

Smartphone Usage Motives and Academic Performances among Undergraduates in University Putra Malaysia

¹Chinedu Eugenia Anumudu, ²Nor Azura Adzharuddin, ³M al –Imran Yasin

^{1,2,3}Department of Communication, Faculty of Modern Language and Communication, University Putra Malaysia

Abstract: This article generally explored factors that influenced smartphone usage motives and academic performances among undergraduates in the Faculty of Modern Language and Communication, University Putra Malaysia. Usage of smartphone facilities towards learning goal was also another possible factor considered since it seemed little or no consideration has been given to using the facilities for learning goals. Furthermore, smartphone usage pattern was also examined in this project paper. Quantitative data was collected through survey questionnaire, which was administered to 303 respondents in four departments of Modern Language and Communication Faculty via simple random sampling technique. Regarding the result, the first hypothesis outcome showed no significant positive relationships between smartphone cognitive need and academic performances. While the second hypothesis, showed a significant positive relationship between smartphone personal integrative need and academic performances. In the usage of smartphone facilities for learning goal, it showed that greater numbers of them utilized smartphone facilities such as Web Browser, Email and Short Message Service (SMS) as learning facilities, though Web Browser was identified as the most smartphone facility used for leaning goal. In terms of usage patterns, the result affirmed that the respondents chose patterns that were considered most appropriate to them.

Keywords: Smartphone usage motive, Academic performances, Undergraduates, Smartphone usage pattern, Smartphone cognitive need, Smartphone personal integrative need.

I. INTRODUCTION

The general objective of this article is to explore factors influencing smartphone usage motives and the academic performances among undergraduates in faculty of Modern Language and Communication, University Putra Malaysia. Smartphone is globally used for various purposes, these ranged from means of communication and dissemination of information (Minges, Kimura, Beschorner, Davies and Zhang, 2014). It equally offers travellers access to communication, information consumption and time management for daily lives' experiences (Wang, Xiang and Fesenmaier, 2016). Similarly, Othman and Musa (2014) stated it is used for integrating interactions, disseminating of information, advertisement; entertainment and meeting related issues. Whereas, Nguyen et al. (2016) claimed that it is an avenue by which new issues can be deliberated upon, discovered and reduced from complexity to simpler nature. However, Ma, Chan and Chen (2016) observed that smartphones are used for satisfying self and simplifying situations, especially among older people in China.

Other activities such as online transactions are made easier through smartphone, thus, De Kerviler, Demoulin, and Zidda (2016) stated that smartphone is equally used for achieving two major functions which are in-store information gathering and online transaction without physical contacts. Furthermore, it is used for attaining other activities such as accessing email, interacting with friends, internet search, business management; buying items and engaging in online booking event (Fileri 2016).

From the educational point of view, which is the subject of this study, it was stated that students are using mobile technologies such as smartphone for accessing reading materials irrespective of locations; and for individualized and combined studying (Ferdousi and Bari 2015). While Briz-Ponce et al. (2017) established that students positively adapted to smartphone usage for the purpose of mobile learning at their convenient time; and for its potentials and ease of use. However, Cox, Pollock, Rountree and Murray (2016) presented other services smartphone provides for students like using it for updating themselves in various online coursework materials, which can be done through search engine, communal networking and online lecture slides. Similarly, an experimental study on the impact of technology digital effect towards enhancing students' learning, has also proved that information technologies such as smartphone gives students access to information which helps them to improve and perform better in learning than those who did not have access to such (Sarkar, Mohapatra, and Sundarakrishnan 2017). These can be specifically achieved via using technological interface for accessing cognitive educational purposes. While Mohapatra and Mohanty, (2017) established that information technologies such as smartphones are intensively used for online learning but are greatly influenced by the learners' perceptions, usability and smartphones' abilities to offer knowledge needed by the users. Moreover, research has shown that smartphones can also assist in gaining accesses to self-learning of languages such as English via e-learning system, where information needed can be conveniently gotten than undergoing the challenges of learning through traditional means (Tan, 2015; Tan and Hsu 2017).

Contrarily, problem has been also identified in the smartphone usage among undergraduates, thus, Javid, Malik and Gujjar (2011) pointed that use of smartphone contributes to undergraduates' poor academic performances through distractions caused by misuse of it. Similarly, Vanden and Reo (2012) supported this by arguing that the use of smartphone among undergraduates brings about social conflicts and distractions in the classrooms. Notwithstanding the negative effects already identified with smartphone usage among undergraduates, the advantage towards using the facilities as learning tools cannot be underestimated, especially in this part of the world, where this particular issue has been given little or no consideration. As a result of the novelty which may be found towards using its facilities as learning aids, this study also sets to explore whether smartphone facilities are used as learning tools. Its usage pattern was another issue considered among the respondents of this study.

II. LITERATURE REVIEW

SMARTPHONE FACILITIES:

Smartphone facilities are various services provided by smartphone which can be SMS, MMS, email, infrared Bluetooth, web browser and video call (Yamamoto, 2016). These are used for various social needs by smartphone users (Brett, 2011; Salisbury, Laincz and Smith 2012). Anshari, Almunawar, Shahrill, Wicaksono and Huda (2017) equally affirmed that undergraduates use other smartphone facilities such as SMS for contacting lecturers and coordinating group assignments outside classrooms and web- browser for searching engine.

