

QFD APPROACH IN DETERMINING IMPORTANCE OF FAMILY PERFORMANCE: GENDER EVALUATION IN MALAYSIA

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***Abstract.** A family can be considered as an important institution which requires serious attention regarding to its performance. High quality performance of a family may deliver high quality of society and produce better human resources. The idea of translating several family characteristics into variables and dimensions by using the Quality Function Deployment (QFD) method could present a new way of improving the performance of a family. In addition, QFD method can also compare the level of importance between male and female in clearer and simpler way leading to the identification of which dimension is the most important and which one is less than the other. QFD method is applied in the data gathered from a questionnaire survey based on 1,213 families in West Malaysia, Malaysia. The QFD technique which is usually applied in industry can be adopted in assessing performance of a family. The technique produces a friendly interpretation of a highly complex and intangible matters around family life; thus, making the assessment of a family easier. Three dimensions and twelve variables were identified as the voice of family. The voice represents variables and dimensions of family performance. Furthermore, the gender evaluation indicates that the level of importance among two out of three dimensions were equally considered high important by both male and female.*

Keywords: family roles, gender, social policy, assessment, Quality Function Deployment (QFD), research & development.

1. BACKGROUND

The differences between men and women are natural. Even though, it is not necessary for us to continuously highlight the differences which may produce wider gap between genders. Both of them are being created to complement each other for the goodness. Even more, they should run the life together side by side as partner. The most common and legal institution for the union of men and women is marriage. Marriage is a critical point of role transition for couples who marry for the first time. It involves moving on from their families and from the orientation phase of their development to the unfamiliar husband-wife relationship (Duvall, 1976). The marriage is then developed into a family where more roles are involved such as mother-father, grandmother-grandfather, and aunt-uncle. Greater challenge is demanding for the couples especially to improve and maintain their family performance. The family performance indicates the capability of the family themselves in fulfilling their need. In order to succeed to achieve better family performance, the couples should understand and respect each other in many things. However, the difference point of view between men and women sometimes makes the family performance away from good.

Questions may arise. Is it true that there are differences between male and female point of view? Is male level of importance different from the female regarding to evaluate of family performance? Therefore, in this paper, we purpose a new method to determine activities involved in achieving good family performance. Using quality function deployment (QFD) approach, we deliver a systematic way to identify what family performance is and how both genders put their level of importance.

QFD is a technique which is quite versatile for industrial application. We believe that it is possible to adopt this approach for family and gender context. Earlier application, for example, on the problem of product design. The designing process relating to customer satisfaction could be achieved by applying QFD technique to the needs put forwarded by the customers (Walden, 2003). The success of QFD approach has attracted its implementation in other fields such as service industry (Bosch and Enriquez, 2005). In addition to implementation of QFD for organizational planning, Gerst (2004) and Masui et al. (2003) also applied QFD for social system redesign. Considering these applications, QFD technique is quite flexible and can also be applied in many areas including the social science.

In this study, we apply QFD approach to identify the complexity of family and gender evaluation of the family performance. The performance reflects the level of importance among family members to fulfill the family's need. It is an abstract and complicated matters and therefore it is necessary to simplify the performance by deploying in clearer and more structures manner. In addition, the gender evaluation is obtained from the questionnaires distributed to 1,213 respondents. The questionnaires were designed following the deployment of family performance.

We divided our paper into seven main parts. First is introduction followed by the traditional QFD in part two where we discussed in brief about QFD. The third part will discuss about the adoption of the traditional QFD in purpose to the family and gender context. The fourth part is methodology where we present our subjects and scope of research, measures and scale reliability. Results and discussion are presented in the fifth part, presenting the implementation of QFD into family and gender context blended with brief discussion of the results. In the last part is conclusions and references.

