The Use of Global System of Mobile Communication (GSM) Among University Students in Malaysia

Akintunde Musibau Ajagbe, Stephen Enyinnaya Eluwa, Edward Eric Duncan, Mohd Khairuddin Bin Ramliy, Choi Sang Long, and Mkomange Claud Wantrudis

Abstract—This study examines the use of the Global System of Mobile Communication (GSM) among University students in Malaysia. The survey approach was used in data collection from a sample population from University Teknologi Malaysia. Fifty undergraduate and post graduate students were sampled at the university library. Results from a multiple regression analysis shows that there is a significant relationship between age, monthly income/allowance of respondents, marital status and rate of calls made and received per day (P<0.05). Gender and mode of study were found to be insignificant (P>0.05).Results from t test equally indicate that the respondents do not vary in their perception on benefits derivable from the use of GSM (t = -.483, P >0.05).Majority of the respondents also agreed that they use GSM to contact their lecturers, course mates, parents, siblings and sending of short message services (SMS).The study conclude with discussions on findings which would be relevant to education policy makers and other interest parties.

Index Terms—Global System of Mobile Communication, rendezvousing, age, Malaysia

I. INTRODUCTION

The dawn of the 21st century marks the revolution in information and communication technology (ICT), revealing that more people are becoming reliant on wireless communication systems. Research has shown that Asia is one of the world's largest users of wireless phones with an estimated 600 million users in 2005 and also indicated Malaysia as having a wireless phone user population of about 14.5 million (55.9 percent) in 2004, this exceeds half of the total population [1]. It has also been predicted that the population of mobile phone users in Malaysia will rise higher than the current figure once the 3G technology becomes fully operational in the country. The Malaysian Communication and Multimedia Commission conducted a survey which exposed that the number of wireless phone users has exceeded those of the fixed lines. And this study also indicated that about 74 % of the users of mobile phone sent at least one SMS a day [2]. The packaging of mobile

A. M. Ajagbe, M. K. B. Ramliy, and C. S. Long are with Faculty of Management and Human Resource Development, Universiti Teknologi Malaysia (e-mail: amajagbe2@live.utm.my; mkhairuddin.ramliy@gmail.com; cslong_1@yahoo.com).

S. E. Eluwa is with Faculty of Built Environment, Universiti Teknologi Malaysia (e-mail:ellis772000@yahoo.com).

E. E. Duncan is with Faculty of Mineral Technology, University of Mines and Technology in Tarkwa, Ghana (e-mail: edwduncan@yahoo.com).

M. C. Wantrudis is with Department of Mathematics and Statistics, Msumbe University,Tanzania (e-mail: wantru@yahoo.co.uk).

communications devices with internet services such as e-commerce and other broadband services is providing customers with fewer restrictions and greater flexibility. Previous investigation also estimated that data communication is growing at a rate of 25 % per annum while current study exposed a 40 % to 50 % increase in wireless communication systems [3]. The adoption of mobile technology is increasingly prevalent especially among the Asian countries such as Malaysia. Users of mobile phone grew from 9.7 % in 1995 to 55.9 % in 2004 [1]. There are several packages that are found to be predominantly used by people such as telephone conversation, short messaging services (SMS), voice messaging, multimedia messaging services (MMS) and internet access, and this depend on the capability of each mobile phone technology and services rendered. These applications have been made possible through various developments in the mobile telephone technology such as General Packet Radio Service (GPRS), Wireless Application Protocol (WAP), and the 3G standard. Considering a population of over 50% of Malaysians making use of the hand phones, they are no longer separated from a variety of service offerings that are made available by the different mobile services organizations and businesses via mobile phone transmission, especially using simple text messaging services (SMS). The relevance of wireless communication services has recently managed to infiltrate the educational industry in an effort to improve learning and information delivery services such as lecture notes, examination results, admissions, bursary, and several other uses. The Library as the central organ in information dissemination to the university community is also expected to face the same service transformation as experienced by various other services in the academic industry. Many library services are potential targets for this different mode of delivery [1]. This study therefore will examine GSM usage among university students in one of the universities in Malaysia.

