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Full Length Research Paper

The relationship between product quality and purchase intention: The case of Malaysia's national motorcycle/scooter manufacturer

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This study aims to determine the level of product quality based on the eight quality dimensions framework and the relationship towards the buyer purchase behaviour. For a good understanding of the study, a case study on Malaysia's national motorcycle/scooter manufacturer has been used by considering the lack of theoretical studies being conducted on the sales of motorcycle/scooter products. In this study, the result shows the level of customer perceptions has no significant impact on the customer purchase decision. The customers are looking at other elements beyond quality perceptions on their purchase decision and only they themselves understand what they are actually looking for. Buyers may not rely on the perceptions of quality alone in deriving intention to purchase or not to purchase any motorcycle/scooter product. Another possible reason is the introduction of beneficial impact as a mediator between product quality and purchase intention (indirect effect) as suggested by past researches which could increase the importance of perceived quality in the study relationships. Future research should focus on a similar study of product quality and purchase intention to the Yamaha and Honda brand for being the closest competitors to Modenas in the market. It is expected that, from the findings of the study of both brands, it could lead to a clearer picture on the relationship that exist between product quality and buyer purchase behaviour.

Key words: Product quality, performance, features, reliability, durability.

INTRODUCTION

In market offering, a product is the key element that brings value to the customer. Products are more than just tangible objects but also inclusive of service features, design, performance quality, brand name and packaging. A product's quality has a significant impact towards the product or service performance, thus it is linked to a customer's value and satisfaction (Kotler and Armstrong, 2010). It is also vital for marketer's product positioning tools. Consumers today are demanding high quality goods that save time, energy and often calories. The rank that consumers in United States placed for product quality are as follows (1) reliability, (2) durability, (3) easy maintenance, (4) ease of use, (5) a trusted brand name and (6) low price (McDaniel, Lamb and Hair, 2011).

Customers are seeking reliable product that suit the purpose and able to stand the intended functions. With the increase of customers' purchasing power supported by multiple and flexible financing scheme, customers find themselves surrounded with many options to choose. Changes in the competitive environment and increasing customers' expectations regarding product quality and customers' satisfaction are driving motorcycle manufacturers to place a greater amount of emphasis on understanding customers' attitudes and behavior in order to maintain and grow market share and profitability.

Product quality is derived from the difference between actual products and the alternative products that could be

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made available or provided by the particular industry (Hardie and Walsh, 1994). It can also be determined by the way customers perceive product quality in the market (Wankhade and Dabade, 2006).

Product quality is the most important factor for the selection of each motorcycle brand/model especially in a market environment where the level of competition is intense and price-competitive (Shaharudin et al., 2010). However, it is difficult to meet the customers' expectation on quality since their understanding is varied and inconsistent. The differences of quality perspectives are pertinent in economic, technological, social and cultural achievements (Wankhade and Dabade, 2006). Customers are seeking reliable products that suit the purpose and able to withstand the intended functions. With the increase of customer purchasing power supported by multiple and flexible financing scheme, customers find themselves surrounded with many options to choose.

For a better perspective of a product quality, it is necessary to study on the quality perception and to understand on quality gaps between 'how things ought to be' and 'how things are' from a customer's point of view. This is because of the nature of quality perception itself which is a complex phenomenon involving social, cultural, economic and technical aspects (Wankhade and Dabade, 2006). The result can subsequently be used to benchmark the 'actual performance' against the 'perceived requirement' so that the discrepancies or differences discovered can be channeled for immediate improvement. However, less attention is being placed for studies that link between the perceived product quality with other marketing variables such as product involvement, consumer satisfaction and purchase intentions (Tsiotsou, 2005).

This study takes a step in determining the level of quality perceptions by customers towards a product's quality and how it relates to purchase decision. The case on Malaysia's national motorcycle/scooter manufacturer has been used for a good understanding of the study.

MALAYSIA'S NATIONAL MOTORCYCLE/SCOOTER MANUFACTURER

Competition within the motorcycle industry in Malaysia is continuously increasing from year to year. The installed capacity of registered 450,000 units for motorcycle sector has been fully realized in the year 2006, at a time, it was only 60% in the year 2000. Furthermore, Malaysia has reached to a density of about 6 persons per motorcycle ownership above the minimum saturation level needed (5 persons) for each country. With the higher per-capita income, Malaysia may reach market saturation for motorcycle soon, and will move to the automobile era earlier than the rest of ASEAN countries (china e-vehicle, 2011).

Based on Road Transport Department (RTD) vehicle registration report, the industry has recorded 20% increase in volume from 360,986 units in 1997 to 450,402 units in 2006. This is indeed a good sign as the industry has suffered a major reduction of volume during the economic downturn in the year 1998 with the reduction of 34% as compared to the previous year of 1997. Furthermore, the impact of the crisis has dragged the industry for about 5 years to recover until the year 2002.

The increase in the total industry volume was caused by the deregulation and liberalization measures introduced by the Malaysian government in the year 2003. The market was also boosted with the influx of China made motorcycles/scooters which were sold relatively cheaper than the Japanese made motorcycles. However, the recent statistics shows a sharp decline in China made motorcycle sales from 20% in the year 2003 to only 5% in the year 2006. This is mainly due to the poor quality well below the market expectation besides the inability for the local assembler to maintain the vital 3s - sales, spare parts and service.