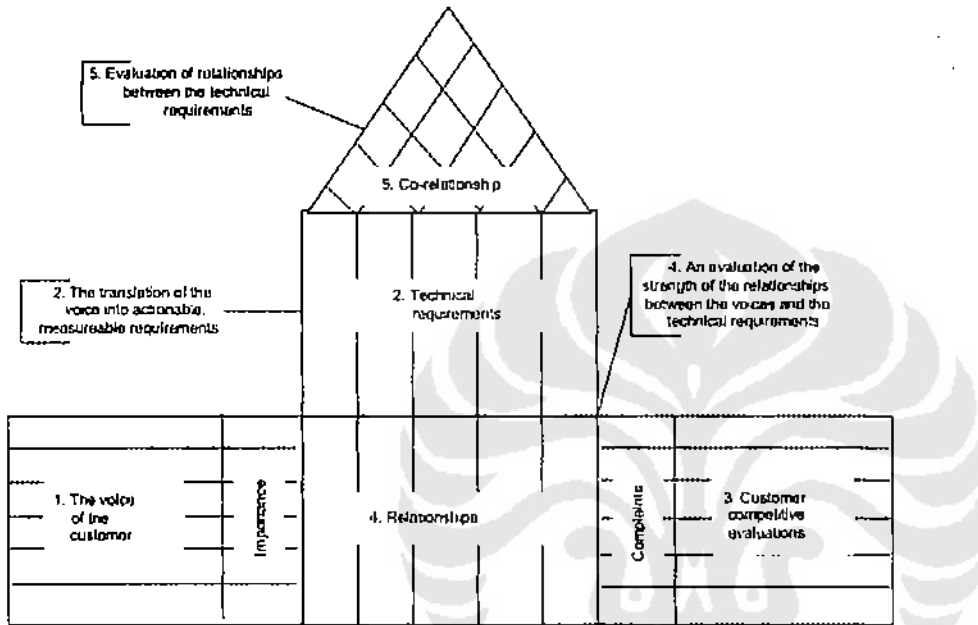
2. THE TRADITIONAL QFD

Quality function deployment is a product or service development process based on interfunctional teams such as marketing, manufacturing, engineering and research and development (Hauser, 1993). These interfunctional teams may apply the tools of quality in sequence to deploy customer input by identifying the design, manufacturing process, and service delivery (Day, 1993), ensuring that products that enter production would fully satisfy the need of the customers by fulfilling the necessary quality levels at every stage of product development (Amaturaga et al., 2001).

The final output of QFD can be represented in the form of house of quality (HoQ) as shown in Figure 1. The main positions of HoQ of the room, left, right, top, roof and center, represent the sequence of process in implementing the QFD approach. The left room represents determination of voice of the customer. The voice can be found based on the survey of customers' needs and wants. Next, the right room indicates the process of determining the customer competitive evaluation for the purpose of comparing performance of company with its competitors. The top room represents the technical information portion which contains information that relates the voice of the customer into technical requirements of the organization. Followed by the roof room, this room represents the co-relationship among the technical portion which shows the contradictive or

supportive technical requirements inside the organization self. The last center room represents determination of the customer information portion which contains information on the relationship between voice of customer and organization. The information is represented by symbols for easier reading and interpretation.

Figure 1
TRADITIONAL ROOMS OF HoQ IN ORGANIZATION

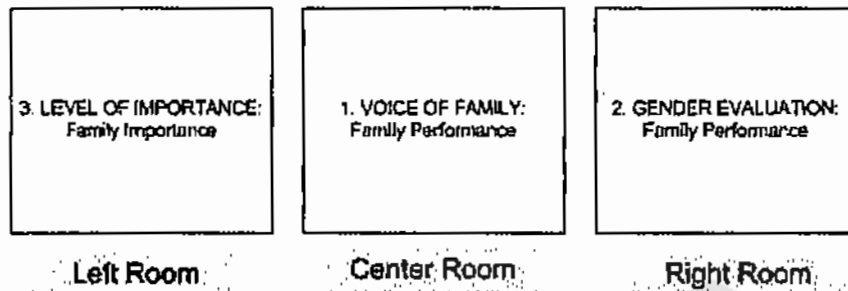


3. QFD FOR DETERMINING AND GENDER EVALUATION ON FAMILY PERFORMANCE

As discussed earlier, the traditional QFD has five main parts that represent five main rooms in HoQ. Adopting the traditional QFD, we simplify into three main parts to deploy family performance. The three main parts represent three main rooms in HoQ for family performance as shown in Figure 2. The first part is named voice of family (VoF) which deploys dimensions and variables of family performance and located at the center room of HoQ. The right room deploys gender evaluation with respect to the

dimension of family performance. The third is at the left room which represents level of importance among respondents of this study with regards to the dimensions and variables of family performance.

