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CUSTOMER LOYALTY ASSESSMENT IN MALAYSIAN ISLAMIC BANKING USING ARTIFICIAL INTELLIGENCE

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ABSTRACT

Banks are in the process of moving into a more competitive financial atmosphere with a wide variety of financial products and services. From the practical perspective, the prediction of customer loyalty will provide a better understanding of Islamic banking that relates to customer loyalty and offer a platform that helps the bank management to improve the customer loyalty. Therefore, the primary objective of this paper is the development of an artificial intelligence model for customers' loyalty assessment in Malaysian Islamic Banking. To achieve this, first a returned of 373 from total 500 samples was collected via self-administered questionnaires distributed by hand to customers at various Islamic bank branches around Kuala Lumpur, Malaysia. Second, the data analysis of the returned samples and testing with several statistical tools and methods was examined using SPSS. The data used were customer satisfaction, customer service quality, customer perceived value and customer trust which are the factors affecting customer loyalty. Third, assessment model was proposed and developed using an artificial neural network (ANN) based on cross validation for modeling customer loyalty. The decision of changing the ANN architecture is essentially based on prediction results to obtain the best ANN model computation to quantify customer loyalty. A statistical performance was conducted includes, root mean square error (RMSE) and correlation coefficient (COE) between the measured and estimated customer loyalty by the ANN. Experimental results obtained based cross validation with COE (0.9867) indicates that the third ANN-model has better accurate results with fold 4 and trainLM [4 10 1] compared to others structures. Simulations results yielded significant results in predicting customer loyalty. In conclusion, this research has achieved its stated goal of developing an ANN model that provide quantitative assessment to facilitate Islamic banks managers in their effort to develop and implement successful customer loyalty strategies.
Keywords: *Malaysian Islamic Banks, Customer loyalty, Cross validation model*

1. INTRODUCTION

Banks are in the process of moving into a more competitive financial atmosphere with a wide variety of financial products and services. During the past decade, the financial services sector has undergone drastic changes, resulting in market place which is characterized by intense competition, little growth in primary demand and increased deregulation. The changes in the banking system have created a new dimension in the banking industry within which the institution in the banking system have to compete, not only with financial institution outside the banking system, but also with them-selves to remain in business.

In the new market place, the occurrence of committed and often inherited relationships between a customer and his or her bank is becoming increasingly scarce [1]. Several strategies have been attempted to retain customer. In order to increase customer loyalty, many banks have introduced innovative products and services [2]. However, as such innovations are frequently by similar charges, it has been argued that a more viable approach for banks is to focus on less tangible and less easy to imitate determinates of

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customer loyalty such customer evaluative judgments like service quality and satisfaction [3].

Focus as their offerings begin to look more like commodities. It is critical for financial services providers, particularly in today's environment of consolidation, acquisitions and mergers to understand the changing and increasing expectation of their customers [4]. It has been suggested that firms can leverage firm customer relationship to gain privileged information about customers needs and in turn provide more satisfactory from its ability to help understand customer's needs, can also lead to customer loyalty. Also know the degree to which various product or service characteristics are important and how these factors influence customer's choice of their bank. This information is needed prior to the introduction of any new product or service. Hence, understanding customer characteristics is very important to the bankers since they related to these critical factors which the customers patronize with the bank.

While Islamic banking in Malaysia has been experiencing positive momentum since its establishment, the growing competition within the fraternity has been presenting various challenges to the development of the Islamic banking system in Malaysia. There is an influx of well-established conventional banks participating and offering Islamic banking products and services after two decades of the founding of Islamic banking in Malaysia. Hence it is crucial for the players in the Islamic banking network to better position themselves in order to face up to and react to the vigor of their financial environment.

Banks play a significant role in the economy, since Islamic banking in Malaysia operates in a competitive environment [5][6]. This aspect brings about the concern that only 'customer loyalty' can ensure competitiveness and their continuous survival [7]. Therefore it is important to assess the degree of customer loyalty towards these growing financial institutions.

The importance and benefits of attracting and maintaining loyal customers has arisen from a general acceptance that profitability follows customer loyalty [8]. In other words, it is also important to formulate strategy to retain existing customers to ensure survival in this line of business by provide high quality customer services at low cost [9].

It is commonplace that, customers usually have superior information about the bank in terms of services and benefits being obtained. In contrast, the management of banks usually does not holistically capture information about their customers' perception and satisfaction on the services provided by the bank. If a bank gains more trust by its customers, it will definitely be able to sustain its customers while increasing the number of new customers. This will inadvertently lead to a steady increase of the bank's profits [10].

