THE STUDY OF DEMAND USING WMS SOFTWARE FOR WAREHOUSE MANAGEMENT SYSTEM IN LOGISTICS LABORATORY.

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ABSTRACT

This research aim to develop the Process of using WMS software for warehouse management system in logistics laboratory of the College of Logistics and Supply Chain in Suan Sunandha Rajabhat University where is used for students to use as a learning resource in the real working in warehouse. The logistics laboratory is a simulation of work within the warehouse. Inventory characteristics and complete retail operation. But now the WMS software in the logistics laboratory is not fully functional. This research therefore needs to study the need to use the WMS software to develop a logistics laboratory to be fully functional by studying the needs of the software of personnel and students within College of Logistics and Supply Chain, Suan Sunandha Rajabhat University. The purpose of this research is to survey and analyze the personnel and students data of College of Logistics and Supply Chain, Suan Sunandha Rajabhat University in using WMS software and to increase the efficiency of warehouse management in the logistics laboratory. The samples used in this research were Personnel and students within College of Logistics and Supply Chain in a total of 100 people. The research instruments were questionnaires which tested confidence by finding the alpha coefficient of Cronbach. Determination of frequency, percentage and standard deviation were used in data analysis. The results of this research can be analyzed using the warehouse management system of the sample group as a whole at a high level. Also the sample group are different with gender, age, education level and work experience. There are different learning methods for using WMS.

Keyword: WMS software, Warehouse, Warehouse management

INTRODUCTION

Warehouses are important strategic of supply chains. Apart from being the storage for selling or storage raw materials for production in order to prevent short-term supply and demand changes. Warehouse can also add value to the product. Such as a place to stay and collect product from many sources to save on shipping costs. Also the place to store products before delivery to customers. Now, businesses are focus on respond to the needs of customers under a lot of limitations. Warehouses are therefore a strategic connection point between manufacturers and customers or consumers. So, the efficient warehouse management is an important factor that helps to increase the market competition.

At the moment, businesses in Thailand use information technology widely, due to rising labor costs and the need to integrate information from customers. Many large organizations in Thailand are aware of these changes and realize the importance of

warehouses. They have upgraded their warehouse by using the Warehouse Management System (WMS). Which is an information technology system used to assist in warehouse management, both in the storage and management within the warehouse. Warehouse Management System (WMS) is a warehouse management model that integrated information technology and related equipment to receive products, storage products and delivery products by focusing on physical management and work process control which can reduce the number of employees, documents, data collection and analysis and resource planning.

College of Logistics and Supply Chain, Suan Sunandha Rajabhat University is also an organization that provides academic services and various research on logistics and supply chain for produce and develop the professionals with logistics and supply chain skills that meet the needs of the establishment and keeping up with the changes in the world economy. According to vision of the college, being the model of college in logistics for training and development professional practitioners to meet the goal of college development, The college to focuses on studying in the classroom together with practical or practical use. So, after graduated from the college, the student can work immediately. The study of demand using WMS software for warehouse management system in logistics laboratory to solving problems of WMS software within the current logistics laboratory that are not available. The researcher has the idea to develop the process of using the warehouse management system in the logistics laboratory to be able to be used by teachers and students to use the warehouse management software (WMS) within the logistics laboratory. In the teaching and learning management at full capacity so that students can learn and apply to work in the future.

OBJECTIVE

1. To develop the process of using the warehouse management system in the logistics laboratory

2. To be able to use the warehouse management system in the logistics laboratory for teaching and learning

METHODOLOGY

Population and sample groups

The population and sample groups in the study of this research is the study of demand using WMS Software for warehouse management system in Logistics Laboratory. The researcher used samples from the professors and students taught in the warehouse management course and use the logistics laboratory for teaching and learning 100 people. The researcher has specified the scope of the research to cover the problems and objectives of the study can be explained as follows.

1. Scope of population and sample groups in the study of this research is the study of demand using WMS Software for warehouse management system in Logistics Laboratory. The researcher used a sample of 100 teachers and students who have taught in the warehouse management course and used the logistics laboratory in the teaching and to learning management to explore the warehouse management program that users need.

2. Variable scope is a personal identifier of the sample, that is the professors and students who are teaching in the warehouse management course and use the logistics lab in the teaching and learning management.

3. Location scope to study was conducted at the Logistics Laboratory. College of Logistics and Supply Chain, Suan Sunandha Rajabhat University, Nakhon Pathom Province Education Center.

