meet customer needs (Kasiri et al., 2016; Beatty et al., 2015; Tam and Ho, 2005). With the rapid advancements in businesses area, customer expectations and demands are also increased, leading to a situation where many firm kinds of difficult to retain their customers (Farooq et al., 2017; Ali et al., 2015).

The retail industry in developing countries like Indonesia has recorded a relatively high growth rate as the association of Indonesian retail entrepreneurs (*Aprindo*) declare that the growth of the retail industry in the first half of 2018 by 7-7.5%. They said that this figure is greater than last year's growth of only 5%.

In another case, a survey conducted by the Indonesian Bank (Bank Indonesia) in September 2018, they said that retail sales pointed to upbeat. Nevertheless, the real sales index (RSI) growth was slower than the previous period. The RSI was recorded at 210.8 in the reporting period, with growth decelerating to 4.8 % (yoy) from 6.1 % (yoy) in August 2018 but increasing on the 1.8 % (yoy) posted in the same period last year.

For instance, The growth of modern retail industry such as PT. Sumber Alfaria Trijaya known as Alfamart and PT. Indomarco Prismatama known as Indomaret in Indonesia has appeared in the period of 2011 - 2017. In 2017, the alfamart company successfully managed to operate 13,477 stores in all areas of Indonesia, of which is 1,111 is the new store. The distribution of stores in the Jakarta-Bogor-Depok-Tangerang and Bekasi (Jabodetabek) area was 31.4 % in java outside the jabodetabek area was 40.3 % and distribution outside java was 28.3 %. Meanwhile, the total number of franchise stores also grew by 5.1 % compared to 2016, by opening 170 additional stores.

Until the end of 2017, the total number of franchise stores was 3,553 units or 26.2 % of the total number of stores operated by the company. Beside on alfamart, indomaret retail company had managed to operate more than 12,800 stores, comprises of 60 % owner and 40 % belong to the community. Distribution of stores in Java, Bali, Madura, and Sumatra, in north Sulawesi and Gorontalo area, the distribution store is about 305 stores. The characteristic dimensions of quality service that contributes substantially to customer satisfaction need to be identified. Therefore, retail management can prioritize better in their focus on such specific factors, notably in terms of retail service quality.

The issue of concept and measure the various dimensions of retail service quality is critical for retailers to deliver quality services (Deb and David, 2013). Retailing is interested in identifying the most critical factors in the retail situation. Because it will ensure that in terms of survival and success business in the future. For this to reason, the factors or dimensions need to be identified. Quality is one of the important factors that influencing a customer purchasing decisions (Jiang and Zhang, 2016; Anderson and Zeithaml, 1984). Service quality increasing customer satisfaction, which implements customer loyalty and in turns leading increased in corporate profits (Szwarc, 2005; Jiang and Zhang, 2016).

Measuring the quality of service in the context of retail, we are using a more comprehensive scale called the retail service quality scale developed by Dabholkar et al., (1996).

The scale consists of the following five dimensions, such as Physical aspects (PA), Reliability (RE), Personal interaction (PI), Problem-solving (PS) and Policy (P) – that could be studied to understand their impact on the important quality output, in terms of retail service quality. The purpose of our research is would determine those most important quality dimensions. We analyze the priorities of Service Quality variables based on customer perspective. This study had the critical factors that can be useful for service organizations in retail service quality in general. This research process was divided into five sections. Section one explains the background of this study, section two explain basic concepts of literature review, section three to explain the research design method. Then, the results are discussed in Section 4. Finally, in Section 5 comprises of a discussion about the conclusion, the practical implications of the result, the research limitations, and future recommendation.

II. Literature Review

2.1 Retail Service Quality

Parasuraman et al. (1985) defined service quality as the global evaluation or attitude of the overall excellence of services. Service quality is the difference between customers' expectation and perceptions of services delivered by service firms. Nitecki et al., (2000) defined service quality in terms of "meeting or exceeding customer expectations, or as the difference between customer perceptions and expectations of service" (Wang and Shieh. 2006). Service Quality developed by Parasuraman et al. (1988, 1991). The scale consists of 22 items covering five dimensions of tangibles, reliability, responsiveness, assurance, and empathy.

The Service Quality instrument has been tested and/or adapted in various settings like the quality of service offered by a hospital (Babakus and Mangold, 1989), a CPA firm (Bojanic, 1991), a dental school patient clinic, business school placement center, tire store, and acute care hospital (Carman, 1990), pest control, dry cleaning, and fast food (Cronin and Taylor, 1992), banking (Spreng and Singh, 1993; Cronin and Taylor, 1992) and discount and departmental stores (Finn and Lamb, 1991; Teas, 1993; Dabholkar et al., 1996). Service quality is derived from a comparison between customer expectations and customer perceptions of actual service performance.

The Service Quality instrument has evolved to become the most commonly used service quality measurement instrument.

Ladhari (2009); Parmata (2017), reviewed 20 years (1988-2008) of research on the Service Quality scale for measuring service quality and concluded that ServQual remains to be the useful instrument for service quality research. Several prior studies have adopted the service quality instrument to the context under investigation. For example, Dabholkar *et al.*, (1995) developed a scale for measuring retail service quality using confirmatory factor analysis.

Various studies have been done relating to service quality. Such as Parmata et al., (2016), in the pharmaceutical sector, they measure distributors perceived service quality in the distributor-manufacturer interface of the pharmaceutical supply chain. In their objectives study, they try to identify the critical factors of service quality in order to supply chain from distributors' perspective, revalidate the scale to measure distributors perceived service quality, and study the impact of service quality on customer satisfaction.

In Retail Service Quality (RSQ), Khare (2013) conducted to research in the small retail sector, especially in the context of Indian experience. This research is to understand Indian customer definition of retail service quality with respect to small retailers and the influence of hedonic and utilitarian shopping values in determining their expectations toward small retail service quality.

An application of service quality in retailing, Sivapalan and Jebarajakirthy (2017) they propose and empirically investigate a comprehensive mechanism for enhancing customer loyalty to retail stores via service quality practices towards three main supermarkets in Sri Lanka. The research suggests information on retailers can be the antecedent of the RSQ and its dimensions, thereby proposing a comprehensive mechanism for enhancing customer loyalty to retailers.

2.2 Consumer demographic characteristics: Age and Gender

Consumers' demographic characteristics such as age and gender were important predictors of their shopping behavior and a basis for market segmentation. The analysis of consumer demographic characteristics may provide valuable information for retailers to discover target customers, to determine their needs and to identify effective ways of reaching them (Shim and Bickle, 1994; Yoo and Sauls, 2007).

Previous research revealed that individual consumer characteristics influence their shopping behaviors. Among consumer characteristics, age and gender, in particular, have been identified as important elements in shaping consumers' shopping behavior (Rabolt and Drake, 1984/1985; Solomon, 2007; Yoo and Sauls, 2007). Gupta and Gentry (2015) they said that, when shopping for fashion products in scarce environments, men and women tend to exhibit gendered behaviors that are considered more consistent with their traditional gender norms. We find that men, although concerned about their appearance, adhere to urgent buying behavior.

Dias (2003) also suggests that different age groups have different attitudes toward shopping and these varying attitudes influence their motivations for purchasing consumer goods. Other researchers indicated that age influences consumer decision-making styles.

Wesley et al., (2005), they research to decision-making styles relate to their shopping mall behavior and their global evaluations of shopping malls. Based on exploratory data analysis, including the use of the comparative method, they provide a theoretical model of antecedents and consequences of consumer-decision making styles.

Nelson (2009) examine the influence of search the behavior of gender, purchase, confidence, and internal knowledge in different purchase situations. This research indicates that sources of information are perceived differently by males and females depending on their levels of purchase confidence and internal knowledge, suggesting that, when consumers consider sources of information, such as retail clerk, family/friends or themselves, the purchase situation influences that decision.

In the retailed sector, Yoo and Sauls (2007) investigate Hispanic consumers' shopping orientation and their apparel retail store evaluation criteria and to examine age and gender differences in their shopping orientation and retail store evaluation criteria. They revealed that males and females have different shopping orientation and apparel retail store evaluation criteria. Shopping orientation and apparel retail store evaluation criteria also varied across age groups.

Also for apparel retailers regarding how to position their stores in targeting different groups of shoppers and how to allocate their resources and promote products.

Yildirim et al (2013) the research to ascertain the effect of age, gender and education level on customer evaluations of store atmospheric attributes (color, lighting type, musical genre/tempo/volume, circulation area, lighting, climatic conditions, ambient scent, and cleanliness) in the context of retail furniture stores. They have suggested that there are differences in customer evaluations of store atmospheric attributes emerged based on age, gender and education level.

Based on the result certain store, atmospheric attributes (color, lighting type, musical genre/tempo/volume) preferred by customers were suggested to enhance the design of furniture stores.

2.3 Analytical Hierarchy Process

The Analytical Hierarchy Process was developed by Saaty (1980) to solve complex decision-making problems that involve ranking and choosing alternatives. In the AHP, the preferences of the decision maker (DM) are elicited in the form of ratios using pair-wise comparison matrices (PCMs). The decision maker compares the elements in the PCM and assigns a numerical value. A final aggregation local weight is performed to rank and chooses the alternative (Zahedi, 1986; Deb; Lomo-David, 2014). This method has a comprehensive decision-making process with a hierarchical structure that consists of levels and links.

The AHP's characteristics are suitable for handling multiple levels and criteria. In order to use AHP, scholars have to identify several qualitative and quantitative criteria.

This will be helpful to evaluate the priorities among multiple alternatives. The strong point of this method is that it is appropriate to transform qualitative information into quantitative information. It is based on a person's perceptions identified through a survey. The results of the analysis are provided as a priority ratio by pairwise comparison. The AHP generally uses a nine-point scale and provides a consistency ratio by relative priority within criteria, elements, and alternatives. The nine-point scale is subdivided into equally, moderately, strongly, very strongly, and absolutely preferred (with the values of 1, 3, 5, 7, and 9 respectively), as well as intermediate values (2, 4, 6, and 8).

Table 1. The fundamental scale of absolute numbers

Intensity of Importance	Definition	Explanation
1	Equal Importance	Two activities contribute equally to the objective
2	Weak or slight	
3	Moderate importance	Experience and judgment slightly favor one activity over another
4	Moderate plus	
5	Strong importance	Experience and judgment strongly favor one activity over another
6	Strong plus	
7	Very strong or demonstrated importance	An activity is favored very strongly over

		another; its dominance demonstrated in practice
8	Very, very strong	
9	Extreme importance	The evidence favoring one activity over another is of the highest possible order of affirmation
Reciprocals of above	If activity *I* have one of the above non-zero numbers assigned to it when compared with activity *j*, then *j* has the reciprocal value when compared with *i*	A reasonable assumption
1.1–1.9	If the activities are very close	May be difficult to assign the best values, but when compared with other contrasting activities the size of small numbers would not be too noticeable, yet they can still indicate the relative importance of the activities.