Figure 2
ADOPTION OF HOQ FOR FAMILY PERFORMANCE



As represented in the center room, VoF was earlier generated by asking 100 respondents from various backgrounds regarding activities in family which are related to the development of family performance. It is important to place our respondents as the customers of organization whose their needs and wants are our main goal to fulfill (Gitlow, 1990). The data of activities received were gathered by using various techniques such as conversation, complaint, confidential letter, telephone, and e-mail (Bossert, 1999). As a result, we have shortlisted activities mentioned by the respondents.

The list was unstructured and unorganized and had no specific manner. In addition it was hard to identify what the specific idea of each relationship between the activities in the list is. Therefore, we referred to some literature study from previous researcher about family performance or as equal as it is. We then had three expertises on family and two expertises on quality who were gathered in focus group to do the grouping with regards to the list into several groups that have similar characteristics (Asaka and Ozeki 1990). The characteristics were determined based on similarity in the subjects, goals and relationship occurred. To organize the list, the focus group did grouping into three levels of complexity. The lowest level of complexity is called *attribute* which is represented by the list of activities on family performance which was then provided in the questionnaire of the study. The higher level is *variable* which consists of several attributes that have similarity one to another. The highest level of complexity is *dimension* which consists of

several similar variables. By having several level of complexity of activities on family performance we may give simpler and more manageable information of what family performance is (Oakland, 1993). The results of VoF are discussed in the next part of this paper.

After determining VoF then we utilized the questionnaire consisting of attribute determined in VoF earlier. We asked 1,213 respondents for their level of importance to the dimension of family performance which represents overall level of importance of the family performance. We aggregated their responses by using the mode value to identify the most occurred value chosen by the respondents. We then analyzed the responses based on gender point of view and deployed the comparison between male and female in the right room of gender evaluation.

Following the results in the right room, we also asked the respondents for their levels of importance regarding to the variables of family performance which represent more detailed activities of family performance. If in gender evaluation we compared the results based on responses of male and female then in this part we integrated all answers and found the mode value for each variable. The results are represented in the left room of HoQ for family performance. Completed HoQ for family performance for this study is shown in Appendix.

4. METHODOLOGY

In this part subjects and scope of the research, measures and scale reliability are discussed.

4.1 Study Site

The data collection took place in mid of July 2005. It was decided that 1,213 questionnaires returned were distributed across West Malaysia. For the survey, we identified several regions as well as the cities of the country. The numbers of questionnaires distributed in these cities are decided based on the share of the total population contributed by the states identified in the particular regions. In terms of population distribution by state in Census 2000, Selangor was the most populous state (4.19 million,) followed by Johor (2.74 million) and Sabah (2.60 million). Their share to the total population of Malaysia was 18.0%, 11.8% and 10.6% respectively. The

least populated states were Wilayah Persekutuan Labuan (0.08 million or 0.3%) and Perlis (0.20 million or 0.9%).

For the Central Region, we identified the state of Selangor and Negeri Sembilan. Cities of Bangi and Kajang represent Selangor while city of Seremban represents Negeri Sembilan. For the Federal Territory region, we identified city of Kuala Lumpur. For the Southern regions, we selected the state of Johor Darul Takzim where the city of Johor Bahru was considered. We selected the state of Kedah Darul Aman for the Northern regions where city of Kedah was used to represent the state. The distribution of returned questionnaires according to the different regions is given in Table I.