However, Tossell, Kortum, Shepard, Rahmati, and Zhong (2015) contended that smartphone facilities such as web browser can only be useful towards enhancing learning if the users are bent to use them as learning facilities. Consequently, this study intends to examine if these smartphone facilities are actually channeled towards learning goals by undergraduates. Thus, the first specific objective is:

- To identify if smartphone facilities are used towards learning goals by undergraduates of Faculty of Modern Language and Communication, University Putra Malaysia.

SMARTPHONE USAGE PATTERN :

Smartphone usage pattern is defined by Tan, et al. (2012) as the mobile application usage habit of a specific user in a particular time slot. Whereas, Al-Barashdi, Bouazza and Jabur, (2015) identified excessive usage, technological and psychological –social issues as predictors of undergraduates' smartphone usage patterns. However, Hanson, et al. (2010) defined usage patterns from the duration of time undergraduates are given to smartphones usage, thus, the scholars stated that most of them spend about 14 hours and 35 minutes on weekly basis texting with their smartphone; and 6 hours and 49 minutes talking with their friends. This suggested that the usage pattern may be indirectly encroaching on undergraduates studies' hours. Similarly, Oulasvirta, Rattenbury, Ma and Raita (2012) presented that smartphone users spend at least 160 minutes of their time on sending MMS, text messages and other related issues on daily basis. However, Okafor and Malizu

(2014) demonstrated that smartphone usage pattern among university students is being determined by social, economic and general living pattern experienced in various continents. This implied that factors constituting smartphone usage patterns vary according to the users' countries. Hence, the 2nd specific objective of this project paper aims:

-To identify smartphone usage patterns among undergraduates of Faculty of Modern Language and Communication, University Putra Malaysia.

ACADEMIC PERFORMANCE:

Academic performances, which is the dependent variable of this study, refers to level of ability or competence one has attained in an academic field, which are normally assessed through examinations (Lawrence and Deepa, 2013). It is also an act of measuring qualities in all academic disciplines both in class and co-curricular activities, (Ganai, Ganai and Mir, 2013). Whereas Wang, et al. (2015) argued that academic performances are measured by accumulative GPA, time management, sequence of activities; informal interactions, mobility, class attendances and reading factors. Whereas Kirschner (2010) pointed that grade point average (GPA) and numbers of hours daily spend on studies as predictors of academic performances. Contrarily, Mushtaq (2012) identified other four factors predicting undergraduates' academic performance as communication, learning facilities, family stress and proper guidance, though communication was pointed as the most factor that influenced academic performances.

III. THEORETICAL CONSTRUCTS BACKGROUND AND HYPOTHESES

USES AND GRATIFICATION THEORY (UGT)

The theory of uses and gratification propounded by Katz, Blumler and Gurevitch (1973) helped in understanding why and how the users of particular media actively want to seek specific satisfaction through it rather on the media itself. It is an approach used by a socio- psychological communication tradition to explain why people use media and what they use the media for. From the view of this theory, smartphone usage motives and academic outcomes fall within this theory. Therefore, the users of smartphones are expected to decide the purpose and satisfaction they would wish to derive from using smartphone. The commonly perception of uses and gratification theory showed that individuals most actively choose, identify and seek the content that they perceived to be most gratifying to them. Thus, the theory focuses more on what people do with media rather than what media does to the people (Hostut, 2010). Furthermore Hostut (2010) observed that students generally use smartphone for gratifications such as informational access, educational and for entertainment reasons, while sociability and reassurance motives were identified as the most gratifications sought by them via smart phone usage. Whereas motive like interactivity was identified as what motivates users of new communication technologies (Danesi, 2013). Summarily, Katz et al. (1973) who were the founders of this theory categorized the constructs of this theory into five, which are cognitive needs, affective, personal integrative needs, social integrative and tension free needs. Thus, in reference to the current study, two of these constructs which are: cognitive needs and personal integrative needs are assumed to have impact on studies related to smartphone usage motives and academic performances, therefore, two of them will be considered in this project paper.

COGNITIVE NEED AND ACADEMIC PERFORMANCES:

This entailed using information to fulfill both mental and intellectual needs. Various cognitive need have been identified by Kolb (2011) to be behind undergraduates' smartphone usage motives. These cognitive needs according to the scholar were using it for receiving reminder about deadline for academic tasks submission, searching for unfamiliar information or knowledge and access to online dictionary for learning of new words regarding their studies; and other issues outside their field of study. Similarly, Gutmann et al. (2015) presented that students use smart devices for various cognitive educational issues such as studies, getting in touch with previous studies before examinations, capturing notes, pictures and research journal access. Apart from educational related issues, Lo, Cho, Leung, Chiu, Ko and Ho (2016) established that students use smartphone for other cognitive needs such as search engine tool and communal interactions. Others scholars like Santos and Ali (2012) equally established positive correlations between smartphone cognitive usage need and academic performance. Furthermore, Li and Wang (2017) confirmed that communication technologies such as smartphones are also used for mobile learning, especially towards solving pedagogical problems. However, Kibona and Mgaya (2015); Samaha and Hawi (2016) countered these, by establishing negative relationship between smartphone cognitive usage needs and students' academic performances.

