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BYOD Usage by Postgraduate Students of International Islamic University Malaysia: An Analysis

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ABSTRACT*: The aim of this study is to analyze the use of BYOD and related issues among the postgraduate students of the International Islamic University Malaysia (IIUM). A well-structured questionnaire was distributed among 150 students chosen from the various Kulliyyahs (Faculties) of the University under study.The response rate was 80 percent. The present study demonstrates and elaborates the various aspects of BYOD use, such as frequency of BYOD use, most frequently used place for BYOD use, purposes for which the BYOD is used, collaborative tools used for academic purposes, concerns/problems faced by the users and satisfaction level of users with the BYOD facilities provided in the University.A descriptive statistics simple percentage was used to analyze the findings. The result of the survey found that BYOD has become a vital instrument for teaching, research and learning process of these respondents. Some suggestions are set forth to make the services more beneficial for the academic community of the University under study and recommendations for future work were also discussed.*

Keywords -*BYOD use, Descriptive Statistics, IIUM, Malaysia, Students,*

I. INTRODUCTION

BYOD is a familiar acronym, but in schools, "BYOD" represents a new learning program. Known as Bring Your Own Device (BYOD), this new approach facilitates classroom learning by having students use their own technology devices. Educators have been urged to get on board with BYOD in order to help students develop 21st-century skills. "The idea is to use the devices that students use regularly out of school to help engage them and help them learn." [1].Education must move with the times. Students of this generation require the current learning media to facilitate their learning process. This point has been buttressed by an Educational Philosopher John Dewey "If we teach today as we taught yesterday, we rob our children of tomorrow." [2]Today's education system is developing to take full advantage of the potential of mobile technology devices to inspire learning and create independent, critical thinkers. However, with tight budgets, many schools are hoping to bring technology into the classroom without the costly burden of purchasing a device for each student.

One potential solution that is being explored is BYOD, or Bring Your Own Device. This allows students to bring their personal laptops, tablets, and smartphones from home and use them for educational applications in the classroom. At a time when budgets are shrinking, schools are considering BYOD programs to integrate cost-effective technology into their educational programs. It is a promising idea, especially for schools that lack sufficient technology budgets. BYOD takes advantage of the technology that students already own and are familiar with. Though, BYOD programs have been met with some criticism from staff and administrators who believe the challenges outweigh the perceived benefits. However, the researchers believe that the positive outweigh the negative. Hence, this study will explore the importance of BYOD in the academic environment with a view to assisting policy makers in formulating efficient strategies for BYOD adoption. Today, BYOD plays a vital role in the teaching, research and learning. It is assumed that IIUM students feel more dependent on BYOD for their class assignments and for the latest information of their subject areas than conventional resources of information. This paper is based on a survey given to students of IIUM, and it discusses the findings of the study.

1.1 Objectives

The main objective of this study is to analyze the patterns of BYOD use by IIUM students and the perceived impact of the BYOD on their academic efficiency.

The specific objectives are:

1. To explore the various purposes for which BYOD is being used by IIUM students;
2. To determine the level of students' satisfaction with the BYOD services in IIUM;
3. To examine the impact of BYOD on students' learning and research;

1.2 Research Questions

The following questions are formulated to guide the researchers in this study:

1. What are the various purposes for which BYOD is being used by the IIUM students?
2. What is the level of students' satisfaction regarding the BYOD services in IIUM?
3. What are the impacts of BYOD on students' learning and research?

II. LITERATURE REVIEW

There are glaring evidences from the review of literature indicating that the most frequent users of BYOD are students. BYOD facilitates collaboration and expedites research process. BYOD provides students with the flexibility of controlling their learning. "Technology can make learning fun and engaging!" [3]Engaged learners are better learners;BYOD sets students in a place of control over their learning. Many researchers in the field of education believed that allowing students to have authority over their learning is the best: the teacher plays the role of a manager who manages students learning, instead of being the direct source of information.

A research conducted by [4]shows that many computer-assisted learning strategies utilizing mobile technologies are capable of enhancing the learning achievements of students. It has also been found that most Generation Y chooses to be wirelessly connected (81%) and the majority use social networking to connect with others (73%) [5]. Therefore, it is obviously very reasonable to incorporate education with BYOD.

Researchers have revealed the importance of using technology in schools. 70% of students in grades six through twelve used a cell phone either during school or in their free time, while 67% of 9th-12th graders having a cell phone and 31% have smart phones [6]. Since the majority of students owned smartphone technologies, using these BYOD devices may bring new avenues for learning opportunities for students to assist them in their learning process to become successful in the school.