II. GSM USAGE AND AGE

A significant demographic inspection about the acceptance of 'first generation' (GSM) mobile phones was their rapid approval by teenagers [4]. This study aggravated a number of phone use studies of teens. The research emphasized that adoption was so rapid among this age group, because pre-paid subscription and device subsidy eliminated economic barriers to adoption. Teenagers were also encouraged through this opportunity to build solidarity and share experience amongst friends, and appreciated its symbolic value. An insight from these and other studies

provides a deeper insight into mobile phone use that has been adopted to tailor designs to this age group [5]. Smith et al [6] recognized variations in contact management between the teenagers and adults. They argue that 25-35yr olds are different to 16-18s and 50-60s in that they do more work integrating contact details obtained with a range of media (face-to-face, via the telephone, e-mail, and SMS). Teenagers they argue had a greater number of contacts, and tended to use the mobile phone to store details.

However, another explanation for reduced mobile phone use in older adults concerns differences in life situations. Younger adults, one imagines, often lead unstructured lives – they are single, attending college and living in temporary accommodation. Older adults, in contrast, have an established home and family, and seek to balance commitments to work and family. Differences in life situation are less comforting for the mobile industry, because they imply that high rates of mobile phone use throughout adulthood are not inevitable - the benefits that users perceive as teenagers will not necessarily be perceived when they are adults, and habitual use will evolve away from the mobile phone, should it cease to benefit users' changing situations [7].

Etukudo [8] however, observed in his study of usage and effects of GSM in urban Lagos that there has been a tremendous shift from the conventional two-way verbal communication of telephone to the recent GSM mobile communication which has shown the impact technology has on human existence. He emphasized further that in the last seven years in Nigeria people became more inclined towards technology and mobile telephony as a burning example of the influence of communication technology on ease of human existence. He highlighted a few of the activities that GSM can be used for among which are; you can talk with friends and acquintances,record events, listen to music, install games, academic applications,videos,transfer academic and non-academic information (data and files), visit world wide web. He conclude by saying that the use of GSM has been discovered to be of more positive influence on human activities than of negative not minding a few problems inherent as a result of service quality associated with various service providers across countries and locations.

Nix et al [9] reported that never in the history of the use of technology in education has there been a technology so widely available to citizens as mobile technology. They revealed that statistics are stunning. In July 2005 it was announced that ownership of mobile devices had reached 2 billion for the first time and was forecast that ownership would reach 3 billion as early as 2010 for a world population of 6.5 billion. In a research published in 2004 on audience characteristics, the British Broadcasting Corporation [10] stated that respondents in the 16-24 age bracket ranked ownership of a mobile phone as a 'necessity'. The 16-24 age group is precisely the age bracket of students at universities institutes of technology and higher and further education colleges. Penetration of mobile devices in Ireland, France, Norway, Hungary and all other European countries was reported to be in the high 90% range and is fast approaching 100% according to statistics from [11].

III. GSM Phone Application in Education

Fatoki, [12]recognized that academic libraries involved in the dissemination of information are deeply interested in the various infrastructure networks that serve as major channels for the transmission of information, such as telephones and telephone lines, cellular networks, cable television and the internet. He emphasized that educational institutions libraries yearn to satisfy their customers' needs since their target market (researchers, lecturers, undergraduate and postgraduate students) is highly demanding and dynamic in nature. In his view, there is an observation in the ease and possibility for university teachers, researchers and students to locate what they need having not to physically be in the library, through the internet world wide web (www).

