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Exploring the Awareness and Acceptance Level on a New Product the Pansuh Mix

[1,2]Jennifer Tunga Janang, [1,3]Corina Joseph, [1,4]Hasmah Mohidin, [1,5]Junaidah Mat Jusoh
[1]Universiti Teknologi MARA, Kota Samarahan, Sarawak, Malaysia
[2]Faculty of Business and Management, Universiti Teknologi MARA, Puncak Alam, Selangor, Malaysia
[3]Faculty of Accountancy, Universiti Teknologi MARA, Puncak Alam, Selangor, Malaysia
[4]Faculty of Plantation and Agrotechnology, Universiti Teknologi MARA, Jasin Melaka, Malaysia
[5]Faculty of Applied Sciences, Universiti Teknologi MARA, Shah Alam, Selangor, Malaysia

Abstract: Food products development with innovative technology can potentially increase food production while maintaining its quality and sensory attributes. Exotic local food such as the Pansuh dish can also support tourism and local food industry. This study examines the awareness and acceptance levels on a potential development of a new food product the Pansuh mix. Using exploratory and descriptive research framework, the study uses survey forms to gauge the consumer's levels of awareness and acceptance. Using four main constructs, namely, acceptance on new food product, perceived specific innovativeness, perceived use of new food product and perceived taste of new product, questionnaires were distributed to a sample of 100 respondents. Preliminary analysis found that the overall constructs tend to significantly and positively explain the levels of awareness and acceptance. Results of the regression analysis found that perceived use tend to significantly and positively influence the respondent's levels of awareness and acceptance. The results, thus, draw attention to develop the Pansuh mix by looking into its usefulness such as convenience, time-saving, shelf life, nutritional values, health benefit, quality packaging and branding.

Key words: Awareness and acceptance level, new food technology, Pansuh, innovative, development, branding

INTRODUCTION

In Malaysia, the demand for domestic foods have increased in the recent years due to the increased in the standard of living. The increasing domestic demand for food is also driven by the tourist spending. In 2015, tourists spent RM9.3 billion on food and beverages out of the total expenditure of RM69.1 billion (www.tourism.gov.my). The food processing and product innovation need to be given more attention because of the increase in food production to support the increase in population throughout the world. Malaysia is synonym with its diversity of traditional food, originated from different ethnicities and becoming one of the country's major tourist attractions (Daud, 2012). As cited by Daud (2012), traditional food product is a product frequently consumed or associated with specific celebrations and/or seasons, normally transmitted from one generation to another, made accurately in a specific way according to the food heritage will little or no processing/manipulation, distinguished and know because of its sensory properties and associated to a certain local area, region or country.

In responding to the ever-changing societal needs, innovation to traditional food is essential. In addition, food innovation is highly regarded as the resources and capabilities that can create competitive advantage (Giudice and Pascucci, 2010; Salgado-Beltran *et al*., 2017; Barcellos *et al*., 2009). As well, the innovation to traditional food will help to preserve and sustain for future generation consumption and at the same time contribute to the continuation of nation's culinary heritage (Daud, 2012). For the traditional food to remain relevant in the food industry using different ways of innovation, business operators need to improve the protection, well-being and suitability of the products. Hence, it is crucial to understand consumer's views, expectations and attitudes towards innovative traditional food products. As well, it is indispensable to consider the aspects that may affect buying and spending choice behaviour.

Daud (2012), food innovation "is the addition of new or unusual ingredient, new combinations of product, different processing systems or elaboration procedures including packaging, coming from different origin or cultures, being presented and/or supplied in new ways and always temporary validity". Changing the food preparation, adding new ingredients, varieties tastes, shape and design are examples, of the elements of novelty included in the concept of innovation. Besides, the innovation also can be seen in the diverse forms of

Corresponding Author: Jennifer Tunga Janang, Faculty of Business and Management, Universiti Teknologi MARA, Kota Samarahan, Sarawak, Malaysia, jennifer@uitm.edu.my

convenience food, i.e., precooked or ready-to-eat, frozen foods, packaged microwavable container or new packages. This has provided ample opportunities for manufacturers to come up with products that are quick and easy to prepare. This form of business is well accepted by Malaysian due to busy and challenging lifestyles that cause the high demand for convenience food (Anonymous, 2012; 2018).