Source: Saaty. T. L, (2008)

The AHP has been widely applied to evaluate complex and comprehensive impacts during the last certain decade, such as economic analysis, forecasting, and strategic planning. Furthermore, in various industries, this method has been applied for resource allocation, performance evaluation, business decision making, and a priority rating. AHP uses a ratio scale, which, reverse to methods using interval scales, requires no units in comparison.

The judgment is a relative value or a quotient *a / b* of two quantities *a* and *b* having the same units (intensity, meters, utility, etc). The decision maker does not need to provide a numerical judgment; instead, a relative verbal appreciation is sufficient. The results of paired comparisons for *n* attributes are organized into positive reciprocal *n* x *n* matrix as follows :

$$\begin{matrix} 1 & S_{12} & \dots & S_{1n} \\ 1/_{S_{12}} & 1 & \dots & S_{2n} \\ \dots & \dots & \dots & \dots \\ 1/_{S_{1n}} & 1/_{S_{2n}} & \dots & 1 \end{matrix}$$

Source: Saaty, 1977; Franek and Kresta. 2014

The evaluation requires a certain level of matrix consistency, i.e. that the elements are linear independent. That can be assessed employing consistency index CI as follows: firstly the λ_{max} (the highest eigenvalue of the matrix) has to be calculated like so (Saaty, 1977):

$$\lambda_{\max} = \sum_{j=1}^{m} \frac{\left(\mathbf{S} \cdot \mathbf{v}\right)_j}{m \cdot v_j},$$

Where *m* represents the number of independent rows of the matrix, **S** represents the pair-wise comparison matrix and *v* means the matrix eigenvector. Then the consistency index *(CI)* can be calculated as follows:

$$CI = \frac{\lambda_{\max} - m}{m - 1}.$$

If the matrix is perfect consistently then *CI=0.*

When dealing with the high number of pair-wise comparisons the possibility of consistency error is also increasing. Thus Saaty (1980) suggested other measures the *CR* (consistency ratio) that can be calculated like so,

$$CR = \frac{CI}{RI},$$

Where *RI* is represented by average *CI* values gathered from a random simulation by Saaty pair-wise comparison matrices *CI*s. The suggested value of the CR should be no higher than 0.1 (Saaty. 1980). The consistency ratio (CR) is obtained by comparing the C.I. with the appropriate one of the following set of numbers (See Table 2) each of which is an average random consistency index derived from a sample of randomly generated reciprocal matrices using the scale 1/9, 1/8,…,1,…,8, 9. If it is not less than 0.10, study the problem and revise the judgments. The AHP includes a consistency index for an entire hierarchy. An inconsistency of 10 percent or less implies that the adjustment is small compared to the actual values of the eigenvector entries. A proof that the number of elements should be small to preserve consistency can be found in.

Table 2. Averages random consistency index (R.I.)

N	1	2	3	4	5	6	7	8	9	10
Random Consistency Index (RI)	0	0	0.52	0.89	1.11	1.25	1.35	1.40	1.45	1.49

Source: Saaty. T. L; Vargas. L. G (2012)

Deb and Lomo-David (2014), measuring service quality in retail industry using AHP approach that would help the retail industry to recognize which retail service quality (RSQ) dimensions require attention to create a sustainable competitive advantage, also to use a comparative evaluation model to compare retail stores (supermarkets) across several RSQ dimensions, validated and tested retailed service quality model in the context of Indian supermarkets and explore the existence gap.

By studying the difference between customer's perception and expectations by which service dimensions (physical aspects, reliability, personal interaction, problem solving and policy) in the context of retail Dabholkar *et al.* (1996).

Gopalan, et al., 2013, they conduct research in evaluation retail service quality using AHP approach to present an integrated fuzzy (fuzzy analytic hierarchy process (FAHP) approach to help the decision makers/retailers in practicing and judging the priorities of service quality strategies and accordingly benchmarking retail stores in Indian retail environment. The study incorporated the five basic dimensions of Retail Service Quality (personal interaction, physical aspects, reliability, and policy) scale proposed by Dabholkar et al., 1996 and the FAHP approach to three leading apparel retail stores of a major city (Rourkela) of Orissa (an Indian state located in east part of the country) to determine the weights of criteria and sub-criteria of retail service quality.

Seo et al., 2017 identifies success factors for sustainable business through analysis of users and hosts' demands and priorities about co-working spaces. They identify the priorities such as co-working management, membership management and supporting management, with a conducted a questionnaire survey with 60 hosts and 56 users by using the analytic hierarchy process method.

Table 3. Related studies of Retail service quality

Author / Year	Studies	Method	Variable	Main Result
M. Deb; E. Lomo David / 2013	Evaluation of retail service quality using analytic hierarchy process	Analytical hierarchy process (AHP)	comparing retail stores (Supermarkets) across several RSQ dimensions such as physical aspects (PA), reliability (RE), personal interaction (PI), problem-solving (PS) and policy (P)	Among all the five dimensions of Service Quality (SQ), the analysis result shows that Policy is the most preferred dimension with the highest score of 0.28

Gopalan; Sreekumar; Satpathy / 2013	Study an integrated fuzzy (fuzzy analytic hierarchy process (FAHP) approach	The Fuzzy Analytical Hierarchy Process approach	the five basic dimensions of Retail Service Quality: Problem-solving, personal interaction, physical aspects, reliability and policy	The relative weight of the five dimensions are found 0.204, 0.182, 0.339, 0.127 and 0.148, respectively. The weights describe that consumers place more importance to personal interaction, followed by physical aspects and least importance to problem-solving.

Parmata et al., / 2016	Measuring service quality in a pharmaceutical supply chain – distributor's perspective	used service quality measurement scale (SERVQUAL)	Components ServQual such as Responsiveness, Assurance, Reliability, and Communication	The distributor perceived service quality was developed which also satisfied all the reliability and validity tests. The findings of the present study indicate that distributor perceived service quality has an effect on satisfaction.

Sivapalan and Jebarajakirthy / 2017	An application of retailing service quality practices influencing Customer loyalty toward retailers	The data were collected using questionnaire surveys from 2.375, the customers of three main supermarkets	using conceptualized RSQ construct proposed by Dabholkar et al. (1995) consisting of five dimensions: physical aspect, reliability, personal interaction, problem solving and policy.	The store's physical aspects, personal interaction, and policy had a significant influence on customer loyalty

III. Research Design

3.1 Research instrument

In terms of the investigation of priorities of Retail Service Quality, a hierarchy levels of the Analytical Hierarchy Process (AHP) model have been designed. In the Analytical Hierarchy Process method, the decision problem was decomposed into a hierarchy. Decomposing a customer preference involves the structuring of a hierarchy in terms of the overall objective, the selection criteria.

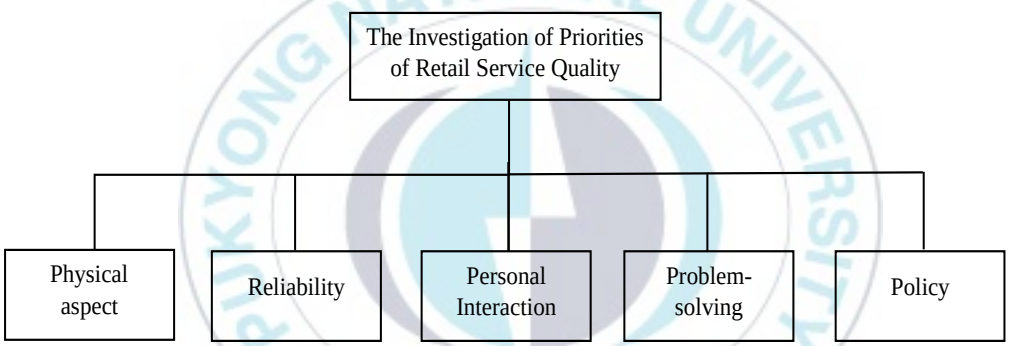

Figure 1. The Hierarchy of Investigation of Retail Service Quality

This model basically from Saaty (1980) to solve complex decision-making problems that involve ranking and choosing of alternatives. The first level presents the key criteria that include physical aspect, reliability, personal interaction, problem solving and policy.

In this research, figure 1 and table 4 are summarized the Analytical Hierarchy Process model for the customer satisfaction of retail service quality. For this analysis, we are using expert choice 2000 software to apply AHP in this research.

Table 4. Evaluation Indicator Description of Dimensions/Criteria

Physical aspects	The layout makes it easy for customers to locate goods
	The layout is convenient to move around the store
	Availability of merchandise
	Visually appealing physical facilities
Reliability	Promises to do something by a certain time frame
	Providing service within the promised time frame
Personal interaction	Consistency courteous with customers
	Giving prompt and required service by the employee
	Individual attention
Problem-solving	Handling customer's complaint immediately
	Sincere interest to solve the problem
	Willingly handles returns and exchanges
Policy	Safety in transaction
	Accept major credit cards
	High-quality merchandise
	Error-free sales transactions and records
	Convenient operating hour
	Availability of sufficient staff during the operating

Source: Fornell and Larcker (1981); Deb and David (2013)

3.2 Sample

Data on measures was collect from several respondents via questionnaires. The respondents of this research are 30 respondents who live in Manado City, North Sulawesi Province, Indonesia. This research using AHP Approach to evaluate the importance of various criteria in retail service quality.

The primary objective of the questionnaire is to identify the importance of various dimensions of retail service quality. Analytical Hierarchy Process is a subjective method that is not necessary to involve a large sample, and it is useful for research focusing on a specific issue where a large sample is not mandatory (Wong and Li. 2006).

The authors such as Cheng and Li pointed out that AHP method may be impractical for a survey with a large sample size as ‘cold-called’ respondents may have a great tendency to provide arbitrary answers, resulting in a very high degree of inconsistency.

Another argued that because this method is based on expert judgments, judgments even a single qualified expert are usually representative (Darko et al. 2018). The extant literature on analytical hierarchy process applications indicated that there is no strict requirement on the minimum sample size for AHP analysis.

This survey was conducted during three weeks and the methodology is to give the questionnaire directly to respondents and they fill out each question. This survey asked the respondents to make the pairwise comparison among five dimensions or criteria.

IV. Results

The respondents are customers in Manado City, North Sulawesi Province, Indonesia. The answers in questionnaires are based on from customers because it has given directly to the respondents to gather this data. This means that respondents are people who have experience in terms of shopped and buying goods, products, etc., between both of retail such as indomaret and alfamart. This research is valuable as it presents a comparative analysis of other sides. This means that the important factors will be different by perspective. In the first level of the hierarchy, the priorities are different between all respondents also separated by gender base, male and female, and age.

