[POM 4] WASTES EXIST IN LIBRARY SERVICES

Choo Han Yau[1], Lee En Shin[2], Lok Yee Peng[3], Ng Shi Hui[4], Nurul Aimi Saleha Mohd Razali[5] & Azhar Ahmad[6]

[1-6]*School of Technology Management and Logistics, College of Business, Universiti Utara Malaysia, 06010 UUM Sintok, Kedah*
s228104@student.uum.edu.my[1], s228098@student.uum.edu.my[2],
s227488@student.uum.edu.my[3], s228230@student.uum.edu.my[4],
s225718@student.uum.edu.my[5], ah.azhar@uum.edu.my[6]

ABSTRACT

Lean is a philosophy that deals with the waste that exists in between the customers and service providers. Due to its importance, it is highly critical that the study on this field at UUM library is conducted. Referring to the study, this article reflects critical outcomes in view of the following objectives, which are: (1) to identify the agreement level of waste in UUM library and (2) to analyze the issues regarding waste existed in library comparing across all the demographic factors. This study proceeded with the quantitative approach via a survey on 120 of UUM students. The results from the survey that analyzed by SPSS had showed significant differences on the student' perception in view of the variable involved in the study.

Keywords: *lean, waste, library services*

INTRODUCTION

Nowadays, the management types and changes that happen in most of the organizations can be obvious. (Limooni, Esmaeil, Babalhavaeji, & Nooshinfard, 2014) Every organization attempts to change their management style due to the reasons of increased efficiency and reduced cost. Other than private organization, higher educational center as well as universities attempted to improve the performances of all departments according to each department mission by altering the management system. Thereby, according to Oakleaf (2010), libraries which have the status of 'heart of the university' cannot be excluded. According to the 'International Federation of Library Association and Institution (IFLA)', library is a place that people can access and connect all the information, imagination, and ideas. Library also known as a public spaces that able to determine and provide a secure meeting point and sense of community. Meanwhile, the term 'lean' was introduced in the 1980s and it is used to improve the efficiency by reducing those activities that were not involve in the value-adding process while maintain the customer-perceived value. All the activities which are not related to value-adding are considered as waste and must be eliminated according to the lean concept. For the past decades, there are various lean approaches that had successfully improved the productivity in manufacturing industry and other industries. Other than manufacturing, the productivity issues in service industry have long been challenging and there is very little research and information regarding this area and this make the challenges much more difficult to handle (Carlborg et al., 2013). According to Carlborg et al. (2013), service productivity involved both customer satisfaction and efficiency

so it can be very challenging. This is because different services will have different degree of customer participation and demand. The applicability of lean in service industry is vague and it is worth to be explored. Library can also be included in service industry and there are wastes existed in it such as waiting, defect, inventory and so on. In simple words, waiting can be the time taken in receiving service in, defect can be the condition of facility and resources in library, and the inventory can be availability of resources. While lean is often used in eliminating waste, so the implementation of lean in library can effectively solve and produce the problems.

The main objective of the study is to identify and analyse the wastes existed in UUM library.
a) To understand the awareness of wastes existence in UUM library.
b) To identify the agreement level of wastes in view of students' perception in UUM library.

LITERATURE REVIEW

Introduction
Lean is known as a practise that able to reduce and minimise wastes throughout the value streams and at the same time able to enhance better and more value to the customers. According to Arfmann and Federico (2014), lean refers to any processes, steps or resources that do not involved in the creating of consumer value are considered as wastes. Lean is not only being applied in manufacturing industries, but it also had been widely used in non-manufacturing industries (Womack & Jones, 2003).

Arguments of lean services
According to Arfmann and Federico (2014), there are 5 arguments that exist in lean service such as there is no lean service, lean effects in services are misinterpreted, characteristics of services are not properly considered, there is no relevance in service from push to pull and lean service thinking ends in organizational boundaries.

According to Seddon, O'Donovan and Zokaei (2009), there is a fallacy that caused many people to assume that the pattern or model of lean concept created specifically for manufacturing industries can be used in service industries as well. The codified lean concept will subtly change into something distinct if it was found out does not fit within the service industries, but it still known as lean. Moreover, Bicheno and Holweg (2009) had described the differences of 7 types of wastes which occur in both manufacturing and service industries.

