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**USER'S PERCEPTION OF SELF-CHECK SYSTEM AT THE INTERNATIONAL  
ISLAMIC UNIVERSITY LIBRARY, MALAYSIA**

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**ABSTRACT**

Libraries and technology can be said to be intertwined in the 21<sup>st</sup> century. The application of technologies in libraries and their attendant benefits has pushed libraries to become almost dependent on these technologies in order to achieve their objectives. This accounted for the overwhelming literature bound in the area. However, while libraries are so consumed in their efforts to automate, they seem to neglect users' perception, attitude, and opinions towards these technologies. This study is an assessment of the Self-check system at IIUM Library. A survey of 50 respondents was undertaken and the results revealed that generally, users had positive attitude towards Self-check system; satisfied with the services provided by the Self-check system; and that the Self-check system have been cost-beneficial to IIUM Library. The study however found out that users were often frustrated as a result of inadequate self-check stations and malfunction due to old age. Recommendations are provided towards improving the self-check system and the circulation services of IIUM Library in general.

## **INTRODUCTION**

Libraries aim at providing their users the best opportunities to effectively utilize the available resources. Thus, libraries have been seeking technological aids to improve their customer services and management of various services offered or implementing new procedures. Literature has shown that libraries have a lot to gain from adopting modern technologies. Generally however, Berghammer (1995) stated that “Implementation of technology, upgrades and breakthroughs promise better performance, more efficiency, faster service, and less cost”. One area of the library that has always been considered as susceptible for automation is the circulation services, and the current technology available is the Self-check System. Libraries began using self-check machine to replace manual borrowing of library item for easier and faster charge and discharge, inventorying, and materials handling (Nair 1994)).

Self-check System is a Radio Frequency Identification (RFID) technology that allows an item, for example a library book, to be tracked and communicated with by radio waves. RFID is a broad term for technologies that use radio waves to automatically identify people or objects. There are several methods of identification, but the most common is to store a serial number that identifies a person or object, and perhaps other information, on a microchip that is attached to an antenna (the chip and the antenna together are called an RFID transponder or an RFID tag). The antenna enables the chip to transmit the identification information to a reader. The reader converts the radio waves reflected back from the RFID tag into digital information that can then be passed on to computers that can make use of it (Angel 2006).

RFID in library are used in ways including conversion station, staff workstation at circulation, self-check in and out stations, exit sensors, sorter and conveyor and hand-held reader. RFID technology although initially costly to implement, promises, according to (Boss 2003) to provide savings in time, money and labor without diminishing the level of core services provided

## **STATEMENT OF THE PROBLEM**

The rapid development in Information Technology (IT) especially in the 21<sup>st</sup> Century has greatly impacted on libraries and the ways they provide services. Libraries are now more than ever, increasingly depending on technologies to continue to improve on their efforts to provide better and effective services at minimum cost to their users (Boss 2003). One of such technologies deployed to achieve this objective in the International Islamic University Malaysia (IIUM) Library, is the Self-check Machine. This technology was introduced in 2004 with a view to – reduce cost, redeploy staff, reduce staff work loads, and improve circulation services (IIUM Library Manual 2010).

However, since the application of the technology, there was no indication that the Library has conducted an assessment of the project to determine whether or not the above objectives have been achieved especially from the perspective of users. This is very important to the success of the project because as stated by Golding and Tennant (2008) “Libraries user’s attitudes towards the equipment are crucial to the success of self-check, but the majority of libraries had not assessed the users’ reaction to the equipment in-depth if at all. This is an issue that needs to be addressed”.

The researcher has also observed that most self- check machine users experienced delays and frustration associated with mal-function of the machines, coupled with the fact that

only four (4) are installed in the library which is inadequate to cater for the growing number of library users. According to Angel (2006) “the main aim for today's libraries in adopting Self-check system is the need to reduce cost, neglecting users’ perception towards the technology.” This he reiterated is one of the major failures associated with a successful application of self-check machines in libraries. It is in view of the above that this study is undertaken to assess the implementation of Self-check machines in IIUM Library, from the perspective of its users.

### **RESEARCH OBJECTIVES**

The main objectives of the study are:-

1. To determine user’s perception towards Self-check system in IIUM Library.
2. To identify the level of satisfaction derived by users from the services provided by the Self-check system in IIUM Library.
3. To assess the benefits of implementing the Self-check system in IIUM Library

### **RESEARCH QUESTIONS**

The study is guided by the following research questions:-

1. What is the user’s perception towards Self-check system in IIUM library?
2. Are user’s satisfied with the services provided by the Self-check system in IIUM Library?
3. Are the benefits of implementing Self-check system in IIUM library achieved?