Summarily, from the above literary reviews, it can be deduced that smartphones are used for various cognitive needs by students. Thus, these lead to the third specific objective of this study and 1st hypothesis, which proposes that:

Ha1: There is positive relationship between smartphone cognitive need and academic performances.

PERSONAL INTEGRATIVE NEEDS AND ACADEMIC PERFORMANCES:

This refers to various personal integrative needs that may be useful to academic performances attained via smartphone. Thus, Acilar (2013) identified nine personal integrative needs provided by smartphones to undergraduates in Turkish University, these included information, attitude, mobility, functional service, entertainment/relaxation, convenience, fashion; sense of security and multimedia usage purpose, whereas Chaves-Barboza, Trujillo-Torres and López-Núñez (2015) established positive relationship between personal integrative needs and academic performances. These involved using smartphone for personal integrative motives such as self-regulatory planning and as tool for enhancing one's personal learning for better grades. An integrative review on impact of mobile technologies used by healthcare professionals in supporting educational issues, also attested that mobile technologies such as smartphones are personally used for augmenting information, productivity and learning involvements from diversified fields (Guo, Watts and Wharrad 2016).

Furthermore, Shah and Shabir (2017) established positive relationships between use of information and communication technologies for various personal integrative gratifications and academic needs. These personal needs ranged from mastering of study areas to personal preparations of assignments and presentations for academic needs and enhancements.

Additionally, Lakshmi and Nageswari (2015) claimed that mobile applications are used for personal studies which are deemed vital for assisting learners towards learning and assimilating various vocabularies that may be useful to their field of studies.

Inferring from the above various personal integrative motives, it could be said that there may be positive effect between smartphone usage for personal integrative need and academic enhancement. Thus, the 4th specific objective and 2nd hypothesis of this project paper proposes that:

Ha2: There is positive relationship between smartphone personal integrative need and academic Performances.

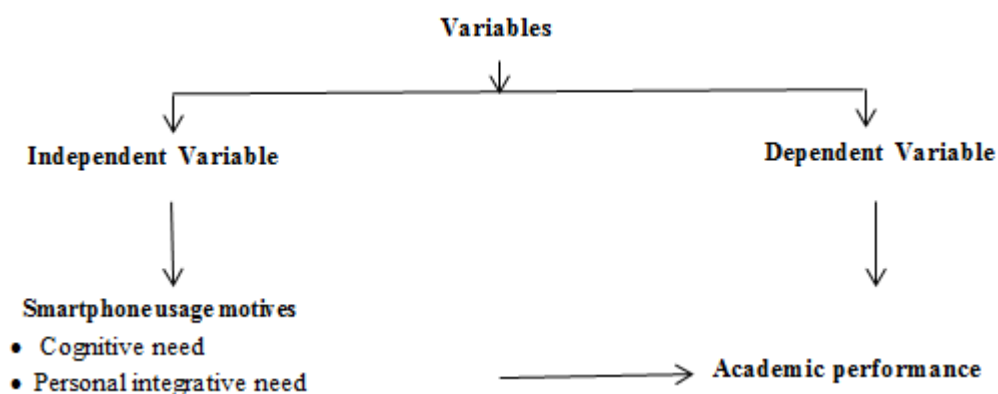


Figure 1: Conceptual Framework

IV. METHODOLOGY

Quantitative research method was applied in this study. The method was chosen because its objectives required both descriptive and inferential statistics. Survey questionnaire was the instrument used in this study. The questionnaire represented all the items used in assessing smartphone learning facilities, usage patterns, cognitive smartphone need and personal integrated need.

Regarding the population of this study, it comprised undergraduates in Faculty of Modern Language and Communication, University Putra Malaysia. The Faculty is made up of 4 departments: Communication, English, Foreign and Malay Language, with a total population of 1,249. But due to limited time needed to round off this project paper, a sample size was determined according to Yamane's formula (Yamane, 1967) and sample size of 303 was eventually determined from the population.

Selection criteria was done using probability sampling method because it offered every person in the target population, the opportunity of being selected among the sample size and for the purpose of inferring the outcome from the sample size to the targeted population (Johnson and Christensen, 2008). Simple random sampling was finally used and sampled the questionnaires among the respondents.