The widespread use of mobile phone technologies as compared to the use of personal computers can be clearly seen across all walks of life in the Malaysian society. While internet uses tend to be dominated by middle to high class society, the penetration of the mobile phone use seems to move across the lower and the minority class boundaries. These include the minority racial groups, the lower class groups, young adults, and senior users. The [2] survey indicated that 12.3 percent of the user groups are young adults, while the senior groups accounted for about 9 percent. The user can also be seen widespread among students at institutions of higher learning. Such widespread use may provide broad opportunities for institutions and businesses alike in applying the technology for commercial as well as for educational purposes. In the Malaysian educational environment, wireless application can take various forms. The most basic services can be seen made in the form of information delivery such as examination results, admission status, course registrations and others from the institutions to their respective customers such as students, vendors, faculty members and staff [1]. The most common wireless phone application services that have been used in the educational sector are information queries and deliveries via SMS. Some WAP applications have been observed especially in European countries. It was further reported that among Universities in the United Kingdom that have engaged in the use of mobile technology to provide campus wide information and various other administrative services to staff and students through WAP services is the University of Northumbria. The role of SMS communication in universities is not new in the developing world. In The Philippines, which is known as `the texting capital of the world', SMS is one of the students' favourite means of communication with faculty and other students [13], [14]. Also the same finding was reported by [15] about UNISA students. Since on average, mobile phones have a capacity of 160 letters per message, abbreviated spelling has evolved to extend messages and at the same time get the messages clearly to the other person making communication to students easier [14]. Kajumbula [16] observed in his study that students' access to mobile phone technology is very high and therefore the mobile phone presents a very attractive option to easing communication between the students and the Department. The study also shows that there are a number of advantages that accrue from the use of SMS for communication. Students prefer SMS because it keeps them informed of what is happening at the University. The use of

the SMS is currently a global phenomenon on most university campuses and students and staffs tend to communicate vital information across.

IV. GSM AND RENDEZVOUSING

Colbert [7], opined that rendezvousing is the informal co-ordination of a face to face meeting between friends and family and highlight that the purpose of a rendezvous is to come together to participate in a subsequent activity, such as to 'watch a movie', or to 'have lunch'. It is important that mobile phones support rendezvousing. And this was further corroborated via a current study in the United Kingdom which finds that the average rate of rendezvousing amongst university students was about 6 per week, with a minimum 3 per week and a maximum of 10 per week [17]. Several mobile phone users also think the phone is useful for rendezvousing. But a pan-European investigation revealed that 69 % of respondents corroborated earlier study, "The mobile phone helps one to coordinate family and social activities." EURESCOM P903, 2000 cited in [4]. Coordination was also found to be the most common topic for text messages sent by Norwegian users (Telenor, 2002 cited in [4]. Elegbeleye [18] argue in support of previous several study that, although it is not in doubt that the use of GSM phone is quite valuable, they are not in any way bereft of the socially appropriate interpersonal competence required to describe them as being warm and affiliative.He noted that a special emphasis on a person's connectedness which is presumably the precursor of what scholars of African personality constructs often refer to as the rhythmic patterns in African personality. Elegbeleye [18] go further to affirm that the prevalent adoption of GSM phone among Nigerians enhances rather than debilitate interpersonal relationship. He concludes that the gender variation that existed among male and female respondents at the macro level was not too significant for gender issues to overshadow the inherent social inclination of respondents.

There has been substantial interest in the general impact of mobile telephony on the process of coordinating everyday life, in particular, how it has helped in fine-tuning arrangements, softening of schedules, and the resolution of difficult social situations, such as being late. Mobile communication also supports preparations prior to departure, because it makes other individuals more reachable, wherever they are [7].

V. AIM OF THE STUDY

The aim of this study is to investigate the use of global system for mobile communications (GMS) among students at the Universiti Teknologi, Malaysia, emphasizing the nature and characteristics of the activities for which it is used and the relationships that exist between its usage and the demographic characteristics of the students.
In other to achieve the aim, the following are the objectives

- What activities do students engage with GSM
- What are the benefits accruable by using GSM
- What relationship (s) exists between (age, gender, income and type of programme) with GSM usage.