### **SIGNIFICANCE OF THE STUDY**

The major objective of this study was to determine user’s perspective of implementing the Self-check System in IIUM Library. The significance of this can be seen from the study’s

contribution to the literature as the first public assessment of the Self-check System in IIUM Library.

Secondly, the findings from the study would provide the management of IIUM Library the necessary information on how their clients perceived their circulation services especially with regards the Self-check System. This would be very significant when the Library is re-evaluating its goals and objectives.

Finally, it is hoped that the findings of the study would lead to improvement of the provision of better and efficient circulation system in IIUM Library and also ensure the satisfaction of the clients' use of the Self-check System.

## **LITERATURE REVIEW**

Technology consists of application of hardware, software, and data transfer technologies that help users perform specific tasks. Technologies in the library building are equally important to provision of quality service. In the words of Rajaram (2003) adequacy or inadequacy of infrastructural facilities in the library is directly related to user's satisfaction or dissatisfaction though this is dependent on financial resources of a library. Technological innovations are introduced to the library with the intention of providing better library service and increasing efficiency of library work (Rubin, 2004). The library profession attracts individuals of varying ages, varying degrees of experience, and a range of technological capabilities, all of which influence the way they perceive new services and technologies. It is the role of librarians to introduce new technologies to library users, instruct in their use, and help patrons recognize meaningful ways to benefit from technologies. Therefore, understanding the attitude of user toward technologies contribute

in planning, introducing, and incorporating technologies success into the library Scigliano (2002).

To meet today's users' needs as well as those in the future, the library must reflect the values of the user while also accommodating new information and technologies and the ways we access and use them. Technologies in libraries are those which relatively untrained users can interact easily. It is so designed that it fits most types of users in a friendly environment. It also connotes as a library which is easy to use, attractive, warm and comforting place which welcomes to use the resources. It is, in other words, providing personalized or in-person help to users of a library. The library, which is still a combination of the past and the present (new technologies), must be viewed with a new perspective and understanding if it is to fulfil its potential to its users (Council on Library and Information Resources Washington, D.C. February 2005).

There was generally a high level of acceptance of self-service among users. Self-service issue definitely reduced queues and waiting times for users, self-service issue can be location-independent, making issue much more convenient for users and enabling a fundamental rethinking of library design. One group of users who are particularly delighted with the system are those who are deaf. They had found a way to use the library without having to make their impairment known to staff. Most people are naturally self-reliant, and the adoption of self-check system within libraries has empowered users to give full expression to the human instinct to do things for one self. Users can now take advantage of 24x7 accesses to circulation services by way of self-issue and return units.



The basic aim of any library is to provide maximum opportunities to its readers for optimum utilisation of available resources. So, libraries have been seeking technological aids to improve their customer services and management of various services offered currently in libraries. When budgets fail to keep pace with use or inflation, less staff is used to do more. Libraries hope that increased use of various technologies can help them to continue to provide the same level of service without increasing staff. (Nwalo 2000) observes that application of technology to library services has brought about tremendous improvement and makes possible more services. Self-check technology is one such tool, which enables library users to borrow and return library material thus potentially allowing libraries to change the way in which they operate, particularly with respect to the roles of their staff. This technology helps libraries reduce valuable staff time spent scanning barcodes while charging and discharging items.(Golding and Tennant 2008).

The purpose of self-check systems in libraries is defined as the provision of a range of unmediated self-check services to library patrons. In other words, patrons should be able to gain access to such services and complete the transactions they select without recourse to library staff. The main motivations for developing self-check systems in libraries are, to lower the workload of staff by the automation of routine processes and thereby to increase the efficiency of library operations, to increase the range of services available to library customers, and to make services more convenient for library customers. Self-Check System although initially costly to implement, promises, according to its supporters, to provide savings in time, money and labour without diminishing the level of core services provided. Implementation of technology, upgrades and breakthroughs promise better performance, more efficiency, faster service, and less cost (Angel 2006).

Most non-librarians still tend to think of library profession as people who (almost exclusively) stamp books, but with the self-check system our library staff no longer issue books as their main activity but are there to provide learning support. This has led to greater respect for library staff especially within the University. Library assistants feel a tremendous sense of pride in their work and in the feeling that they are doing something which (on the whole) is valued and appreciated (Matson and Bonski 1997).