The term of inventory in manufacturing and services industry are being interpreted in opposite ways. In simple word, the unnecessary stocks are known as wastes in manufacturing industry while being out of stocks is known as wastes in service industry. (Bicheno & Holweg, 2009) This theoretical level of antilogies or inconsistencies had created barriers in the lean implementation (Pettersen, 2009).

Table 1
Types of wastes in manufacturing and services

7 types of waste in manufacturing	7 types of waste in services
Overproduction of goods not demanded by customers	Duplication like re-entering data, repeating details on forms and similar
Time on hand (waiting) for the next process step, machine, or similar	Delay in terms of customers waiting for service delivery
Transportation of goods that is not necessary to create value	Lost opportunity to retain or win customers by ignoring them, unfriendliness or similar
Processing itself like unnecessary (quality) inspections within the process	Unclear communication with customers or internally leading to clarification circles
Stock on hand (inventory) that are simply waiting for further/future needs	Incorrect inventory being out of stock and hence not able to deliver
Movement of workers that is unnecessary is it does not add value to the product	Movement in terms of handing over orders, queuing customers several times and similar
Making defective products that cannot be sold or have to be reworked	Error in the service transaction including product damages in product-service bundle

Source: from The Lean Toolbox: The Essential Guide to Lean Transformation. Buckingham: Production and Inventory Control, Systems and Industrial Engineering (PICSIE) Books (2009)

Principles of lean service
Taiichi Ohno propagated that the philosophy of lean is based upon the elements which guide towards to 'lean thinking' (Leite & Vieira, 2013). According to Nascimento and Francischini (2004), lean service is considered as a standardizable system in the operation of services that only involve activities that create values to customers, focus on customers' expectation in term of quality and price and explicit tangibles.

Chase and Apte (2007) stated that the lean principles must be improved in term of focusing on low cost customers, applying easy process standardization, co-production and information technology acknowledged by the customers. Womack and Jones (2005) asserted that the important principle in lean service is able to solve customers' problems by providing good services and provide service exactly based on customer expectation and needs at the right time and place.

E-library
Lean concept is not easy to implement in library. Library is also categories in service sector. There are many challenging and training needed for the employees in library if want to implement the lean concept (Baro, 2013). Waste exists in library also. Waste is also called as *Muda*. *Muda* is a Japanese term which means waste also. All the sector includes manufacture sector, service sector, public sector and so on also want to remove or eliminate *Muda* or waste (Suarez-Barraza, 2016).

E-library are being created for this 21-century. Technology change rapidly and make it easier to community to assess the service of e-library. People can search different kind

of resources and borrow it through the internet. The process is fast and waiting time is low. The people who want to use this system is required to have wireless system in the house or else need to go to library already (Egberongbe, 2011). E-library offers different collaborative search of different type of e-resources or on-line resources such as e-database, e-books, e-journals open access available with collaboration, personalization and social features to experience, higher research productivity and gain valuable insights. Many people suggest use e-library as a learning material for education. We call that "E-learning". Community not need spend a lot of money to buy references books because e-library or e-learning have all complete and clear resources which allow community to assess it daily (Eke, 2010).

Lean waste
Lean service is related to the waste in different sector. Wastes not only exist in manufacture sector but also in service sector. There are many ways to eliminate the waste in service sector. Besides that, if the service sector uses lean concept as a guideline, they will find a lot of benefits which can increase the effectiveness and efficiency in the service sector (Gong, 2015). A manager in the service sector needs a proper training if want to implement lean concept in service sector. It is not an easy to implement lean concept in the service sector. The service sector who applies lean concept to eliminate waste required a long time to implement it. All level of managers and employees must involve in this lean concept if the service sector would like to make a change. Service sector needs different instrument to assess the lean concept (Malmbrandt, 2013).

METHODOLOGY

This study is to identify the agreement level of students' towards wastes existed in UUM library. This study proceeded with quantitative path via a questionnaire on: UUM students (120 respondents). The population of this study is defined as all students of Universiti Utara Malaysia (UUM). The sample is drawn from undergraduates of Universiti Utara Malaysia (UUM) ranging from those who are in their first year and above. The sampling frame consists of a list of undergraduate students in their first semester to seventh semester. The samples are drawn from COLGIS, COB and CAS students in UUM. The data collection was done in three weeks from October 2016 until November 2016. The analysis was done by using SPSS version 16 package.