Table I
DISTRIBUTIONS OF RETURNED QUESTIONNAIRES BY REGIONS

Regions	States	City	Number of respondents (%)
Central	Selangor	Bangi	300 (24.7)
		Kajang	200 (16.5)
	Negeri Sembilan	Seremban	105 (8.7)
Federal Territory	Kuala Lumpur	Kuala Lumpur	403 (33.2)
Southern	Johor Darul Takzim	Johor Bahru	202 (16.7)
Northern	Kedah Darul Aman	Kedah	50 (4.1)
Total			1,213 (100.0)

We used random sampling in selecting respondents. We randomly chose every 10th person as our respondent then asked whether the respondent fulfilled characteristic or not. If the person was not qualified as the respondent then we got the next 10th person and repeated the selection. Selected respondent should have marriage relationship, not divorced, not separated, and the spouse still lived together, and had children.

The sample could be generalized for West Malaysia since we have respondents stratified to ethnic group and area across West Malaysia. In addition, the respondents were subject to various backgrounds such as education level, socioeconomic status, and occupation.

4.2. Study Respondents

Duvall (1976) stated that there are two cycles of family: growing up family and developed family. The first cycle represents family in the phase of married couple that then have and raise children into teenager and adulthood. Furthermore, in the cycle of developed family, the family lands in the phase of letting go their adult children to be independent and have their own lives whether by getting married or making their own revenue. Based on the family cycle, we divided our subjects into three groups. The first group is respondent, both male and female, whose marriage length was less than 12 years. The second group is for those whose marriage lasting between 12 until 17 years and the third group for those whose marriage lasting for more than 17 years. As stated earlier, all respondents involved must have offspring at least one since our questionnaire asked for parental relationship as well. In addition, the respondents should still having their marriage and lived with their spouses. The rationale is that our study needs to explore the activities happened in the family life. Therefore, we need respondents whose family life is still going on as well.

4.3. Measures

The questionnaire divided into three main parts. The first part is about background of respondents, with 15 questions asking for gender, race, the difference of age between husband and wife, length of marriage and etc. The second part involves questions regarding relationship among the family members, level of efforts on various characteristics for family growth and level of execution of roles with respect to norm and policy of the family for continuation of family sustainability. The third part of the questionnaire consists of 3 questions on the overall opinions regarding the level of importance on issues relating to performance of the family. Contents of the questionnaire are summarized in Table 2.

Table 2
SUMMARY OF CONTENTS OF THE QUESTIONNAIRE

No.	Parts	Sub-part	Likert scale	No. of questions.
I	Respondent background characteristics			15
II	Details on family performance	Family relationship	1 = almost never 5 = always	10
		Family growth	1 = almost never 5 = always	11
		Family sustainability	1 = very disagree 5 = very agree	12
III	Overall perspectives on family performance	All family dimensions	1= very unimportant 10= very important	3

4.4. Scale Reliability

In this study, the most common measure of reliability which is Cronbach's alpha (α), based on Cronbach (1951) was used. The values of 0.7-0.8 or above are an acceptable value for Cronbach's alpha and values substantially lower indicated an unreliable scale. Kline (1999) notes that although the generally accepted value is 0.8 or above is appropriate for cognitive tests such as intelligent tests, for ability tests a cut-off point of 0.7 is more suitable. He suggested when dealing with psychological constructs, lower values such as below even 0.7 can, realistically, be expected because of the diversity of the construct being measured. The questionnaire in this study were found acceptable in terms of scale of reliability since we found the Cronbach's alpha (α) value range from 0.80 until 0.95 for each dimension of the family performance.

5. RESULTS AND DISCUSSION

First, we discuss result of surveys by taking account background of respondents in order to give wider perspective of our results. According to gender, there were 51.6% male respondents and 48.4% female

respondents who were married and had children. In terms of length of marriage, 34.3% of our respondents were married for less than 10 years, 30.3% were married for between 12 until 17 years and 35.4% were married for more than 17 years. According to ethnic groups, 46.5% of our respondents are Malay, followed by 33.3% Chinese, and the rest are Indian. There are many types of occupation of the respondents. However, the two most common occupations were related to the private sectors (39.3%) and followed by conducting their own business (27.2%).

Out of other background characteristics gathered among respondents, we select two important backgrounds, which are ethnicity and length of marriage, to be discussed in this paper. We will emphasize the background of gender by using QFD approach in the following section of discussion. The quantitative result is shown in Table 3.