The research trend has concentrated on the evaluation of consumer anxiety toward food technology products. Frewer (2012) stated the importance of consumer acceptance to the improvement of successful food products. It was also maintained that there is a need to comprehend consumer recognition of food innovations in a bigger perspective. Research into public acceptance of food technologies (Gupta *et al*., 2018) and the promotion of good health (Ronteltap *et al*., 2007) are increasing. Food technologies are employed to improve production and food protection. They are also used to improve additional qualities in order to promote healthy and sustainable production of the food products. Although, many researches on food innovation are popular in the western countries such as Italy (Giudice and Pascucci, 2010), there is still little understanding of how innovative traditional foods like Pansuh mix are perceived by consumers which provide motivation of this study.

Background of the pansuh mix: For communities living the Malaysian State of Sarawak, Pansuh is commonly referred to food that are cooked in bamboo. The word Pansuh comes from the Iban (Iban is the largest indigenous community in Sarawak. The group belongs to the Dayak race, that are found mainly at the western region of Borneo) language that literally means a dish prepared and cooked in a bamboo. The dish includes meat (chicken, fish or pork), normally chopped and marinated with seasonings such as salt, sliced ginger, garlic, lemon grass and upa tepus (Scientific name is coctus speciosus). The marinated meat is then stuffed into the bamboo, filled with water which will later be the soup. The bamboo will be covered with tapioca (cassava) leaves and can be served and eaten together with the dish.

The origin of pansuh is unknown but the ethnic Dayak (Iban and Bidayuh) in Sarawak, Malaysia and Kalimantan always prepare this dish during festivals, especially, during the Gawai Dayak, a thanks giving festival marking a bountiful harvest (www.wikipedia.org).

Pansuh is reported to have commercial potentials and can become an exported food product over time (www.theborneopost.com). The delicacy, however would have to undergo a product development process before it can be marketed internationally. The dish can be developed through innovative food processing technology with longer shelf life, quality packaging, labelling, branding and promotion.

The idea of a Pansuh mix is to use basic ingredients used to cook meat Pansuh and pack it to become instant-ready-to-cook mix for meat soup. These ingredients are finely chopped, blended and pre-cooked to form the delicious instant Pansuh mix. The product will be subjected to vacuum packaging process as part of food preservation technique that can offer shelf life stability to the product. Extension of the product's shelf life is critical for ensuring that this Pansuh mix is available throughout Malaysia and even to international market. Once opened, this product can be instantly mixed with any meat soup to give the ethnic Pansuh cuisine taste. The preparation need not be in a bamboo. It can conveniently be prepared in a fast heat pot, preferably a clay pot.

The product development proposes two types of Pansuh mix flavours, namely the Iban Pansuh mix and Bidayuh Pansuh mix. The Iban Pansuh mix brings the distinctive ethnic flavour of the upa tepus while the Bidayuh Pansuh mix brings a spicier flavour of bunga kantan (Scientific name is etlingera elatior) and tumeric leaves.

The objective of this researcher is to examine the awareness and acceptance attitudes of consumers towards Pansuh mix using mainly the Food Technology Neophobia and Domain Specific Innovativeness and other general factors. The findings from this study is important to determine the consumer's level of acceptance towards this newly developed product which possibly become a basis to come up with the marketing plan for Sarawak innovative traditional ethnicity food in the future.

Literature review: Salgado-Beltran *et al*. (2017) carried outa research to examine the attitudes and sensory perceptions of 18 consumers towards sustainable food technology. Using the Food Technology Neophobia, it is found that majority of the consumers have low neophobia attitudes in relation to the food technology products. In addition, colour and flavour can positively influence the perception towards food technology products. Giles *et al*. (2015) asserted that in their review, there was an emphasis on demographic attributes instead of wider psychographic characteristics. Older consumers tend to be less innovative than the younger ones. Now a days, consumers perceive food products in terms of health and the quality of nutrition. As well, the level of education and the consumer's socioeconomic status is positively correlated to the innovative food technology products.