VI. HYPOTHESES

1) (H0) There is no significant relationship between number of calls made and received per day and the socio-demographic characteristics of respondents (age, monthly allowance/income, marital status, gender and type of programme).

2) (H0) There is no significant difference in the perception of respondents on benefits derivable from the use of GSM based on gender

VII. METHODOLOGY

The study adopted a descriptive survey design using questionnaire. The questionnaire was designed to elicit information on respondents' socio-demographic characteristics, their experience in using mobile phones, average expenditures on loading their phones, number of calls received and made per day, average duration of calls received and made per day, their awareness with the various GSM service providers, benefits they derive from using mobile phones.

A. Sampling Technique

The sample consisted of 25 female and 25 male undergraduates and postgraduates' students from Universiti Teknologi Malaysia (UTM) selected randomly from the university library. The response rate is 100 percent because the respondents where prevailed upon by the researchers to return the marked questionnaire on the spot. This balance in gender was seen as a means of giving both gender equal opportunities in the research.

B. Multiple Regression Mode

This model was used to identify the demographic characteristics affecting the rate of use of GSM by the respondents. The general specification of the model is given as follows

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 \tag{1}$$

Y is the value of the Dependent variable (Y), what is being predicted or explained
A (Alpha) is the Constant or intercept
B_1 is the Slope (Beta coefficient) for X_1
X_1 First independent variable that is explaining the variance in Y
B_2 is the Slope (Beta coefficient) for X_2
X_2 Second independent variable that is explaining the variance in Y
B_3 is the Slope (Beta coefficient) for X_3
X_3 Third independent variable that is explaining the variance in Y.
$S.e.b_1$ standard error of coefficient b_1
$S.e.b_2$ standard error of coefficient b_2
$S.e.b_3$ standard error of coefficient b_3
In this study,
Y =Rate of calls made and received per day
X_1 =Age
X_2 = Monthly allowance/income
X_3 = Marital status
X_4 = Gender
X_5 = Type of programme

The demographic characteristics of the respondents in terms of age range are shown in Fig. 1.
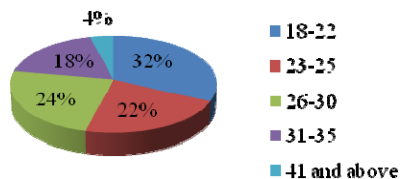

Fig. 1. The demographic characteristics of the respondents.

Results in Fig. 1 indicate that 32 % of the respondents are in the age group of 18-22, 24 % in the 26-30 group, 22 % in the 23-25 group , 18 % in the 31-35 group and 4 % are 41 and above. One reason that could be adduced to this age pattern is the fact that the institution runs graduate and post graduate studies. Therefore, the likelihood of having those around 18 -30 having a higher percentage than other age groups. Equally, those above 40 years accounted for 4 % only, the reason for this is that most people if not in academics (that is lecturing) do not normally go back to school for postgraduate studies unless the need arises. Fig. 2 shows the country of origin of the respondents.
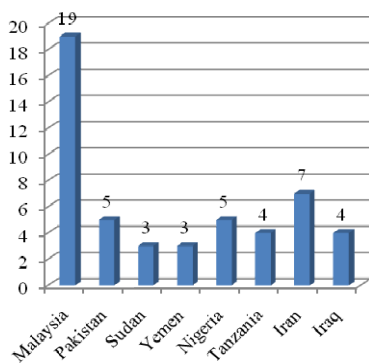

Fig. 2. Country of origin of respondents.

Fig. 2 shows that out of the 50 respondents sampled in this study, 24 are Asian (Malaysia and Pakistan), 14 are from the Middle East (Yemen, Iran and Iraq) while 12 are from Africa (Nigeria, Tanzania and Sudan). The total number of international students sampled in this study is more than the local students. One reason that could be adduced to this is the fact that the survey was carried out during the holidays when most of the local students who are predominantly undergraduates have gone home. The few that were remaining are either on vacation job or have one thing or the other to do. On the other hand, most of the international students are on research (M.Sc. and Ph.D.) so they are always in the library surfing the net and consulting journals. Fig. 3 shows the representation of the respondents by faculties.