[7]explore the usage of technology in students' daily lives, how they use it whether at home or at school to facilitate their learning. Their findings reveals "that this generation of students prefer receiving information rapidly, have a low tolerance for lectures, prefer active rather than passive learning and rely heavily on communication technologies to access information." Technology is a tool for attracting intellectual learning and critical thinking in the school [8]. With BYOD use instructors are in a better position to look for suitable methods to teach their students by representing ideas, beliefs, accessing information, simulating real-world problems, and even assisting their students represent what they have learned. Furthermore, technology improves students' success since it can support the teacher produce teaching material suitable for all learning styles. Similarly, audio and video technology can present the educational material to life, which aids the students comprehend and discover the reasons why the material taught is very significant in actual life.

BYOD in education has come to stay. Students of nowadays are addicted to technology they have grown up with it and they want to continue using it in whatever they do in their lives on daily basis – including academic activities which becomes even more interactive. Since many schools have the infrastructure to support wireless devices, they should encourage its usage as students cannot do without BYOD which has the potentials to positively affect educational outcomes.

III. METHODOLOGY

The researchers personally distributed questionnaires randomly to the respondents at the various Kulliyyahs (Faculties) of IIUM in order to collect data from the respondents. Questionnaires were also distributed randomly to the respondents at the school premises as well as the Mahallah (Hostels). The questionnaires for BYOD users were filled up by the students of the University. A total sample of 150 students

was chosen for the study. For sampling, random sampling process was followed for data collection. The sample was random in the sense that the students were randomly selected from the various Kulliyyahs (Faculties) of the University. Out of the one hundred and fifty (150) questionnaires distributed to the respondents, one hundred and twenty (120) were returned. With this, eighty percent (80%) of the respondents returned their questionnaires while twenty percent (20%) could not return theirs. Descriptive statistics was used to analyze the findings. The responses of the students were analyzed using simple percentages and information were drawn which answered the research questions.

IV. FINDINGS AND DISCUSSION

Table 1. Faculty Distribution of Respondents

Department/Kulliyyah(Faculty)	Frequency	Percentage
Healthcare and Medicine	12	10.0
Sciences	11	9.17
Laws	13	10.83
Economics & Management Sciences	15	12.5
Engineering	10	8.33
Architecture & Environmental Design	12	10.0
Information & Communication Technology	19	15.83
Islamic Revealed Knowledge & Human Sciences	7	5.83
Education	15	12.5
Islamic Banking & Finance	6	5.0
Total	120	100

Source: Field survey (2013)

Table 1 shows that 19 (15.83 percent) of the respondents were from the Faculty of Information & Communication Tech.; Faculties of Economics & Management science and Education have 15 (12.5 percent) respondents each; 13 (10.83 percent) respondents were from the Faculty of Law; Healthcare & Medicine and Architecture & Environmental Design have 12 (10.0 percent) respondents each; 11 (9.17 percent) respondents were fromScience; 10 (8.33 percent) responds were from Engineering; 7 (5.83 percent) respondent were from the Faculty of Islamic Revealed Knowledge & Human Sciences while 6 (5.0 percent) respondents were from the Islamic Banking &Finance. This is an indication that all the faculties within the university were well represented in the survey.

Table 2. What is your comfort level using computer technology?

	Frequency	Percentage
Beginning User, uncomfortable, need a lot of assistance	4	3.33
Average User, comfortable, need a little assistance	8	6.67
Above Average User, very comfortable, provide some assistance to others	23	19.17
Expert User, extremely comfortable, coach and mentor others	85	70.83
Total	120	100

Source: Field survey (2013)

The question was asked to find out the facts about the level of IIUM students comfort in using the BYOD. It was found that 85 (70.83 percent) of them are extremely comfortable and they even coach other students. Another 23 (19.17 percent) respondents are above average users; while 8 (6.67 percent) respondents indicated they are average users; only 4 (3.33 percent) of the respondents are not comfortable because they are beginners. It is evident that the majority of respondents are very comfortable in using the BYOD.

Table 3 Would you like to bring your personal computer or other wireless devices (Blackberry, iPod Touch / iPhone) and connect it to the IIUM network?

	Frequency	Percentage
Yes	113	94.17
No	7	5.83
Total	120	100

Source: Field survey (2013)

Table 3 shows that majority of the respondent in IIUM 113 (94.17 percent) expressed their willingness to bring their own personal devices to connect to the IIUM network for their academic activities. While, the remaining 7 (5.83 percent) of the respondents said no.