Ronteltap *et al.* (2007) asserted that more specifically, socio-economic status, income, nationality, age, gender, race and familiarity have been found to be as significant predictors of the innovation acceptance. Jasiulewicz and Lemanowicz (2016) put forward the trend in consumption and health as one of the factors to accept innovation.

Jasiulewicz and Lemanowicz (2016) conducted a study in 2015 on a sample of 595 Polish and 255 Ukrainian respondents. It is found out that majority (81.7%) of the Polish respondents prefer many types of foods and have a high interest in new products. The 84.7% of the Ukrainian consumers indicated on the concern for the individual's health. Both Polish and Ukrainian consumers agreed that the courage to fulfil the relatives expectation which is associated with the external environment as the most unpopular motives.

According to BEUC (2015), consumers view food innovation in terms of) Novel (for example, 'exotic' products, functional ingredients, reformulation, new modes of grocery shopping, consumer information and new technologies GMOS, nanotechnologies animal cloning). Meanwhile, consumer's expectation varies based on safety (independently assessed by a trusted authority) convenience (for example, easy to prepare resealable package, longer shelf life convenience healthiness (for example, reduced fat/salt/sugar levels without compromising taste naturalness (no 'e-Number's and chemicals) and naturalness sustainability (for example, better for the environment or animal welfare but still affordable less food waste).

Barcellos *et al.* (2009) examine the consumer's readiness to attempt innovative food products in Brazil and UK by means of the DSI scale and the FNS. Consumers in UK were found not the most ready to implement innovations but they were optimistic of new foods. The results present tactical and exclusive information about consumers for the food industry with the aim to support the development of innovative food products. Overall, the consumers are receptive to the innovative food products, although, they are just being modest in the implementation of food innovation. Frewer (2012) documented perceived personal benefits of genetic modification of food and crops as:

- Perceived societal benefits (health, economic, social, environmental)
- Differential accruement of risks and benefits (fairness)
- Ethical concerns
- Perceived personal risks (health, economic, social, environmental)
- Perceived societal risks (health, economic, social, environmental)
- Perceived efficacy of regulatory framework

Siegrist (2008) examined factors that affect public acceptance of innovative food technologies and products. It was found that perceived benefit, perceived risks and perceived naturalness are essentials factors for the recognition of innovative food technologies. The advantages of innovative food technologies may not be noticeable and the difficulties to assess risk related to innovative food technology may be faced by lay people. For this reason, trust is very crucial for the recognition of innovative food technologies. In addition, perceived costs, perceived benefits, cultural and social norms are important determinants of innovative food technologies. Gupta *et al.* (2018) added thatperceived technology characteristics may also found to influence consumer acceptance.

Meanwhile, the non-acceptance of some food products is possibly related to food neophobia which is defined as "a strong avoidance to try novel, unfamiliar foods" such as ethnic food, for example (Pliner and Hobden, 1992). On the other hand, for food-neophobic consumers, understanding of food may be an important predictor of food acceptance and comprise of a barrier to the successful beginning of new food products in the market Barcellos *et al.* (2009). This is the first paragraph under another main heading.

MATERIALS AND METHODS

Research design and sampling: To achieve the objective of this study, a survey was developed and conducted. We used exploratory research design through descriptive statistics, correlation and regression analysis. The survey forms were randomly distributed to samples in Kuching and Samarahn areas that have knowledge on what Pansuh dish is. The study uses a population of 100 targeted consumers comprising of those that have tasted or cooked the Pansuh dish.

Instrumentation and construct descriptions: The survey comprised two main sections. Section A consists of 7 items on demographic information. Section B consists of 5 main constructs, namely:

- N: Acceptance on New food product (7 items)
- S: Perceived Specific innovativeness (5 items)
- U: Perceived use of new food product (9 items)
- T: Perceived Taste of new product (5 items) and
- D: Awareness and acceptance (4 items)

The concept of food neophobia is commonly examined to test the consumer's avoidance (or acceptance) on novel and unfamiliar foods. In this survey,

the respondents were asked on Pansuh mix as a potential new innovative product. The objective is to gauge their understanding and reception towards a new food technology used to cook the Pansuhdish using the ready to-cooked Pansuh mix. The construct on acceptance on new food product comprise items that seek to obtain the respondent's knowledge and understanding of the Pansuh mix as a new product in the market. It includes several items seeking opinion on whether the new product is safe and certified by the health and regulatory authority, whether the new product would have negative long-term environmental effect, whether it contributes to a balanced diet and be given promotional support from the media.