Table 3
PERCENTAGE OF RESPONDENTS WHO CONSIDERED FAMILY PERFORMANCE
IMPORTANT OR VERY IMPORTANT BY ETHNICITY AND LENGTH OF MARRIAGE, WEST
MALAYSIA, 2005

	Family Relationship	Family Growth	Family Sustainability
<i>Ethnicity</i>	<i>8 for important</i>	<i>10 for very important</i>	<i>10 for very important</i>
Malay	269 (47.7%)	304 (53.9%)	212 (37.6%)
Chinese	185 (45.8%)	244 (60.4%)	103 (25.5%)
Indian	103 (42.0%)	80 (32.7%)	69 (28.2%)
<i>Length of marriage</i>	<i>8 for important</i>	<i>10 for very important</i>	<i>10 for very important</i>
Less than 12 years	212 (51.0%)	188 (45.2%)	137 (32.9%)
Between 12 until 17 years	148 (40.2%)	155 (42.1%)	119 (32.3%)
More than 17 years	197 (45.9%)	285 (66.4%)	128 (29.8%)
Total	557 of 1,213 (45.9%)	628 of 1,213 (51.8%)	384 of 1,213 (31.7%)

We take into consideration for the most frequent scale of overall perspective on family performance which was delivered by the respondents. Based on both background of ethnicity and length of marriage, overall results show that 557 out of 1,213 respondents considered that dimension of family relationship is important within scale of 8 for important. There were 269 (47.7%) Malays, 185 (45.8%) Chinese, and 103 (42.0%) Indians who considered that family relationship is important. In addition, it is found that those 212 (51.0%) respondents with length of marriage less than 12 years, 148 (40.2%) respondents with length of marriage between 12 until 17 years, and 197 (45.9%) respondents with length of marriage more than 17 years

considered that family relationship is important. In term of family growth, the result shows that 628 out of 1,213 respondents consider Very Important within scale of 10. In term of family sustainability, 384 out of 1,213 respondents considered it is of very important.

Second, we present the HoQ room for the family performance which consists of voice of family (VoF), gender evaluation, and level of importance.

5.1. Voice of Family

After generating a list of selected activities representing the family performance, we found literature review in order to determine VoF. Locke and Thomes (1976) defined family as a group of persons united by ties of marriage, blood, or adoption; constituting a single household; interacting and communicating with each other with respect to the social roles of husband and wife, mother and father, son and daughter, brother and sister; and creating and maintaining a common culture. Eshleman et al., (1988) has defined family as a system comprising of members who are interrelated in positions, where each person has his or her own roles.

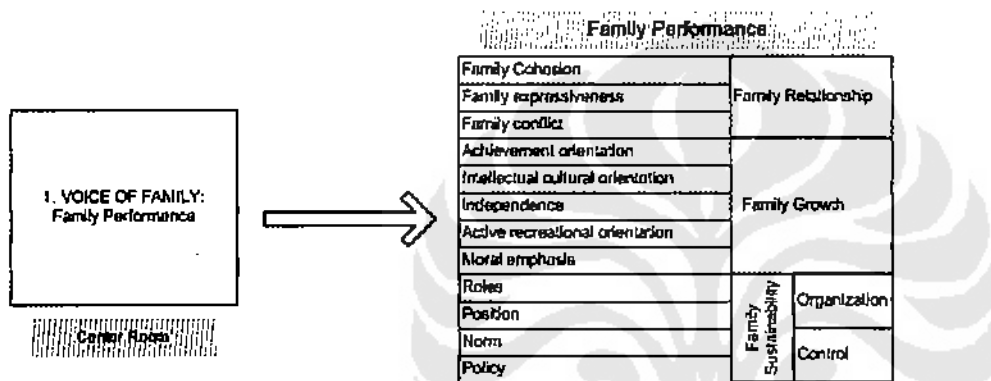
Nowadays, as observed in many developed countries, family system based on companionship is more predominant as compared to the traditional one. The traditional family system is based on family members playing traditional roles, where the responsibilities involved are limited to only in rising up the family, such as husband and father as the breadwinner, wife and mother as the housewife who is feeding, taking care of children, and running the household. The companionship system is based on mutual affection, intimate communication and mutual acceptance of division of labor and procedures of decision making. In the developing countries such as Malaysia, the companionship family system is practiced in most families when compared to the traditional one (Pcng, 2007).