Fig. 3 indicates that most (24 %) of the respondents are from Faculty of Science, 16 % are from Faculties of FPPSM and Education, 6 % are from Faculties of Mechanical, Bioscience , Chemical Engineering and FGHT respectively, 4 % are from faculties of FSKM and FKK respectively and 12 % from FSKM. Fig. 4 shows the levels of study of the respondents.

On the level of study, 18 of the 50 respondents sampled are Masters Degree students while 7 are Ph.D. and 15 undergraduates (Fig. 4). As earlier stated, most of the undergraduates are on holiday; only few were found in the library during the survey. Postgraduate students on the other
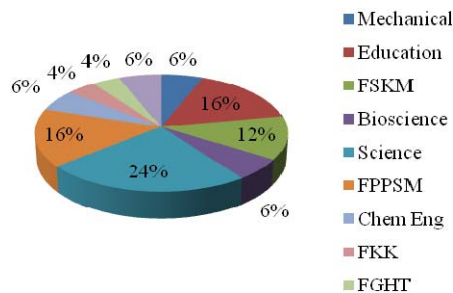

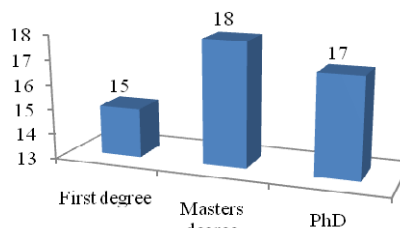Fig. 3. Respondents by Faculties at UTM.

Fig. 4. Levels of study.

hand are always busy throughout the year in the library consulting books, journals and materials needed for their research.

Results from the study indicate that 38 % of the respondents receive above 1000(RM) per month for their monthly upkeep as allowance, 18 % receive between 501-1000 and 100-200(RM) respectively, 12 % receive between 401-500 (RM), 8 % receive between 301-400 (RM) and 6 % receive between 201 300(RM).The reason for the higher number of respondents receiving above 1000 (RM) is not farfetched as most of them are postgraduate students are working already or are sponsored by their governments or institutions where they work . 54 % of the respondents are married while 46 % are single.

VIII. YEAR OF PURCHASE OF GSM BY RESPONDENTS

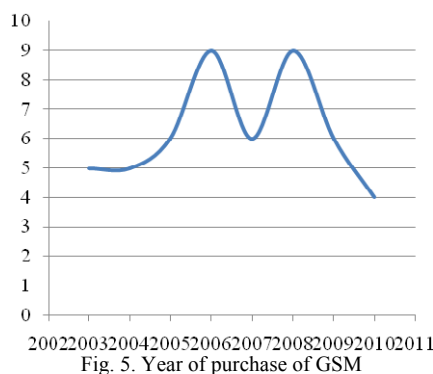Fig. 5 shows the year of purchase of GSM by the respondents.

Fig. 5. Year of purchase of GSM

Result in Fig. 5 indicates that most of the respondents purchased their GSM handsets between 2006 and 2008. Some of the results from this study necessitate the need to define the diffusion theory which is the process by which an innovation is adopted and gains acceptance by members of a certain community [19]. A number of factors interact to influence the diffusion of an innovation. The four major factors that influence the diffusion process is the innovation itself, how information about the innovation is communicated, time, and the nature of the social system into

which the innovation is being introduced [19]. According to Rogers, [19] individuals who are predisposed to being innovative will adopt an innovation earlier than those who are less predisposed. Innovators are the risk takers and pioneers who adopt an innovation very early in the diffusion process. On the other extreme are the Laggards who resist adopting an innovation until rather late in the diffusion process, if ever. He postulated four categories of adopters: innovators, early adopters, early majority, late majority and laggards. Against this backdrop, it could be said that most of the respondents sampled in this study fall into early majority (2006), late majority (2008), while innovators and early adopters are in 2003 and 2005 respectively. Those who purchased their GSM in 2010 fall in to the category of laggards.