An artificial intelligence models such as artificial neural networks (ANN). ANN is an effective tool to model the behavior of nonlinear systems while having a simple structure that makes it computationally efficient. ANN has been utilized to predict customer loyalty in non-banking organizations such as the auto industry, telecommunications, and healthcare services [11][12][13]. There has been no study in the literature on ANN modeling of bank customer loyalty. To the best of the authors' knowledge, this study develops the first case in which an ANN model is used to predict overall bank customer loyalty. This study aims to solve the following issues: (1) how banks can measure and evaluate their customer loyalty? (2) Are these customers loyal to their banks? (3) Do banks have mapping evaluation approach to evaluate factors that can affect customer loyalty? (4) Do banks have a mapping enhancement model to predict their customer's loyalty?

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Therefore, the key aim of this work is to provide quantitative assessment on the customer loyalty in Malaysian Islamic banking by employing artificial intelligence, to facilitate the banks managers, in their effort to develop and implement successful customer loyalty strategies. Thus, a highly effective and robust mechanism is needed. To achieve this scheme, the specific objectives of this study are the following: (1) to determine the factors affecting customer loyalty in the Malaysian Islamic banks. (2) To analyze the factors those have effects on customer loyalty in Malaysian Islamic banks. (3) To build an artificial intelligence model based on neural network for customers loyalty assessment in Malaysian Islamic banking.

The following are the structure of this paper; first section describes the approach used for data

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collection, the factor analysis used to identify the major influencing factors on customer loyalty. Then, design and development of the ANN model are detailed in the section of Artificial Neural networks. The section of Results and Discussion describes the training and validation results of the developed ANN model. Finally, the section of Conclusions concludes the paper by summarizing the major finding from this study.

2. RESEARCH METHODOLOGY

Based on the literature, the modeling and prediction of customer loyalty is the most significant considerations in the configuration and improvement of an Islamic banking assessment framework. Thus, the major tasks involved in the development of model for customer loyalty are as the following: (1) Data Collection, (2) Factor Analysis of Items, (3) ANN Model based K- Fold Cross Validation (K-FCV) associated with results examination and evaluation. As indicated in Figure 1, several inspection operations are applied in each task, which represent a detailed scheme for the proposed framework for customer loyalty modeling and prediction.

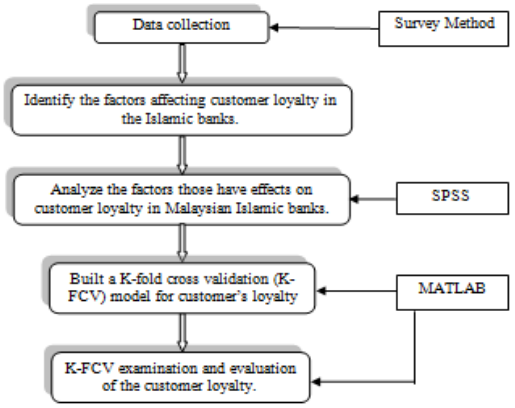

Figure 1: Research Methodology of the Proposed Framework

2.1 Data Collection

The total population size of Kuala Lumpur as of 2012 is estimated at 1.6 million citizens. [15] give an estimation of the most appropriate sample size in regard to the total population. In this regard, the estimated sample size from a Kuala Lumpur population of 1.6 million is supposed to be 500 respondents.

In this study, a questionnaire is used as data collection to investigate overall bank customer loyalty indicated by a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The survey consists of two parts. In the first part, the demographic information of the customers including age, gender, marital status, ethnic origin, education level, and type of bank account. Where, the second part, includes variables (loyalty, satisfaction, service quality, perceived value and trust) were measured using multiple items drawn from previous researches. However, the phrasings of the items were modified to suit the sample and the local setting of Islamic banking.

The collected data were gathered from Islamic banking customers in Malaysia in which 373 questionnaires were returned from an entire of 500 distributed, representing 74.6 % participation. Frequency distributions of the respondents with respect to the demographic information are as the following: majority of the respondents were 55.2 % female and 44.8 % male. In terms of age, the majority of the respondents were 40.8 % at range of 18-25 years old, followed by more than 36 years old and groups of 26-35 years old, making up 30.6% and 28.6% of the respondents, respectively.

In addition, the majority of the respondents had their marital status of 52.8% as married and 46.6% as single of total respondents. Only three respondents indicated that he/she was divorced with 0.8%.Thus, 93.6% of the respondents are Malay, 2.9% Chinese, 1.1% Indian and 2.4% other ethnic. Meanwhile, 54.7% holding bachelor degree, 7.8% were holding master degree, while 0.5% was PhD holders and the 37% remaining holding other qualification. On the other hand, 80.1% used saving account, 5.1% had investment accounts and 10.2% using financing account, while 4.6% using other Islamic banking services.