The family environment scale as proposed by Moos (1974) and Moos and Moos (1981) described the variables which can be used to explain the family as a performance system was utilized in this study. They have identified three dimensions for the family environment. As mentioned in earlier part of this paper, expertise gathered in focus group was sought in order to provide grouping of family variables under the respective dimensions provided by family environment scale. After several adjustment and adoption, we then formed the family variables under family performance. Three dimension of family performance involved are family relationship, family

growth and family sustainability. The detail deployment of family performance is as shown in Figure 3.

The first dimension represents relationship in the family, comprising family variables which are cohesion, expressiveness, and conflict. Chin-Chun and Richer (2002) had discussed the idea of intergenerational conflicts in the family such as conflict in parent-child relationship. The satisfaction in parent-child relationship may lead to satisfaction in the spouse relationship (Finkenauer et al., 2004; Papp et al., 2004; Twenge et al., 2003). The success of relationship between the spouses can be attributed to the high level of expressiveness between the couple (Miller et al., 2003).

Figure 3
CENTER ROOM: VOICE OF FAMILY (PERFORMANCE)



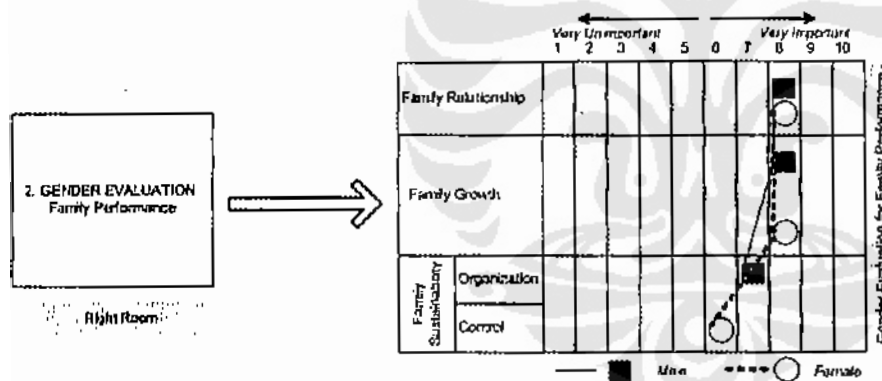
The second dimension describes family growth in terms of acquiring certain characteristics in order to upgrade the standard family in the society. Under this dimension, the family variables are achievement orientation, intellectual and cultural orientation, independence, active orientation and moral emphasis. Provision of focus and orientations towards certain goals could influence cultivation of intellectual culture and active orientation for each member in the family. Grzywacz and Bass (2003) and Rogers and May (2003) considered that independent attitudes are necessary to be excellent in the work performance. Dodson and Dickert (2004) stated that the future challenge for the family members is not only being successful at work but also in their marriage life. Also, they suggested that upholding to certain moral values should be emphasized in order to lead to happiness in the family.

Family sustainability is the third dimension which refers to the involvement of family members to execute their roles effectively so that the family can be respectable in the society. This dimension consists of the family variables of roles, position, norm and policy. Some researchers highlighted the role of children according to gender with regard to the involvement in the household (Nomaguchi and Bianchi, 2004) or providing financial support for the family (Sarkisian & Gerstel, 2004). Chin-Chun and Richer (2002) suggest that norm and policy of the family affect the roles of parents as the advisors for the children.

5.2. Gender Evaluation

The evaluation of gender on family performance involves the comparison point of view between male and female regarding the level of importance of family relationship, family growth, and family sustainability (Figure 4).

Figure 4
RIGHT ROOM: GENDER EVALUATION (FAMILY PERFORMANCE)



It appears that the levels of importance for two out of three dimensions were considered the same by both male and female. These two dimensions are family relationship and family growth. The results indicate that even in general reality there are differences occurred between male and female. Our study found that both gender are agreed to have the same level of importance regarding relationship and growth of family.