Table 2
Description of variables

No	Variables	Description
1	Offerings	The elements of offerings included facilities and resources of UUM library.
2	Inventory management	The elements of inventory management are barcode system and availability of resources.
3	Processing time	The element of processing time is waiting time to get the service.

Table 3
Mode of analysis

Score	1	2	3	4	5
Rational	Do not have very good experience	Do not have good experience	State of confusion	Have good experience	Have very good experience

FINDINGS AND DISCUSSION

Table 4
Overall result

Variables	Mean score	Rationalization
Offerings	3.06	Respondents perceive satisfied with the offerings in library.
Inventory management	2.88	Respondents do not have good experience with the element.
Processing time	2.63	Respondents unsatisfied with the processing time in library.
Overall	2.86	Respondents did not satisfy the elements in library.

From the Table 4 above, the overall mean of wastes existed in library is 2.86. The offerings in library have the highest mean which is 3.06, which means the respondents moderately agree towards the offering services in library. UUM library unable to offer the resources to fulfil student needs. The mean score for inventory management is 2.88 which is slightly higher than processing time with 2.63.

This indicates that the processing time has the lowest mean score among the 3 variables. The facilities that provided by UUM library is below the requirement of respondents. This can be concluded that the respondents are not satisfied with the overall services provided by library.

Table 5
Male result

Variables	Mean score	Rationalization
Offerings	3.04	Respondents perceive satisfied with the offerings in library.
Inventory management	2.96	Respondents do not have good experience with the element.
Processing time	2.52	Respondents unsatisfied with the processing time in library.
Overall	2.84	Respondents unsatisfied the elements provide in library.

From the Table 5 above, the overall mean of male respondents of wastes existed in library is 2.84. This can be concluded that the male respondents are not satisfied with the overall services provided by library. The mean score of offerings among male respondents in library have the highest score which is 3.04 while the processing time

has the lowest mean score which is 2.52. Meanwhile, the mean score of male respondents for inventory management is 2.96 which is slightly higher than processing time.

This can be concluded that the male respondents feel not really satisfied towards the offerings services in library and they are not satisfied with the inventory management and processing time in the library.

Table 6
Female result

Variables	Mean score	Rationalization
Offerings	3.08	Respondents perceive satisfied with the offerings in library.
Inventory management	2.81	Respondents do not have good experience with the element.
Processing time	2.75	Respondents unsatisfied with the processing time in library.
Overall	2.88	Elements in library unable to fulfil the respondent's want.

From the Table 6 above, the overall mean of female respondents of wastes existed in library is 2.88. This can be concluded that the female respondents are not satisfied with the overall services provided by library. The mean score of offerings among female respondents is the highest which is 3.08. The female respondents seems like not really agree with the offerings service of UUM library. The mean score of female respondents for inventory management is 2.81 which is slightly higher than processing time with 2.75.

This indicates that the processing time has the lowest mean score among 3 variables. This can be concluded that female respondents feel satisfy towards the offerings services in library compare to the processing time in library.
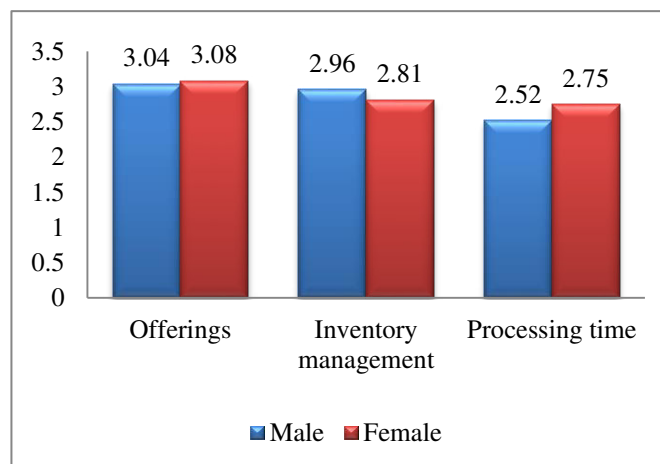
Figure 1
Comparison among male and female