Motosikal Dan Enjin Nasional Sdn. Bhd. (MODENAS) has been in existence for more than 15 years since the year 1996 to manufacture motorcycles and scooters. MODENAS was created under the national automotive project, which undertook the responsibility to acquire the technology to manufacture and produce national motorized two wheelers namely motorcycle and scooter, and small multi-application engines. As until today, MODENAS has produced more than 23 models of motorcycles and scooters for the sale in the local market. MODENAS's products have also penetrated overseas market such as Indonesia, Brunei, Singapore, Iran and Greece. In September 2007, MODENAS has achieved its 1,000,000 unit production and had since trying to gear up to increase the local and overseas sales volume.

MODENAS has conceded its top position in the Malaysian motorcycle market and currently stands third since June 2005 in the market position behind Honda and Yamaha despite favorable increase of total industry volume (TIV). Its market share has been sliding as well since January 2006, ranging from 10 to 18%, which is below the original target of 30% as declared by CEO Rashid Din in December 2005 during the launching event of MODENAS Passion (Yahaya, 10 January 2006).

Perceived quality is always the factor being reason out for the sales predicament. Despite being cleared from the major quality issue, MODENAS sales figure keep on falling until the gap between the market leader, HONDA and second rank, YAMAHA is getting larger. Since a product's quality has become the basic motive for the consumers' choice of a particular product, it is essential for MODENAS to determine how serious its product quality perception that could lead to the impairment of the sales volume. Apart from that, there is also a need to find out of any relationship, link or effect that exists between the product quality and the purchase intention to the motorcycle industry in Malaysia.

Table 1. Translation of the eight quality dimensions framework into three attributes of the past researches.

Attribute	Quality dimension
Product characteristic	Features, aesthetics
Benefit	Performance, conformance to specification, reliability, durability, serviceability
Image	Perceived quality

Therefore, it is vital at this stage to assess the perception level of MODENAS product quality from the customers' point of view and the purchase decision as a result of the overall perceptions. By this way, we will be able to identify the problem where finding the right answers might help to improve the current sales predicament. There is a need to understand customers' emotion and preferences and meeting their expectation will ensure the customer to remain loyal to its products at all time. Only by being able to do that will the company have brighter prospect to extend its existence.

Dimensions of quality

There are many different definitions and dimension of quality to be found in the books and academic literature. One of the most respected definitions of quality is developed by David Garvin of the Harvard Business School (1984). Garvin (as cited in Waller and Ahire, 1996) has proposed the following eight contributes / dimensions:

1) Performance: a product's primary operating characteristic
2) Features: the additional features or the 'bell and whistles 'of the product,
3) Conformance: the extend to which a product's design and operating characteristic meet established standards,
4) Reliability: the probability that a product will operate properly over a specified period of time under stated conditions of use,
5) Durability: the amount of use the customer gets from the product before it deteriorates physically or until replacement is preferable,
6) Serviceability: the speed, competence, and courtesy of repair,
7) Aesthetics: how a product appeals to our five senses,
8) Customer perceived quality: customer's perception of a product quality based on the reputation of the firm.

In this study, the quality dimensions mentioned by Garvin (1984) were applied to represent the overall product quality assessment. It includes both the objective and subjective quality features in measuring the product of interest in the study. Product quality can be analyzed under the concept of two different perspectives, objective quality and perceived quality (Brunso et al., 2005). When consumers form a value judgment as to their quality perceptions, it becomes necessary to break the concept of quality into two major groups of factors (Zeithaml, 1988; Steemkamp, 1997) such as intrinsic attributes and extrinsic attributes.

It was discovered that there is a shortcoming pertaining to the use of quality dimensions developed by Garvin (1984) in the previous study related to product quality. For example, in a study by Lefkoff-Hagius and Mason (1993), product quality was measured by three attributes such as its characteristics, benefits, and image. All three attributes were found to have influenced consumer behavior in making judgments and choice of preferences. According to them, product "Characteristic" means the expression to the descriptive features that characterize a product or service. "Benefit" refers to individual or self-interest towards the perceived information, whereas "Image" concerns mainly on the individual subjective interpretation formed by the perceptual phenomenon.

Similarly, in a study by Lee and Tai (2009), the three attributes were used to explore the effects on consumers' evaluation of product quality. They discovered that only the "Benefit" attribute has significant insignificant effect on consumers' evaluation of product quality. However, product "characteristics' and 'image' were found to have no effect or insignificant effect on consumers' appraisal of product quality.

As seen in Table 1, generally, the eight quality dimensions framework can be translated into the three attributes utilized by the previous researchers as mentioned earlier.

Several studies in the past have utilized the Garvin's eight-dimensional framework such as Alhire Golhar and Waller (1996) (performance, reliability, conformance and durability), Madu et al. (1995) (features and reliability) and Tamimi and Sebastianelli (1996) (reliability, aesthetics and performance). Although the quality dimensions were developed in 1984, the relevancy in guiding the research in quality areas is still obvious (Sebastianelli and Tamimi, 2002).

