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Analysis of Student's Online Shopping Behaviour: A Focus Study in UTHM New Campus

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Abstract: Online shopping becomes one of the favourite channels among university students in spending their money nowadays which include most of the Malaysian community especially during the current pandemic, Corona Virus (COVID-19). Everyone agrees that this activity could reduce the time constraints where some money could be saved with a possible discount offered due to the certain event. It's also allowed them as a customer to search for the best and desired products and services with better prices, better options and better offers for various choices. This study aims to analyse student's online shopping behaviour in a new Universiti Tun Hussein Onn Malaysia (UTHM) Campus. The questionnaire was spread to 385 respondents by using convenience sampling methods online such as e-mail and application Whatsapp to the Faculty of Applied Sciences and Technology (FAST), Faculty of Engineering Technology (FTK) and Centre of Diploma Studies (CEDS). This study considered to analyse student's preferred way of buying a product (comparison among online shopping and retail store), to investigate potential factors that could influenced student's online shopping behaviour and finally to identify the student's satisfaction level toward online shopping. Overall, the association of the dependent variable and independent variable were determined through the Chi-Square Test of Independence. It shows that all variables in this study have a significant relationship with gender (p-value < 0.05), except for variables Frequency Of Buying From Online Shopping and Preferable Place For Online Shopping. A binary logistic model was built from the value of Chi-Squared with the significant factor that influenced the behaviour of online shopping of students are Frequency Of Buying From Online Shopping and Preferable Place For The Students To Buy Their Product On Online Shopping. In addition, three types of highest satisfaction levels chose by students which are Easy Track Parcel, No Need To Go Out and Easily

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Choose. A summary of student's comments based on the satisfaction level toward university management for delivery courier service where the majority of the students rate the delivery courier in a new UTHM campus at point 3 out of 5 due to its inconvenient (most word that used by the students in a comment section) for the students to pick up their parcels when the courier delivered during the afternoon. Next, the frequency of a most chosen words is inconvenient, place, pick, class and time.

Keywords: Online Shopping, Binary Logistic Model, Student, Campus

1. Introduction

Online shopping is a process of buying goods and services from any merchants who sell through the internet [1]. It's another method for customers to purchase any product without visit the retail store. The customer might easily purchase any product from only staying at home through online transaction which is cashless and later their parcel will be delivered to the home address or office address by using allocated courier services. Nowadays, online shopping become very popular and a new trend in various business field. The consumer in range Generation Y (Gen Y) and Generation Z (Gen Z) are the aged range that mostly used the service [2]. Interestingly, [3] discovered that men present bigger affection toward online shopping compared to women. This is due to the reason that women have high perceived risk more than male. Therefore, this could be one prove that gender is a good predictor in determine customers online purchase intention and behaviour. In addition, factors that could influenced consumer's decision to purchase through online shopping in form socio-demographic, the pattern of online purchase of the customer and examine the purchase perception that will influence the consumer's attitude toward purchasing product.

Meanwhile, [4] revealed that another factors affected customer's online shopping behaviour are perceived value, firm reputation, privacy, trust and functionality where that firm reputation could be builds or based from positive satisfaction of the customers. The trust can lead to individual satisfaction which make the customer to stay loyal to the services and products [5]. Company reputation is a crucial point for the customer when the high level of brand engagement reduces the customer anxiety during transaction for the goods. The customer also aware about the online purchasing service and product and the insecurities apply for their information on credit card if it's exposed. Also, there are guaranteed while having online shopping, the information is sheltered from possible hacking. The privacy of the customer is mention as secures and guards of the users online shopping information in the websites [6]. This perception could reduce the perceive risk and uncertainty avoidance.

2. Materials and Methods

This study aims to analyse student's online shopping behaviour in a new Universiti Tun Hussein Onn Malaysia (UTHM) Campus. The questionnaire was spread to 385 respondents by using convenience sampling method through online such as e-mail and application Whatsapp to Faculty of Applied Sciences and Technology (FAST), Faculty of Engineering Technology (FTK) and Centre of Diploma Studies (CEDS). There are three objectives which are to analyse student's preference way of buying product (comparison among online shopping and retail store), later to investigate factors influence student's online shopping behaviour by using binary logistic model and finally to identify the student's satisfaction level toward online shopping. Contingency table could be used to investigate potential relationship between two categorical variables which also known as analysis of contingency table or cross-classified by two or more variables. The categories for one variable appear in the rows, and the categories for the other variable appear in columns. Each variable must have two or more categories. Each cell reflects the total count of cases for a specific pair of categories [7]. Meanwhile,

the Chi-Square Test of Independence could be used to examine if there is an association between categorical variables. It's a non-parametric test and also known as Chi-Square Test of Association [8].