2.2 Factor Analysis

Once the data collection was accomplished, a factor analysis of the items from collected data is then conducted and analyzed. Scale validation is another step experienced using Cronbach's α to measure the reliability of loyalty (Lo), satisfaction (Sa), service quality (Sq), perceived value (Pv) and trust (Tr), as indicated in Table 1. The summarized results from table indicate, reliability based Cronbach's α is greater than Nunnally's threshold of 0.70 [16]. The factor analysis was performed to reduce a large number of variables into identifiable items of interrelated variables. Some of the data collection items were deleted after this analysis. Thus, the results output from the factor analysis step will be considered as an input to the neural network model for customer loyalty prediction.

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Table 1: Factor Analysis of Variables

Factors	Lo	Sa	Sq	Pv	Tr
Cronbach's α	0.862	0.848	0.916	0.881	0.875

2.3 Customer Loyalty Modeling

Next, the output scores from the factor analysis were used as inputs to develop the ANN model to predict customer loyalty in Malaysian Islamic banking. In the following section, a brief overview on the ANN methodology is presented. Then, details of the ANN model design and development are described.

2.3.1 ANN overview

An artificial neural network (ANN), often called a "neural network" (NN), model which based on biological neural networks, in other words, is an emulation of biological neural system. A small number of concepts from biological neural systems are used by neural computing. Though an accurate model, it is actually an analogy to the human brain that has different memory stores. Neural concepts help to process the elements (also artificial neurons) in network architecture where the elements are internally connected to each other. These facts carry through as software simulations of the massively parallel processes.

The artificial neuron plays a role similar to the dendrites of biological neurons which receives inputs from other neurons. These inputs are comparable to electrochemical impulses of the biological dendrites. Like a biological neuron the artificial neuron sent their output signal to its axon. Weights help to change the artificial signals. These changes are same as the physical changes of synapses shown in Figure 2.

There are many types of artificial neural networks (ANN) and it is a mathematical or computational model. This model based on the structure and functions of biological neural network i.e. containing nature of the human brain. It is composed of a large number of highly interconnected processing elements called neurons that usually operate in parallel by network structure. The human's central nervous system or biological nervous systems inspire the concept of elements of ANN.

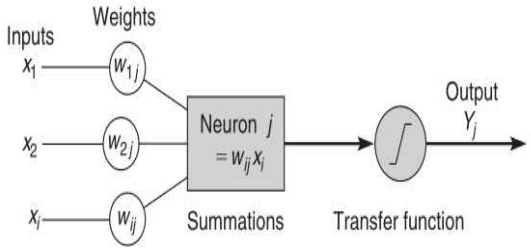

Figure 2: Processing Information of Artificial Neuron

The network function is estimated largely by weighted connections between the processing elements to perform a function. A layer in the ANN is considered as a subgroup of processing element. The first layer has input neurons and the third layer has the output neurons. The second layer persists in between the first and third layer and has hidden neurons. By adjusting the values of the connections (weights) between elements, neural network can perform a specific function.

2.3.2 Proposed prediction model

The estimation of customer loyalty from different variables such as satisfaction, service quality, perceived value and trust, using artificial neural network is the main purpose of this study. Artificial neural network (ANN) system has their ability to learn from the data having nonlinear nature. The ANN with specifically feed-forward back propagation algorithm based five-fold cross validation (5-FCV) is examined to predict the behavior of the customer loyalty. The transfer functions log-sigmoid in the hidden layer and the output layer were used. This ANN is formed in three layers, which are an input layer, a hidden layer and an output layer. This hidden layer contains various neurons which should be created and trained to enhance the ANN performance.

The learning algorithms such, Levenberg Marquardt (trainLM), Scaled Conjugate Gradient (trainSCG) and Gradient Descent w/momentum & Adaptive algorithm (trainGDX) are used to train the proposed ANN model. Five data sets can be considered in the input and output vectors. The four data sets are used to train the network, and referred as the training set. Training continues along with the performance on the validation set keeps improving. A test set is required to obtain a fully independent measure of network accuracy.

Figure 3 presents the schematic of the proposed neural networks.

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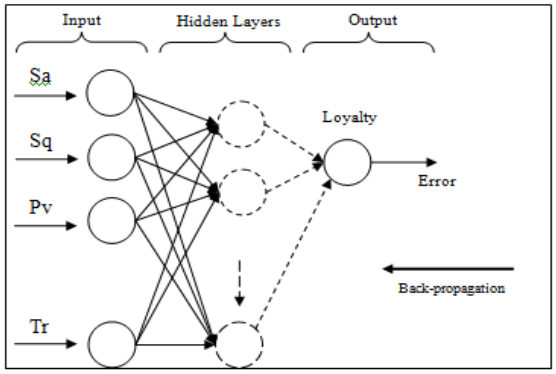

Figure 3: Schematic of the Proposed Neural Network

2.3.3 K-Fold Cross Validation

In the stage of ANN training, K-Fold Cross Validation (K-FCV) strategy was applied to model the customer loyalty. In statistics, cross-validation is the practice of partitioning a sample of data into sub samples such that analysis is initially performed on a single sub sample, while further sub samples are retained "blind" in order for subsequent use in confirming and validating the initial analysis [17][18]. In K-FCV, the data divide into k subsets of (approximately) equal size. While training the data, each time leave out one of the subsets from training. This pattern prediction system can be seen in Figure 4.