The specific innovativeness domain on attempting to create Pansuh mix involves the process of developing and commercialising the product. It involves examining the technology used to create the mixture, the natural quality of the food and most importantly, whether the product can help to promote food tourism in Sarawak and become an international brand.

The survey also attempts to explore the respondent's perceived expected use of the new product and its perceived taste. The constructs for the perceived use and Perceived taste of the new product comprise items that seek the respondent's opinion on the perceived costs and benefits of using Pansuh mix and their perceived sensory attitudes towards this new product.

Items included in the survey form was developed based on the literature. The instrument follows the Food Neophobia Scale [FNS], developed by Pliner and Hobden (1992)'s that attempt to measure acceptance towards new product (or rejection towards food neophobia). It also incorporates the Domain Specific Innovativeness Scale [DSI] as developed by Goldsmith and Hofacker (1991) to measure the respondent's attitudes towards the purchase of new, different and innovative foods. Based on the literature also, other general constructs such as the perceived use of new product and sensory behavior are being asked to examine the consumer's awareness and acceptance levels.

The five-point Likert scale items were anchored with 'strongly disagree' and 'strongly agree' with corresponding to the neutral position 'neither agree nor disagree'. Item No. 32 was an open-ended opinion seeking the respondent's suggestion on the suitability of the brand name for Pansuh mix. This is the first paragraph under the secondary heading

Methods of analysis: This study presents the preliminary analysis on consumer's awareness and perception levels towards a new product that is the Pansuh mix. We analysed the data collected from the survey using descriptive statistical analysis, pairwise regression and regression analysis. To test the reliability of the items asked in the survey, we use the Cronbach's alpha coefficient. The coefficient is a measure of internal consistency that is how closely related a set of items are as a group in this case in each construct. A reliability coefficient of 0.70 or higher is considered acceptable in most survey studies.

To test whether the constructs are independent or unrelated to one another, we used the Spearman rank correlation coefficient (Spearman's rho) with a null hypothesis that the scaled data are independent of one another. In other words, it is to examine the strength of the relationship between each pair of the construct used in this study. The correlation coefficient value ranges from -1 to 1 where an absolute value of more than 0.8 shows a strong negative (or positive) association. The Variance-Inflating Factor (VIF) is used to test further for multicollinerity. A VIF, value of <5 has been commonly adopted as a safe coefficient value to indicate that there is no collinearity between the explanatory variables. While others may extend the value of the VIF threshold to 10 (O'Brien, 2007) for standardized data, the VIF of more than 10 indicates serious problem of multicollinearity (Kennedy, 2003).

Regression analysis is used to determine the simultaneous effect of the 4 independent constructs that were jointly regressed against the sample's awareness and acceptance levels. The results of the analysis were interpreted through the known coefficient of multiple determination (R^2) value, analysis of variance (ANOVA), the F Statistics and the probability value (p-value). We used the Statistical Package for Social Sciences (SPSS) software to run the data.

RESULTS AND DISCUSSION

Out of 100 survey forms being distributed, 66 were returned of which most of them were filled up accordingly. The response accounts to 66.0% of the total target consumers. Missing values were however, unavoidable, since, the survey forms were randomly distributed and where no direct interviews were involved. Nevertheless, the number of missing cases were minimal and does not invalidate the findings.

Demographic profile of the respondents: Table 1 shows the results of the respondent's demographic profile. From the total number of respondents, 48 (72.7%) were female and another 18 (27.3%) were male. In terms of monthly income, a large proportion (36.6%) of the respondents