Table 5. The Analysis Results and inconsistency number by each respondent

	Inconsistency Number	**PA**	**RE**	**PI**	**PS**	**PO**
Respondent 1	0.11	0.073	0.322	0.148	0.247	0.209
Respondent 2	1.48	0.197	0.202	0.211	0.194	0.196
Respondent 3	1.08	0.287	0.03	0.019	0.348	0.316
Respondent 4	0.20	0.099	0.05	0.063	0.164	0.624
Respondent 5	0.26	0.037	0.254	0.071	0.506	0.132
Respondent 6	1.31	0.158	0.25	0.163	0.208	0.221
Respondent 7	0.01	0.033	0.237	0.243	0.209	0.278
Respondent 8	0.08	0.035	0.112	0.263	0.246	0.344
Respondent 9	0.27	0.023	0.24	0.119	0.559	0.058
Respondent 10	1.05	0.045	0.248	0.286	0.225	0.196
Respondent 11	0.12	0.097	0.118	0.059	0.358	0.368
Respondent 12	0.00	0.2	0.2	0.2	0.2	0.2
Respondent 13	1.20	0.216	0.017	0.236	0.256	0.275
Respondent 14	0.17	0.431	0.11	0.129	0.298	0.032
Respondent 15	0.89	0.092	0.113	0.482	0.229	0.083

Table 5. The Analysis Results and inconsistency number each respondents

Respondent 16	0.61	0.113	0.15	0.202	0.13	0.405
Respondent 17	1.64	0.212	0.14	0.211	0.21	0.227
Respondent 18	0.46	0.06	0.314	0.265	0.329	0.031
Respondent 19	0.58	0.139	0.135	0.396	0.254	0.075
Respondent 20	0.95	0.044	0.257	0.146	0.27	0.284
Respondent 21	0.43	0.092	0.225	0.343	0.195	0.145
Respondent 22	0.22	0.219	0.224	0.213	0.167	0.178
Respondent 23	0.39	0.19	0.242	0.177	0.199	0.192
Respondent 24	0.34	0.182	0.34	0.256	0.096	0.127
Respondent 25	0.14	0.191	0.158	0.228	0.224	0.199
Respondent 26	0.17	0.087	0.241	0.257	0.213	0.203
Respondent 27	0.22	0.103	0.133	0.315	0.274	0.176
Respondent 28	0.13	0.188	0.13	0.138	0.34	0.204
Respondent 29	0.10	0.198	0.182	0.201	0.216	0.203
Respondent 30	0.32	0.203	0.188	0.251	0.191	0.168

* High Inconsistency ; Low Inconsistency

From the respondents (All), according to five criteria that proposed in this research, problem-solving is the most important, and physical aspect has the lowest rank. By male perspective, a policy is the most important, and physical aspect has the lowest rank similar to with problem-solving. By female perspective, personal interaction is the most important among this five criteria, and policy has the lowest rank. Based on age, the results show that personal interaction is the most important criteria, while the physical aspect has the lowest rank among this five criteria by age < 30 years old. Then, according to age 30 years old, they most preferred reliability is the most important factor and personal interaction has the lowest rank. Table 6 shows the difference in weight and priority by perspective.

Table 6. The result of priority weightings in the first level between each perspective

Criteria	All	Male	Female	< 30 years old	30 years old
Physical Aspect	0.112	0.118	0.129	0.129	0.190
Reliability	0.171	0.164	0.212	0.138	**0.242**
Personal Interaction	0.182	0.236	**0.307**	**0.298**	0.177
Problem Solving	**0.301**	0.178	0.228	0.227	0.199
Policy	0.234	**0.303**	0.123	0.208	0.192

By synthesized the process, different priority weights have been defined. The results are derived from multiplying the priority weight of criteria and the priority weight of alternative by each perspective (All respondents, based on the gender of male and female and age), see table 8 (Appendix). Based on the ranking, there are some different important factors each perspective. In terms of the perspective of thirty respondent analysis (All), indomaret is the most important factor with Σ=0.555356, and alfamart has the second rank with Σ=0.444644.

By gender perspective of males, the results show that indomaret is the most preferred with Σ=0.579262, whereas alfamart is the second factor with Σ=0.419738. However, from the female perspective, indomaret also has the most prefer with Σ=0.551082 and alfamart has become the second factor with Σ=0.447918. In other perspectives, such as based on age < 30 years old show that the most important factor is indomaret by Σ=0.622603 following alfamart in the second factor with Σ=0.377397.

Also, according to 30 years, old results show that alfamart is the most important factor with Σ=0.61208, while indomaret Σ=0.38792 in the second factor. This synthesizing also indicate that repeated analysis in terms of five criteria that provide herein results, even though the number is different by analysis and synthesizing.

By 30 respondent (All) perspective, problem-solving (PS) has become the highest rank factor and physical aspect (PA) is the lowest rank of both retail. Whereas by the male perspective, Policy (PO) is the most important factor, and physical aspect (PA) has the lowest rank. While in female perspective personal interaction (PI) is the most important factor and physical aspect (PA) is the lowest rank. Otherwise, there are different results in fourth previous perspective, for instance, in terms of age 30 years old reliability has become highest ranking as results in terms of indomaret and physical aspect were the lowest rank. Same as with alfamart, the difference is physical aspect is in the highest rank, while policy has the lowest ranking.

V. Conclusion

Using the AHP model, a survey was conducted to respondents. Before the survey, five criteria of the retail service quality element were defined: Physical Aspect, Reliability, Personal Interaction, Problem Solving, and Policy. After defined criteria as the first hierarchy in the AHP method, we proposed two alternative retail that consists of indomaret and alfamart. Based on the findings of our research are:

(1) The survey respondents were 30 respondents who live in Manado City, North Sulawesi, Indonesia have interviewed. After this detailed analysis, the priorities of both hierarchies has distinguished. By 30 respondent perspectives, problem-solving is the most significant criteria in the first hierarchy, while the physical aspect is the lowest factor.

(2) Then, a more detailed analysis was considered. It was found that from the male perspective, a policy is the most important, and physical aspect has the lowest rank similar with as that problem-solving. Policy refers to safety in the transaction such as in payment by credit card, ATM card, etc., how the retail can accept major credit cards, they keep increasing quality merchandise product in the store, error-free sales transactions, and records, convenience operating hour and availability of sufficient staff during the operating.

(3) Whereas by female perspective, personal interaction is the most important among this five criteria, and policy has the lowest rank. They desire to get accurate attendance in terms of consistency courteous with customers, giving prompt and required service by the employee and individual attention.

(4) By bases age perspective, in terms of age < 30 years old, the results show that personal interaction becomes the most priority and physical aspect criteria are the lowest rank. Another one, based on age 30 years old, reliability is the most important criteria, it means that they tend to aware how the staff providing service within the promised time frame, while personal interaction becomes the lowest rank herein.

In this research, we compare by other studies that related to retail service quality context from several cases in other countries like in India. For instance, research conducted by Sivapalan and Jebarajakirthy they study an application of retailing service quality practices.

The findings that information on retailers had significant positive effects on customer evaluation of **Physical aspects** in retail stores β = **0.79**, $p<0.001$, the reliability of the retailers $\beta=0.56$, $p<0.001$ and retailing policy of the retailers $\beta=0.68$, $p<0.001$. The studies of Retail stores from Gujarat, India conducted by Parikh. 2006, the results show that Retail Service Quality to be a four-dimensional factor namely, **Reliability**, personal interaction, policy and problem-solving.

Another study in The fuzzy analytical hierarchy process approach in terms of evaluation of retail service quality by Gopalan et al., findings that **Personal Interaction** from five criteria (Problem-solving, personal interaction, physical aspects, reliability, and policy) is more important with weight number 0.339.

Different results also reveal from Evaluation of retail service quality using analytical hierarchy process by M. Deb; E. Lomo David. They find that the rank of the various dimension of Retail Service Quality is policy, physical aspects, reliability, personal interaction and problem-solving. The main results show that **Problem Solving** is in the first rank with a score of 0.52.

The research in large format apparel store by Kaul. 2007 in Bangalore, India. Her study is found that support for **Policy**, physical aspects and problem-solving dimension of Retail Service Quality.

5.1 Implication

Using the analytical hierarchy process in the method proposed in this paper allowing management retail to prioritize and focused on retail service quality dimensions and to enumerate a gap analysis in a manner that provides a competitive perspective in managing the retail in terms to know about some priorities that will affected on retail service quality.

This study builds a contribution by developing a better methodology to assess, notably in retail service quality that competent to determine the competitive position of the company as well as the comparison to its competitors.

Such understanding can help the retailer to improve its competitive positioning by strategically allocating its limited resources. This study also may help a retailer to identify retail service dimensions which need immediate improvement. In order to consider the increasing competition, it becomes imperative for firms to contrive strategies to sustain its leadership position and have a competitive advantage.

This research also might be a consideration to a retailer, in terms of advanced technologies of retailing that imply the development of specific innovation management strategies, such as the smart retailing concept that should contain the reconfiguration of new technologies and resources for making processes “smarter” (Pantano et al., 2017). Concerning selling activities, smart technologies that able to change the way in which consumer access and consume services and products, as well as the building and maintenance of relationships with sellers.

Through smart technologies, consumers can access products and services from almost anywhere (through a system equipped with an internet connection), or buy the product before effective consumption (i.e. buying in the store and delivery at home, buying outside (while standing in city parks, squares, traveling via trains, waiting at the bus stops, etc.) and delivery at home, buying at home and delivery in the store, etc.), by separating the moment of purchase and effective consumption

(Xie and Shugan, 2001; Pantano et al., 2017). Thus, retailers might be using this approach to revise their business models and consider the integration of smart technologies to provide excellent services.

5.2 Limitations

This study has limitations as the results are acquired from analyzing the responses of some respondents, which cannot be applied to analyze and synthesize due to the highest inconsistency as showing in expert choice software. Frankly, the total of this questionnaire that using in this research is 30, then half of the respondents have deleted due to high inconsistency as above mentioned. This means that in the survey, should be evaluated in terms of considering the language contained that questionnaires, because during to gather data from respondents whole of the questions is in English. In the future research will have more value if it reflected and make the improved upon above-mentioned limitation.

Nonetheless, the results may be used for the next success reference of retail service quality, particularly in the big scale of retail. Then, this study also may help the retail industry to consider some different critical point toward perspective based on gender, age, etc., as benchmarks to improve the capability to get a place in customers as for sustain the company revenue in the future.

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Appendix

I. Research Questionnaire

❖ **Here are some questions about you. Please answer the following questions.**

1. What is your gender?

1) Male 2) Female

2. What is your age?

1) < 30 years **2)** 30 years **3)** 40 years **4)** 50 years **5)** 60 years **6)** > 60 years

3. What is your academic background?

1) Bachelor **2)** Master **3)** Ph.D. **4)** doctor **5)** others

4. What is your career experience in your field?

1) < 1 year **2)** 1 ~ 4 years **3)** 5 ~ 10 years **4)** 10 ~ 20 years **5)** > 20 years

5. What industry/company/ institution do you work for?

1) Construction Engineering **2)** Architectural Civil Engineering **3)** Steel **4)** Machine **5)** Mechanical Industry **6)** Sciences **7)** Textiles **8)** Materials **9)** Food **10)** Electricity **11)** Information Processing **12)** Information Communication **13)** Chemistry **14)** Environment **15)** Civil Servant **16)** Government **17)** Others

6. What are the categories of your Industry/company / Institution?

1) Small **2)** Medium **3)** Large

Number of Respondent……

The Research Questionnaire

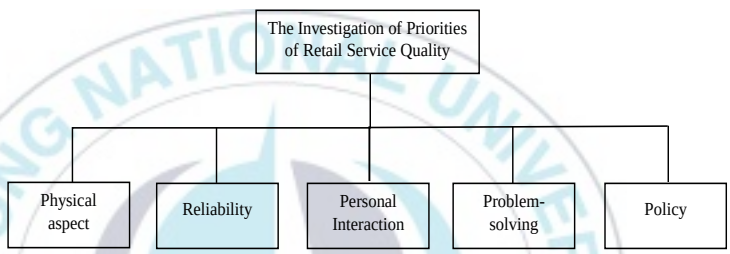
I. General

Dear Respondent,

Hereby, I expect your time to fill out the appropriate questionnaire by your judgment. Questions in this questionnaire are aims to complete the research data in the framework of preparing in my thesis research.