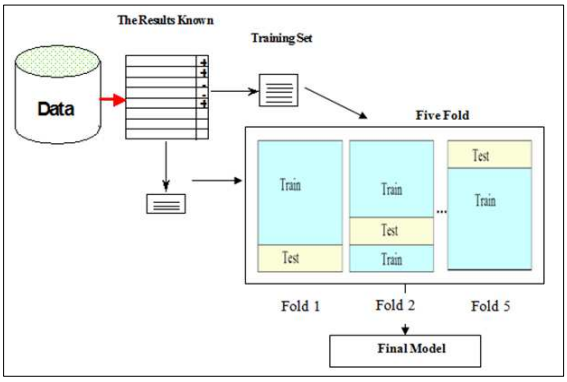

Figure 4: Diagram of Five-FCV Process

2.3.4 ANN model based Five-FCV

In the ANN training based 5-FCV, a total of five trails sets are conducted. In each trail, training and a testing set are constructed from the factor analysis outputs, takes a partition of the whole data which represents 80% of the entire data, and the test data is made of the remaining percent partition of total data in each trail, called fold, the ANN model is processing training data and seeking to recognize unseen test data.

The prediction performance is measured in terms of recognition to the total number of samples tested. It is a common practice in ANN modeling via cross validation training [18] to train and validate model based on five-fold cross validation (5-FCV) approach with two different data sets. Initially, the ANN model is trained and tested with a large number of data (training data set). After meeting training accuracy requirements, the ANN model based 5-FCV is validated using a smaller data set which previously was not used in each of the 5-FCV training; the model is only run for the given input values, the predicted and actual outputs are compared for the error calculation.

2.3.5 5-FCV topology selection

In ANN training based 5-FCV, the back-propagation learning calculation is led in feed forward-back propagation, single hidden layer neural system. The learning algorithms, trainLM, trainSCG and trainGDX are the calculations utilized for the 5-FCV topology selection. In addition, output and hidden layers both uses the log-sigmoid transfer function. In the preparation, numerous quantities of neurons (2, 4 and 10) are connected to hidden layer to precisely estimate and evaluate the model output efficiency.

2.3.6 5-FCV performance evaluation

In the training and testing stages, the strategy of the 5-FCV performance evaluation is measured using statistical criteria as indicated in equations (1) and (2). This evaluation performance includes statistical measures of the Root Mean Square Error (RMSE) and Coefficient of Efficiency (COE).

$$RMSE = \sqrt{\frac{1}{n}\sum_{i=1}^{n}(y_{QUE} - \hat{y}_{ANN})} \quad (1)$$

$$COE = 1 - \frac{\sum_{i=1}^{n}(y_{QUE} - \hat{y}_{ANN})}{\sum_{i=1}^{i+n}(y_{QUE} - \hat{y}_{ANN})} \quad (2)$$

Where n is the number of data, y_{QUE} and y_{ANN} are vectors of an actual (questionnaire) and measured ANN values, respectively. The optimal number of neurons in the hidden layer was selected based on the minimum RMSE and maximum

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efficiency COE in the both training and testing stages.

3. RESULTS AND DISCUSSION

The ANN model is trained and validated in this section. Then, performance of the ANN model is examined with various numbers of neurons and three different learning algorithms. This work begins with the development of a database from all the questionnaire returned and examined using factor analysis.

In this study, an entire set of 373 samples used to build the 5-FCV model for customer loyalty assessment. The normalized inputs and output data are shown in Figure 5, in which the data is organized into four inputs (satisfaction, service quality, perceived value and trust) and one output (loyalty) to establish the ANN model.