MEASUREMENTS:

The items used as the instrument of this study was adapted from the previous studies related to this study and modified them in order to appropriately fit in the context of the present study. The questionnaire was categorized into six sections. Section A- was the demographic profile of the respondents, Section B-were questions on the general background of the respondents, Section C- were questions on smartphone facilities, Section D- were questions on smartphone usage patterns, Section E- were questions on smartphone cognitive needs and Section F- were questions on personal integrative need while section I, was on academic performances. Section A and B questions were closed ended with multiple choice options on demographic profile and general background of the respondents. Section A, has 5 items while B, has 4 items. Sections C, on smartphone facilities comprised 6 items adapted from Yamamoto (2016) and were measured in Likert scale. Section D- questions on smartphone usage patterns consisted of 9 items adapted from (Hanson, et al. 2010; Oulasvirta, Rattenbury, Ma and Raita 2012; Tan, et al 2012) and were assessed in multiple choice closed ended questions. Sections E- questions on smartphone cognitive need were 5 items while Section F on smartphone personal integrative needs also comprised 5 item, both constructs' items were adopted from (Boase and Kobayashi; Gutmann, et al. 2015; Santos and Ali 2012; Acilar, 2013) and structured in Likert scale. While the last Section I- has 2 items on academic performance, adopted from Kirschner (2010) and was ordered in multiple closed ended question. In all, a total of 36 items were used.

PILOT TEST:

Pilot test was conducted among 10% of 303 sample size of the study, comprising 30 undergraduates in order to check for the reliability and validity of the items used in the survey questionnaire. Post- test was equally run after collecting the whole data with the sample size of 303 in order to determine the overall reliability. It was conducted with items in Likert scale. It was conducted for the purpose of establishing the reliability and validity of the items. The pilot test assisted in minimizing mistakes and ambiguity in the instrument as established by (Monette, Sullivan and DeJong, 2013). Cronbach Alpha was used to determine the internal consistency of the items in the questionnaire. The outcomes of the pilot and post - test in the Table: 1 below, showed that the "coefficient Alpha" of each of the constructs was higher than 0.70, in other words, the internal consistence was considered reliable as well as valid, because the constructs measured what they were supposed to measure.

TABLE I: RELIABILITY OUTPUT

Scale	No. of items	Pretest Cronbach's Alpha (α) n =30	Overall Cronbach's Alpha(α) n = 303
Smartphone learning facilities	6	.835	.710
Smartphone Cognitive need	5	.914	.748
Smartphone Personal integrative need	5	.856	.721

NORMALITY TEST OUTCOME:

Normality test was first conducted in order to ascertain whether the data were normally distributed or not. Normality test on the academic performance data proved to be normally distributed. This was because its Skewness values ranged between (-.071 and +.140) while the Kurtosis values equally ranged between (-.090 and +.279). Furthermore, the lower and upper bound values were 5.6106 and 5.9670, signifying that both were positive and did not have to pass through 0. Therefore, academic performance data was said to be normally distributed. Normality test on smartphone usage motives, comprising (Cognitive and Personal integrative needs), equally showed that the data were normally distributed through the values of their Skewness and Kurtosis. The Skewness values ranged between (-.451 and +.140) while the Kurtosis values equally ranged between (-1.186 and +.279). Furthermore, the lower and upper bound values were 66.9977 and 68.9297,

implying that both were positive and did not have to pass through 0. Therefore, both the independent and dependent variables' data were normally distributed in reference to Ho and Yu (2015) who pointed that both categorical and ordinal data are assumed to be normally distributed if the Skewness and kurtosis values are within ± 1.5 or even when it is within ± 2.0 .

V. RESULT AND DISCUSSION

DESCRIPTIVE ANALYSES OF RESPONDENTS' DEMOGRAPHIC FACTORS:

Regarding the ethnicity composition, the data showed that more than half of the respondents of this study are Malay undergraduates and comprised 169 in number.

In terms of age distribution, it was observed that more than half of the respondents are within 20-23 age bracket and had a total of 169, which was 55.8% of the respondents. This precisely showed that younger adults are the majority in this Faculty.

In gender distribution, the greatest numbers of the respondents comprising 76.9%, with a total of 233 are female undergraduates, while the remaining 23.1% are male, with a total number of 70 respondents. This vividly showed that female undergraduates in this Faculty are more than three times, the numbers of male ones.

In terms of semester of study, it indicated that 34% of the respondents, comprising greatest number of 103 respondents are in the 3rd and 4th semester of study. This implied that the majority of undergraduates in this Faculty are within these two semesters of study.

In departmental distribution, the data showed that Foreign Language department has the greatest numbers of undergraduates with 28.4%.

DESCRIPTIVE ANALYSES OF RESPONDENTS' GENERAL BACKGROUND QUESTIONS:

According to the item no.1 on general background, which asked "if the respondents use smartphone" the responses showed that 98.7% of the respondents of this study are using smartphone, while 1.3% of them are not using it.

No.2 item "on respondents' source of income" showed that 46.9%, which was the greatest percentage get their income from the parents.

No.3 item on the amount of income accessible to them in a semester, illustrated that 34.7%, which was the greatest percentage of them have limited access of lesser than RM 500 in a semester.

The last item "on the average time spends on smartphone daily" demonstrated that 38.3% of the greatest percentages of the respondents spend 3-4 hours daily on smartphone. Summarily, the outcomes on these general background items are equally relevant in relating to their overall smartphone usage rate.