II. Instructions

○ Hierarchy



○ Evaluation Indicator Description

Physical aspects	The layout makes it easy for customers to locate goods
	The layout is convenient to move around the store
	Availability of merchandise
	Visually appealing physical facilities
Reliability	Promises to do something by a certain time frame
	Providing service within the promised time frame
Personal interaction	Consistency courteous with customers
	Giving prompt and required service by the employee
	Individual attention
Problem-solving	Handling customer's complaint immediately
	Sincere interest to solve a problem
	Willingly handles returns and exchanges
Policy	Safety in transaction
	Accept major credit cards
	High-quality merchandise
	Error-free sales transactions and records
	Convenient operating hour
	Availability of sufficient staff during the operating

- **The Number of Judgement**

Level of Importance	Definition	Explanation
1	Equally preferred	Two activities contribute equally to the objective
3	Moderately	Experience and judgment slightly favor one activity over another
5	Strongly	Experience and judgment strongly favor one activity over another
7	Very strongly	An activity is strongly favored over another and its dominance demonstrated in practice
9	Extremely	The evidence favoring one activity over another is of the highest degree possible of affirmation
2,4,6,8	Intermediate values	Used to represent the compromise between the preferences listed below
Reciprocals		Reciprocals for inverse comparison

Example

In this questionnaire, respond to which of the two evaluation parts A and B for selecting priority are more important. For example, if you mark (√) on scale 7 in column A, then the meaning is criteria A in this example the physical aspects are more important than the criteria B in this example the reliability. Otherwise, if you think criteria B is more important than the criteria A (Physical aspects), the judgment as shown in the table below.

No	Criteria A	Scale									Scale								Criteria B
		9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	
1	Physical aspects															√			Reliability

III. The Questions

a) (Level 1: CRITERIA)

In order to decide the retail minimarket as is, how important do you consider the following criteria as for the customer satisfaction of Retail Service Quality? :

No	Criteria A	Scale									Scale								Criteria B
		9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	
1	Physical aspects																		Reliability
2	Physical aspects																		Personal interaction
3	Physical aspects																		Problem-solving
4	Physical aspects																		Policy

No	Criteria A	Scale									Scale								Criteria B
		9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	
1	Reliability																		Personal interaction
2	Reliability																		Problem-solving
3	Reliability																		Policy

No	Criteria A	Scale									Scale								Criteria B
		9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	
1	Personal interaction																		Problem-solving
2	Personal interaction																		Policy

No	Criteria A	Scale									Scale								Criteria B
		9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	
1	Problem-solving																		Policy

b) (Level 2: **ALTERNATIVE**)

When did you compare sub-criteria in **Physical aspect**, which is the between two retail are important? :

No	Retail A	Scale									Scale								Retail B
		9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	
1	Alfamart																		Indomaret

When did you compare sub-criteria in **Reliability**, which is the following retail has a good action to response? :

No	Retail A	Scale									Scale								Retail B
		9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	
1	Alfamart																		Indomaret

When you compare sub-criteria of **Personal interaction**, which is between two retail do you think have good giving individual attention? :

No	Retail A	Scale									Scale								Retail B
		9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	
1	Alfamart																		Indomaret

When you compare sub-criteria of **Problem-solving**, which is between two retail do you think that quick to respond? :

No	Retail A	Scale									Scale								Retail B
		9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	
1	Alfamart																		Indomaret

When you compare sub-criteria of **Policy**, which is between two retail do you think is good to execute ?:

No	Retail A	Scale									Scale								Retail B
		9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	
1	Alfamart																		Indomaret

II. Company Profile

Company	Established	Employees	Stores Amount
Indomaret	1988	60,375 (2017)	15,456 outlets
Alfamart	1989	112.586 (2017)	13,477 stores

2.1 Indomarco Prismatama (Indomaret)

Originated from the idea to facilitate the provision of employees' basic daily needs, a store, known as indomaret, was established in 1988. As the store developed, the company interested to further explore and understand the consumers' various needs and shopping behaviors. Hence, several employees were assigned to observe and examine the community's buying behavior. It was concluded that people would rather shop in modern stores due to more choices of quality products, fixed competitive prices, as well as cushioned atmosphere. With knowledge about consumers' needs, store management skill, society shifting shopping behavior towards modern outlets, came forth the desire to further serve Indonesia nationwide.

This was realized when indomaret was registered as a legal entity, PT. Indomarco Prismatama, with a vision of "becoming an excellent retail network" and emphasizing on the "easy and economical" motto.

In the beginning, indomaret were designed in the vicinity of consumers residential areas, providing a variety of basic and daily needs and serving a wide range of people with an area of about 200 m2. As the market continues to evolve, more outlets are established in various residential, commercial and tourism areas. This enables indomaret to learn how to operate a larger-scale retail network and to gain a more complex experience.

With the knowledge and skills to operate a large-scale retail network, management was committed to turned indomaret into a national asset operated by excellent Indonesians. As a national asset, we are eager to contribute to the people of Indonesia through the franchise, business and to compete globally. Therefore, the vision transformed into "becoming a national asset in the form of a retail franchise network that excels in global competition". indomaret franchise is the pioneer in Indonesia. The public response was very positive, leading to an ever increasing number of indomaret franchisees. The company also gained government recognition through the "Top Indonesian Franchise Company" award in 2003.

2.2 Sumber alfaria trijaya (Alafamart)

Alfamart's history was started in 1989 by Djoko Susanto and family. Founded under the name of PT. Sumber Alfaria Trijaya Tbk (Alfamart/The Company), that began its business in trading and distribution, then in 1999 the company entered the minimarket sector. Exponential expansions began in 2002 by acquiring 141 alfa minimart stores and bringing the new name "Alfamart".

Today alfamart is one of the leaders in the retail business, serving more than 4.1 million customers every day in more than 13,400 stores and 32 storage houses that spread in areas throughout Indonesia. Alfamart offers basic merchandise through affordable prices, comfy shopping venues, and locations that can be easily reached.

Supported by more than 112,000 employees, alfamart has now become one of the companies that open the largest job opportunity in Indonesia. As a "Community Store", alfamart has always strived to offer a value added to the surrounding communities through its sustainable Corporate Social Responsibility (CSR) programs.

Under Alfamart Sahabat Indonesia program with 6 pillars of Alfamart's activities, Sport, Clean & Green, Smart, SME'S, Vaganza, and Care. The company has made efforts to offer an added value in various social aspects. Alfamart also has developed corporate caused promotion program as part of its

social responsibility that involves consumer participation through donations for developed selecting programs.

Alfamart has received awards from various reputable institutions among others; Top Brand Award 2008-2017, Service Quality Award 2011-2017, Indonesia Digital Popular Brand Award 2015-2017, Top 3 Most Powerful Retail Brand in Indonesia, Best of The Best Award 2017, Social Media Award 2014-2017, Digital Marketing Award 2012-2017, Indonesia Most Powerful Company 2017, Top 50 of The Biggest Market Capitalization Public Listed Company and Public Relation Indonesia Award 2017.

III. Example data collection of assessment customer

a) Level 1: **Criteria**

In order to decide the retail minimarket as is, how important do you consider the following criteria as for the customer satisfaction of Retail Service Quality? :

	Kriteria	PA	RE	PI	PS	PO
Respondent No. 2	**Physical aspect**	1	1/5	4	6	1/5
	Reliability	5	1	5	1/4	1/5
	Personal interaction	1/4	1/5	1	6	5
	Problem-solving	1/6	4	1/6	1	6
	Policy	5	5	1/5	1/6	1

b) Level 2: **Alternative**

When did you compare sub-criteria in **Physical aspect**, which is the between two retail are important? :

No	Retail A	Scale									Scale								Retail B
		9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	
1	Alfamart													√					Indomaret

When did you compare sub-criteria in **Reliability**, which is the following retail has a good action to response? :

No	Retail A	Scale									Scale								Retail B
		9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	
1	Alfamart												√						Indomaret

When you compare sub-criteria of **Personal interaction**, which is between two retail do you think have good giving individual attention? :

No	Retail A	Scale									Scale								Retail B
		9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	
1	Alfamart							√											Indomaret

When you compare sub-criteria of **Problem-solving**, which is between two retail do you think that quick to respond? :

No	Retail A	Scale									Scale								Retail B
		9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	
1	Alfamart													√					Indomaret

When you compare sub-criteria of **Policy**, which is between two retail do you think is good to execute? :

No	Retail A	Scale									Scale								Retail B
		9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	
1	Alfamart													√					Indomaret

IV. Table 7. The result of priority weightings the second level between two alternative retail by each perspective

	Criteria	Indomaret	Alfamart		Indomaret	Alfamart		Indomaret	Alfamart
All	**PA**	0.586	0.414	**Male**	0.548	0.452	**Female**	0.359	**0.641**
	RE	0.571	0.429		**0.705**	0.295			
	PI	**0.625**	0.375		0.522	0.478		**0.622**	0.378
	PS	0.515	**0.485**		0.671	0.329			
	PO	0.527	0.473		0.516	**0.484**		0.589	0.411
< 30 years old	**PA**	0.518	0.482	**30 years old**	0.143	**0.857**			
	RE	**0.718**	0.282		**0.500**	0.500		0.549	0.451
	PI	0.578	**0.422**		0.250	0.750			
	PS	0.663	0.337		**0.500**	0.500		0.544	0.456
	PO	0.644	0.356		**0.500**	0.500			

This research also finds that the rank of a various dimension of priorities in order of their contribution to assessing both retail indomaret and alfamart that proposed in this research. By synthesizing analysis has already done in results, is derived by multiplying the priority weight of criteria and the priority weight of alternative by each perspective (All respondents, based on the gender of male and female and age).

We found that, in order perspective of total 30 respondent analysis (**All**), **indomaret** is the most important factor with Σ=0.555356, and alfamart has the second rank with Σ=0.444644.