Multicollinearity occurs when independent variables in a regression model are correlated where this correlation became a problem because independent variables should be independent. If the degree of correlation between variables is high enough, it can cause problems when one fit the model and interpret the results. In other word, multicollinearity occurred when the situation of two or more explanatory variables in a multiple regression model are highly linearly related. The Variance Inflation Factor (VIF) could be used to measure the collinearity among independent variables in a multiple regression model. A value of 1 means that the predictor is not correlated with other variables and the higher the value, the greater the correlation of the variable with other variables [9]. A binary logistic model could be used to model the probability of outcome categorical dependent variable given all other another independent variable [10]. Logistic regression is one of the popular methods to analyse binary response variable other than the probit model and discriminant analysis [8]. Several link functions are available, but the most common link for binary is the logit link function, defined as in Eq. 1 where later the model equation in logit form as shown in Eq. 2 [9].

$$g(\mu_i) = \text{logit}(\mu_i) = \log\left(\frac{\mu_i}{1-\mu_i}\right) \qquad Eq.\ 1$$

$$\log\left(\frac{\mu_i}{1-\mu_i}\right) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_p X_p \quad Eq.\ 2$$

Both equation's parameter shows that α is an intercept parameter, β is a regression coefficient, μ_i is the probability of an event occurring and $1-\mu_i$ is the probability of an event not occurring. In addition, the Akaike Information Criterion (AIC) is an estimator of prediction error and thereby relative quality of statistical models for a given set of data. Let k be the number of estimated parameters in the model and $\hat{L}$ be the maximum value of the likelihood function for the model. Therefore, the AIC value of the model as shown in Eq. 3.

$$AIC = 2k - 2\ln(\hat{L}) \qquad Eq.\ 3$$

3. Results and Discussion

Overall, 51% of the respondent are female and the rest 49% of the respondent is male. Meanwhile, 95% of the respondent is in age of 22 to 24 followed by 3% of the respondent is in age 19 to 21 and 2% of the respondents is in age 25 to 27. In addition, 98% of the respondent is in degree level while only 2% of the respondent is in Diploma level which majority of the of this survey come from age 22 to 24 years old. Since in the new UTHM Campus consists of two faculties and one centre of studies, 83% of the respondent from faculty FAST, 15% from faculty FTK and 2% from CEDS. Finally, only 3% of the respondent from Year 1 and Year 2 while the rest of them from Year 3 to Year 4.

Figure 1 shows 219 (81%) students enjoy online shopping while 166 (19%) students say no to online shopping and these is the proof that majority of the students used online shopping to buy their necessary product, services and goods. Meanwhile, Figure 2 obviously presents 310 students choose online shopping as their platform to buy necessities while 75 students prefer buying from the shopping stores. Next is the frequency of students moderately often spend money to buy stuff from online shop in one month (see also Figure 3). Next, Figure 4 shows that most of the students spend around RM59 to RM100 to buy stuff in a month through online shopping. In addition, here obviously present that most of students choose to buy from Shoppe as their favourite platform as shown in Figure 5 and finally Figure 6 revealed that the most of the students spend time around 2 to 3 hours for online shopping.