Table 4. I use the following technologies on a daily basis for academic related use: (Choose all that apply)		
BYOD Devices	**Frequency**	**Percentage**
SmartPhone (e.g.Blackberry, iPhone, other)	**28**	**23.33**
MP3 Player	**4**	**3.33**
iPOD Touch	**5**	**4.17**
iPOD (other than the Touch)	**7**	**5.83**
iPAD	**11**	**9.17**
EReader (e.g. Sony Reader, Kindle Reader)	**9**	**7.5**
Laptop computer	**48**	**40.0**
Tablet Computer (Playbook, Xoom, etc.)	**8**	**6.67**
Netbook	**0**	**0**
Other	**0**	**0**
Total	**120**	**100**

Source: Field survey (2013)

A total of 48 (40.0 percent) of IIUM students reported that they use laptop computers on daily basis for academic activities, 28 (23.3 percent) indicated that they use their Smartphones every day for academic reasons, 11 (9.17 percent) use iPad for academic activities, 12 (10.0 percent) use iPOD Touch and iPOD other than Touch for academic activities. While 4 (3.33 percent) respondents reported that they use MP3 Player for academic reasons. Again, this indicates that the entire respondents are using one form of BYOD device or the other for academic activities on daily basis.

Table 5. Amount of Time Spent using the Device		
	Frequency	**Percentage**
5-6 hours a week	**0**	**0**
7-9 hours a week	**11**	**9.17**
10-20 hours a week	**12**	**10.0**
More than 20 hours a week	**97**	**80.83**
Total	**120**	**100%**

Source: Field survey (2013)

Table 5 shows that the maximum number of respondents i.e. 97 (80.83 percent) spend more than 20 hours a week using BYOD Device. 12 (10.0 per cent) use the BYOD for 10-20 hours. Only 11 (9.17 percent) respondents have indicated that they use BYOD for 5-6 hours a week.

Table 6. Most Frequently Used Location of BYOD Use		
	Frequency	**Percentage**
At IIUM	**90**	**75**
Home	**30**	**25**
Total	**120**	**100**

Source: Field survey (2013)

A total of 90 respondents (75.0 percent) indicated that they use their devices at the location of the International Islamic University Malaysia to access the Internet and performother academic activities, while only 30 (25.0 percent) use their devices to connect to the Internet from home. It indicates that most of the respondents use the IIUM Internet facility to connect their devices to facilitate their academic excellence.

Table 7. Purposes of using the BYOD		
Purpose	**Frequency**	**Percentage**
Research	25	20.83
Entertainment	7	5.83
Education	70	58.33
Communication	18	15.0
Total	**120**	**100**

Source: Field survey (2013)

One of the significant research questions was to explore the purpose for which the students are using the BYOD. 70 (58.83 percent) respondents use the BYOD for educational purposes, 25 (20.83 percent) respondents for research purposes, 18 (15.0 percent) for the communication purposes, while as 7 (5.83 percent) respondents admitted that they also use their BYOD devices for entertainment purposes. It shows that majority of the IIUM students mainly use the BYOD devices for educational purposes compared to the least number of respondents who use the BYOD for entertainment purposes.

Table 8. For each of the following collaborative tools, rate how often you use each for school related purposes.

Tools	Daily	Weekly	Monthly	Never	Frequency	Percentage
Wiki		**4**	**3**		**7**	**5.83**
Blog		**9**			**9**	**7.5**
Twitter	**12**				**12**	**10.0**
Facebook	**16**				**16**	**13.33**
Instant Messaging	**18**				**18**	**15.0**
Email	**28**				**28**	**23.33**
School Web Page		**7**			**7**	**5.83**
My own Student portal	**9**	**5**			**14**	**11.67**
Course Repository	**9**				**9**	**7.5**
Others	**0**				**0**	
Total					**120**	**100**

Source: Field survey (2013)

Table 8 shows that among the collaborative tools, electronic mail has been chosen as the most popular. It is being used by 28 (23.33 percent) respondents. Instant messaging comes next. This is being used by 18 (15.0 percent) respondents. Next in order comes Facebook with 16 (13.33 percent) responses, student portal with 14 (11.67 percent) responses, Twitter with 12 (10.0 percent) responses, Course Repository and Blog with 9 (7.5 percent) responses each, School Web Page and Wiki with 7 (5.83 percent) responses each. It is seen that the use of Wiki and School Web Pagevia students BYOD is very low among the BYOD users in IIUM. While students use the rest of the collaborative tools among themselves and their lecturers in order to widen the horizon of their knowledge.