Table 1: Distribution of respondents by demographic information

Profile	N	Percent
Gender		
Female	48	18.0
Male	72.7	27.3
Total	66	100.0
Monthly income		
Below RM2, 000	23	36.6
Between RM2, 000-RM3, 000	15	23.8
Between RM3, 000-RM4, 000	5	7.9
Between RM4, 000-RM5, 000	5	7.9
Above RM5, 000	15	23.8
Total	63	100.0
Age (Years)		
Below 20	6	9.4
Between 21-30	17	26.6
Between 31-40	18	28.1
Between 41-50	12	18.8
Above 50	11	17.1
Total	64	100.0
Ethnicity		
Malay	19	28.8
Chinese	7	10.6
Iban	14	21.2
Bidayuh	20	30.4
Orang Ulu	3	4.5
Others	3	4.5
Total	66	100.0
Occupational status		
Self-employed	1	1.5
Working at public sector	26	39.4
Working at private sector	26	39.4
Unemployed	2	3.0
Student	11	16.3
Total	66	100.0

Table 2: Descriptive statistics results for the constructs

Construct	No. of items	N	Mean	SD
Acceptance on New food product (N)	7	66	3.634	0.573
Perceived Specific innovativeness (S)	5	66	3.803	0.462
Perceived Use of new food product (U)	9	66	3.719	0.469
Perceived Taste of new product (T)	5	66	3.518	0.626
Awareness and acceptance (D)	4	66	3.614	0.713

Likert scale from "1" Strongly disagree to "5" Strongly agree

earned below RM2,000 while the remaining proportions were distributed fairly at between RM2,000-RM3000 (23.8%) and above RM5,000 (23.8%). Thus, respondents that have tried Pansuhdish comprise both lower and higher income earners. The respondents were asked to indicate their age according to 5 age groups. Table 2 shows majority of them were within the age range of 21-50 years old (73.5%). Eleven respondents (17.1%) are above 50 years old. In terms of ethnicity, the survey revealed majority of the respondents were Bidayuh (30.4%), followed by Malay (28.8%) and Iban (21.2%). Most of the respondents were married (57.6%) and single (26.4%). A substantial proportion of the respondents were employed at the public sector (39.4%) and the private sector (39.4%), respectively while 11 of them (16.7%) were students. The remaining were either self-employed (1.5%) or unemployed (3.0%).

Table 3: Reliability analysis of the scaled variables

Constructs	Cronbach's alpha
Acceptance on New food product (N)	0.857
Perceived Specific innovativeness (S)	0.896
Perceived Use of new food product (U)	0.883
Perceived Taste of new product (T)	0.869
Awareness and acceptance (D)	0.890
Total	0.901

Descriptive evidence on the constructs: Table 2 shows the average and dispersion results of the five identified constructs. The mean score for all items asked under Acceptance on new food product is 3.63 with a dispersion score of 0.57. This suggests that the respondent's level of acceptance towards the development of Pansuh mix as a new food product is above average. The mean score for all items asked under perceived specific innovativeness is 3.80 which suggests that the respondent's attitude towards product's quality attributes is positive. The mean scores for items asked under perceived use of new food product and perceived taste of new product is 3.72 and 3.52, respectively. The dispersion measures are also very small for all constructs suggesting very minimal variability in their opinion.

Reliability test results: Table 3 shows the results of the cronbach's alpha coefficient of the overall items and the individual items asked in the survey. The cronbach's alpha coefficient value for each item in the respective constructs are all high, that is above 0.85. This suggest the overall items asked in the survey are closely related as a group. The value indicates the items are highly consistent and reliable. Meanwhile the overall cronbach's alpha value is 0.901.

Correlation analysis results: The univariate analysis through pair-wise correlation isalso conducted as a commonly used form for reporting observed correlations among one independent variable, to another independent variable. Together with the summary of the data reported in the descriptive analysis, the sample correlation coefficient r is a measure of the strength in relationship between two variables (Gujarati, 2009). As a rule of thumb, if the pair-wise correlation coefficient between two independent variables is more than 0.80, the relationship is considered strong.