Boss (2003) observed that new technology is of course, very powerful and brings in "an imperialistic thrust" not only into librarianship, but into everyday life. Not surprisingly, the new roles created by the changing technology have commanded attention and have made up a large part of recent literature about librarians. He added that with the resulting proliferation of new technology, librarians have been spurred by technological developments to become more efficient organizers and planners. They have, in short, brought their traditional skills to the service of the new technologies. It is now possible for books and other resources to be tagged with tiny microchips which are activated by a radio query and respond by transmitting a unique identification code. In the context of a library management system, this technology permits the rapid check-in and check-out of items, accurate and regular updating of inventory and the automatic generation of circulation data. The system avoids the need for the user to carefully align the barcode of individual items under the scanner of a conventional self-service unit and allows multiple items to be processed at one time, thereby increasing efficiency and going a long way towards eliminating queues. Users have significant improvements in the loan handling process.

## **RESEARCH METHODOLOGY**

Quantitative research method was adopted for the study. A survey of 50 registered users of the library selected randomly was conducted using a questionnaire. The questionnaire which was designed based-on five-point Likert type was administered directly to respondents at the Self-check station and collected at the spot. This technique proved effective as can be seen in the 100% response rate recorded. The data collected was analyzed using descriptive statistical instruments such as frequency, percentages, tables and graphs.

## **DATA ANALYSIS**

### **Demographic background of respondents**

The breakdown of the 50 respondents who participated in the study indicated that majority of the respondents 32 (64%) were female while 18 representing 36% were male. This distribution shows that females dominated the response to the questionnaire. Information about age was also gathered to determine the age distribution of the respondents. Result of the analysis indicated that majority of respondents 26 (52%) were young adults between the age of 20 – 25 years, followed by the much older adults who are above 30 years making up 21 (42%), while the age group with lowest representation is those between 26 – 30 years who make up only 6% of respondents. The result is further illustrated in Table 1.

The researcher also wanted to find out the distribution of respondents based on their status i.e. how many of the participants were members of staff and how many of the participants were students of IIUM. The result of the analysis presented in revealed that majority of the respondents 37 (74%) was made up of students while the remaining 13 (26%) were

members of staff of IIUM. From this result it can be said that students use the self-check system more frequently than members of staff.

Table 1: Background information of respondents

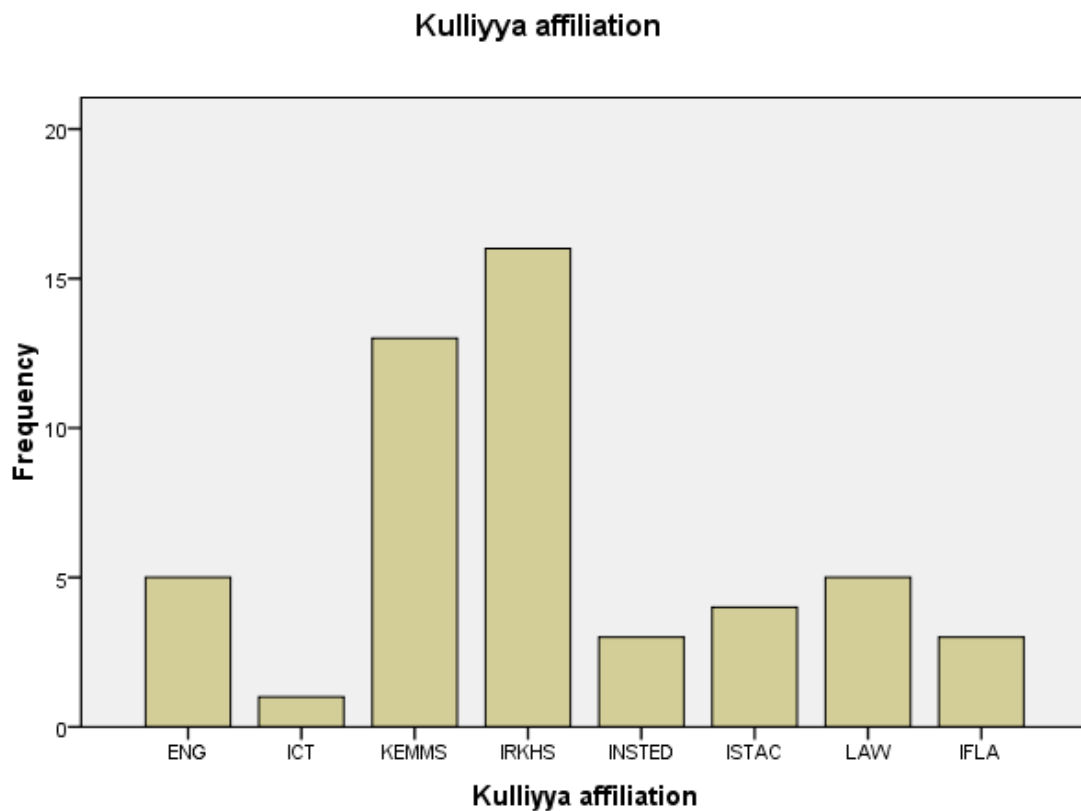
<b>Demographic Factor</b>		<b>F</b>	<b>%</b>
<b>Age (in years)</b>	20-25	26	52
	26-30	3	6
	Above 30	21	42
<b>Gender</b>	Male	18	36
	Female	32	64
<b>Academic status</b>	Staff	13	26
	Student	37	74
<b>Programme registered</b>	Undergraduates	28	48
	Masters	5	10
	Doctorate	8	16