By perspective of the **male** gender, the results show that **indomaret** is the most preferred with Σ=0.579262, whereas alfamart is the second factor with Σ=0.419738. Then, by **female** perspective results reveal that **indomaret** also has the most prefer with Σ=0.551082 and alfamart has become the second factor with Σ=0.447918.

in the other perspective, such as based on **age < 30 years old** shows that the most important factor is **indomaret** by Σ=0.622603 following alfamart in the second factor with Σ=0.377397. Also, according to **age 30 years**, results show that **alfamart** is the most important factor Σ=0.61208, while indomaret Σ=0.38792 in the second factor.

V. Table 8. The result of synthesizing between indomaret and alfamart

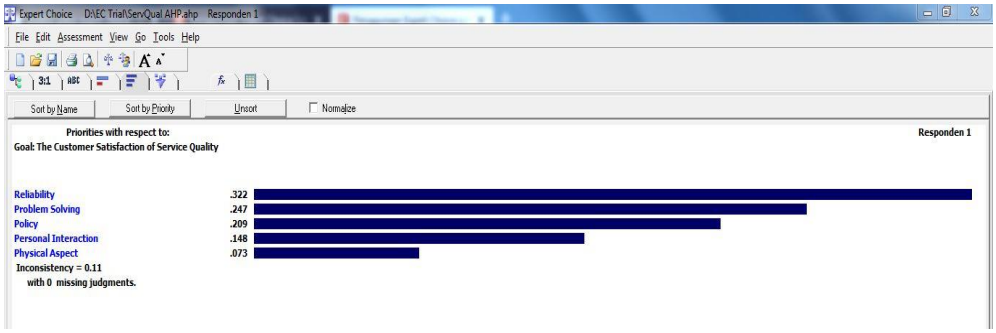
Male	**PA**	0.064664	5	0.053336	4	
	RE	0.11562	4	0.04838	5	
	PI	0.123192	2	0.112808	2	
	PS	0.119438	3	0.058562	3	
	PO	0.156348	1	0.146652	1	
	Σ	**0.579262**		0.419738		1
Female	**PA**	0.046311	5	0.082689	3	
	RE	0.131864	2	0.080136	4	
	PI	0.180823	1	0.126177	1	
	PS	0.125172	3	0.102828	2	
	PO	0.066912	4	0.056088	5	
	Σ	**0.551082**		0.447918		1

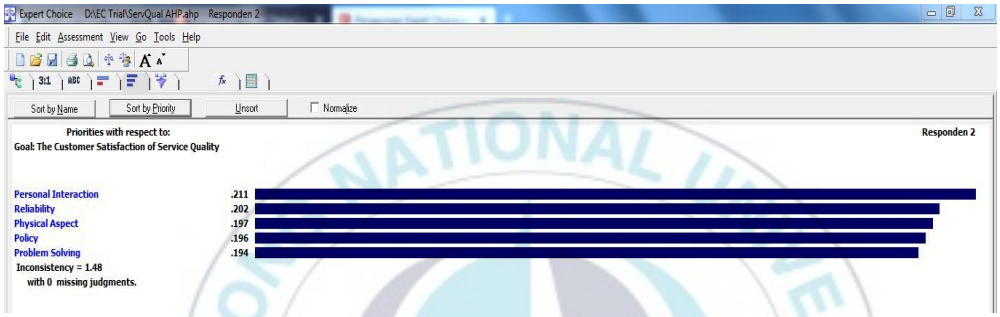
< 30 years old	**PA**	0.066822	5	0.062178	4	
	RE	0.099084	4	0.038916	5	
	PI	0.172244	1	0.125756	1	
	PS	0.150501	2	0.076499	2	
	PO	0.133952	3	0.074048	3	
	Σ	**0.622603**		0.377397		1

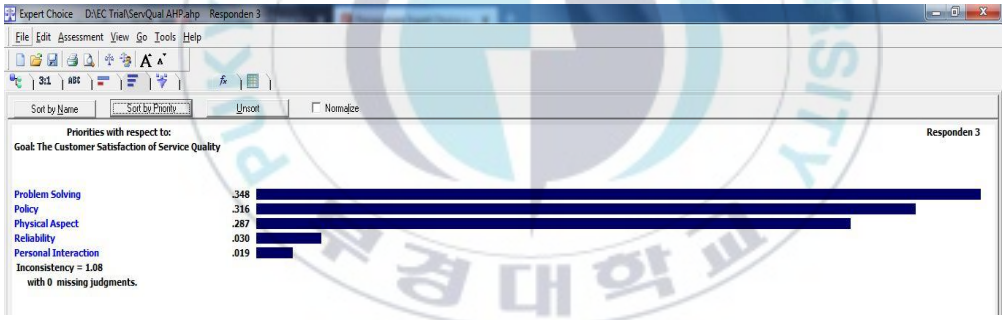
30 years old	**PA**	0.02717	5	0.16283	1	
	RE	0.121	1	0.121	3	
	PI	0.04425	4	0.13275	2	
	PS	0.0995	2	0.0995	4	
	PO	0.096	3	0.096	5	
	Σ	0.38792		**0.61208**		1

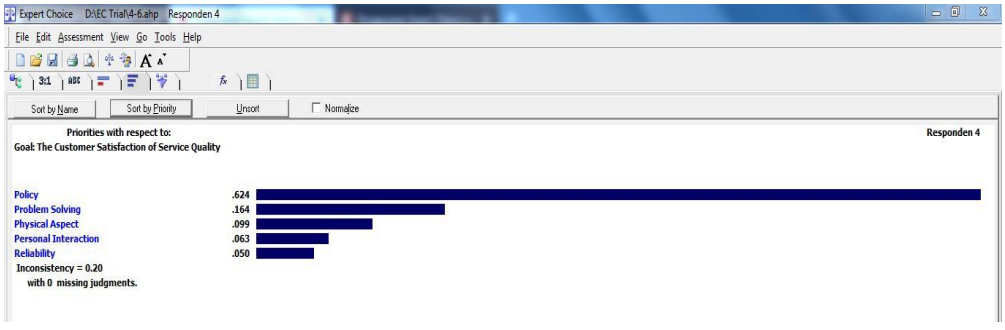
*__PA__ (Physical Aspect); __RE__ (Reliability); __PI__ (Personal Interaction); __PS__ (Problem Solving); __PO__ (Policy)

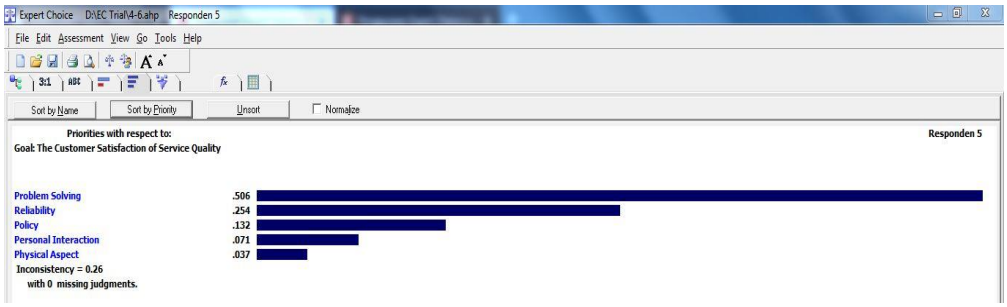
VI. Analysis by Expert Choice Software each respondent