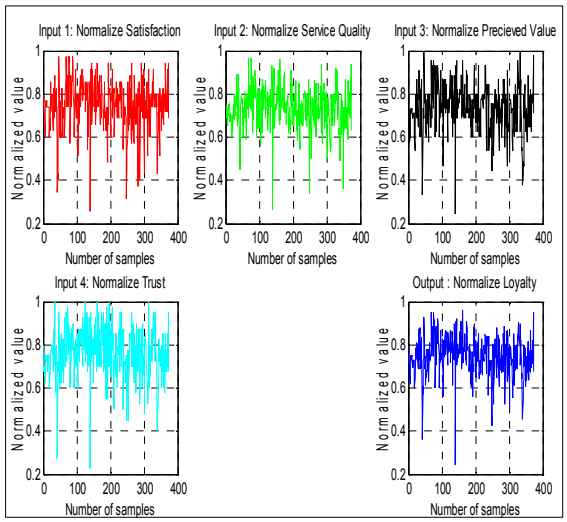


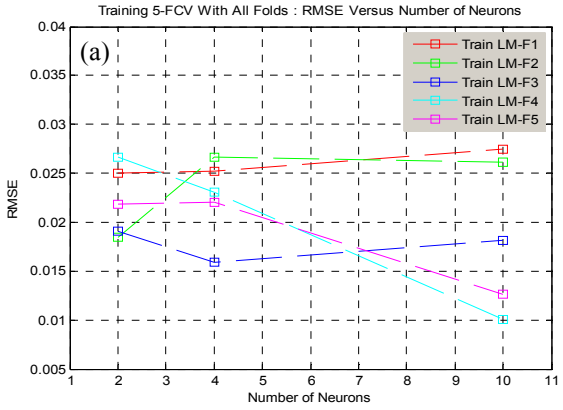
Figure 5: The Normalized Inputs and Output Data

3.1 Training Phase

Five-fold cross validation was used to evaluate the accuracy of the ANN, for each of the 5 fold set stages of training one partition is designed as the test set and the remaining samples in other partitions are used to train the ANN. The training, testing for the 5-FCV validation results for the five trials using three different algorithms (LM, SCG and GDX) were examined with different ANN topology.

The training of the 5-FCV model with all folds are examined based on one hidden layer, different neurons of 2, 4 and 10 and three different algorithms (LM, SGC and GDX) were investigated also. As shown in Figure 6 (a), the 5-FCV model with fold 4 and trainLM learning algorithm has a lower RMSE of (0.0101) compared to other folds. Meanwhile, learning algorithm trainSCG with fold 4 appears to have the lower RMSE of (0.0245) as shown in Figure 6 (b).

Additionally, the lower RMSE of (0.0296) was observed at fold 1 with learning algorithm trainGDX as illustrated in Figure 6 (c). On the other hand, the number of hidden layer neurons increases, the RMSE decreases as shown in Figure 5 (a, b, c). As results, trainLm, trainSCG and trainGDX learning algorithms with folds (4, 4 and 1), respectively those have lower RMSE were selected as the best training folds.



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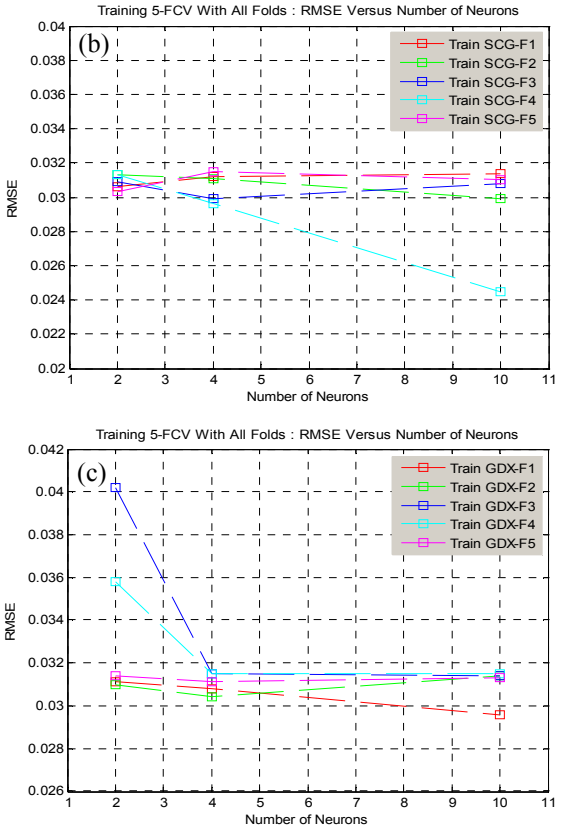

Figure 6: RMSE versus Number of Neurons in Training Stage with All Folds and Differents Learning Algorithm (a) trainLM, (b) trainSCG and (c) trainGDX

Additionally, the 5-FCV models with folds (4, 4 and 1) are examined based on one hidden layer, different neurons of 2, 4 and 10 and three different algorithms (trainLM, trainSGC and trainGDX) were investigated. The 5-FCV models with folds 4 was trained and validated over a range of number of neurons as indicated above. As shown in Figure 7, where the number of hidden layer neurons increases, the RMSE decreases. In addition, the number of hidden layer neurons increases, the COE increases as shown in Figure 8. As results, 10 neurons in the hidden layer with learning algorithm trainLM and fold 4 were selected as the best topology network that have lower RMSE and higher COE accuracy. The above neurons, fold and learning algorithm selected is to satisfy a trade-off between the model topology and accuracy.