Furthermore, Table 1 also shows that out of the 37 students, 28 (48%) were undergraduates, 5 (10%) enrolled for the master's program, while the remaining 8 (16%) were doctorate candidates. This result is not only an indication that undergraduates constitute the highest number of students in IIUM but also shows that they borrow library materials using the Self-check system more than postgraduate students and staff during this period.

On the issue of affiliation, the student respondents cut across 8 faculties and institutes as follows:- Engineering (ENG) 5 (10%), Information and Communication Technology (ICT)

1 (2%), Economics and Management Sciences (EMMS) 13 (26%), Islamic Revealed Knowledge and Human Sciences (IRKHS) 16 (32%), Institute of Education (INSTED) 3 (6%), Institute of Islamic Culture and Heritage (ISTAC) 4 (8%), Law (AIKOL) 5 (10%), and Institute of Foreign Languages (IFLA) 3 (6%). The result presented in Figure 2 shows that students from IRKHS constituted the majority perhaps because they are closer to the library while ICT was least represented because they are far from the library and probably use the ICT Resource Centre.

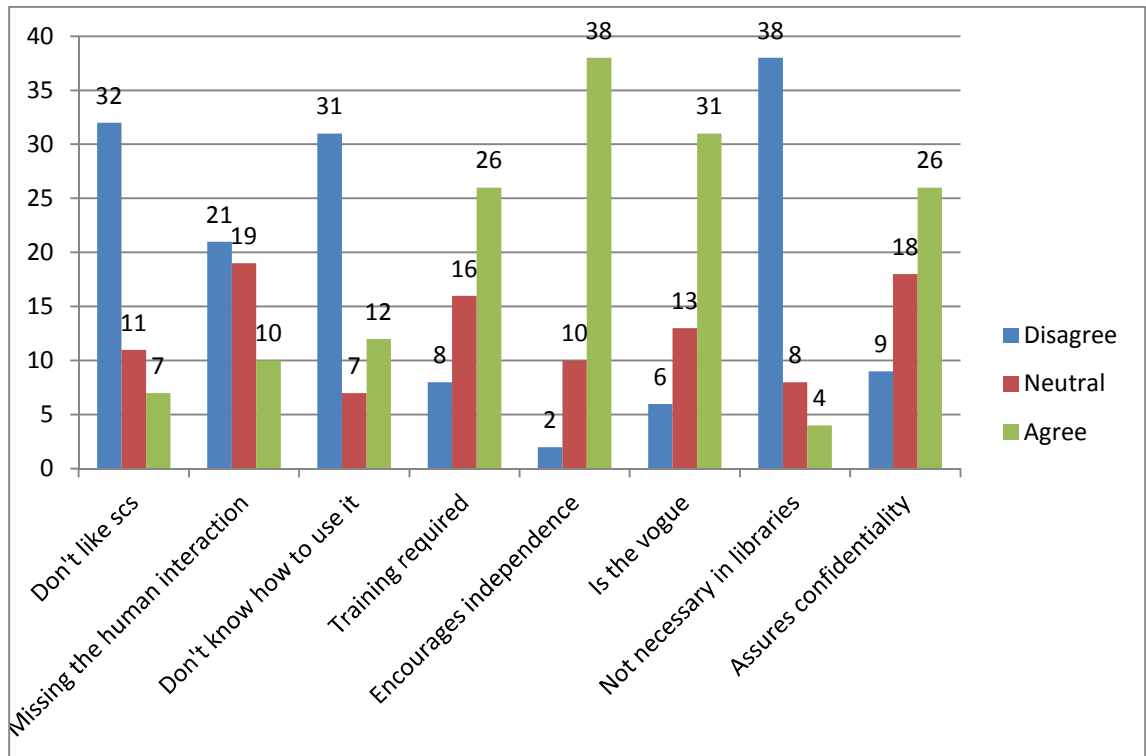
Figure 2: Kulliyaa affiliation of respondents