The figure above is the comparison of mean score about the 3 variables between male and female respondents. For offerings services, the mean score for male is 3.04 while

854

the mean score for female is 3.08 which is slightly higher than male. Next, the mean score for inventory management for male is 2.96 while the mean score for female is 2.81, which is lower than male. Furthermore, the mean score for processing time for male is 2.52 while the mean score for female is 2.75, which is higher than male. This can be concluded that the:

1) Both groups of respondents perceptual seem to be homogenous with the offerings provide by the library.
2) Male slightly satisfied to the inventory management in library compare to female although both mean scores are slightly below the moderate agreement level.
3) Male is not satisfied with the processing time in library services compare to female.

CONCLUSION

In short, the objectives of this paper are to identify the agreement level of waste in UUM library and to analyse the issues regarding waste existed in library comparing across all the demographic factors. The variables that used to determine the wastes existed in UUM library are offerings, inventory management and processing time. Based on the results, it shows that all the 3 variables are critically related to the students that used the library. Nowadays, most of the users had changed their perception towards services provided by service providers. Different users will have different perception towards the services that they received. So, UUM library can use and develop different strategies in providing services to users and to identify the problems.

REFERENCES

Arfmann, D., & Federico, G. T. (2014). The Value of Lean in the Service Sector: A Critique of Theory & Practice. *Journal of Business and Social Science, 5*(2), 18-25.

Baro, E. E. (2013). E-library Services: Challenging and Training Needs of Librarians in Nigeria. *OCLC Systems & Services: International digital library perspectives, 29*(2), 101-116.

Bicheno, J., & Holweg, M. (2009). The Lean Toolbox: The Essential Guide to Lean Transformation. *Buckingham: Production and Inventory Control, Systems and Industrial Engineering (PICSIE) Books*.

Carlborg, P., Kindstrom, D., & Kowalkowski, C. (2013). A Lean Approach for Service Productivity Improvement: Synergy or Oxymoron? *23*(4), 291-304.

Chase, R. B., & Apte, U. M. (2007). A History of Research in Service Operations: What's the Big Idea? *Journal of Operations Management, 25*(2), 375-386.

Egberongbe, H. S. (2011). The Use and Impact of Electronic Resources at the University of Lagos. *Library Philosophy and Practice 2011*.

Eke, H. N. (2010). The Perspective of E-Learning and Libraries in Africa: Challenges and Opportunities. *Library Review, 59*(4), 274-290.

Gong, Y. (2015). Demystifying the Benefits and Risks of Lean Service Innovation: A Banking Case Study. *Journal of Systems and Information Technology, 17*(4), 364-380.

Leite, H. D., & Vieira, G. E. (2013). Lean Philosophy and Its Applications in the Service Industry: A Review of the Current Knowledge.

Limooni, S., Esmaeil, S. M., Babalhavaeji, F., & Nooshinfard, F. (2014). Lean Management Model in Academic libraries of Iran. *Bulletin of Environment, Pharmacology and Life Sciences, 3*(3), 242-250.

Malmbrandt, M. (2013). An Instrument for Assessing Lean Service Adoption. *International Journal of Operations & Production Management, 33*(9), 1131-1165.

Oakleaf, M. (2010). *Value of Academic Libraries: A Comprehensive Research Review and Report.* Chicago: Association of College and Research Libraries.

Pettersen, J. (2009). Defining Lean Production: Some Conceptual and Practical Issues. *The TQM Journal, 21*(2), 127-142.

Seddon, J., O'Donovan, B., & Zokaei, K. (2009). Rethinking Lean Service. *Management Services*, 1-22.

Suárez-Barraza, M. F. (2016). In Search of "Muda" Through the TKJ Diagram. *International Journal of Quality and Service Sciences, 8*(3), 377-394.

Womack, J. P., & Jones, D. T. (2003). *Lean Thinking: Banish Waste and Create Wealth in Your Corporation.* New York: Free Press.

Womack, J. P., & Jones, D. T. (2005). Lean Consumption. *Harvard Business Review, 83*(3), 58-68.