Hence, the use of quality dimensions to measure the product quality construct is expected to increase the accuracies in measuring the study variables on a wider coverage from product quality perspectives.

Relationship between perceived product quality and purchase intention

A customer's perception of value towards the product is shape by four elements; product quality, service quality,

Table 2. Comparison of the products used in the past researches on the effects of product quality on purchase/repurchase intentions.

Author(s)	Product in study	Effect of product quality on purchase/repurchase intention
Tsiotsou (2005)	Sport shoes	Relationship between products quality with purchase intentions.
Fandos and Flavian (2006)	DO product (air dried ham)	Relationship existed between intrinsic attributes of product quality with purchase intentions. No influence found for extrinsic attributes.
Espejel et al. (2009)	PDO product (olive oil)	Relationship existed between intrinsic attributes of product quality with purchase intentions. No influence found for extrinsic attributes.
Kwak and Kang (2009)	Team-licensed merchandise	Relationship existed between perceived product quality with purchase intention.
Shaharudin et al. (2010)	Motorcycle /scooter	Relationship existed between extrinsic attributes of product quality with repurchase intentions. No influence found for intrinsic attributes.

price and image. In highly competitive business environment, the customer will compare the perceived value of competitive offering. Meeting or exceeding customer's expectation needs are divided into two parts. At the time of purchase, the customer decides if expectation has been met by comparing the perceived performance with the expected performance. This usually forms the basis of a decision to purchase and determines purchase satisfaction. After the purchase of the supplies, the customer becomes aware of the actual performance and user satisfaction is a result of comparing the actual performance with expected performance (Hardie and Walsh, 1994)

Business firms are interested in product quality due to its potential to expand market share, lower costs of production/operation, improve productivity and ultimately increased profits. Garvin (1984) suggests that firms do not need to excel on all dimensions of quality in order to be successful; pursuing a quality niche can lead to a better firm performance, especially if the dimension singled out is one that other firms have not targeted (Focker et al., 1996).

Empirical studies of the relationship between quality and marketing or financial performance measures have concentrated mostly on the profit impact of marketing strategies. Using an aggregated index of sales percentage of products, that were superior, equivalent or inferior to competitor products (a self-reported measure) in a given year, researchers found a strong positive relationship between quality and market share. The superior products would grab market share five to six times as fast as a product whose quality has declined (Focker et al., 1996). It also found that quality dimension are highly correlated with business performance (Focker et al., 1996).

The result from the past research findings on the impact of perceived product quality on purchase intentions were contradictory to some which reported a direct positive impact of perceived product quality towards purchase intentions (Carman, 1990; Boulding et al., 1993; Parasuraman et al., 1996) and also unsupported the relationships exist (Tsiotsou, 2006). In addition, there were past studies that discovered indirect influence between perceived product quality and purchase intentions through mediating variable of customer satisfaction (Cronin and Taylor, 1992; Madu et al, 1995; Sweeney et al., 1999; Llusar et al., 2001).

However, it was discovered that perceived product quality on purchase intentions for goods may have dual effect whereas services were have single effects. Both are either direct or indirect effects (Tsiotsou, 2005). Meanwhile, perceived quality is generally confined within a scope of post-purchase framework (Holbrook and Corfman, 1985; Roest and Pieters, 1997), while some scholars such as Rust and Oliver (1994) supported the idea that perceived quality can be treated in both a pre- and post-purchase construct.

This is due to the fact that the assessment of a product's quality does not necessary requiring the past experience with the product. Nevertheless, the marketing experts have come to an agreement that whether an interaction, a direct and/or indirect effect exists between perceived product quality and purchase intentions, a relationship between these two constructs were actually exists.

For a better understanding of the effects in the past research, Table 2 shows a comparison between products in study which can provide some benchmarks and guidelines pertaining to the relationship between perceived product qualities towards the customer purchase intentions.

Generally, product quality has an impact towards the purchase/repurchase intentions of four different types of products. However, the effects are not entirely representing the link towards the purchase intentions especially when dealing with two-dimensional product quality attributes framework.