Both genders responded that cohesion, expressiveness, and conflict are important in the performance of family relationship. Good cohesion among members of family may support better expressiveness in family. Expressiveness may deliver in way of having better communication, showing emotions, and caring each other which lead to conflict avoidance. If the members of family feel the cohesion atmosphere which makes them easier to express themselves then there should not be any conflict occurred (Voydanoff 2004).

In addition, both male and female also had equal responses when dealing to the growth issues in the families. Nowadays, whereas competitive environment are exist in any field of life such as education, work, and society (Bourne et al., 2002), it is a must for each member in the family to prepare themselves with any activities that improve their skills, personality, and knowledge. Under this dimension, both genders put high importance level of achievement orientation, intellectual and cultural orientation, independence, active orientation, and moral emphasis.

Regarding the last dimension, although both gender considered that the dimension of family sustainability is important, the female thought that this dimension was slightly less important as compared to the male. In addition, family sustainability was found to be less important when compared to family relationship and family growth, whereby the latter two dimensions were considered equally important.

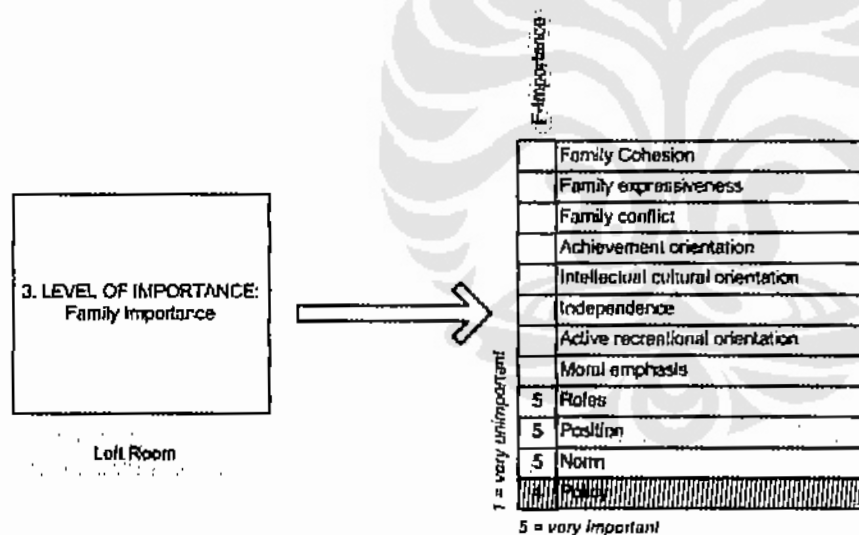
As stated before, family sustainability refers to the involvement of family members to execute their roles effectively so that the family can be respectable in the society. It seems the male were paying attention more to the responsibility of being evaluated by the society. The result is parallel to the reality in Malaysia and most country in South East Asia where society judgment is playing important roles as the controller (Bajunid, 2007). People in this area take seriously consideration to their society judgment to achieve better environment to live such as neighborhood spirit. The parameter for the success of taking the family in a good level of society is more to the male's responsibility rather than female while female are more to be judge by their successful in taking care their family (Coltrane, 1997; Rika Fatimah et al., 2008). However, this point of view can not be generalized when we look further to the size of the cities. As generally big cities, including big cities in countries of South East Asia, have less consideration to their society environment since the individual are already busy with their daily activities so that the neighborhood's atmosphere is decreasing (Jones 2007). Furthermore,

companionship and equality are carried out by both genders responding to the responsibility of having their family being respected in society as well as taking care of their family (Guzman 2000).

5.3. Level of Importance

Taking into account the results in gender evaluation, we need to analyze the differences in further detail. As the results show, there are different responses on family sustainability. Therefore, we highlighted each variable of the dimension for having clearer picture of what kind activities that were responded differently between males and females. As shown in Figure 5, there are four variables under the family sustainability which are roles, position, norm, and policy. Three out of four variables are very important while policy is slightly less important than others. However, all variables were in important level.