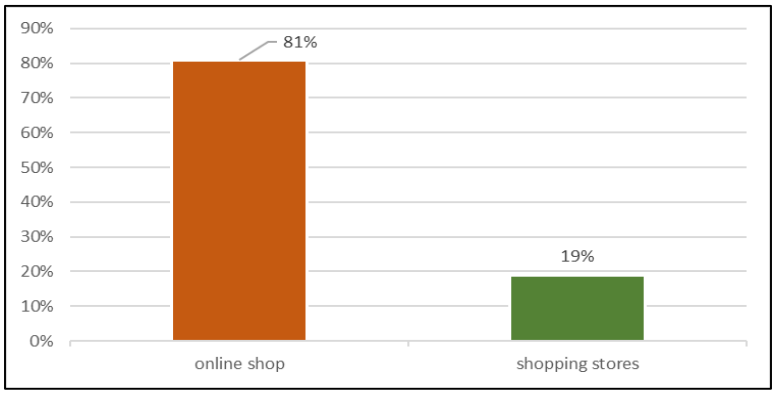

Figure 1: Student's Preferred Way Of Buying Product

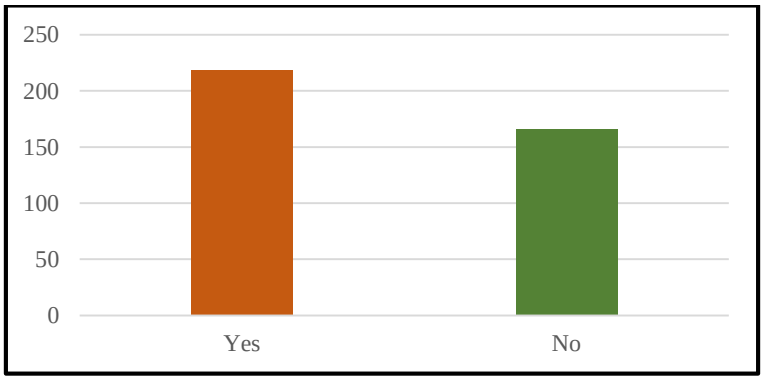

Figure 2: Student's Preference Of Buying With Online Shopping

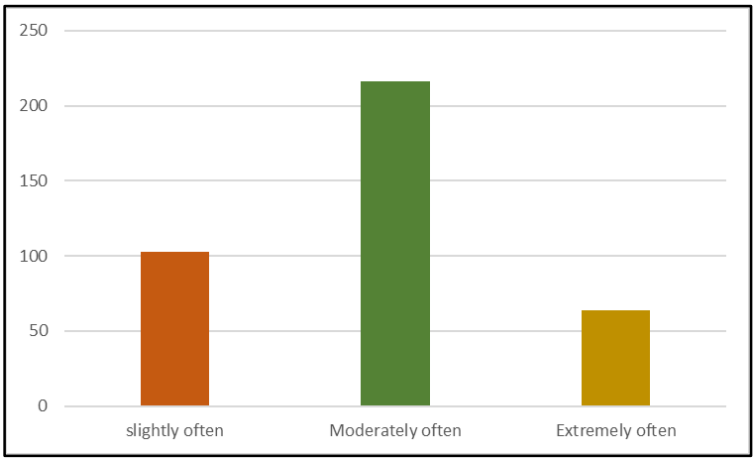

Figure 3: How Often Student's Buys Online In A Month?

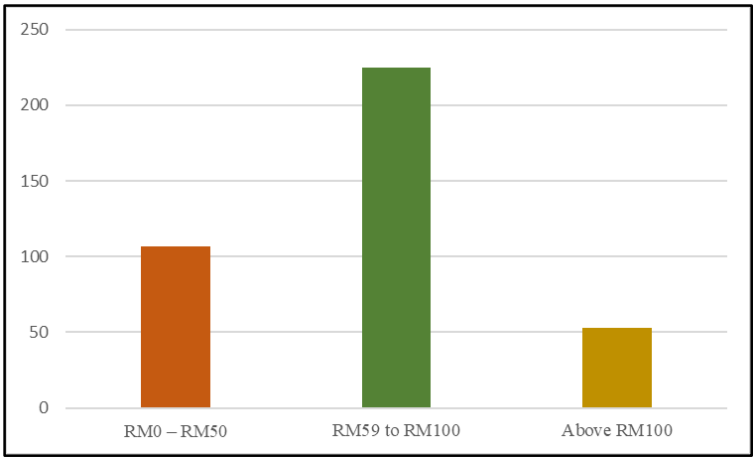

Figure 4: Amount Spend On Online Shopping Every Month (RM)