According to Lee and Tai (2009), marketing managers

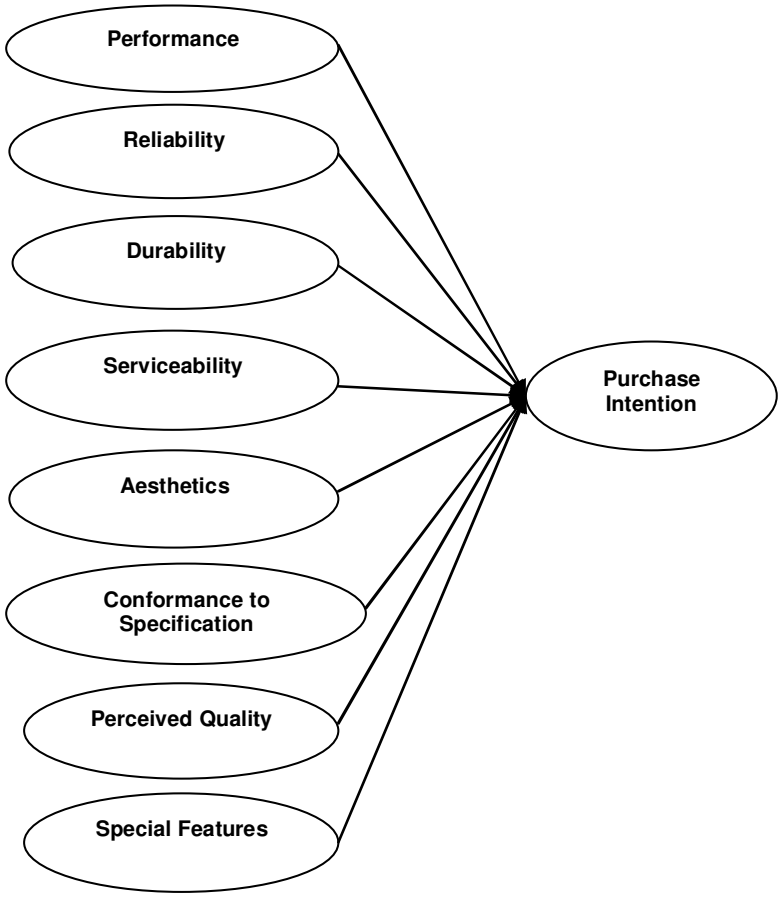

Figure 1. Proposed theoretical framework.

should be able to implement marketing strategies and activities as to promote consumers perceptions of higher product quality. This is evident from the many empirical studies that proved quality was positively associated with the degree of product success (Allenby and Rossi, 1991; Chang and Wildt, 1994; Dawar and Parker, 1994).

With reference to several past studies on consumers' perceptions and their automobile purchasing behaviour (Haubl, 1996; Havlena and Holbrook, 1986), some studies claimed that the buyers of automobiles strived mainly for product characteristic attributes, such as functional, tangible, visible characteristics, or utilitarian needs.

Bauer and Herrmann (1995) mentioned that the subjective perceptions are in a better position to determine the consumers' purchasing choices as compared to the objectives determinants themselves. The author even put an example that if consumers consider that basic features (product characteristic attributes) of the automobile are important for their needs, then such product characteristic attributes as maximum speed, horsepower, and gas consumption of a car become very important. As a result, it is assumed that product characteristic attributes, either functional or technical, are associated with consumers' evaluation of product quality.

Nonetheless, perceived quality is a major factor by which people make distinction in the market place and the quality normally lie in the eye of the beholder. Good quality perception will definitely stimulate a customer to purchase on a certain motorcycle brand/model. Hence, the objective of this study is to understand which dimensions are perceived by Malaysian customer as critical dimensions of product quality and its effect towards the purchase intention of motorcycle/scooter product.

Theoretical framework of the study

From the review of literature, Figure 1 depicts the proposed theoretical framework of the study. The illustration of the conceptual framework above gives a visual idea of the relationship and structure that exists among the study variables. The independent variables are represented by perception of eight quality dimensions developed by David Garvin of the Harvard Business School (1984). The dependent variable identified in the study is

the intention to purchase motorcycle/scooter. The main purpose of the study is to assess the existing correlation among the variables. In addition, this study is about exploring and understanding the relationship that exists between the customer perceptions and the purchase decision of a motorcycle/scooter.

In general, the relationship and link between quality perceptions and the purchase decision is considered significant. A good quality perception could influence the customer to purchase a selected motorcycle brand as compared to the others within the same segment market. In relation to the Theory of Planned Behavior (Ajzen, 1985; Ajzen and Madden, 1986; Schifter and Ajzen, 1985), the belief which derived from attitude, subjective norm and perceived behavioral control of the product quality (based from the eight quality dimensions) can have an influence in the intention to purchase MODENAS motorcycle/scooter. In the circumstances where the quality perception is greater, it is expected that the person's intention to purchase a MODENAS product in the future is stronger. On the other hand, customers are not likely to form a strong intention to purchase if they hold a inferior perception towards MODENAS product quality. Eventually, this will impede the overall behavior/ effort to purchase the MODENAS motorcycle/scooter.

RESEARCH METHODOLOGY

Hypothesis development

Given the preceding discussion, the following hypotheses are proposed:

H_1: There is a significant influence of performance towards purchase intention of motorcycle/scooter.
H_2: There is a significant influence of reliability towards purchase intention of motorcycle/scooter.
H_3: There is a significant influence of durability towards purchase intention of motorcycle/scooter.
H_4: There is a significant influence of serviceability towards purchase intention of motorcycle/scooter.
H_5: There is a significant influence of aesthetics towards purchase intention of motorcycle/scooter.
H_6: There is a significant influence of conformance to specification towards purchase intention of motorcycle/scooter.
H_7: There is a significant influence of perceived quality towards purchase intention of motorcycle/scooter.
H_8: There is a significant influence of special features towards purchase intention of motorcycle/scooter.

Research design

This research is a quantitative research where sources of information are gathered from questionnaires. Surveys that collect quantitative data can be easier to complete for the sample, due to the basic layout which enables participants to answer the questionnaire quickly, as the responses require only a tick or a numerical response as opposed to a written response. The instrument utilized was through the self-administered questionnaire containing closed-ended and scales to matrix questions. This study is a descriptive study which is interested in describing the characteristics of a characteristics of a population or phenomenon. This study also made use of hypotheses testing to determine the influence of the eight quality dimensions product quality developed by Garvin, 1984 towards the customer purchase intention. The type of sampling is stratified random sampling with data collected among MODENAS motorcycle/scooter users and owners living at ten towns representing the six segregating districts in Kedah state.