DESCRIPTIVE ANALYSIS ON SMARTPHONE FACILITIES FOR LEARNING GOALS:

The first specific objective, which examined if undergraduates are using various smartphone facilities for learning purposes, showed that they are using different smartphone facilities such as Web browser, Infrared Bluetooth, Video call, MMS, SMS and Email for learning goals. However, Web browser was identified by them as the most learning facility attained via smartphone. These are in line with smartphone facilities mentioned by (Yamamoto, 2016; Salisbury, Laincz and Smith 2012). However, the finding on identifying whether they are using them as learning facilities was established by the outcomes of this study as for the first time.

DESCRIPTIVE ANALYSES ON SMARTPHONE USAGE PATTERNS:

In reference to 2nd specific objective of this study, which examined the respondents' smartphone usage patterns measured with 9 items, presented the following outcomes:

Item no.1 showed that 29.0 %, which was the greatest percentage of the respondents are mostly using smartphones during evening time.

Item no.2 clarified that greatest percentage, comprising 37% of the respondents spent less than an hour with smartphone for direct calls on daily basis.

Item no.3 confirmed that majority of the respondents; consisting 34.0% send or received 4-6 short message service (SMS) on daily basis.

Item no.4 demonstrated that 31.4% of the respondents, which was the greatest percentage, spend less than 1 minute in composing a short message service (SMS).

Item no.5 pointed that 34.7% of the greatest respondents affirmed spending less than an hour on daily basis, chatting with smartphones.

Item no.6 established that 34.3% of the respondents spend less than an hour playing game with smartphone on daily basis.

Item no.7 illustrated that a good number of them, comprising 40.9% spend less than an hour on watching movies on daily basis with smartphone.

Item no.8 offered that 39.6% of the majority of the respondents send emails for 1-2 times on daily basis via smartphone.

Item no.9 outlined that 38.6% of the respondents spend less than an hour making video calls with smartphone on daily basis.

DESCRIPTIVE ANALYSES ON SMARTPHONE COGNITIVE NEED:

Summarily, the outcomes on smartphone usage for cognitive need, illustrated that undergraduates use smartphone for fulfilling both mental and intellectual need; but “receiving notification for class cancellation and classroom change through smartphone” was rated higher than others.

Table: II summary on descriptive analyses on smart phone cognitive need (n: 303)

Variables	SD	D	SWA	A	SA	Mean	STD
I receive notification for class cancellations and class room changes through smartphone	7 (2.3)	11 (3.6)	32 (10.6)	136 (44.9)	117 (38.5)	4.1386	.91017
I contact with other students in class group assignments through my smartphone	8 (2.6)	18 (5.9)	30 (9.9)	123 (40.6)	124 (40.9)	4.1132	.98698
Smartphone helps me in learning new words	12 (4.0)	14 (4.6)	31 (10.2)	134 (44.2)	112 (37.0)	4.0561	1.00668
I use smartphone in generating new information or ideas about my field of study	11 (3.6)	21 (6.9)	35 (11.6)	134 (44.2)	102 (33.7)	3.9736	1.02903
I use smartphone for library reference enquiry services	29 (9.6)	71 (23.4)	34 (11.)	103 (33.7)	67 (22.1)	3.3531	1.31120

SD: Strongly disagrees D: Disagree, SWA: Somewhat agree. A: Agree SA: Strongly Agree STD: Standard Deviation

DESCRIPTIVE ANALYSES ON SMARTPHONE PERSONAL INTEGRATIVE NEED:

From personal integrative need, the outcome attested that “using smartphone for accessing students’ portal” was rated higher than others.

Table: III summary on descriptive analysis results on smart phone personal integrative need (n: 303)

Variables	SD	D	SWA	A	SA	Mean	STD
I use smartphone for accessing my student portal	6(2.0)	16(5.3)	40(13.2)	136(44.9)	105(34.7)	4.0495	.93188
I receive and submit group class discussions and assignments through smartphone	15 (5.0)	24 (7.9)	33(10.9)	127 (41.9)	104 (34.3)	3.9274	1.10148
I use smartphone for taking notes	22(7.3)	36 (11.9)	45(14.9)	103(34.0)	97 (32.0)	3.7162	1.23326
Smartphone helps me in achieving better grades	23 (7.6)	46 (15.2)	53 (17.5)	107(35.3)	74 (24.4)	3.5380	1.22517
I use smartphone for library reference enquiry services	29(9.6)	71(23.4)	34(11.)	103(33.7)	67(22.1)	3.3531	1.31120

SD: Strongly disagrees D: Disagree, SWA: Somewhat agree. A: Agree SA: Strongly Agree STD: Standard Deviation

DESCRIPTIVE ANALYSES ON ACADEMIC PERFORMANCES:

Grade point average (GPA) was one of the two items used for measuring academic performance, as the dependent variable of this project paper. The result presented that highest percentage which was 38.9% of the respondents' grade point average, ranged within 3-3.49.

Table IV: Semester grade point average (GPA)

Measurement scale	Frequency	Percent
1-1.99	7	2.3
2-2.99	46	15.2
3-3.49	118	38.9
3.5-3.74	99	32.7
3.75 and above	33	10.9
Total 303		100

According to the findings on the numbers of daily hours of study, it pointed that 35.6% of the respondents, comprising greater number of 108 study for 3-4 hours on daily basis.

