Innovation Characteristic Affecting Behavioral Intention

Case Study: OTOP Nawatwithi

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Abstract— This article presents studying of the innovation characteristic of OTOP Nawatwithi and analyzing the relationship between the characteristics of OTOP innovation and behavioral intention. The survey was conducted by using questionnaires as a tool. The research population is people in the Gen-Y and Gen-Z groups that are characterized by growing up with technology. Therefore, people in this group should be the early majority group for diffusion of innovation. The samples collected were 205 people. The statistics used to analyze the data are descriptive statistics including arithmetic and standard deviation; and hypotheses testing is conducted by factor analysis, correlation analysis, and regression analysis. The results of the operation showed that the respondents had the opinion that OTOP Nawatwithi is innovative at a very high level. They have a rather moderate level of intent for traveling to OTOP Nawatwithi. When factor analysis was done, it was found that one component of innovation could be created using all five questions. In addition, it was found that one component could also be created for behavioral intention from all three questions. The hypotheses were conducted by correlation and regression analysis, the result shows characteristics of innovation related to behavioral intention. Due to the regression result, there is one equation that can be established by this relationship is BI = .954IC + 1.357. with adjust r-square .303.

Keywords-component; Innovation; Innovation characteristic; Behavioral Intention; OTOP Nawatwithi

I. INTRODUCTION

OTOP project is a project of the Thai government that has been in operation for at least 15 years, it has been continued for a long time. Which the objective of the operation, is to promote the community by enhancing a local product creation. The produced products by this process are called One Tumbol One Product, aka OTOP product, products. This promotion will focus on the identity of the community; raw materials, or local characteristics. The community identity has to be included in the OTOP product. In addition, the government holds various exhibitions that use to promote the sale of OTOP products. Although the promotion of OTOP projects is more than 15 years, the livelihoods of Thai people in agriculture have not seen any significant changes. In 2018, the Thai government has determined an additional policy from the original name to create OTOP Nawatwithi. With an important goal to overhaul the OTOP format in a big way for turning the ground back on farmers' income under the name OTOP Nawatwithi.

II. LITERATURE REVIEWS

There are some of involve theory, model, and concept in this article including Diffusion of Innovation, Theory of reasoned action, Technology Acceptance Model, and guideline for OTOP Nawatwithi Practical.

A. Diffusion of Innovation

Roger's diffusion of innovation theory determined five groups of innovative users. It started from those who embraced the early innovation to those that embraced the slow innovation, respectively: innovators (2.5%), early adopters (13.5%), Early Majority (34%), Late Majority (34%), and Laggards (16. %). This theory also described five characteristics of the innovation: relative advantage, compatibility, complexity, traceability, and observation. In this research, we adopt a group of innovative users for the population, and adopt five characteristics as a variable for testing innovative characteristics.

B. Theory of reasoned action

Based on the theory of reasoned action, Icek and Martin's, that presents any human behavior firstly come from intention. Behavioral intention is a factor that pushes an individual to act. There are several factors affecting

behavioral intention. The relationship between those factors and behavioral intention show as followed.

$$BI = (AB)W_1 + (SN)W_2. \quad (1)$$

That previous equation explains that any behavioral intention of a person caused by The attitude that the person has and the social norms of the person is in. The theory is supported by Davis's model, technology acceptance model, or TAM. Davis uses TRA as an original theory to develop a technology acceptance model. This model emphasizes that actual behavior is a destination variable that arises from behavioral intention. the behavioral intention caused by internal and external variables. the exogenous variables, as Icek had previously defined, were attitudes and subject norms, while the essential endogenous variables are perceived ease of use and perceived of usefulness.

According to the two above paragraphs, the main idea is that behavioral intention precedes actual behavior.. In another way, those concepts said that the manifestation of any action behavior is the end result or is the result of all behavioral intention.

C. *OTOP Nawatwithi*

OTOP innovation is a big change from the era of pushing to sell OTOP products from where manufacturers had to leave the community to sell their products solely. This approach used to increase the channel to generate income in the format "Demand-Driven Local Economy". The new OTOP product sales model where sellers are in the community. By developing the community to be charming from the way of life in the community, they use the charm which is wisdom, way of life, and additional culture with creativity. All those will turn into income. This process is also beneficial in family terms. Since the process allows families, parents, grandparents, grandparents, and grandchildren to live together, part of them does not have to compete in bringing products to sell outside the community. Building a tourism community, act as a good host, has a collaboration in thinking, has a collaboration to produce products and services, develop community-level tourism routes. By using community charming and valuable enough to attract tourists to visit and to spend in all activities of the community. That is causing income distribution within the community. Everyone in the community is happy. It also strengthens the community in the format "Strength within", it also is a real form of economic development.