As proposed by Krejcie and Morgan (1970), the sample of this study totaled 300 MODENAS motorcycle/scooter users were taken on a basis of sampling formula of 5% from estimated of 10,000 MODENAS motorcycle/scooter registered with Road Transport Department from the year 1996 until 2000 in the state of Kedah. Out of the total population, 116 respondents responded to the research survey. The sample size fits the rule of thumb as proposed by Roscoe (1975), for which sample sizes larger than 30 and less than 500 are appropriate for most research. The scale was piloted amongst a sample of twenty (30) private workers and university students.

Data analysis method

For the purpose of this study, the researcher used the Statistical Software Package for Social Sciences (SPSS) Version 17 to compute all the data gathered from the questionnaire. The techniques of analysis used in this study were descriptive (mean, standard deviation) and inferential analysis (regression) to sum up the data collected. The questionnaires of Product Quality will be based on the eight dimensions of product quality framework developed by Garvin (1984). Pre-testing of the questionnaire was made during the pilot study.

The survey questionnaire was structured into five separate areas. This structure was established so that the profile of the respondents' were reviewed, along with the respondents' perceived price as the determination of purchase, understanding on quality dimensions, perception towards MODENAS product quality and the purchase decision as a result of the overall perceptions.

In order to help describe the sample characteristics in the data analysis report, demographic data such as age, gender, ethnicity, race, monthly income and job tenure are included in the questionnaire. These data are structured in a range of response option, rather than seeking exact figures. In the subsequent section, all the study variable scales are measured using Likert scale rated varying from 1 to 7 (highly disagree to highly agree).

Performance was constructed in eight measurement items, reliability was constructed in five measurement items, durability in seven measurement items, serviceability in five measurement items, aesthetics in four measurement items, conformance to specification in four measurement items, perceived quality in five measurement items, special features in five measurement items and purchase intention in four measurement items respectively.

For product quality section, both type of respondents (owner and non-MODENAS owner) were asked on perception towards the MODENAS product quality based on the eight quality dimensions. Questions were chosen based on the basic fundamental of quality questions which were mostly used by MODENAS in the survey activity. It was estimated that such questions were sufficient to benchmark the quality for each motorcycle/scooter model/brand sale in the market. Furthermore, in the purchase intention section, respondents were asked on the decision to purchase MODENAS products based on the overall quality perceptions answered in the earlier section. The independent dependent variable was used to test the relationship with the dependent variables and its influence among each other as stated in the study hypotheses.

The questionnaires were self-administered mail and personal-administered through interviews directly with the MODENAS motorcycle/scooter owner. The survey questionnaires were distributed to target survey respondents in areas in Kedah State

Table 3. Demographic information of respondents (N = 116).

Variable		Frequency	Percentage
Age (Years)	18~25	33	28.4
	26~35	51	44
	36~45	22	19
	≥45	10	8.6
		116	100
Employment	Private sector employees	91	78.4
	Government servant	15	12.9
	Self-employed	8	7.0
	Students	2	1.7
		116	100
Monthly Income (RM)	< 1,000	66	57
	> 1,000 - < 2,000	33	28.4
	> 2,000 - <3,000	13	11.2
	>3,000	4	3.4
		116	100
Place of Living	Out of town	48	41.4
	Town	39	33.6
	City	29	25
		116	100

such as Alor Setar, Sungai Petani, Baling, Gurun, Sik Padang Serai and Pendang. Each location was identified based on the top sales performance by the dealers in the state of Kedah.

All the returned questionnaires were used and analyzed. The data was statistically analyzed using the Statistical Package for Social Sciences (SPSS) Version 17. Appropriate analysis was undertaken by using the statistical packages and features available in the SPSS software to obtain the desire result. Some data were even represented graphically for better understanding on the research data and result. The descriptive statistics, frequency analysis, factor analysis, reliability test, and multiple regressions were used to sum up the data collected.

RESULTS AND DISCUSSION

Pilot study

Improvement has been made based on the feedback by reducing the questionnaire Likert scale rating from 1 to 7, to 1 to 5 in order to ease respondents' understanding and interpretation of each question.

Demographic profile

The result of the demographic profile shows that majority of the respondents are at the age bracket of 26 to 35 (44%). Private sector workers formed the largest group with 78.4%, followed by government staff (12.9%) and self employed at 8 or 6.9%. Respondents with monthly income less than RM 1,000.00 were the largest group among others with 56.9%, while majority of them were out of town residents with 41.4%. The details of demographic information are shown in Table 3.

Response rate

In this study, 116 responses were received from 300 questionnaires distributed. According to Hussey and Hussey (1997), for mail distribution method, in order to avoid sample bias, response rate should be more than 10%. In this relation, the response rate for this study of 38.7% means that the sample bias was avoided and the responses received represent the population adequately and appropriately.