Table V: Descriptive analysis on numbers of daily hours of study

Measurement scale	Frequency	Percent
Less than an 1 hour	58	19.1
1-2 hours	98	32.3
3-4 hours	108	35.6
4-5 hours	33	10.9
6 hours and above	6	2.0
Total 303		100

HYPOTHESES TEST ANALYSES:

Pearson Product- Moment Correlation statistics was employed in testing the hypotheses of this project paper. Thus, result of the 1st hypothesis showed that the alternative hypothesis (Ha) was rejected, inferring from $R=0.61$, $P>0.05$, which was not significant, as can be seen in the table below:

Therefore: there is no significant positive relationship between smartphone cognitive need and academic performance.

Thus, the 3rd specific objective, which proposed positive relationship between smartphone cognitive need and academic performance, proved not to be significant; so the alternative hypothesis (Ha) was rejected. This was in line with previous studies did by (Kibona and Mgaya, 2015; Samaha and Hawi, 2016; Bluestein and Kim, 2017) who equally established no relationships between smartphone cognitive need and academic performances. This implied that undergraduates should be encouraged more on using smartphone for cognitive needs that are related to their study in order to enhance the academic performances.

Table VI: Analyses of Pearson Correlations

	Academic Performance	Cognitive need
Academic Performance	1	
Cognitive need	0.108	1
	0.61	
	303	

Hypothesis N0.2

The result of the 2nd hypothesis showed that the alternative hypothesis (Ha) was accepted, inferring from $R=0.011$, $P<0.05$, which was significant as can be seen in the table below. Therefore, Ha is accepted, indicating that:

Ha: There is significant positive relationship between smartphone personal integrative need and academic performance.

This implied that 4th specific objective of this study established a significant positive relationship between smartphone personal integrative need and academic performances. Therefore, the outcome supported the findings of (Chaves-Barboza, Trujillo-Torres and López-Núñez, 2015; Guo, Watts and Wharrad, 2016; Shah and Shabir, 2017).

Table VII

	Academic Performance	Personal integrative need
Academic Performance	1	
Personal integrative need	0.146*	1
	0.011	
	303	

* Correlation is significant at the 0.05 level (2-tailed)

VI. DISCUSSION RELATED TO THEORY

The finding of the hypothetical test of this study has a theoretical implication on uses and gratification theory (UGT) employed in this study. Firstly, this study is one of the empirical studies on undergraduates' smartphone usage motives and academic performances. The outcome of this study showed that smartphone usage motives, comprising cognitive and personal integrative needs as the concepts of (UGT) are being determined by undergraduates themselves because, it is only them that can select the motives that may gratify their academic successes/performances via smartphone. The findings equally helped and expanded the theory. This is in line with Littlejohn and Foss (2010) who established that prominent theories are continuously developing. In other words, theories keep on growing and expanding through research. Thus, by using (UGT) as a suitable framework in determining smartphone usage motives and academic performance, has added to the growth of Katz's uses and gratification theory (1973), thereby promoting it as universal theory that explores users' gratifications through media and communication technologies.

Furthermore, it has practical implication on lecturers towards regulating undergraduates' smartphone usage patterns to ensure that it does not unnecessarily cause distractions to them, especially in the classroom. It will equally assist lecturers in inculcating habit of using smartphone for educational motives on the undergraduates.

Additionally, it has practical implication on education policy makers or ministers in piloting educational affairs among undergraduates, especially in this smartphone usage era.

Eventually, research approach used in this study equally provided some perceptions to the area of smartphone and media usage in general, hence, contributed knowledge that may assist prospective scholars in similar area of studies.

VII. CONCLUSION

The 1st objective found that undergraduates are using various smartphone facilities such as Web browser, Infrared Bluetooth, Video call, MMS, SMS and Email for learning goals. However, Web browser was identified as the most facility being used for learning goal.

The second specific objective on smartphone usage patterns illustrated that the respondents choose usage patterns most appropriate to them.

The 3rd specific objective on the positive relationship between smartphone cognitive need and academic performance, proved not to be significant, therefore, it suggested that undergraduates should be more enlightened on the motives of using smartphone for fulfilling both mental and intellectual needs.

The final specific objective of the study established a significant positive relationship between smartphone personal integrative need and academic performances. It indicated that academic performances will be more enhanced provided that smartphone personal integrative needs are channeled towards learning goals.