Table 4 further presents the pair-wise correlation that includes the five named constructs. All observed data represents the 66 completed responses. The data comprise 30 items seeking scaled opinion related to the Pansuh mix. The results of the correlation coefficients range from 0.553-0.775, depicting relatively moderate relationship between the identified constructs. All p-values indicate significant evidence to reject the null

Table 4: Pair-Wise correlation matrix

Constructs	N	S	U	T	D
N					
S	0.686***(0.000				
U	0.710***(0.000)	0.553***(0.000)			
T	0.775***(0.000)	0.655***(0.000)	0.667***(0.000)		
D	0.655***(0.000)	0.591***(0.000)	0.698***(0.000)	0.686***(0.000)	
Observations	66	66	66	66	66
Mean VIF	3.929	2.000	2.145	3.014	

The constructs are estimated using spearman rho correlation. Figures in parentheses are p-values. ***indicates correlation is significant at the 0.01 level (2-tailed). N denotes construct for acceptance on new food product; S denotes perceived specific innovativeness; U represent perceived use of new food product; T denotes perceived taste of new product; D represents awareness and acceptance

Table 5: Regression analysis table

Contruct	Coefficient	t-statistic	p-value
Constant	-0.706	-1.251	0.216
N	0.275	1.345	0.184
S	0.120	0.661	0.511
U	0.571***	3.086	0.003
T	0.210	1.281	0.205

R^2: 0.761***, Adjusted R^2 0.552. Durbin-Watson, 2.127; F-statistic, 20.998 p-value, 0.000*** Predictor N acceptance on new food product, S perceived specific Innovativeness; U perceived use of new food product, T perceived taste of new product; Dependent variable D awareness and acceptance level ***significant at 0.01 level

hypothesis that the scaled data are independent of one another. Finally, the results of the VIF test shows all average values that range from 2.000-3.929 which are lower than the threshold value of 5. Thus, we do not reject the null hypothesis that multicollinearity is not present.

Regression analysis: The regression analysis was conducted to explore whether acceptance on new food product, innovativeness in food technology, the perceived use of the Pansuh mix and the perceived taste of the pansuh mix have an influence on the respondent's awareness and acceptance level.

Table 5 summarizes the regression analysis results for the four predictive constructs and the respondent's awareness and acceptance levels. The overall coefficient of determination, R^2 is valued at 0.761 which is above the acceptable level of 0.5. This suggests that 76.1% of the respondent's awareness and acceptance levels can be explained by the four constructs. The F-statistic value and a p-value of <0.01 provides statistically significant values to reject the null hypothesis of no joint effect of the four constructs on awareness and acceptance level. Meanwhile, the u construct provides positive beta coefficient value and is statistically significant. This suggests that the respondent's awareness and acceptance levels tend to be influenced more on their perceived use of this newly developed Pansuh mix in line with Siegrist (2008). The constructs for the perceived use comprises items that seek the respondent's opinion on the perceived costs and benefits of using Pansuh mix which was documented by Frewer (2012).

CONCLUSION

This study attempts to gauge the market's awareness and acceptance level on a proposed new product, Pansuh mix. We constructed our instrument using variables identified in the literature that include Food Technology Neophobia, specific innovativeness domains and other general factors. The survey serves as a preliminary stage towards developing Pansuh mix and putting this Borneo exotic cuisine into a ready-to-cook dish which can be distributed even into international markets.

The results of the survey saw the respondent's awareness and acceptance levels are significantly influenced by their perceived attitudes towards using the Pansuh mix. The idea of using this ready-to-cook mixture, packed in a quality packet, makes it a product that can be accepted due to convenience and time saving method of cooking the Pansuh dish. Positive attitude towards using this product can spark further researches on the nutritional benefits of the Pansuh mix, a shelf-life that is considered long but does not affect its authentic taste and packaging that is of superior quality and environmentally sustainable. The development of Pansuh mix as an authentic food product, should also give a sense of social prestige to the local population, if the product is successfully commercialized and become a major income generating product.

This study is not without any limitations. Firstly, the small sample of 100 respondents is not really a representation of an entire population of Pansuh consumers in Malaysia. Future research may use a larger sample of Pansuh consumers to gauge a better understanding on the acceptance and awareness of this traditional innovative product. Secondly, there is no theoretical framework used to support the explanation of this paper's findings. Future research may look at the possible theories such as theory of planned behavior or culture to explain on the level of awareness and acceptance levels on using the Pansuh mix. Thirdly, this paper only uses the quantitative research design to examine the level of awareness and attitudes towards Pansuh mix which is associated with the 'what' research

question. In order to explore on the 'why' research question or to gauge more insights on the explanation of the acceptance and awareness of this traditional innovative product, the qualitative research design through the use of interviews and focus group discussions are strongly suggested for future research.

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