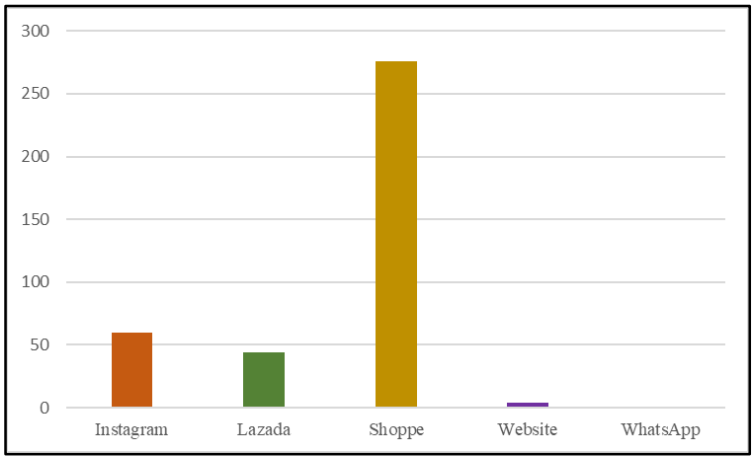

Figure 5: Frequent Used Of Online Shopping Platform

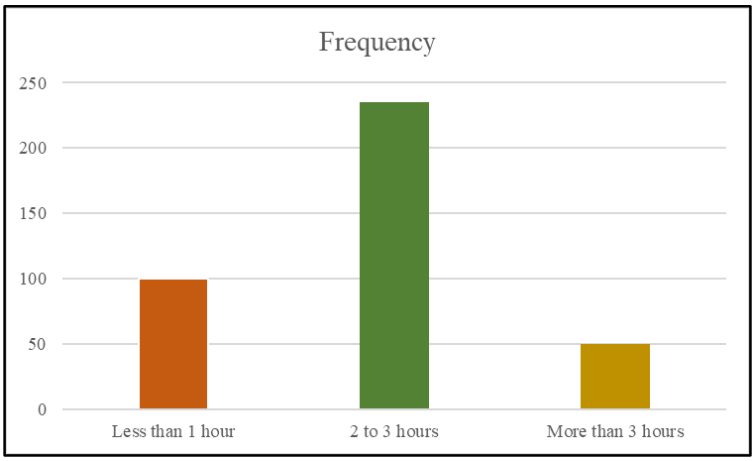

Figure 6: Hour Spend On Online Shopping Daily

Table 1 shows the result of variables that recorded the lowest *p*-value (< 0.05) which are Age, Level of Studies, Faculty and Year of Study. Since all variables are significant, then, we will reject the null hypothesis and conclude that there is a relationship between gender of the students with these independent variables. Same goes to Table 2, the result of variables obviously present that lowest *p*-value are Prefer Buying Way, How Often Shop In A Month, Spending In A Month and Hour Spend On Online Shop. Since all variables are significant, therefore we will reject the null hypothesis and conclude that there is a relationship between gender of the students with these independent variables. However, the *p*-value for frequency of buying from online shopping and prefer way of buying product are greater than 0.05 so we do not reject the null hypothesis. Hence, there is no relationship between the gender and the variable. Interestingly that Table 3 shows all variables recorded lowest *p*-value which include Functionality, Privacy, Reputation, Perceived Value and Trust. Same as previous, since all variables are significant, we reject the null hypothesis and conclude that there is a relationship between gender of the students with these independent variables.

Table 1: Chi Squared Test of Gender With Demographic Variable

Variable	χ^2	*p*-value
Age	14.895	< 0.05
Level of Studies	7.7965	< 0.05
Faculty	14.373	< 0.05
Year of Study	9.7976	< 0.05

Table 2: Chi Squared Test of Gender With Prefer Way Of Buying Product (insignificant-bold)

Variable	χ^2	*p*-value
Frequency of Buying From Online Shopping	2.7533	> 0.10
Prefer Buying Way	62.15	< 0.05
How Often Shop In A Month	184.23	< 0.05
Spending In A Month	127.55	< 0.05
Preferable Place For Online Shopping	3.452	> 0.10
Hour Spend On Online Shopping	94.826	< 0.05

Table 3: Chi Squared Test of Gender With Online Shopping Behaviours Of The Students

Variable	χ^2	p-value
Functionality	18.176	< 0.05
Privacy	17.05	< 0.05
Reputation	135.82	< 0.05
Perceived Value	28.204	< 0.05
Trust	61.454	< 0.05

Table 4: Generalized Variance Inflation Factor (GVIF)

Variable	GVIF	Degree of Freedom (df)	GVIF
Frequency Of Buying From Online Shopping	1.1816	1	1.008702
Preferable Place For Online Shopping	1.1816	5	1.016828