Descriptive analysis

The findings obtained from the questionnaire have been evaluated according to mean (X) and standard deviation (S.D) in order to determine the respondents' score level of quality perceptions towards MODENAS motorcycle/ scooter. From a five-point scale, the study has taken a position that any score of 3.00 and above indicates that the respondents perceived MODENAS respondents' opinions about perceptions of quality are seen. The results show that the ranges of the mean values vary between 3.63 and 4.58 and the mean of these values (overall mean) is 4.02. It can be translated as, in overall, the

Table 4. The distribution of the respondents' opinions about perceptions of quality.

	Item	Mean	S.D.
V1	Performance	4.11	0.9
V2	Reliability	3.81	1.1
V3	Durability	3.72	1.0
V4	Conformance to specification	4.58	1.0
V5	Perceived quality	3.77	1.0
V6	Serviceability	4.38	1.0
V7	Aesthetics	4.13	0.9
V8	Special features	3.63	1.0
Total		4.02	0.9

Table 5. Factor analysis result.

KMO and Bartlett's test	Result
Kaiser-Meyer-Olkin. Measure of Sampling Adequacy	0.846
Bartlett's Test of Sphericity (Sig.)	0.000

respondents agreed that MODENAS products are good in quality. This circumstance indicates that MODENAS products as good in performance, reliable, durable engines, product with conformance to specification, being perceived quality product, easy maintenance, good look and have special features.

Validity tests

Based on KMO measure of sampling adequacy test in Table 5, it was found that the factor analysis data was appropriate with the value of 0.846, which falls between the ranges of being great and appropriate. KMO should be 0.60 or higher in order to proceed with factor analysis (Tabachinc and Fidell, 2001). These rates reveal that the questionnaire form is valid (Hoxley, 2000; Mitchell, 1994). Bartlett's Test was utilized with the result which indicates a highly significant result with $p = 0.000$ ($p < 0.05$) and therefore factor analysis is appropriate and accepted.

Factor analysis is a data reduction technique used to reduce a large number of variables to a smaller set of underlying factors that summarize the essential information contained in the variables (Coakes and Steed, 2007). The principal-components analysis was performed on all the variables to confirm that concepts have been correctly measured with the right variables loading on each factor.

Factor analysis with a varimax rotation procedure was employed to identify underlying dimensions of product quality. In Table 6, the load values of the factors are shown. This study has utilized both exploratory and confirmatory factor analyses. Exploratory factor analysis attempts to determine the number of factors, while confirmatory factor analysis attempts to test how well the measured variables represent the number of constructs. From the result of exploratory factor analysis, all eight factors can be accepted for the rotation component matrix. In confirmatory factor, being 0.50 or a higher of the factor load value is a good criterion for selection. Items with the result of less than 0.50 were omitted and disregarded from being analyzed. This reduction is possible because the attributes are related and the rating given to any one attribute is partially the result of the influence of other attributes.

From the result of the factor analyzing, it can be seen that the eigenvalues of the scale factors are varied between 3.0 and 36.20% and eight factors have explained 70.7% of the total variance. The factors are; the first factor consisted of eight items is "perceived quality", the second factor consisted of eight items is "performance" the third factor consisted of seven items is "reliability", the fourth factor consisted of six items is "aesthetics", the fifth factor consisted of five items is "serviceability", the sixth factor consisted of two items is "conformance to specifications", the seventh factor consisted of two items is "special features" and the eighth factor consisted of three items is "durability".

Reliability tests

Cronbach's alpha coefficients has been utilized to measure the reliabilities and internal consistencies of the scales used. According to Cronbach (2004) when measuring the difference, it is appropriate to undertake Cronbach's

Table 6. Principal component loading matrix for importance variables.

Item		Component							
		F1	F2	F3	F4	F5	F6	F7	F8
A1	High trade in value	0.772							
A2	Competence and at par with the Japanese brand	0.747							
A3	Petrol saving	0.694							
A4	The lamp bulb seldom blows up	0.682							
A5	A brand make with high reputation	0.645							
A6	Long battery life	0.589							
A7	Plastic parts are weather resistant (difficult to fade away)	0.552							
A8	Overall effective, responsive and safety braking system	0.412							
B1	Effective braking system for immediate stoppage		0.712						
B2	Effective suspension system		0.688						
B3	Appropriate response while taking sharp bend		0.686						
B4	Easy to change gear		0.639						
B5	Popular brand known to many		0.607						
B6	Easy handling in town or congested road		0.573						
B7	Fuel saving especially for long distance travelling		0.553						
B8	Long engine life		0.537						
C1	Easy to kick start in the morning			0.695					
C2	Effective electronic devise when being applied			0.674					
C3	No vibration at top speed traveling			0.627					
C4	Not required to fasten tappet for each servicing			0.618					
C5	High pick up during overtaking vehicle			0.556					
C6	Less maintenance or repair			0.490					
C7	Long lasting although warranty expires			0.430					
D1	Unique in design and identity				0.816				
D2	Attractive and energize colour of stickers				0.764				
D3	Colour suitable with the motorcycle design				0.739				
D4	Devises installed are complete with sophisticated functions				0.644				
D5	Design fulfill the needs and lifestyle				0.638				
D6	Attractive accessories that are accepted by most of the users				0.532				
E1	Easy and acceptable for servicing from any shop or service centre					0.757			
E2	Short time during servicing					0.733			
E3	High availability of parts and accessories					0.692			
E4	Reasonable spare part price					0.602			
E5	Easy modification and installed with many accessories					0.536			
F1	Suitable and effective Hi/Low beam						0.829		

Table 6. Contd.