### Perception towards Self-check system

One of the major objectives of the study was to determine user's perception towards using the Self-check system in the library. Thus, respondents were required to tick the closest response that best describes the statement regarding their perception.

Figure 3: Respondent's Perception of Self-check system



The result of the analysis which is illustrated in Figure 3 shows that the respondents generally have a positive attitude towards the Self-check system. When asked if they don't like the Self-check system, only 7 (14%) agree, 11 (22%) were neutral, while majority 32 (64%) disagreed, indicating that users do like the Self-check system. When asked to state whether they are missing human interaction as a result of using the self-check system, majority of respondents 41 (82%) disagree, 19 (38%) were neutral, while only 10 (20%) agree that using the system has deprived them of human interaction. Respondents were

also asked to state if they don't know how to use the system. 32 (64%) constituting the majority, disagree stating that they know how to use the system, 12 (24%) agree saying they use the system with difficulty while 7 (14%) remain neutral. When asked further to state whether some form of training is required to effectively use the system, majority of respondents 26 (52%) agree that it is necessary, 8 (16%) disagree, and 16 (32%) were neutral.

While responding to a statement that Self-check system encourages independent use of library services, overwhelming majority of respondents 38 (76%) agree, 10 (20%) were not sure, and only 2 (4%) disagreed. When asked to state whether using Self-check system in libraries is a vogue most of the respondents 31 (62%) agree, 13 (26%) were neutral and only 6 (12%) disagree. The researcher also queried whether Self-check system is necessary in libraries, overwhelming majority of respondents 38 (76%) affirmed positively, 8 (16%) were neutral, while only 4 (8%) said it is not necessary. Finally, when the researcher asked if using system assures users of confidentiality 26 (52%) agree, 18 (%) remain neutral and only 6 (12%) disagree.

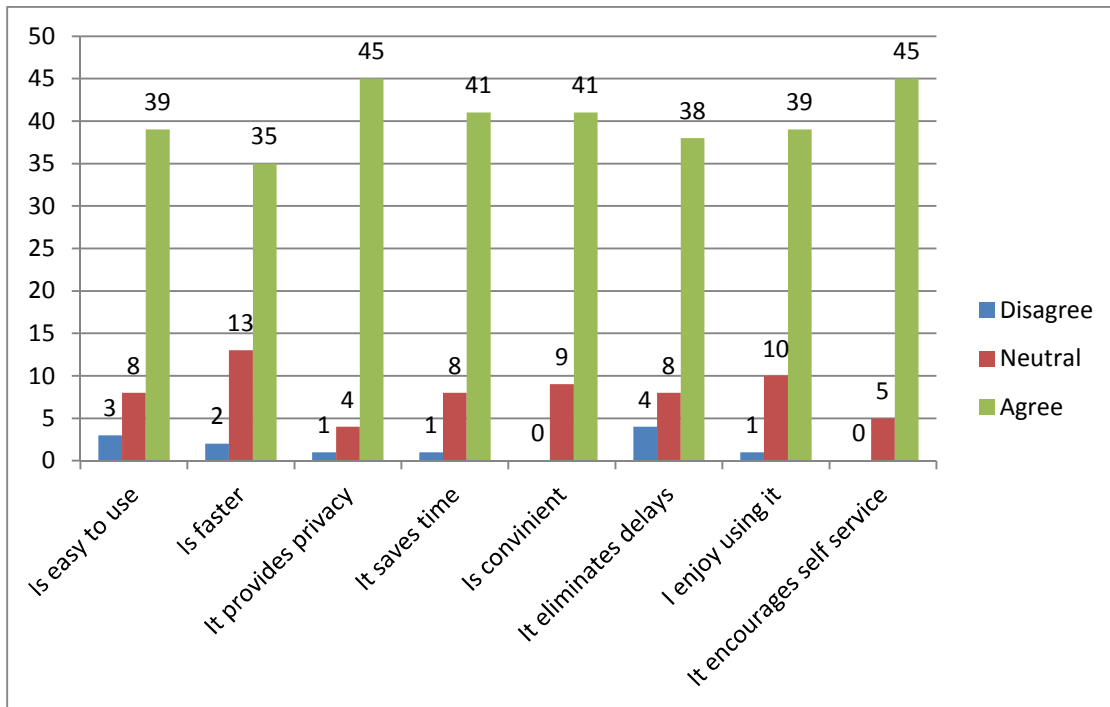
### **Satisfaction derived from using Self-check system**