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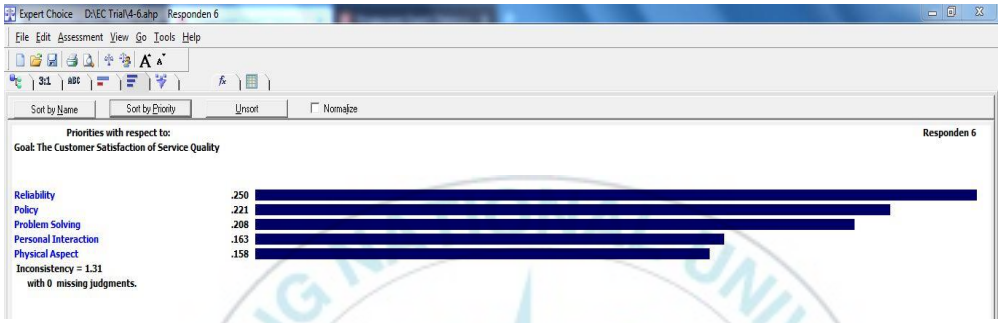
Sort by Priority
Unsort
Normalize
Priorities with respect to:
Goal: The Customer Satisfaction of Service Quality
Responden 5
Problem Solving .506
Reliability .254
Policy .132
Personal Interaction .071
Physical Aspect .037
Inconsistency = 0.26
with 0 missing judgments.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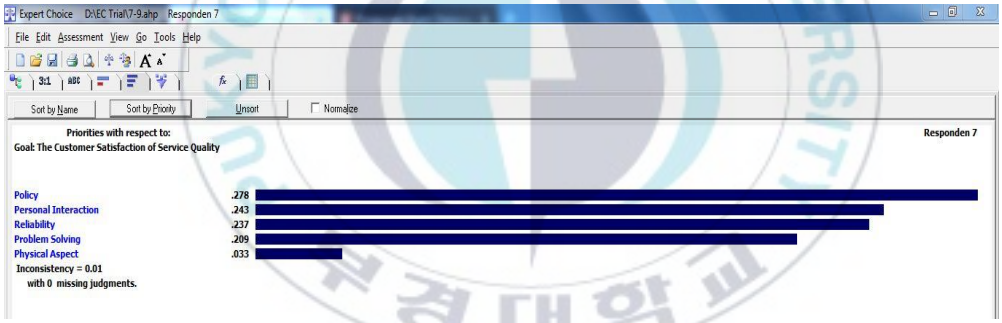
Sort by Priority
Unsort
Normalize
Priorities with respect to:
Goal: The Customer Satisfaction of Service Quality
Responden 6
Reliability .250
Policy .221
Problem Solving .208
Personal Interaction .163
Physical Aspect .158
Inconsistency = 1.31
with 0 missing judgments.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Sort by Priority
Unsort
Normalize
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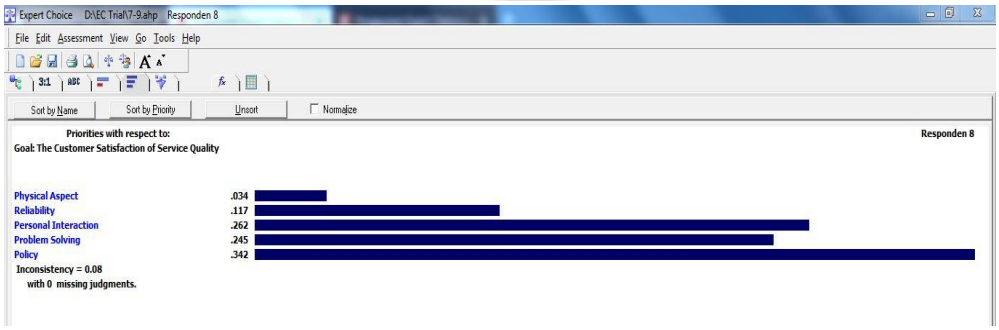
Goal: The Customer Satisfaction of Service Quality
Responden 7
Policy .278
Personal Interaction .243
Reliability .237
Problem Solving .209
Physical Aspect .033
Inconsistency = 0.01
with 0 missing judgments.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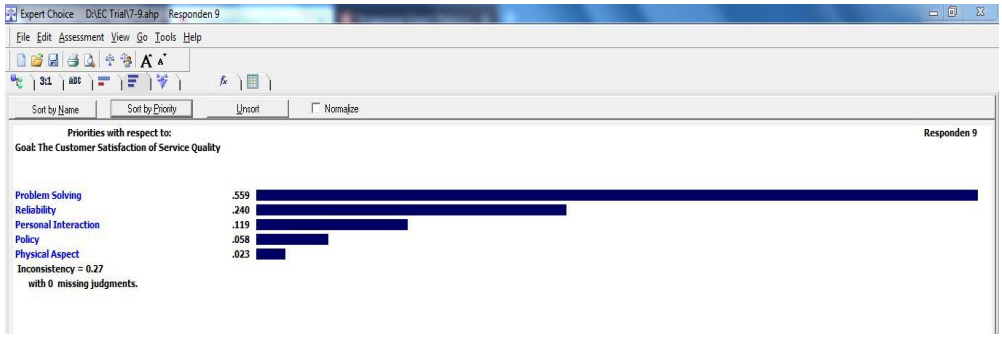
Sort by Priority
Unsort
Normalize
Priorities with respect to:
Goal: The Customer Satisfaction of Service Quality
Responden 8
Physical Aspect .034
Reliability .117
Personal Interaction .262
Problem Solving .245
Policy .342
Inconsistency = 0.08
with 0 missing judgments.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Sort by Priority
Unsort
Normalize
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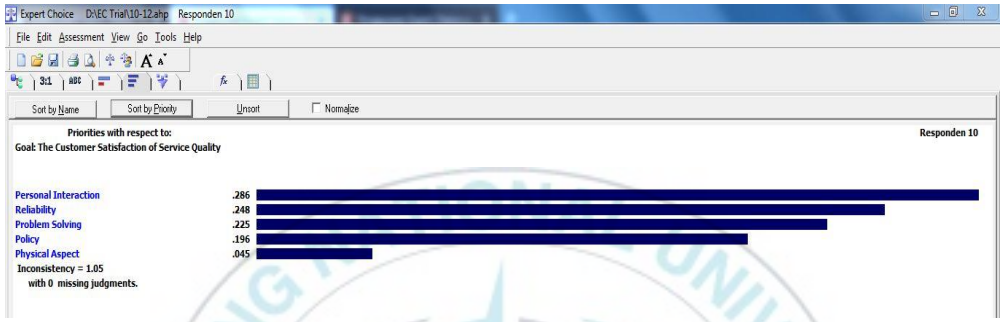
Goal: The Customer Satisfaction of Service Quality
Responden 9
Problem Solving .559
Reliability .240
Personal Interaction .119
Policy .058
Physical Aspect .023
Inconsistency = 0.27
with 0 missing judgments.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Unsort
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Priorities with respect to:
Goal: The Customer Satisfaction of Service Quality
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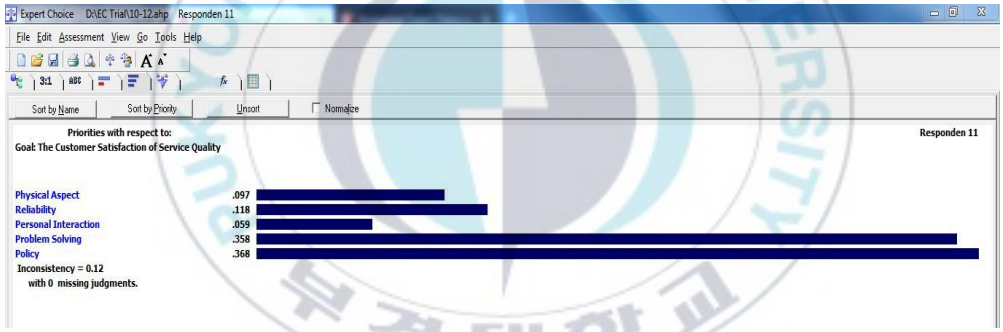
Personal Interaction .286
Reliability .248
Problem Solving .225
Policy .196
Physical Aspect .045
Inconsistency = 1.05
with 0 missing judgments.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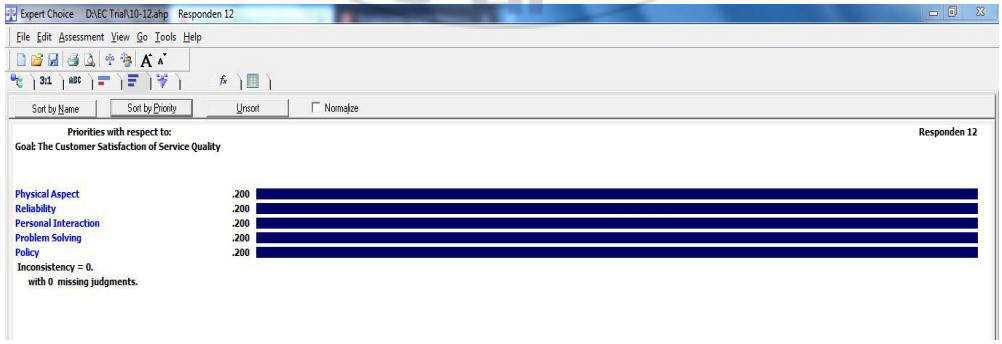
Sort by Priority
Unsort
Normalize
Priorities with respect to:
Goal: The Customer Satisfaction of Service Quality
Responden 11
Physical Aspect .097
Reliability .118
Personal Interaction .059
Problem Solving .358
Policy .368
Inconsistency = 0.12
with 0 missing judgments.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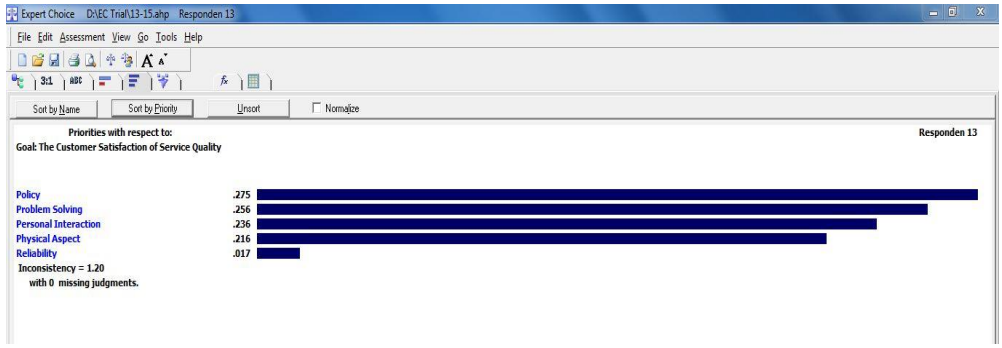
Sort by Priority
Unsort
Normalize
Priorities with respect to:
Goal: The Customer Satisfaction of Service Quality
Responden 12
Physical Aspect .200
Reliability .200
Personal Interaction .200
Problem Solving .200
Policy .200
Inconsistency = 0.
with 0 missing judgments.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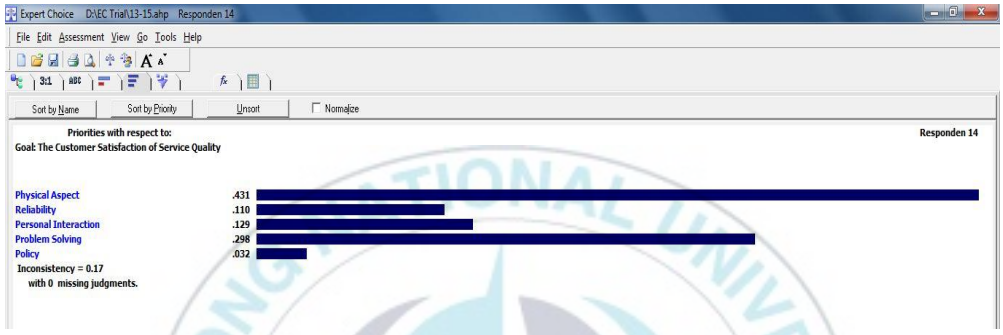
Unsort
Normalize
Priorities with respect to:
Goal: The Customer Satisfaction of Service Quality
Responden 13
Policy .275
Problem Solving .256
Personal Interaction .236
Physical Aspect .216
Reliability .017
Inconsistency = 1.20
with 0 missing judgments.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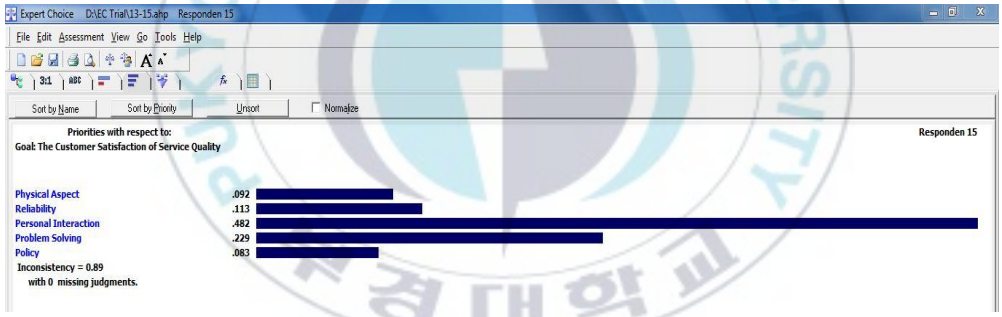
Unsort
Normalize
Priorities with respect to:
Goal: The Customer Satisfaction of Service Quality
Responden 14
Physical Aspect .431
Reliability .110
Personal Interaction .129
Problem Solving .298
Policy .032
Inconsistency = 0.17
with 0 missing judgments.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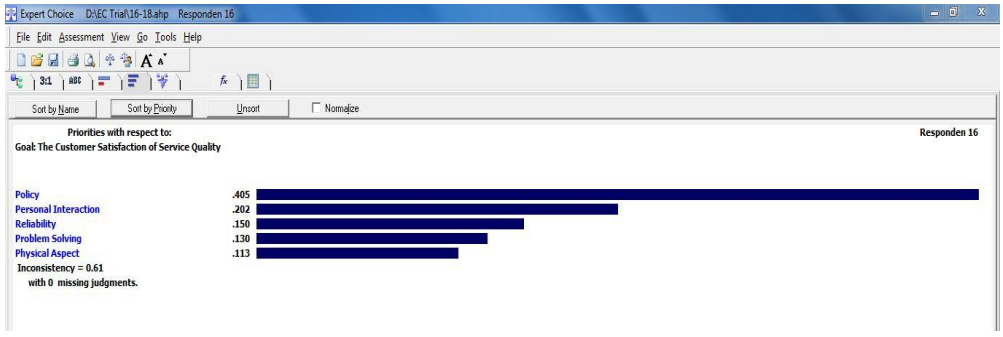
Unsort
Normalize
Priorities with respect to:
Goal: The Customer Satisfaction of Service Quality
Responden 15
Physical Aspect .092
Reliability .113
Personal Interaction .482
Problem Solving .229
Policy .083
Inconsistency = 0.89
with 0 missing judgments.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Sort by Priority
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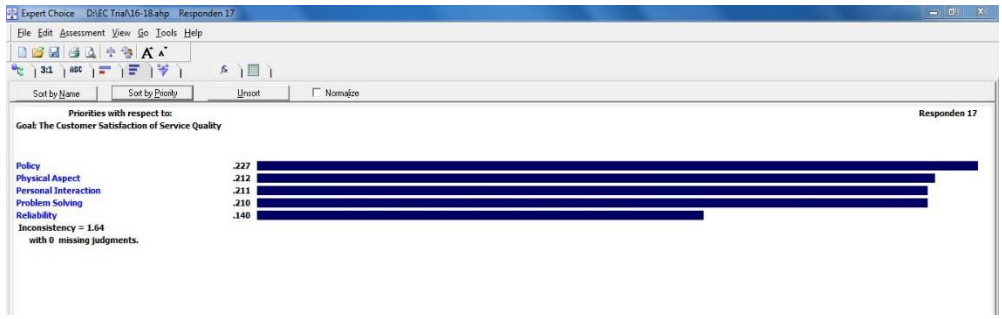
Normalize
Priorities with respect to:
Goal: The Customer Satisfaction of Service Quality
Responden 16
Policy .405
Personal Interaction .202
Reliability .150
Problem Solving .130
Physical Aspect .113
Inconsistency = 0.61
with 0 missing judgments.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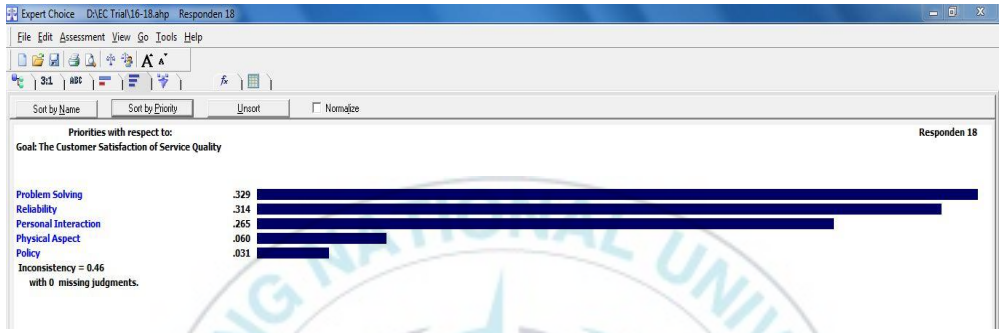