F2	Signal light lights as per direction of user						0.824		
G1	Fulfill the basic need of a motorcycle							0.676	
G2	Unique function of components and practical							0.573	
H1	Nut and bolt are rusty resistance								0.723
H2	Plastic parts are not easily broken								0.482
H3	Power to climb hill area								0.459
	Percentage variance explained	36.2	8.5	6.2	5.2	4.4	3.7	3.5	3.0
	Percentage cumulative variance explained	36.2	44.7	50.9	56.1	60.5	64.2	67.7	70.7

Cronbach's alpha tests on the reliability and internal consistency of the scale. Cronbach's alpha can be interpreted as a correlation coefficient, it ranges in value from 0 to 1 (Coakes and Steed, 2007).

From the reliability analysis in Table 7, all factors were found to be good reliability with all the Cronbach's alpha results are of above 0.6. The result of reliabilities that are under 0.6 is considered to be poor, while in the range of 7.0, the result can be acceptable and if the result show range between 0.8, it is considered as a good result (Sekaran, 2003).

Regression analysis

Regression is a technique that can be used to investigate the effect of one or more predictor variables on an outcome variable. Multiple regression is important for this research as the result of regression is an equation that represents the best prediction of dependent variable from several independent variables. Hence, multiple regression analysis was applied to identify which independent variable (from the eight quality dimensions framework) is significant to predict the outcome of the dependent variable - purchase intention.

Table 8 shows the R-Square and Durbin-Watson test. R-Square test result of 0.583 can be accepted for the regression analysis. The Durbin-Watson test result of 1.966, an indicator that the autocorrelation is almost reaching to zero or there is a significant difference between the dependent and independent variables (no autocorrelation). From the ANOVA in Table 9, it appears that the eight predictor variables are not all equal to each other and could be used to predict the dependent variable, purchase intention as is indicated by F value of 4.324 and strong significance level of 0.000 ($p < 0.05$). Further as shown in Table 10, the result shows that none of the variables are significant ($p < 0.001$).The VIF value of less than 10 for all variables show that the problem of multicollinearly have not existed and all the data are mutually exclusive. As for the interpretation, the test indicates that none of the product quality dimension has the significant influence towards the consumer purchase intention. By examining the t statistic for all the independent variables it apparently shows that none of the variables has significant relationship due to weak significant level ($p > 0.05$) with the purchase intention, indicating that the null hypothesis (H_1, H_2, H_3, H_4, H_5, H_6, H_7 and H_8) is inappropriate and can be rejected.

DISCUSSION

Overall, the level of customer perceptions has no significant impact on the customer purchase decision. Good or bad perception of the product quality can still drive the customer either to purchase or not to purchase the motorcycle/scooter.

This situation exists especially when the buyers expectation towards a product brand is similar or at par with the competitor's product. In this case, the buyer has viewed a brand at the same level for all quality dimensions of "conformance to specification", "performance", "reliability", "durability", "perceived quality", "serviceability", "aesthetics" and "special features". Such generalization in the quality perceptions may either distract or stimulate the drive to purchase a particular brand product in the future. The buyer decision process consists of five stages: need recognition derived from internal and external stimuli, search for information, evaluation of the available alternatives, form purchase intentions and engage in post-purchase behavior (Kotler and Armstrong, 2010). In evaluating the available brand choices, buyers normally do not engage in a simple and single evaluation process.

Table 7. Reliability tests result.

Variable	Cronbach's alpha	Result
Purchase intention	0.881	Good scale
Performance	0.843	Good scale
Reliability	0.854	Good scale
Durability	0.873	Good scale
Conformance to specification	0.822	Good scale
Perceived quality	0.816	Good scale
Serviceability	0.800	Good scale
Aesthetics	0.849	Good scale
Special features	0.837	Good scale

Table 8. R^2 and Durbin-Watson test result.

Test	Result
R^2	0.583
Durbin Watson	1.966

Table 9. ANOVA test result.

Test	F	Significant
ANOVA	4.324	0.000

Instead, they at a specific attitude and belief towards different brand through some evaluation procedure. This includes using careful calculations and logical thinking that depends on individual priorities and specific buying situation.

Another possible reason is that customers may not place quality as their main important element in the purchase of MODENAS products. The "actual need" is rarely fully known or understood by the customer. There are different objectives and priorities, the situation which has generated the "need" is not completely known, and the effects of any change are not totally predictable. A supply of a service or product may be of the highest standard, but the customer may have unreasonable expectations, which cannot be met by any means at all (Hardie and Walsh, 1994). Meeting a quality definition does not always mean that the supply is of adequate quality. Sometimes, price can also be used for signaling the quality of the product. Customer may perceive a high price product offers a guaranteed high quality product than an unreliable cheaper one (Wankhade and Dabade, 2006). In making purchase decision, the consumer may arrive at attitudes toward a different brand through some evaluation procedure. However, the evaluation of the available alternatives depends on the individual consumer and the specific buying situation (Kotler and Armstrong, 2010).