A validation of survey instrument was carried out with reliability statistics, the reliability test on 22 items in the questionnaire yielded a Cronbach alpha of 0.81 which acceptable and consistent with such social research.

IX. FINDINGS OF THE STUDY

H (0).There is no significant relationship between rate of calls made and received in minutes by the students and their demographic characteristics (age, gender, monthly allowance, marital status and mode of study)

TABLE I: THE RESULT OBTAINED FOR ANOVA

Mode	Sum of squares	df	Mean square	F	Sig
Regression	98.308	5	19.062	9.639	.000ª
Residual	87.012	44	1.978		
Total	82.320	49			

The results in Table I show that there is a significant relationship between the rate of calls made and received per day in minutes by the respondents and their demographic characteristics (F=9.639, P<0.05). What this implies is that rate of calls made per day varies significantly with the demographic profile of respondents in this study. Since the demographic variables contributed jointly in explaining this variation, the researcher went further to know their individual contributions. Hence, the need for further investigation on the variables (age, marital status, monthly allowance/income, mode of study and gender). Table II shows the coefficients of the variables.

TABLE II: THE COEFFICIENTS OF THE VARIABLES USED FOR THE STUDY.

Mode	Unstandardized coefficients		Standardized	t	sig .001
	B	Std. error	Beta		
1 constant	8.483	2.399		3.536	.001
Gender	.582	.455	.152	1.279	. 208
Monthly Allowance	-.610	.119	-.607	-5.115	.000
Age	.961	.211	.661	4.561	.000
Mode of study	-1.419	.962	-.177	-1.476	.147
Marital status	-2.913	.587	-.723	-4.960	.000

Dependent variable: rate of calls made and received

The standardized Beta (β) coefficient values of the variables in Table II were examined. Results indicate that marital status has the highest β value of -.723 P<0.05, followed by age.661 P<0.05, monthly allowance/ income -.607 P<0.05, mode of study -.177 P>0.05, and gender .152 P>0.05. Going by the breakdown of this result, marital status of the respondents play a significant role in determining the

number of calls made and received per day. Similarly, age and monthly allowance/income equally determine the rate of calls made and received per day by the respondents. On the contrary, mode of study and gender has a little or no effect on the rate of calls received per day. In other words, their contribution is insignificant in explaining the relationship that exists in this study.

(H0) There is no significant difference in the perception of respondents on benefits derivable from the use of GSM based on gender. Table III shows the significance in terms of perception of benefits from the use of GSM..

TABLE III: SIGNIFICANCE IN TERMS OF PERCEPTION

	Levene's test for equality of variance				
	F	Sig	t	df	2-tailed
What benefits have you derived since you purchased your set	0-026	.874	-.483	48	.631
			-.483	45.747	.631

The results in Table III indicate that the respondents do not vary significantly in their perception on the benefits derivable from the use of GSM (t=-.483, P>0.05).

What activities do students engage with GSM?

The respondents usually engage in the activities as enumerated in Table IV.

TABLE IV: ACTIVITIES RESPONDENTS ENGAGE IN USING GSM

Activity	Yes (Freq)	No (Freq)	Never responded
Calling my course mate	41 (82%)	3 (6%)	6 (12%)
Calling my supervisor	35 (70%)	12(24%)	3 (6%)
Calling my parents, siblings and relations	44(88%)	6(12%)	–
Calling friends	44 (88%)	3 (6%)	3 (6%)
Chatting via internet with my phone	3 (6%)	35(70%)	12 (24%)
Listening to music	18 (36%)	26 (52%)	6 (12%)
Sending SMS	47 (94%)	–	3 (6%)

Results in Table IV indicate that majority (70 % and above) of the respondents agreed that they use GSM for calling their course mate, supervisor, parents and siblings, friends and sending SMS. However, 52 % and 70 % of the respondents respectively stated that they do not use GSM for chatting and listening to music .One salient feature from this result is that majority of the respondents engage their GSM in activities that are related to their academic works and contacts with parents, siblings and friends. The reason for this pattern depicted may be due to the fact that most of the respondents sampled in the study are postgraduate students who are matured and focused. Again, another reason for the low usage of GSM in chatting and is the fact that the school has wireless internet connection so most students chat with their laptops any where they are which is more convenient than GSM.