Table 4 shows that the value of Generalized Variance Inflation Factor (GVIF) as the result of multicollinearity in the model developed. The value of the GVIF presents value less than 5 which indicated that the variable is less correlated with each other and fit the model well. Hence, the variable of Frequency Of Buying From Online Shopping and Preferable Place For Online Shopping suitable for binary logistic model. Based on previous result of Chi-Square Test of Independent, therefore predictors that insignificant have been selected to be included into binary logistic model as present in Eq. 4.

$$\log\left(\frac{p}{1-p}\right) = 0.1327 + 0.9784\beta_1 - 16.6735\beta_2 + 1.2091\beta_3 - 1.0980\beta_4 - 2.0076\beta_5 - 15.6987\beta_6 \quad \text{Eq. 4}$$

Table 5: The Estimate Coefficient Values Of Binary Logistic Model

Variables	Symbol	Coefficient	Std. Error	Z-value	p-value
Intercept	α	0.1327	0.3245	0.409	> 1.00
Frequency Of Buying From Online Shopping (Yes)	β_1	0.9784	0.2444	3.989	< 0.05
Always buy from (Instagram)	β_2	-16.6735	0.4945	-0.028	> 1.00
Always buy from (Lazada)	β_3	1.2091	5.942	2.445	< 0.05
Always buy from (Shopee)	β_4	-1.0980	0.3236	-3.393	< 0.05
Always buy from (Website)	β_5	-2.0076	1.2082	-1.662	> 0.05
Always buy from (WhatsApp)	β_6	-15.6987	14.3976	-0.011	> 1.00

The Hosmer and Lemeshow Test adopted to test the goodness-of-fit of the binary logistic model. The AIC value shows that binary logistic has high value of AIC and the Hosmer and Lemeshow Test indicate the *p*-value < 0.05 (note that the *p*-value < 0.05 indicates that the model does not fit the data very well).

Table 6: Deviance, Degree Of Freedom (Df) And AIC Value For Binary Logistic Models

Model	Deviance	Degree of Freedom (df)	AIC
Null	533.51	384	490.67
Residual	476.67	378	

Table 7: Hosmer And Lemeshow Test

Chi-Square Test	Degree of Freedom (df)	*p*-value
385	8	< 0.05

Figure 7 presents three types high satisfaction level chose by student which are Easy Track Parcel, No Need To Go Out and Easily Choose. Meanwhile, Figure 8 is a summary of student's comment based on the satisfaction level toward university management for delivery courier service where majority of the students rate the delivery courier in a new UTHM campus only 3 out of 5 due to its inconvenient (most word that used by the students in a comment section) for the students to pick up their parcels when the courier delivered during the afternoon. Next, the frequency of most chosen word is inconvenient, place, pick, class and time. Overall, students suggested university to prepare a specific

place to store the parcel for the students to pick up their parcel during their free time or in the evening as it will be easier for the students to cope with class and time to pick up the parcel.