REFERENCES

- [1] Acilar, A. (2013). Factors Affecting Mobile Phone Use Among Undergraduate Students in Turkey: An Exploratory Analysis. In *Strategy, Adoption, and Competitive Advantage of Mobile Services in the Global Economy* (pp. 234-246). IGI Global.
- [2] Al-Barashdi, H. S., Bouazza, A., & Jabur, N. H. (2015). Smartphone addiction among university undergraduates: a literature review. *Journal of Scientific Research & Reports*, 4(3), 210-225.
- [3] Anshari, M., Almunawar, M. N., Shahrill, M., Wicaksono, D. K., & Huda, M. (2017). Smartphones usage in the classrooms: Learning aid or interference?. *Education and Information Technologies*, 1-17.
- [4] Bluestein, S. A., & Kim, T. (2017). Expectations and fulfillment of course engagement, gained skills, and non-academic usage of college students utilizing tablets in an undergraduate skills course. *Education and Information Technologies*, 22(4), 1757-1770.
- [5] Brett, D. (2011). Development in the use of mobile devices for second and foreign language Learning. *Journal of Linguistic Intercultural Education*, (4).
- [6] Boase, J., & Kobayashi, T. (2012). Mobile communication networks in Japan and America. *China Media Research*, 8(4), 90-98.
- [7] Briz-Ponce, L., Pereira, A., Carvalho, L., Juanes-Méndez, J. A., & García-Peñalvo, F. J. (2017). Learning with mobile technologies—Students' behavior. *Computers in Human Behavior*, 72, 612-620.
- [8] Chaves-Barboza, E., Trujillo-Torres, J. M., & López-Núñez, J. A. (2015). Accomplishments in Learning Self-Regulation in Personal Environments. *Creative Education*, 6(11), 1108.
- [9] Cox, S., Pollock, D., Rountree, J., & Murray, C. M. (2016). Use of information and communication technology amongst New Zealand dental students. *European Journal of Dental Education*, 20(3), 135-141.
- [10] Danesi, M. (Ed). (2013). *Encyclopedia of media and communication*. University Toronto Press.
- [11] De Kerviler, G., Demoulin, N. T., & Zidda, P. (2016). Adoption of in-store mobile payment: Are perceived risk and convenience the only drivers?. *Journal of Retailing and Consumer Services*, 31, 334-344.

- [12] Ferdousi, B., & Bari, J. (2015). Infusing mobile technology into undergraduate courses for effective learning. *Procedia-Social and Behavioral Sciences*, 176, 307-311.
- [13] Filieri, R. (2016). How Young Chinese Consumers Choose among Different Smartphone Brands: The Importance of Socio-cultural and Marketing Factors. In *ICTs in Developing Countries* (pp. 59-73). Palgrave Macmillan UK..
- [14] Ganai, M. Y., & Mir, M. A. (2013). A comparative study of adjustment and academic achievement of college students. *Journal of Educational Research and Essays*, 1(1), 5-8.
- [15] Guo, P., Watts, K., & Wharrad, H. (2016). An integrative review of the impact of mobile technologies used by healthcare professionals to support education and practice. *Nursing open*, 3(2), 66-78.
- [16] Gutmann, J., Kühbeck, F., Berberat, P. O., Fischer, M. R., Engelhardt, S., & Sarikas, A. (2015). Use of learning media by undergraduate medical students in pharmacology: a prospective cohort study. *PLoS one*, 10(4), e0122624.
- [17] Hanson, T.L, Drumheller, K., Mallard, J., McKee, C., & Schlegal, P.(2010), cell phones, text messaging and facebook : competing time demands of today’s college students. *College teaching*, 59(1) 23-30.
- [18] Ho, A. D., & Yu, C. C. (2015). Descriptive statistics for modern test score distributions: Skewness, kurtosis, discreteness, and ceiling effects. *Educational and Psychological Measurement*, 75(3), 365-388.
- [19] Hostut, S.(2010). Uses and Gratification of mobile phone use Among Students in Turkey. *Global media Journal: Mediterranean Edition*, 5.
- [20] Javid, M., Malik, M.A., & Gujjar , A.A.(2011) . Mobile phone Culture and its Psychological impacts on students’ learning at the University level, *Language in India* 11(2).
- [21] Johnson, B., & Christensen, L. (2008). Educational research: Quantitative, qualitative, and mixed approaches. Sage.
- [22] Katz, E., Blumler, J. G., & Gurevitch, M. (1973). Uses and gratifications research. *Public opinion Quarterly*, 509-532.
- [23] Kibona, L., & Mgaya, G. (2015). Smartphones’ effects on academic performance of higher learning students. *Journal of Multidisciplinary Engineering Science and Technology*, 2(4), 777-784.
- [24] Kolb.L.(2011) . Cell phones in the classroom: *A practical Guide for educators*. International Society for Technology in Education.
- [25] Kirschner, P. A., & Karpinski, A. C. (2010). Facebook® and academic performance. *Computers in human behavior*, 26(6), 1237-1245.
- [26] Lakshmi, K., & Nageswari, R. (2015). L2 Learners’ Achievement in Acquiring Academic Vocabulary in M-learning Environment. *Journal of Educational Review*, 8(1).
- [27] Lawrence, A.S, & Deepa, T. (2013). Emotional intelligence and academic achievement Of High school students in Kanyakumari District. *Online submission*, 3(2), 101-107.
- [28] Li, Y., & Wang, L. (2017). Using iPad-based mobile learning to teach creative engineering within a problem-based learning pedagogy. *Education and Information Technologies*, 1- 14.
- [29] Littlejohn, S. W., & Foss, K. A. (2010). *Theories of human communication*. Waveland press.
- [30] Lo, P., Cho, A., Leung, M. H., Chiu, D. K., Ko, E. H., & Ho, K. K. (2016). Use of smartphones by art and design students for accessing library services and learning. *Library Hi Tech*, 34(2), 224-238.
- [31] Ma, Q., Chan, A. H., & Chen, K. (2016). Personal and other factors affecting acceptance of smartphone technology by older Chinese adults. *Applied ergonomics*, 54, 62-71.
- [32] Minges, M., Kimura, K., Beschoner, N., Davies, R., & Zhang, G. (2014). *Information and communications in the Chinese countryside: A study of three provinces*. World Bank Publications.
- [33] Mohapatra, S., & Mohanty, R. (2017). Adopting MOOCs for affordable quality education. *Education and Information Technologies*, 22(5), 2027-2053.