Table 9. Concerns/problems associated with the use of BYOD		
Concerns/problems	**Frequency**	**Percentage**
Difficulty in finding relevant information	**7**	**5.83**
Data security	**35**	**29.17**
Poor performance (ie speed or reliability of the network)	**45**	**37.5**
Privacy problem	**28**	**23.33**
Loss or damage of device	**5**	**4.17**
IIUM limits how and where my device	**0**	**0**
Total	**120**	**100**

Source: Field survey (2013)

It can be inferred from Table 9 that using BYOD is not free from problems. The concerns or problems of using the BYOD mainly come from five factors: Data security, Poor performance (ie speed or reliability of the network); Loss or damage of device; difficulty in finding relevant information; and the privacy problems. 45 (37. 5 percent) respondents face the problem of slow Internet access speed which takes a lot of their slot time to retrieve the relevant information from their devices. 7 (5.83 percent) respondents find it difficult to get the relevant information from the Internet while using their devices. 35 (29.17 percent) respondents report that they are more concerned with the security of the data stored in their devices. 28 (23.33 percent) respondents are concerned about their fundamental human right of privacy. 5 (4.17 percent) respondents expressed their concern about Loss or damage of device. Some students would not like to connect their devices to the University network for fear of being monitored; they take their privacy more seriously.

Table 10. Influence of BYOD usage on Academic Efficiency

Influence	Frequency	Percentage
Use of conventional documents decreased	**9**	**7.5**
Dependency on BYOD increased	**30**	**25.0**
BYOD Expedite research process	**28**	**23.33**
Improved professional competence	**28**	**23.33**
Inspire learning and critical thinking	**25**	**20.83**
Total	**120**	**100**

Source: Field survey (2013)

Table 10 shows the influence of BYOD on academic efficiency of the respondents. 30 (25.0 percent) respondents think that due to the nature of BYOD convenience, anytime and anywhere benefit, dependency on it has increased. 28 (23.33 percent) respondents reveal that BYOD has improved their professional competence. 9 (7.5 percent) respondents reveal that with the advent of BYOD dependency on conventional documents has decreased and 28 (23.33 percent) respondents admit that the BYOD has expedited their research process.

Table 11How are you satisfied with the BYOD services offered by the University under the Info. & Comm. Tech. Division of IIUM?

Satisfaction with BYOD services in IIUM	Frequency	Percentage
Fully	**44**	**36.67**
Partially	**56**	**46.67**
Least satisfied	**15**	**12.5**
No comments	**5**	**4.17**
Total	**120**	**100**

Source: Field survey (2013)

Table 11 shows that only 44 (36.67 percent) respondents feel fully satisfied with the BYOD services, 56 (46.67 percent) partially satisfied, 15 (12.5 per cent) least satisfied and 5 (4.17 percent) have not expressed any opinion regarding the service.

V. CONCLUSIONAND RECOMMENDATIONS

The results of the survey so far revealed that BYOD is an inseparable part of today's educational system. The dependency on BYOD is increasing day by day and the users of IIUM too are depending more and more on the BYOD for their various educational purposes. BYOD has enabled the students to enhance their academic excellence by providing them with the easiest and convenient way to access worldwide information for learning.In order to make the BYOD more beneficial, there is need for the Information Technology Division (ITD) unit of the University to brace up and improve the BYOD services to facilitate the learning process of the numerous students of the University.

This study has concentrated on the most frequent users of BYOD in IIUM. The scope of the study was limited to the International Islamic University Malaysia. Therefore our result is not generalizable, and our sample may not necessarily be fully representative of the entire population of the University.

There is a vast scope for future research in different types of users' behaviour and comparison of users' behaviour and attitudes towards the BYOD.The use of the BYOD is an evolving phenomenon at this stage. Its

use in the University under study still seems to be in a state of infancy or early maturation. We can very well visualize a situation when all the 100% users will have achieved a near perfection in the use of and full dependency on the BYOD for their learning purposes. What kind of fulfillments they then achieve, what kind of problems they come to face and what kind of new demands the system generates in them, will be a matter of far greater interest than it seems today. So still there is a vast scope of future research in different types of users' behaviour and comparison of users' behaviour towards the BYOD.

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