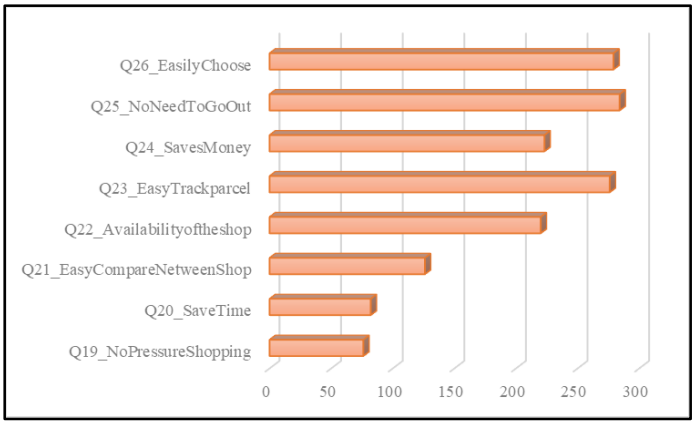

Figure 7: Student's Satisfaction Level On Online Shopping In A New UTHM Campus

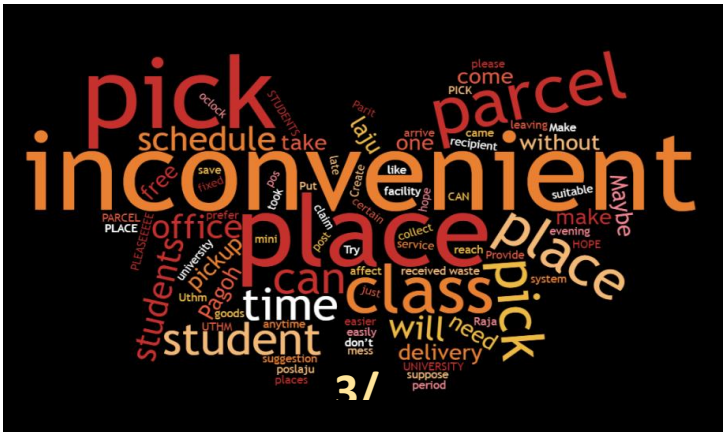

Figure 8: Word Cloud of Student's Satisfaction Toward University Management For Delivery Courier

4. Conclusion

In conclusion, all variables in this study present significant relationship with the gender (p-value < 0.05), except for variables Frequency Of Buying From Online Shopping and Preferable Place For Online Shopping. A binary logistic model was built from the value of Chi-Squared Test (p-value > 0.05) as discussed in the previous section. In conclusion, the significant factor that influenced the behaviour of online shopping of students are Frequency Of Buy From Online Shopping and Preferable Place For The Students To Buy Their Product On Online Shopping. In addition, three types high satisfaction level chose by student which are Easy Track Parcel, No Need To Go Out and Easily Choose. Meanwhile, a summary of student's comment based on the satisfaction level toward university management for delivery courier service where majority of the students rate the delivery courier in a new UTHM campus only 3 out of 5 due to its inconvenient (most word that used by the students in a comment section) for the students to pick up their parcels when the courier delivered during the afternoon. Next, the frequency of most chosen word is inconvenient, place, pick, class and time.

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References

[1] Z.M. Jusoh and G.H. Ling, "Factors Influencing Consumers' Attitude Towards E-Commerce Purchases Through Online Shopping", International Journal of Humanities and Social Science, 2 (4), 223-230, 2012.

[2] M. Muda, R. Mohd and S. Hassan, "Online Purchase Behavior of Generation Y in Malaysia", Procedia Economics and Finance", 37, 292-298, 2016.

[3] Y-K. Seock and L.R Bailey, "The Influence of College Students' Shopping Orientations and Gender Differences On Online Information Searches and Purchase Behaviours", International Journal of Consumer Studies, 32(2), 113-121, 2008.

[4] A. Broutsou and P. Fitsilis, "Online Trust: The Influence of Perceived Company's Reputation On Consumers' Trust and The Effects of Trust On Intention for Online Transactions", Journal of Service Science and Management, 5(4), 365-372, 2012.

[5] S. Grabner-Kraeuter, "The Role of Consumers' Trust in Online Shopping", Journal of Business Ethics, 39(1-2), 43-50, 2002.

[6] H. Mobarakabadi, M. Karami, S. Maleki Far and K. Yarkarami, "Influence of Online Shopping Behavior Factors On E-Satisfaction of Customer", Jurnal Teknologi, 64(3), 1-7, 2013.

[7] M.A. Grant, "Methods for Exploring and Presenting Contingency Tables: A Case Study Visualizing The 1949 Great Britain Occupational Mobility Table", Graduate Theses and Dissertations, 2017.

[8] T.M. Franke, T. Ho and C.A. Christie, "The Chi-Square Test", American Journal of Evaluation, 33(3), 448-458, 2011.

[9] C.G. Thompson, R.S. Kim, A.M. Aloe and B.J. Becker, "Extracting The Variance Inflation Factor and Other Multicollinearity Diagnostics from Typical Regression Results", Basic and Applied Social Psychology, 39(2), 81–90, 2017.

[10] O. Jude, E.P. Akpos, I.A. Ihuoma and O. Idochi, "Investigating Predictors of Examination Result Data Using Logistic Regression (A Case Study of Imo State Polytechnic, Umuagwo, Imo State, Nigeria)", American Journal of Theoretical and Applied Statistics, 2(6), 255-267, 2013.

[11] S.M. Hailpern and P.F. Visintainer, "Odds Ratios And Logistic Regression: Further Examples Of Their Use And Interpretation", Stata Journal, 3 (3), 213-225, 2003.

[12] B.O. Sule, "A Logistic Regression Model Of Students' Academic Performance In University Of Maiduguri, Maiduguri, Nigeria", Mathematical Theory and Modelling, 5 (10), 124-137, 2015.