III. Research Methodology

A. *Population and Sampling*

This research was conducted as survey research with a questionnaire as a survey tool. A questionnaire is developed by the researcher through the adaptation of involvement concepts and theories. The population defined as general people in generation Y and generation Z. The sampling was done by purposive sampling. The collection data use an accidental method. The respondents will be able to watch a short video about OTOP Nawatwithi before answering the questionnaire. The period for collecting the data was 2 months.

B. *Statistics Analaysis*

Data analysis was performed using descriptive statistics are arithmetic mean and standard deviation. Factor analysis statistics were used to extract factors for innovation characteristics and behavioral intention. Regression analysis and correlation analysis were operated to determine the relationship.

IV. Result

The result of this research was spited into four section as follows.

A. *Characteristics of OTOP Nawatwithi*

The OTOP innovation characteristics and behavioral intention described in accordance with the opinions of the respondents in the following table.

TABLE I. Descriptive data for OTOP Nawatwithi characteristics

Characteristics	Mean	SD.
Relative Advantage	3.68	.909
Compatibility	3.46	.957
Complexity	3.82	.870
Traceability	3.97	.949
Observation	3.91	.881
Overall	3.76	.745

Table I shows that the respondents thought that OTOP Nawatwithi has the characteristics of innovation at a high level (3.76). Respondents have an opinion at a high level with 4 topics in descending order as follows: traceability, observation, complexity, and relative advantage. The final topic, compatibility, was at a moderate level.

B. *Factor Analysis for Innovation Characteristic Units*

Extraction of components from variables was performed with Factor analysis. Let's start by testing the suitability of the variables. The results are shown in the following table.

TABLE II. Factor Analsys for OTOP Nawatwithi

Characteristics	Loading	Communalities
Relative Advantage	.857	.729
Compatibility	.792	.627
Complexity	.790	.624
Traceability	.815	.665
Observation	.830	.688

Note KMO= .833 $\chi^2(10)$= 505.00 p = .000
Eigen value = 3.334 % of Variance = 66.689

From Table II, it was found that the significant values of KMO and Bartlett's test were 0.000, indicating that the variables used in this analysis were suitable for the factor analysis. Then factor analysis, with the Principal components method, and varimax rotation was performed. It was found that only one component could be extracted with Eigen-value (3.334). It was able to explain 66,690% of the variance. When considering the loading factor of each item, it was found that each value was over .600, indicating that every item could be used and contribute to this component

C. Factor Analaysis for Behavioral Intention

In the same way as testing the components of the characteristics of innovation. Factors extraction is performed to determine the Behavioral intentions component. The performance results are shown in the following table.

TABLE III. FACTOR ANALSYS FOR BEHAVIORAL INTENTION

Variable	Loading	Communalities
Chance to go	.900	.810
Expect to go	.926	.858
Love to go	.919	.845

Note KMO= .749 $\chi^2(3) = 389.425$, p = .000
Eigen value = 2.512 % of Variance = 83.748

From Table III, it was found that the significant values of KMO and Bartlett's test were 0.000, indicating that the variables used in this analysis were suitable for the factor analysis. Then factor analysis, with the Principal components method, and varimax rotation was performed. It was found that only one component could be extracted with Eigen-value 2.512. It was able to explain 83.748% of the variance. When considering the loading factor of each item, it was found that each value was over 600, indicating that every item could be used and contribute to this component

D. Determine Relationship

Both extracted components from the previous section were used to analyze for determining the relationship between them. This starts with the analysis of the reliability of both components. The results are shown in Table 6 as follows.

TABLE IV. CRONBACH' APLHA TEST

Component	Alpha
Innovation Characteristic (IC)	.875
Behavioral Intention (BI)	.903

From Table IV, it was found that the Cronbach's Alpha values of both components were greater than .7. They were suitable for performing the correlation analysis. After conducting correlation analysis, the results are shown in the following table.

TABLE V. MEAN, SD'S AND PEARSON CORRELATIONS BETWEEN THE DEPENDENT VARIABLE AND INDEPENDENT VARIABLE

Component	M	SD.	1	2
1.Innovation Characteristic (IC)	3.768	.745	-	.554**
2.Behavioral Intention (BI)	4.951	1.283		-

**p < .01

From Table V, it was found that both factors had a significant linear relationship. Therefore, the characteristics of innovation and behavioral intentions were analyzed by regression analysis. Get the result as in the table.