Another major objective of the study was to determine the level of satisfaction derived by using the self-check system in the library. The result of the analysis as presented in Figure 4 indicated the general satisfaction derived from using the system.

The first option asked was ease of use. The highest percentage of respondents 39 (78%) agree that it is easy to use, 3 (6%) disagree, and 8 (16%) were neutral. When asked to state whether the system is fast, majority 34 (68%) agreed to that, 13 (26%) were neutral, while only 2 (4%) disagreed indicating that the system is slow. Furthermore, 41 (82%) of

respondents agree that using the system saves time, 8 (16%) remain neutral, and only 1 (2%) disagreed. On whether the system ensures privacy, overwhelming majority of respondents 45 (90%) agree, 4 (8%) were neutral, and only 1(1%) said it does not ensure one’s privacy.

Figure 4: Satisfaction derived from Self-check system



In terms of convenience, 41 (82%) of respondents agree that it is convenient to use. When asked if they enjoy using the system, 39 (78%) said they do, 10 (20%) were neutral and only 1 (1%) said they do not enjoy using the system. However, 38 (76%) of respondents agree that using the system in libraries help eliminates delays and an overwhelming majority of respondents 45 (90%) agree that using the system in libraries encourages self-service.

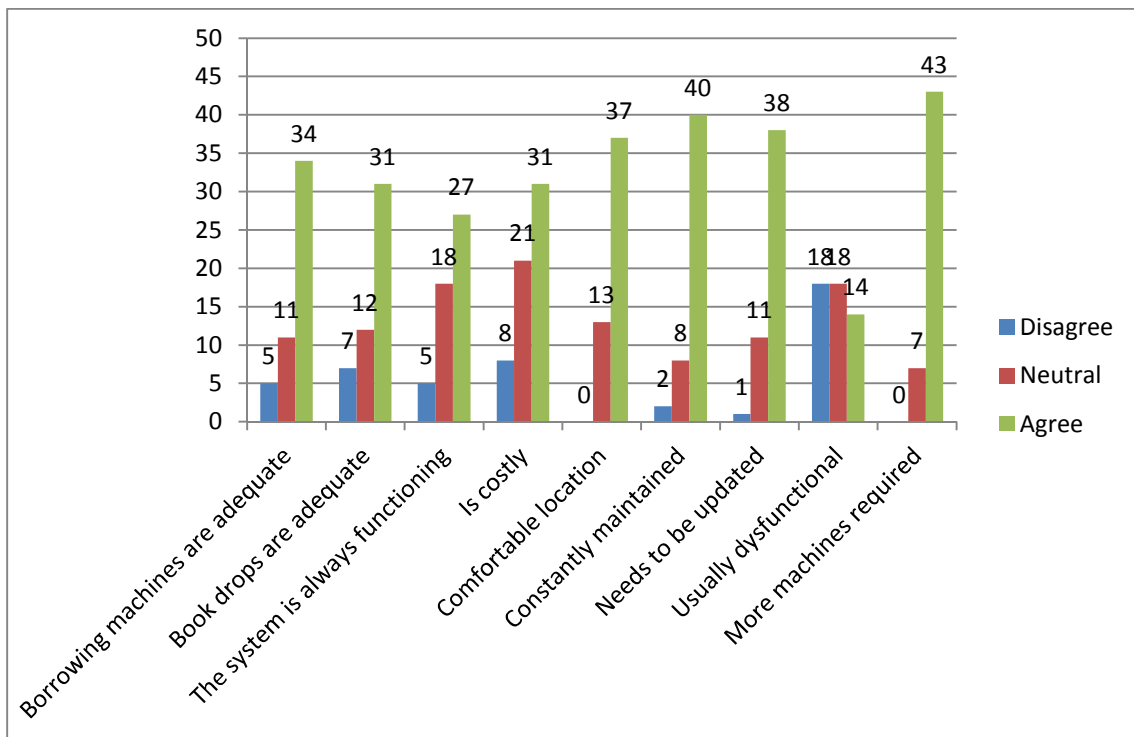


## Assessment of Self-check system

Here the researcher tried to assess the Self-check system in the IIUM library from the user's perspective. When whether the number of self-check machines currently in operation is adequate, most respondents 34 (68%) agree, 11 (22%) were neutral, and only 5 (10%) disagreed. Majority of users 27 (54%) were also satisfied with the functionality of the system while only 5 (10%) were not satisfied.

In terms of cost 20 (40%) agreed it is costly, 21 (42%) were neutral and 8 (16%) disagree. Majority of respondents also agree that the system must be constantly maintained, however most 38 (76%) agree that the system needs to be updated and more Self-check stations created. The results are presented in Figure 5 below.

Figure5: Respondent's Assessment of Self-check system



## **DISCUSSION OF FINDINGS**

From the findings of this study, it can be concluded that majority of respondents used Self-Check System to borrow or returned IIUM Library material. Base on their perception, there was generally a high level of acceptance of self-check among users; the systems move beyond helping librarians reduce valuable staff time spent scanning barcodes while charging and discharging items, to become a distinct service that is very useful for users, such as the ability to return books when the library is closed. Most people are naturally self-reliant, and the adoption of self-check system within libraries has empowered users to give full expression to the human instinct to do things for one self. Users can now take advantage of 24x7 accesses to circulation services by way of self-issue and return units.

Overall, the study found that users are highly satisfied with of Self-Check System. This might be due to the fact that Technologies in libraries are those which relatively untrained users can interact easily, it is so designed that it fits most types of users in a friendly environment and Self-Check System is one of one of such technology. The system is placed in a location that provides independent operation making it much more convenient for users. It definitely reduced queues and waiting times for users, so the system reduces the amount of time required to perform circulation operations