What are the benefits accruable to the use of GSM?

The benefits attributed to the use of GSM are quite enormous as shown in Table V.

For easier interpretation of the results, the likert scale was regrouped to three that is SA+A=A, SD+D= D and N

On the benefits respondents derive from using GSM, results in Table V show that majority (68 %) of respondents agree that the use of GSM has reduced the amount of money

spent on travelling, while 16 % disagree, 10 % neutral and 6 % never responded. Similarly, 74 % agree that it has helped them in interacting with people regularly, 10 % were neutral and disagree respectively while 6 % never responded. Again, 36 % disagree that that the use of GSM has made their study less cumbersome while 32 % agree to this fact and 20 % were neutral. Regarding the level of interaction between students and lecturers, 44 % agree that it has improved it while 36 % disagree, 8 % neutral and 12 % never responded. For making of contacts and friends, 68 % agree that they have made more contacts and friends through the use of GSM while 16 % disagree, 10 % neutral and 6 % never responded. From this breakdown, it could be deduced that majority (50 % and

above) of respondents agree that GSM has helped in reducing the amount they spend on travelling as they could contact people easily without necessarily going in person. Also it has improved their interaction with people as more contacts are made through the use of GSM. On the contrary, it could be seen from this breakdown that less than half (50 %) agree that the use of GSM has made their study less cumbersome and also improve the level of interaction between them and their lecturers. From the study most of the respondents agree that the use of GSM has improved student-lecturer relationship hence improving E-learning, this assertion has been collaborated by [20].

TABLE V: BENEFITS DERIVED FROM USING GSM

Benefits	SA	A	SA +A =A	N	SD	D	SD+D =D	Never responded
It has reduced the amount I spend on travelling.	34%	34%	68%	10%		16%	16%	6%
It has helped me in interacting with people regularly.	30%	44%	74%	10%	6%	4%	10%	6%
It has made my study less cumbersome.	6%	26%	32%	20%	12%	24%	36%	12%
It has improved the level of interaction between me and my lecturers.	12%	32%	44%	8%	12%	24%	36%	12%
I have made more contacts and friends through it.	30%	38%	68%	10%	10%	6%	16%	3 6%

X. DISCUSSIONS

The purpose of this study is to investigate the use of global system of mobile communication (GSM) among university students and the relationship that exists between its usage and their demographic characteristics. Equally, the nature of activities for which they use GSM and benefits derived from it were examined. It was found that a significant relationship exist between rate of calls made and received per day and the demographic characteristics of respondents (F= 9.639, P<0.05).However, further tests to ascertain the contribution of each of the demographic variables (age, gender, marital status, mode of study and monthly allowance/ income) in explaining this relationship showed that marital status with standardized beta (β) value of 723 has strong relationship with the rate of calls made and received per day (P<0.05). Age with β value of 661 also has a significant relationship with the rate of calls made and received per day (P<0.05). This corroborates the findings of [6] that identify differences in contact management between the teenagers and adults. They argued that the youths differ with the adults in contact management because they do more work integrating contact details with a range of media (face-to- face, via telephone, e-mail, and SMS). Equally, Ling [4] stated in his study that an influential demographic observation among the adoption of 'first generation' mobile phones was their rapid adoption by teenagers. Monthly allowance/income was also found to be significantly related with the rate of calls made and received per day with β value of 607 (P<0.05). What this means in essence is that monthly income/ allowance received by the students has an effect on the number of calls they make and receive per day. On the contrary, gender with β value of 152 and mode of study β value of 177 were insignificant (P>0.05) which is in line with the findings of [18]. In other words, gender and mode of study in this research were found not to be major determinants on the number of calls made and received per day. It was found from the study that the respondents use GSM in contacting their lecturers, course mates, parents, siblings, friends and sending SMS. This reflects the social man as propounded by Schein (1965), cited

in [21] who is predominantly motivated by social needs – the need for personal relationships. Results from the study equally showed that the respondents do not differ on the perception regarding the benefits derived from the use of GSM (t =.-483, P>0.05)