TABLE VI. REGRESSION COEFFICIENTS FOR PREDICTING BEHAVIORAL INTENTION

Component	B	95% CI	β	t	p
Innovation Characteristic	.954	[.755, 1.152]	.554	.9.479*	.000
Constant	1.357	[.595, 2.119]	-	3.510	.001

Note $R^2_{adj} = 0.303$ (N=205, p=0.000)
CI= confidence interval for *B*.

From Table VI, it demonstrate that the generated regression model was consistent with the collected data (p = 0.000). The coefficient of the innovative characteristic, independent variable, is .954. Since the p-value from the t-test of this variable is significant, this coefficient is applicable. The constant value of this model is 1.357 with p-value = .001. This constant is also applicable. The generated model can be used to describe the variance of the dependent variable by 30.3% based on adjust R-Square values.

Next figure will show the test of dependent variable distribution. The results are as shown in the following P-P graph.

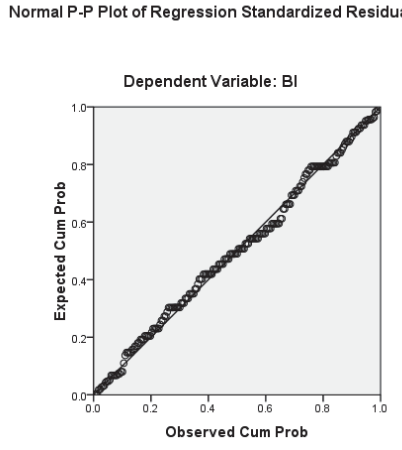

Figure 1. P-P graph of regression.

In the figure above, there is a diagonal line and a bunch of little circles, and all little circles follow the normality line. Although, there is a little bit of deviation. It can assume normality distribution.

The next figure hold the test of regression standardized residual distribution. The result of this test show in histogram with normal curve estimation.

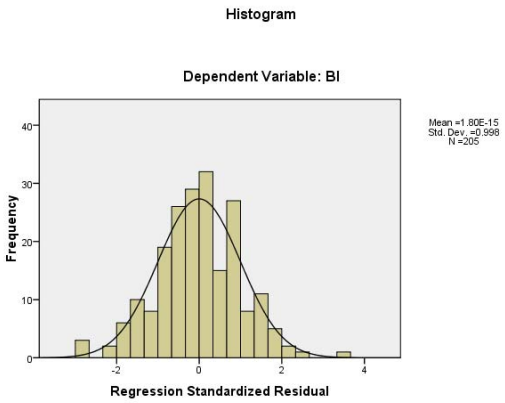

Figure 2. Hitograh of Residual Distribution

In the previous figure, it found that some deviations from normality but are tiny. This test would conclude as "the residuals are roughly normally distributed"

The last figure is about scatterplot that test the homoscedasticity and the linearity assumptions.

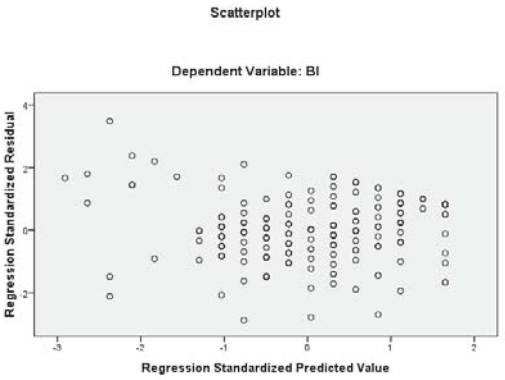

Figure 3. Scatterplot of Residual and Prediction

The residual scatter plot shown above is used for checking a) the homoscedasticity and b) the linearity assumptions. The systematic pattern shown above confirms that both assumptions hold in this analysis.

V. CONCLUSION

According to the research results, the respondents have an opinion about characteristics of innovation for OTOP Nawatwithi was very innovative (average 3.76 of 5). When conduct factor analysis to create a factor, it was found that all variables in the category of characteristics of innovation were able to combine to only one component. In short, the characteristics of innovation can be used to describe OTOP Nawatwithi. In the same way, all variables in the category of behavioral intention also produced one component. With correlation and regression analysis, the innovative characteristics of OTOP Nawatwithi and behavioral intention were determined a relationship. The result found that there was a linear relationship (adjust r-square = .303). The regression equation could be established as follows.

$$BI = .954IC + 1.357 \quad (2)$$

Where BI stand for Behavioral Intention
IC stand for Innovative characteristic

The adjust R-Square value of this model is .303

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