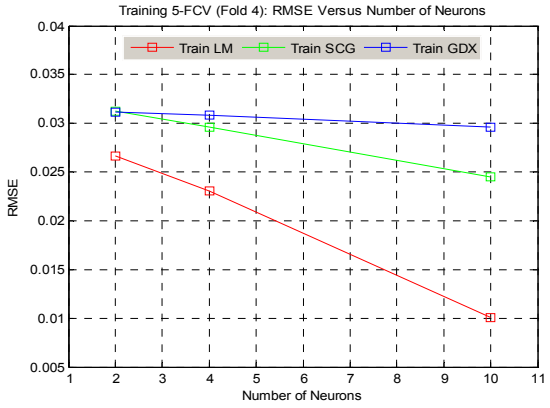

Figure 7: RMSE versus Number of Neurons in Training Stage with Different Learning Algorithms

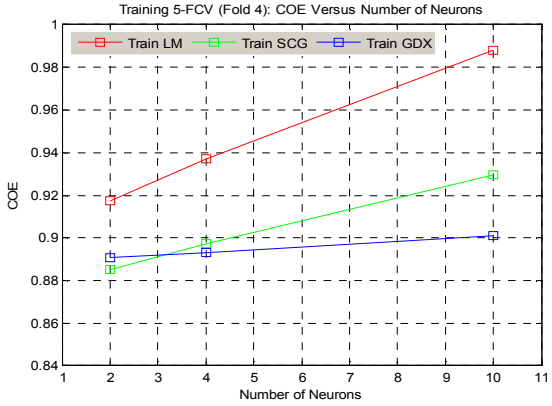

Figure 8: COE versus Number of Neurons in Training Stage with Different Learning Algorithms

The best ANN topology and learning algorithm were trained until the best performance is obtained. Once, this criterion is achieved the optimal weights and bias are saved, that will be used for testing and validating the ANN model with the best fold 4. Figure 9, shows weights generated from ANN model prior and after training. It's very clear from the figure that neural network learn and perfectly match between loyalty indicated by (blue circle) and neural network (red circle) after training established.

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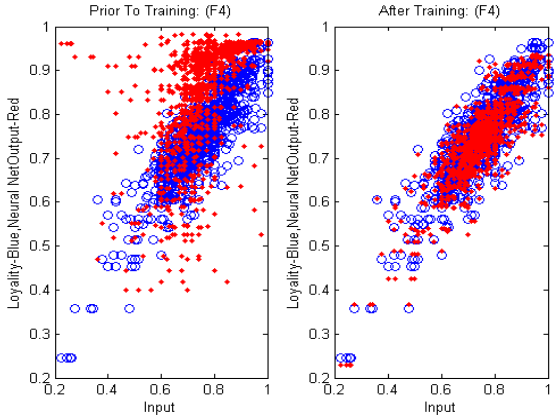

Figure 9: Best Results Of Training, Generalization Error From 5-Fcv Of Ann Model Using 10 Hidden Neurons And Trainlm, With Fold 4

3.2 Testing Phase

In the testing phase, the 5-FCV model with fold 4 and learning algorithm trainLM are validated based on one hidden layer with, different neurons of 2, 4 and 10. As shown in the 3D plot of Figure 10, the 5-FCV model with fold 4 and structure of trainLM [4 10 1] has the best model performance with higher COE and lower RMSE compared to other folds.

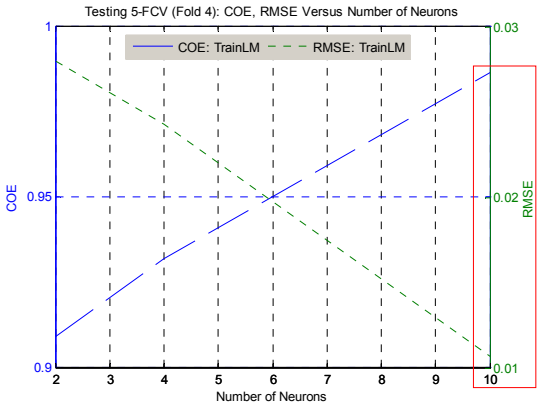

Figure 10: COE And RMSE Versus Number Of Neurons In Testing Stage With Trainlm Learning Algorithms

Figure 10, shows the comparison between the measured (questionnaire) and the estimated (ANN) customer loyalty with the best ANN-model. It's very clear from the graph that the ANN model validation results with fold 4 and trainLM [4-10-1] is able successfully to predict customer loyalty with high accuracy of COE= 0.98675 compared to other folds and ANN topology.