XI. IMPLICATIONS FOR POLICY MAKERS

From Olatokun and Bodunwa's [3] findings the telecommunications revolution has become a very significant aspect of the existence of man in the twenty first century. The GSM however, as discovered from findings of this research has been very useful in the social life of respondents and society as a whole.Moreso,it was revealed that the use has a tremendous positive impact in the academic activities of both students and faculty members of Universiti Teknologi Malaysia .The conclusions drawn from this investigation are that although majority of users use the GSM facility mostly for social and economic activities but there has been a tremendous shift in the use of GSM for academic interaction among academics ; this include an increase use between students and faculty members and administrative communication with students. This they confess has enhanced the speed and ease of achievement of task. Although the issue of cost was raised, but fear was however, allayed that most GSM operators in Malaysia are coming up with cost reduction strategies for tertiary institutions to enable them adopt their services more frequently and at a cheaper rate within the academic environment and for academic purposes.

Furthering the belief that communication is an important aspect of human existence. The adoption of the Global System of Mobile Communications among students at Universti Teknologi Malaysia as examined in this study has shown that it has made tremendous impact in their lives in terms of contacts and reduction in the number of travels made when they are in school. The study also finds that students use the GSM facility in contacting their parents and guardian, lecturers and friends. It has brought convenience to social interaction among the users in the University. The use of

GSM has improved student-lecturer communication relationship thereby enhancing learning and collaboration among students and faculty members. In view of the foregoing, educational policy makers, service providers and relevant interest parties should take note of these findings and come up with policies and strategies for more purposeful adoption of the Global System of Mobile Communication in academics.

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M. K. Ramliy is currently a manager with RBY Teguh Enterprises and lecturers Part Time with Space UTM (Teaching Information Technology and Entrepreneurship).His is currently a Doctoral Degree Student atUniversiti Teknologi Malaysia, his area of research interest is on Commercialization of Renewable Energy in Malaysia.

Eluwa Stephen Enyinnaya graduated with BSc. and MSc. in Geography from the University of Ibadan, Nigeria with interest in urban system analysis. He managed a private research firm Orient Concepts which conducts survey, analyze data and interpret results using various statistical software. He is currently a PhD candidate at Universiti Teknologi Malaysia (UTM) studying Urban and Regional Planning.

W. C. Mkomange is an Assistant Lecturer at Mzumbe University, Tanzania. She has a Bachelor Degree of Education in Mathematics from Tumaini University, Iringa University College, Tanzania. She teaches mathematics and statistics. Currently, she is a Master degree student with department of mathematics and science, Faculty of Education, Universiti Tecknologi Malaysia. Her research interest is on potential teachers beliefs on mathematical problem solving.

E. E. Duncan holds a BSc degree in Geodetic Engineering from the University of Science and Technology, Kumasi, Ghana and an MSc degree in Topographic Science (Surveying) from the University of Glasgow, UK. He worked on a UNICEF mapping project of the Northern regions of Ghana in 1993 as a Surveyor. In 1996 he joined the University of Mines and Technology (UMT) where he lectured in GIS, GPS, Geodesy, Remote Sensing and Least square adjustments. He is currently a PhD candidate at the Universiti Teknologi Malaysia (UTM) with interests in 3D GIS with special interest in surface and subsurface 3D spatial models. He currently has over 10 published papers. He is a member of the Ghana Institution of Surveyors (GhIS) and an academic member of FIG.