Sort by Priority
Unsort
Normalize
Priorities with respect to:
Goal: The Customer Satisfaction of Service Quality
Responden 17
Policy .227
Physical Aspect .212
Personal Interaction .211
Problem Solving .210
Reliability .140
Inconsistency = 1.64
with 0 missing judgments.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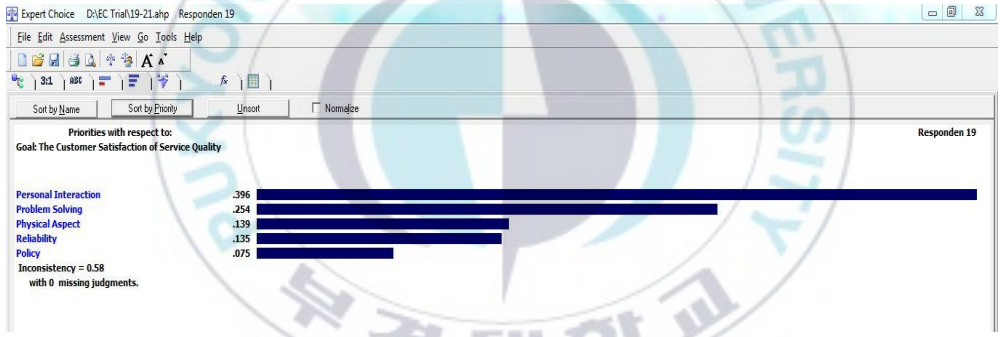
Unsort
Normalize
Priorities with respect to:
Goal: The Customer Satisfaction of Service Quality
Responden 18
Problem Solving .329
Reliability .314
Personal Interaction .265
Physical Aspect .060
Policy .031
Inconsistency = 0.46
with 0 missing judgments.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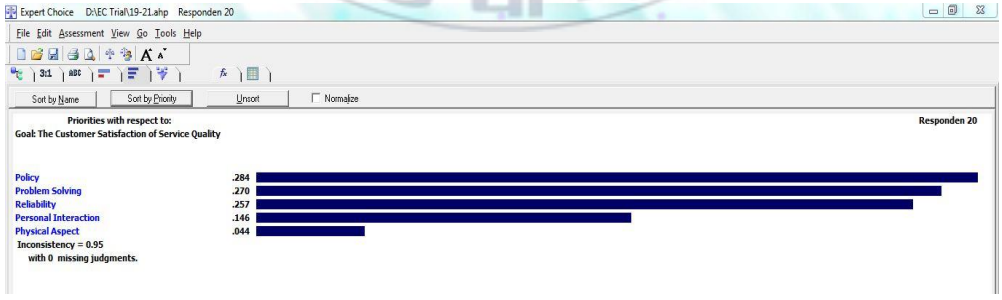
Priorities with respect to:
Goal: The Customer Satisfaction of Service Quality
Responden 19
Personal Interaction .396
Problem Solving .254
Physical Aspect .139
Reliability .135
Policy .075
Inconsistency = 0.58
with 0 missing judgments.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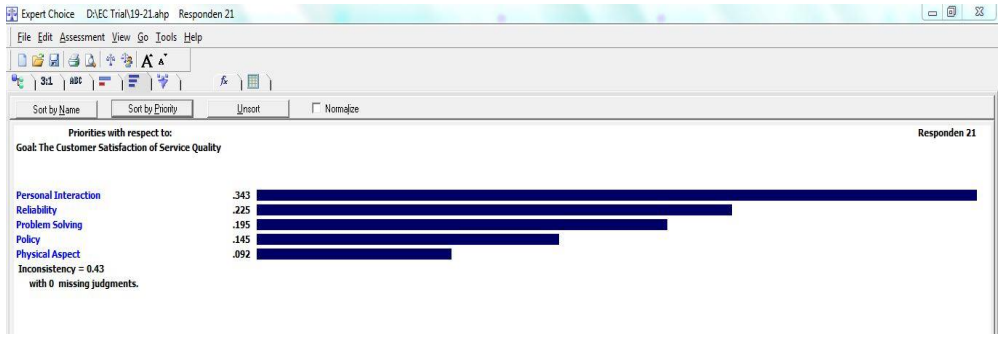
Unsort
Normalize
Priorities with respect to:
Goal: The Customer Satisfaction of Service Quality
Responden 20
Policy .284
Problem Solving .270
Reliability .257
Personal Interaction .146
Physical Aspect .044
Inconsistency = 0.95
with 0 missing judgments.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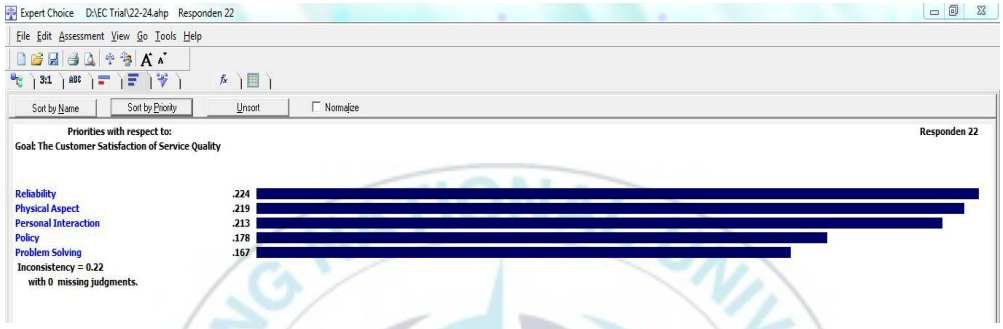
Unsort
Normalize
Priorities with respect to:
Goal: The Customer Satisfaction of Service Quality
Responden 21
Personal Interaction .343
Reliability .225
Problem Solving .195
Policy .145
Physical Aspect .092
Inconsistency = 0.43
with 0 missing judgments.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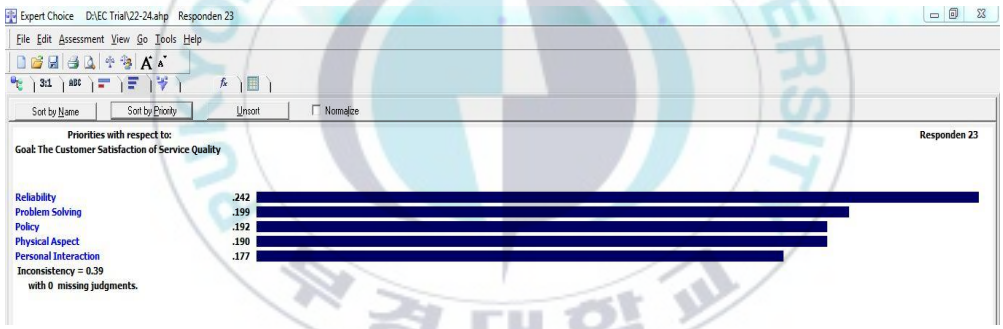
Unsort
Normalize
Priorities with respect to:
Goal: The Customer Satisfaction of Service Quality
Responden 22
Reliability .224
Physical Aspect .219
Personal Interaction .213
Policy .178
Problem Solving .167
Inconsistency = 0.22
with 0 missing judgments.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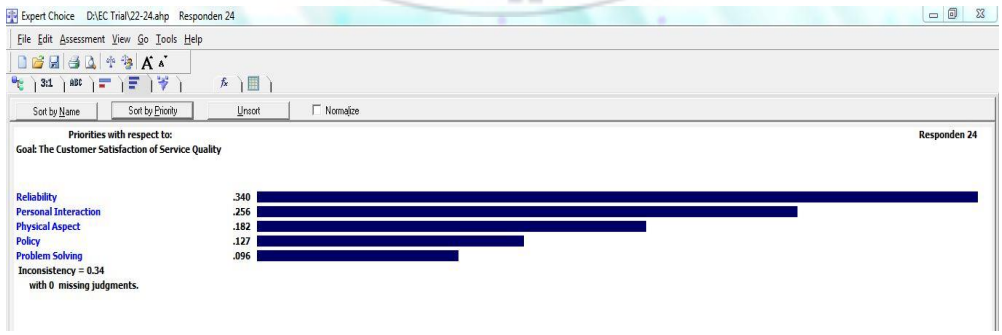
Unsort
Normalize
Priorities with respect to:
Goal: The Customer Satisfaction of Service Quality
Responden 23
Reliability .242
Problem Solving .199
Policy .192
Physical Aspect .190
Personal Interaction .177
Inconsistency = 0.39
with 0 missing judgments.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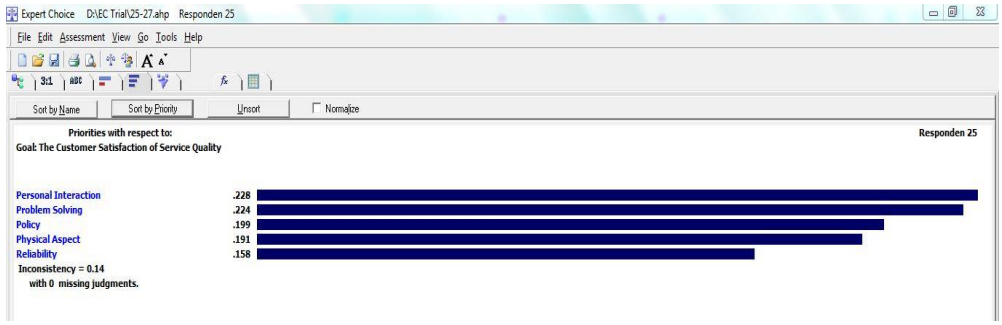
Unsort
Normalize
Priorities with respect to:
Goal: The Customer Satisfaction of Service Quality
Responden 24
Reliability .340
Personal Interaction .256
Physical Aspect .182
Policy .127
Problem Solving .096
Inconsistency = 0.34
with 0 missing judgments.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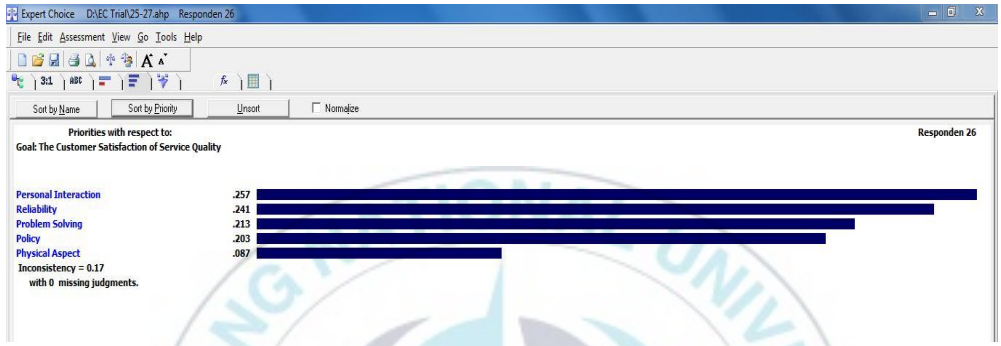
Unsort
Normalize
Priorities with respect to:
Goal: The Customer Satisfaction of Service Quality
Responden 25
Personal Interaction .228
Problem Solving .224
Policy .199
Physical Aspect .191
Reliability .158
Inconsistency = 0.14
with 0 missing judgments.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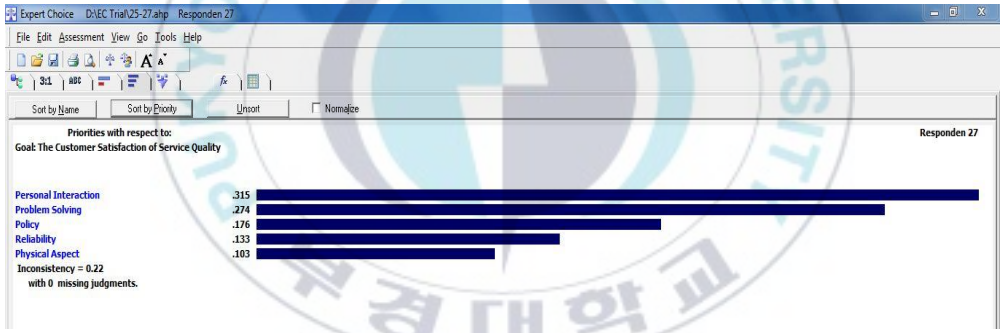
Unsort
Normalize
Priorities with respect to:
Goal: The Customer Satisfaction of Service Quality
Responden 26
Personal Interaction .257
Reliability .241
Problem Solving .213
Policy .203
Physical Aspect .087
Inconsistency = 0.17
with 0 missing judgments.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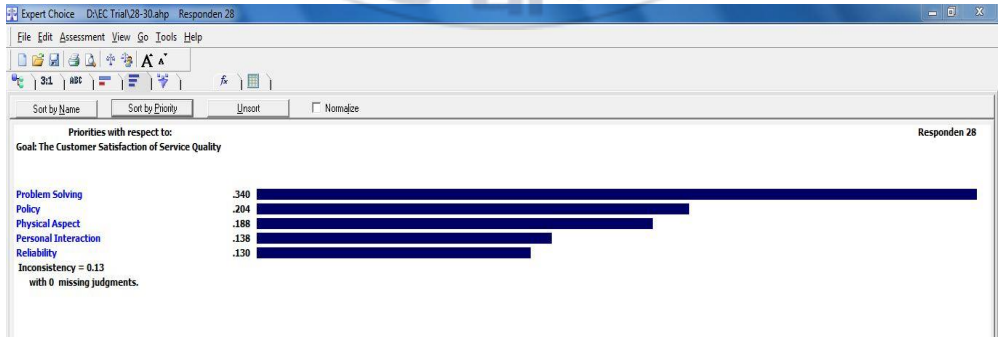
Unsort
Normalize
Priorities with respect to:
Goal: The Customer Satisfaction of Service Quality
Responden 27
Personal Interaction .315
Problem Solving .274
Policy .176
Reliability .133
Physical Aspect .103
Inconsistency = 0.22
with 0 missing judgments.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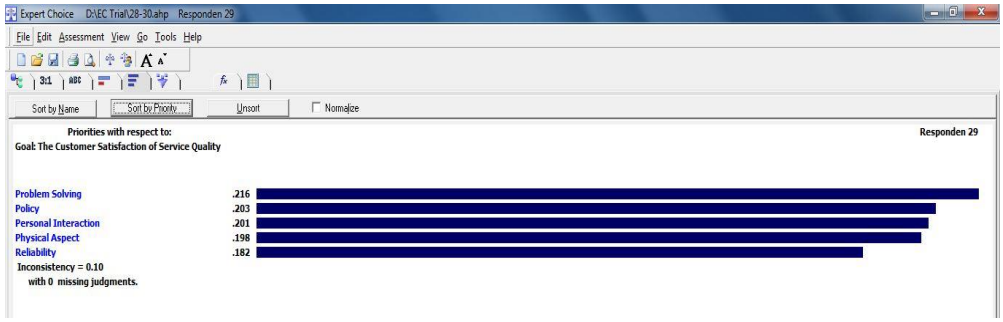
Sort by Priority
Unsort
Normalize
Priorities with respect to:
Goal: The Customer Satisfaction of Service Quality
Responden 28
Problem Solving .340
Policy .204
Physical Aspect .188
Personal Interaction .138
Reliability .130
Inconsistency = 0.13
with 0 missing judgments.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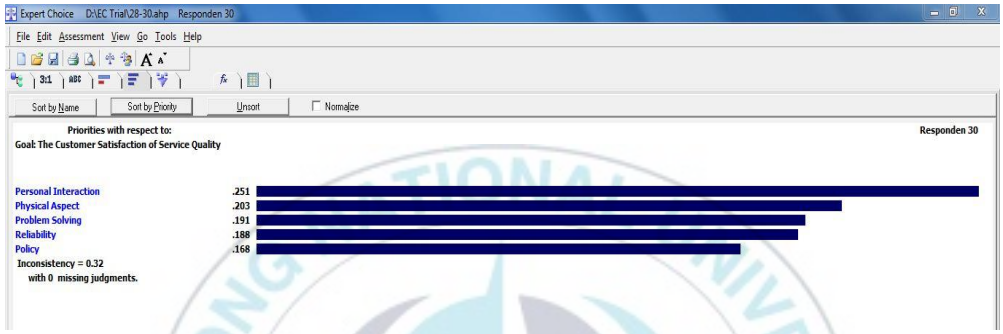
File Edit Assessment View Go Tools Help
Sort by Name
Sort by Priority
Unsort
Normalize
Priorities with respect to:
Goal: The Customer Satisfaction of Service Quality
Responden 29
Problem Solving .216
Policy .203
Personal Interaction .201
Physical Aspect .198
Reliability .182
Inconsistency = 0.10
with 0 missing judgments.