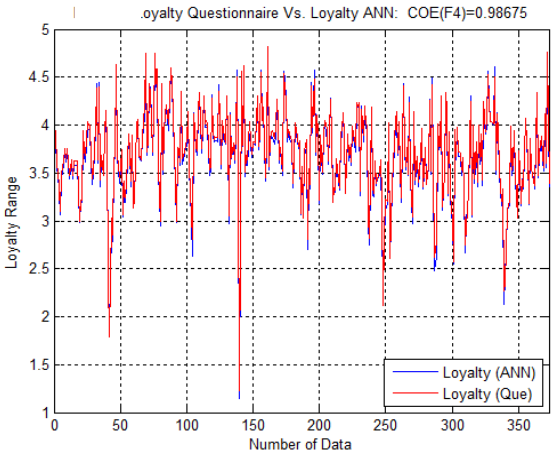

Figure 11: Loyalty Measured Versus Estimated Using 5-FCV ANN-Model With Trainlm And Fold 4.

4. CONCLUSION

This research represents an effort to develop an ANN model for customer loyalty assessment in Malaysian Islamic Banking. First, the data were collected using an entire of 373 questionnaire samples selected from randomly customers at different branches of Malaysian Islamic banks in the city of Kuala Lumpur. Second, the factor analysis was performed to reduce a large number of items variables into identifiable items of interrelated variables.

As results, the computed factor scores from this analysis were used as inputs to design and develop the ANN model to assess in the customer loyalty prediction. Third, the ANN model was trained based 5-FCV and the validated results shows that ANN model with fold 4 and topology of trainLM [4-10-1] is able to predict customer loyalty successfully with high accuracy of COE (0.9867) and lower RMSE (0.0101) in the testing stage compared to other folds. Concluded, this study shows the feasibility and the capability of using ANN model based 5-FCV approach as guide mechanism that can be exploited by Islamic banks managers, in their effort to develop and implement successful customer loyalty strategies.

Despite the limitations in this study, these limitations provide suggestions for further research. Future research should consider what other possible factors that can influence customer loyalty they are? Meanwhile different approach can be use instead of ANN such as fuzzy logic. Replicating

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and extending this study in other regions and countries would test the applicability of the present findings. Applying the same methodologies effectively in other service sectors such as health care, tourism, hotels and information service carry out extension of this study.

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Appendix: Questionnaire used in this survey

Section A

THE FOLLOWING SECTION LISTS SOME QUESTIONS ABOUT YOUR PERSONAL INFORMATION. PLEASE TICK (/) THE APPROPRIATE ANSWERS OF FILL-IN THE BLANK WHERE REQUIRED

1	Gender	Male	( )	Female	( )			
2	Nationality	Malaysian	( )	Others	( )			
3	Marital Status	Single	( )	Married	( )	Divorced	( )	
4	Ethnic Origin	Malay	( )	Chinese	( )	Indian	( )	
		Others	( )					
5	Age	A.18-25	( )	B.26-35	( )	C. More than 36		
6	Highest Education Attained	Bachelor Degree	( )	Master	( )			
		PhD	( )	Others	( )			

7 Which Islamic banking services you currently use? (Tick all that apply)

A. Saving ( ) B. Investment ( ) C. Financing ( )

D. Others, Please specify:

……

8 How long have you been using Islamic bank services?

A. Less than one year ( ) B. 1-3 years ( )

C. 4-6 years ( ) D. More than 7 years ( )

Section B THE FOLLOWING STATEMENTS ARE REGARDING ON **LOYALTY**. INDICATE THE LEVEL OF YOUR AGREEMENT OR DISAGREEMENT TO THE STATEMENTS BY CIRCLING THE BEST POSSIBLE ANSWERS.		STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE
1	I would definitely recommend my current Islamic Bank to someone who seeks my advice.	1	2	3	4	5
2	I encourage relatives and friends to use the service offered by my current Islamic bank.	1	2	3	4	5
3	I intend to use more service offered by my current Islamic Bank in the next few years.	1	2	3	4	5
4	I say positive things about my current Islamic Bank to the others.	1	2	3	4	5
5	I consider my current Islamic Bank as my first choice to use the services I need.	1	2	3	4	5
6	I would continue using my current Islamic Bank services even if its prices increased somewhat.	1	2	3	4	5
7	I would pay a higher price than competitors charge for the benefits I currently receive.	1	2	3	4	5

Section C THE FOLLOWING STATEMENTS ARE REGARDING ON **SATISFACTION**. INDICATE THE LEVEL OF YOUR AGREEMENT OR DISAGREEMENT TO THE STATEMENTS BY CIRCLING THE BEST POSSIBLE ANSWERS.		STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE
1	My Islamic Bank meets my pre-usage expectations.	1	2	3	4	5
2	My Islamic Bank completely meets my expectations.	1	2	3	4	5