As far as the Theory of Planned Behavior (Ajzen, 1985; Ajzen and Madden, 1986; Schifter and Ajzen, 1985) is concerned, product that could satisfy the attitudes, subjective norms and behavioral beliefs is always in better position to win the heart of consumers. Here, although MODENAS products have been perceived as good quality, it is still insufficient enough to create a positive behavioral intent that can drive the customer to buy MODENAS products. This could be probably due to the lack of some important elements in the current product line up that failed to meet the requirements of motorcycle. Other possible reason is due to the high loyalty to competitor's brand which may cause customer resistance in the brand switching. In a study by Shaharudin et al. (2011), MODENAS need to build the positive brand awareness to the consumer in order to lessen the competitor's popular brand which has already existed long time ago. Honda which is more than 50 years and Yamaha over 30 years existence in Malaysia as compared to MODENAS may have competitive advantage in terms of their credibility and capability in long serving customers living either in town, sub-urban or villages. Honda is known for its reliable and fuel saving product whereas Yamaha is popular with its high performance and sporty look motorcycle which has performed outstanding performance in local motorcycle racing championships. In this context, MODENAS should

Table 10. Result of coefficients.

Variable	Standardized coefficient			Collinearity statistic	
	Beta	t	Sig.	Tolerance	VIF
Performance	0.108	0.905	0.367	0.492	2.031
Reliability	0.015	0.102	0.919	0.347	2.882
Durability	0.237	10.672	0.097	0.353	2.836
Conformance to specification	0.024	0.213	0.832	0.550	1.817
Perceived quality	0.066	0.648	0.518	0.681	1.467
Serviceability	0.018	0.137	0.891	0.421	2.376
Aesthetics	0.014	0.131	0.896	0.658	1.519
Special features	0.150	1.369	0.174	0.587	1.704

choose a position (either to follow the competitors or build a new one in between) and take strong steps to deliver and communicate the desired position to the targeted customers.

Conclusion

It can be concluded that customers are looking at other elements beyond quality perceptions on their purchase decision and only they themselves understand what they are actually looking for. There are other factors which are yet to be discovered and only after identifying those potential factors will enable the business organization to establish correct relationship to what actually contribute to purchase decision. For example, price, buyer's own self concept and ownership status.

In general, customer's perception on MODENAS product quality was positive. However, despite this positive perception, it neither encourages nor discourages customers in making decision to purchase MODENAS products. Prior to purchasing any product including motorcycle/scooter, a buyer may decide based on certain factors of preferences or priorities that are different among individuals. Customers may not rely on the perceptions of quality alone in deciding to buy or not to buy any product in the market. A study has discovered that there are many factors that could contribute to the customer buying decisions' besides the quality (Marks, 1995). Although the basic quality dimensions are identical and acceptable to customers but the priorities among them are totally different between one another.

Furthermore, in the past researches, the introduction of beneficial impact (such as customer satisfaction) on purchase intentions can increase the importance of perceived product quality (Tsiotsou, 2006). In this case, some products were found to have direct and indirect effect depending on the type of product or services. Among the studies which resulted indirect relation between perceived product quality and purchase through mediator of perceived value are studies by Chang and Wildt (1994), Dodds et al. (1991), and Rajendran and Hariharan (1996). Whereas, mediated by satisfaction was evidenced in the study by Tsiotsou (2006). On the other hand, in some studies, perceived quality has been found to have a positive direct effect on purchase intentions (Boulding et al., 1993; Parasuraman et al., 1996).

RECOMMENDATIONS FOR FUTURE RESEARCH

Future research should focus on the similar study of product quality and purchase intention to the Yamaha and Honda brand for being the closest competitor to MODENAS in the market. It is expected that, from the findings of the study of both brands, it could lead to a clear picture on relationship that exist between the product quality and the buyer purchase behaviour. Eventually, a comparison can be made between the findings of the three brands so that such constructible findings and conclusions can be made to the study.

For the next research, it is important to extend the scope of the study to a wider location including the East Malaysia where lately, the purchasing of motorcycle/ scooter is on the growing trend. By doing so, the result can be more accurate with the increase in scope, sampling size and population of the study. With such a complete research, it is hoped that the findings could be used as a reference and benchmark to the motorcycle industry in Malaysia.

IMPLICATIONS OF THE STUDY

For practice

The first managerial implication which concerns the findings has always become the interest of the management, employees as well as stakeholders for the only national motorcycle project in Malaysia. The domination of the competitors' market share has caused a serious implication to MODENAS revenue and profit. There must be a reason for the low demand for a brand used to be a market leader in the past. Hence, such information would enable the company to develop effective strategies to regain customers support and place the sales

direction on the right track.

For knowledge

Academically, the finding of the research adds new understanding to the literature particularly in the product quality and its relationship with the purchase intention in Malaysia motorcycle/scooter market environment. With the data presented in this study, it can be expected that future research can be of benefit by giving a new source of ideas and information. Furthermore, some statistics in this research can be used by the instructor for teaching in the classroom to enhance learning in order to get utmost benefits of a research outcome in this area of teaching.

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