Expert Choice D:\EC Trial\28-30.ahp Responden 30
File Edit Assessment View Go Tools Help
Sort by Name
Sort by Priority
Unsort
Normalize
Priorities with respect to:
Goal: The Customer Satisfaction of Service Quality
Responden 30
Personal Interaction .251
Physical Aspect .203
Problem Solving .191
Reliability .188
Policy .168
Inconsistency = 0.32
with 0 missing judgments.

VII. Customer detail

No.	Gender	Age	Academic Background	Career Experience	Industry/Institution/company	Category
1	1	1	5	1	1	3
2	1	1	5	2	10	3
3	1	1	5	1	12	3
4	1	1	5	1	12	3
5	1	1	1	1	17	1
6	1	1	1	2	4	2
7	1	1	1	1	6	2
8	2	1	1	1	17	1
9	2	1	1	2	17	3
10	1	1	5	2	6	2
11	2	1	1	2	2	2
12	1	1	1	2	17	1
13	1	1	2	2	10	2
14	1	1	5	2	1	2
15	2	1	1	2	1	3
16	1	1	1	2	17	3
17	1	2	2	2	9	2
18	1	1	2	2	9	2
19	2	1	5	1	16	3
20	1	5	2	5	16	3
21	2	4	1	5	16	3
22	2	1	5	2	16	3
23	1	2	1	2	16	3
24	2	1	5	2	16	3
25	1	3	1	2	5	2
26	2	1	1	2	17	2
27	2	1	1	1	11	2
28	2	1	1	2	1	2
29	2	1	1	2	16	3
30	2	1	5	2	16	3

Note :

Gender : (1) Male, (2) Female ;

Age : 1) < 30 years 2) 30 years 3) 40 years 4) 50 years 5) 60 years 6) > 60 years ;

Academic Background : 1) Bachelor 2) Master 3) PhD 4) doctor 5) others;

Career experience : 1) < 1 year 2) 1 ~ 4 years 3) 5 ~ 10 years 4) 10 ~ 20 years 5) > 20 years;

Industry/company/institution : 1) Construction Engineering 2) Architectural Civil Engineering 3) Steel 4) Machine 5) Mechanical Industry 6) Sciences 7) Textiles 8) Materials 9) Food 10) Electricity 11) Information Processing 12) Information Communication 13) Chemistry 14) Environment 15) Civil Servant 16) Government 17) Others

Category : 1) Small 2) Medium 3) Large

* High Inconsistency; Low Inconsistency

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