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3	If I had the choice, I would again decide in favor of my current Islamic Bank.	1	2	3	4	5
4	In my view, my Islamic Bank is customer-oriented.	1	2	3	4	5
5	My choice to use this Islamic Bank was a wise one.	1	2	3	4	5
6	Using this Islamic Bank has been a good experience.	1	2	3	4	5
7	I am satisfied with this Islamic Bank.	1	2	3	4	5

Section D THE FOLLOWING STATEMENTS ARE REGARDING ON **SERVICE QUALITY.** INDICATE THE LEVEL OF YOUR AGREEMENT OR DISAGREEMENT TO THE STATEMENT BY CIRCLING THE BEST POSSIBLE ANSWERS.		STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE
1	The Islamic Bank has up-to-date equipment and outlook.	1	2	3	4	5
2	The Islamic Bank physical facilities are visually appealing.	1	2	3	4	5
3	The Islamic Bank customer services staffs are well dress and appear neat.	1	2	3	4	5
4	When the Islamic Bank promises to do something by certain time, it does do.	1	2	3	4	5
5	When I have problem, the Islamic Bank show sincere interest in solving it.	1	2	3	4	5
6	The Islamic Bank is dependable.	1	2	3	4	5
7	The Islamic Bank provides its services at the time it promises to do.	1	2	3	4	5
8	The Islamic Bank always performs the service right at the first time.	1	2	3	4	5
9	The Islamic Bank tells me exactly when services will be performed.	1	2	3	4	5
10	Customer service staff gave me prompt services.	1	2	3	4	5
11	Customer service is always courteous with customers.	1	2	3	4	5
12	Customer service staffs are always ready to respond to customer requests promptly.	1	2	3	4	5
13	Customer service staffs have knowledge to answer customer.	1	2	3	4	5
14	I can trust the Islamic Bank customer service staff.	1	2	3	4	5
15	I feel safe in the transaction with the Islamic Bank.	1	2	3	4	5
16	Customer services staff are polite.	1	2	3	4	5
17	Customer services staff have adequate support from the service provider to do their job well.	1	2	3	4	5
18	The Islamic Bank gave customer individual attention.	1	2	3	4	5
19	The Islamic Bank has customer's best interest at heart.	1	2	3	4	5
20	Customer service staffs understand customer specific needs.	1	2	3	4	5
21	Customer service staffs gave their personal interest.	1	2	3	4	5
22	The Islamic Bank has operating hours and location convenient to all its customers.	1	2	3	4	5

Section E THE FOLLOWING STATEMENTS ARE REGARDING ON **PERCEIVED VALUE.** INDICATE THE LEVEL OF YOUR AGREEMENT OR DISAGREEMENT TO THE STATEMENT BY CIRCLING THE BEST POSSIBLE ANSWERS.		STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE
1	I value the ease of using this Islamic Bank services.	1	2	3	4	5
2	Using this Islamic Bank services is an efficient way to manage my time.	1	2	3	4	5
3	I value the convenience of using this Islamic Bank services.	1	2	3	4	5
4	Using this Islamic Bank services helps me to feel accepted by others.	1	2	3	4	5
5	Using this Islamic Bank services makes a good impression on other people.	1	2	3	4	5
6	Using this Islamic Bank services gives me social approval.	1	2	3	4	5
7	Using this Islamic Bank services gives me pleasure.	1	2	3	4	5
8	Using this Islamic Bank services makes me feel good.	1	2	3	4	5
9	I used this Islamic Bank services to experiment with new ways of doing things.	1	2	3	4	5

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	Section F THE FOLLOWING STATEMENTS ARE REGARDING ON **TRUST.** INDICATE THE LEVEL OF YOUR AGREEMENT OR DISAGREEMENT TO THE STATEMENT BY CIRCLING THE BEST POSSIBLE ANSWERS.	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE
1	I trust my current Islamic Bank that I use.	1	2	3	4	5
2	I feel that I can rely on my current Islamic Bank services to serve me well.	1	2	3	4	5
3	I trust the billing system used by my current Islamic Bank.	1	2	3	4	5
4	I believe that I can trust my current Islamic Bank because the company will not try to cheat me.	1	2	3	4	5
5	My current Islamic Bank is reliable because it is mainly concerned with the customer interest.	1	2	3	4	5
6	Using the Islamic Bank enhances my self-confidence.	1	2	3	4	5
7	My Islamic Bank provides me the help I need to complete my tasks effectively.	1	2	3	4	5
8	My Islamic Bank has the overall capabilities that I need.	1	2	3	4	5