- [34] Monette, D., Sullivan, T., & DeJong, C. (2013). *Applied social research: A tool for the human services*. Cengage Learning.
- [35] Mushtaq, S.N.K. (2012) Factors affecting students' academic performance. *Global Journal of management and business research*, 12(19).
- [36] Nguyen, N. C., Bosch, O. J., Ong, F. Y., Seah, J. S., Succu, A., Nguyen, T. V., & Banson, K. E. (2016). A systemic approach to understand smartphone usage in Singapore. *Systems Research and Behavioral Science*, 33(3), 360-380.
- [37] Okafor, G. O., & Malizu, C. F. (2014). Mobile phone use patterns among university undergraduates in Nigeria. *International Journal of Advance Research*, 2(10), 1-16.
- [38] Othman, M. S., & Musa, M. A. (2014). The improvement of students' academic performance by using social media through collaborative learning in Malaysian higher education. *Asian Social Science*, 10(8), 210.
- [39] Qulasvirta, A., Rattenbury, T., Ma, L., & Raita, E. (2012). Habits make smartphone use more persuasive. *Personal and ubiquitous computing*, 16(1), 105-114.
- [40] Salisbury, L., Laincz, J., & Smith, J.J. (2012). Science and Technology undergraduate students' use of internet, cell phone and Social networking Sites to access Library information. *Issues in Science & Technology Librarianship* 69(6).
- [41] Samaha, M., & Hawi, N. S. (2016). Relationships among smartphone addiction, stress, academic performance, and satisfaction with life. *Computers in Human Behavior*, 57, 321-325.
- [42] Santos, I. M., & Ali, N. (2012). Exploring the uses of mobile phones to support informal learning. *Education and Information Technologies*, 17(2), 187-203.
- [43] Sarkar, S., Mohapatra, S., & Sundarakrishnan, J. (2017). Assessing impact of technology Based digital equalizer programme on improving student learning outcomes. *Education and Information Technologies*, 22(1), 195-213.
- [44] Shah, B. H., & Shabir, G. (2017). Exploring ICT Usage Among AIOU Students and Gratification of Their Academic Needs. *International Research Journal of Arts & Humanities (IRJAH)*, 45(45).
- [45] Tan, C., Liu, Q., Chen, E., & Xiong, H. (2012). Prediction for mobile application usage patterns. In *Nokia MDC Workshop* (Vol 12).
- [46] Tan, P. J. B. (2015). English e-learning in the virtual classroom and the factors that influence ESL (English as a Second Language): Taiwanese citizens' acceptance and use of the Modular Object-Oriented Dynamic Learning Environment. *Social Science Information*, 54(2), 211-228.
- [47] Tan, P. J. B., & Hsu, M. H. (2017, May). Developing a system for English evaluation and teaching devices. In *Applied System Innovation (ICASI), 2017 International Conference on (pp. 938-941)*. IEEE.
- [48] Tossell, C. C., Kortum, P., Shepard, C., Rahmati, A., & Zhong, L. (2015). You can lead a horse to water but you cannot make him learn: Smartphone use in higher education. *British Journal Educational Technology*, 46(4), 713-724.
- [49] Vanden, A.M., & Roe, K. (2012). Adolescents' school performance and their use of mobile phone as a status object: Conformity compensation and Resistance. *Annual meeting of the international communication Association*, P1-35, 35p.
- [50] Wang, R., Harari, G., Hao, P., Zhou, X., & Campbell, A. T. (2015, September). SmartGPA: how smartphones can assess and predict academic performance of college students. In *Proceedings of the 2015 ACM international joint conference on pervasive and ubiquitous computing* (pp. 295-306). ACM.
- [51] Wang, D., Xiang, Z., & Fesenmaier, D. R. (2016). Smartphone use in everyday life and travel. *Journal of Travel Research*, 55(1), 52-63.
- [52] Yamamoto, N. (2016, November). Improvement of Study Logging System for Active Learning Using Smartphone. In *International Conference on P2P, Parallel, Grid, Cloud and Internet Computing* (pp. 845-851). Springer International Publishing.
- [53] Yamane, T. (1967). *Statistics: An introductory analysis* (No. HA29 Y2 1967).