From the results, it is quite clear that Self-check System may be a comprehensive system that addresses both circulation operations and at less cost. Although library services are difficult to measure because their benefits are often intangible, the study revealed that the Self-Check System has been cost beneficial to IIUM Library because of various reasons. The major chosen reasons that have been indicated are productivity gains in using library this is through collecting user estimates of the value of library services. The system

compare to its costs is one of the effective tools in the hand of management for the proper functioning, growth and development of the library. With the self-check system there is reduction of costs for circulation staff or the maintenance of circulation or the maintenance of staff. It also lead to redeploying staff in other areas of the library to provide a variety of patron services, e.g. assisting in the book stack areas, assisting with the online catalogue and internet accessible computers, and providing more instruction to library users. Reduction of staff injury is achieved through reduction in the frequency of repetitive motions used in checking out materials.

### **RECOMMENDATIONS**

1. The Library should be open about its use of Self-Check System including providing publicly available documents stating the rational for using, and associated policies and procedure and who to contact with questions.
2. Signs should be pasted at all facilities using Self-Check System. The signs should inform the public that Self-Check System is in use, the types of usage and a statement of protection of privacy and how this technology differs from other
3. Best practices guidelines should be followed religiously. This will help speed up book borrowing and inventories and frees staff to do more user-service tasks. This will save money and quickly gives a return on investment.
4. Self-Check System must be constantly maintained. It is clear from the study that most of the cost incurred is associated with maintenance of the system, consequently it is recommended that more funds should be allocated for acquiring new and updated systems to replace the old ones.

5. Finally, it is also recommended that more self-check points should be established both within the library and its surroundings to enable users' unhindered access to self-service. Here, it is suggested that a self-check point should at least be created on each level of the library.

## **CONCLUSION**

From the above presentation and discussion of the research findings it can be concluded that IIUM Library users do not only perceive the Self-Check System as beneficial to them, but also gain positive experience in using it. The study has also revealed that self-check system in IIUM Library provides benefit to user at a certain cost to the library, which is identified as costs associated with mainly maintenance, updating and expansion of services. Generally, it can be said that users of the self-check system in IIUM Library have positive attitude towards the system.

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