Figure 5
LEFT ROOM: LEVEL OF IMPORTANCE (FAMILY IMPORTANCE)



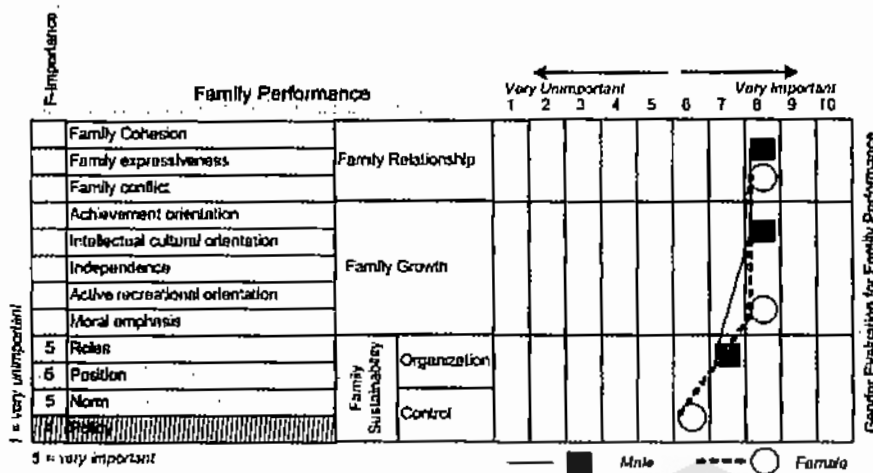
6. CONCLUSIONS

The QFD method in determining the level of importance based on gender point of view for different issues in the family performance could be adopted as a new approach in family studies. After deploying the variables and dimension of family dimension, then we have carried out the comparison between male and female regarding to their level of importance of dimension. The results show that there were same responses to the dimension of relationship and growth in family and there were slightly different responses regarding to family sustainability. Therefore, further analysis to identify the level of importance of each variable in family sustainability was already carried out. All of the results were presented in HoQ for family performance (see Appendix) which make easier to the users, policy makers, family researchers, consultants, and other to study more on family performance and its gender evaluation.

As observed in the application of QFD for the family, QFD can be widely applied in many areas of research, apart from the manufacturing and service industry, in which QFD is commonly applied. It can be seen that QFD is quite flexible since the complexity in the family can be easily portrayed in the form of several sets of priority variables. If the complexity is not addressed wisely, then the problem inherent in the family cannot be tackled, contributing to negative effect on the society and human resources.

Furthermore, the QFD method applied in this study may be used to support the government in planning their family and social policy. In Malaysia, the National and Family Growth Board (NFDB) for example, has currently reported *the number of divorces, extent of juvenile crimes, crude birth rates and size of household* as indicators for the National Family Index (National Population Conference 2007). However, these indices do not take into account of the family performance, which we believe to be a major component contributing to the family index.

Appendix
HOQ FOR FAMILY PERFORMANCE



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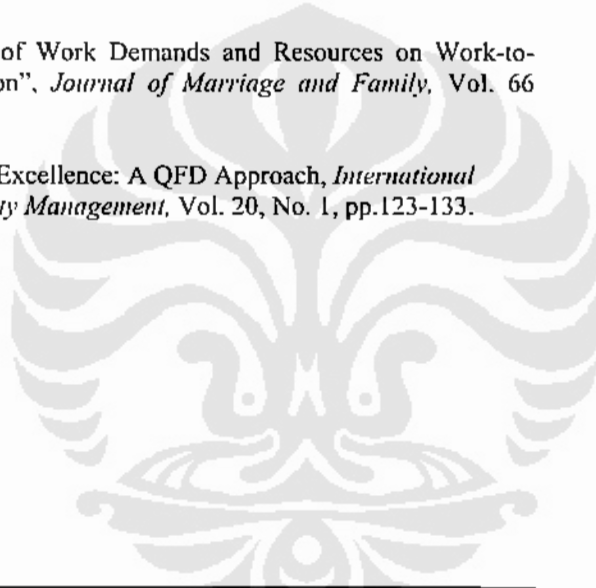
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