4. Time scope during October 2018 to july 2019.

The research tools

The research tools used in this study was a questionnaire. The researcher prepared according to the objectives of the study by using close-ended questions. To collect data in questionnaires to prioritizing the content and importance level of the questionnaire cover the information that needs to be study. Part 1 of the questionnaire is the personal information of the respondents consisting of 5 items (gender, age, education, career and work experience). The question is a close-ended question, able to choose to answer in truth, can be explained as follows

1. Gender use nominal scale
2. Age use ordinal scales
3. Education use ordinal scales
4. Career use nominal scale
5. Work experience use nominal scale

Part 2 is a questionnaire about factors related to Warehouse Management Software (WMS). There are 3 big topics as follows

1. Awareness of the use of Warehouse Management Software (WMS).
2. Awareness of the benefits of Warehouse Management Software (WMS).
3. User expectations for Warehouse Management Software (WMS).

Research framework

The study use 5 levels of rating scale according to the gauge of Likert rating scale. In measuring the opinions of the factors that affect the development of the warehouse management system in the logistics laboratory by applying the Warehouse Management System (WMS). With the following rating levels.

5 = most   4= well   3 = medium   2= few   1= lowest

RESULTS

Information received from the questionnaire.

1. Personal data of respondents is a collection of general basic information of personnel within the College of Logistics and Supply Chain, Suan Sunandha Rajabhat University. The detail information from the questionnaire can be shown in Table 3.1.

Table 3.1 General information of a sample of personnel within the College of Logistics and Supply Chain.

General information of samples of personnel within the College of Logistics and Supply Chain.	frequency	percent
1. gender		
male	45	45
female	55	55
total	100	100.00
2. age		
lower 20 years	70	70
20 - 30 years	2	2
31 - 40 years	20	20
41 years up	8	8
total	100	100.00

3. education		
lower than Bachelor's Degree	68	68
Bachelor's Degree	2	2
Master's Degree	28	28
upper Master's Degree	2	2
total	100	100.00
4. career		
teacher	30	30
student	70	70
total	100	100.00
5. work experience		
less than 2 years	70	70
3 - 6 years	11	11
7 - 10 years	15	15
11 - 14 years	2	2
more than 15 years	2	2
total	100	100.00

From Table 3.1 The general data from the sample of personnel in the College of Logistics and Supply Chain, Suan Sunandha Rajabhat University. The most of the samples are female 55 persons, Accounted for 55 % and male 45 persons, Accounted for 45 %

Age from the sample of personnel in the College of Logistics and Supply Chain, Suan Sunandha Rajabhat University. The most of the samples are lower than 20 years. It is 70 people from all, accounted for 70 %. Second, the age between 31 - 40 years which is 20 peoples, accounted for 20 %. Third, the age more than 41 years are 8 people, accounted for 8 %. And fourth, the age between 31 - 40 years are 2 peoples, accounted for 2 %.

Education level from the sample of personnel in the College of Logistics and Supply Chain, Suan Sunandha Rajabhat University. The most of the samples are lower than bachelor's degrees 68 peoples, accounted for 68 %. Second, the education in Master's Degree are 28 peoples, accounted for 28 %. Third, the education in bachelor's degrees and upper Master's Degree are 4 peoples, accounted for 4 %.

All the questionnaires from the sample of personnel in the College of Logistics and Supply Chain, Suan Sunandha Rajabhat University are 100 peoples. Divided into 30 professors and 70 students. The most of the samples have work experience lower than 2 years that are 70 peoples, accounted for 70 %. Second, the samples have work experience between 7 – 10 years that are 15 peoples, accounted for 15 %. Third, the samples have work experience between 3 – 6 years that are 11 peoples, accounted for 11 %. And fourth, the samples have work experience between 11 – 14 years and more than 15 years of work experience are 4 peoples, accounted for 4 %.

2. Information about factors related to Warehouse Management Software (WMS). including, Awareness of the use of Warehouse Management Software (WMS), Awareness of the benefits of Warehouse Management Software (WMS) and the expectations of users towards the Warehouse Management Software (WMS). The data obtained from respondents in the College of Logistics and Supply Chain, Suan Sunandha Rajabhat University. There are categorization of data interpretation results as follows.

Average between mean 4.51 - 5.00 there is a comment level "most"
Average between mean 3.51 - 4.50 there is a comment level "well"

Average between mean 2.51 - 3.50 there is a comment level "medium"
Average between mean 1.51 - 2.50 there is a comment level few
Average between mean 1.00 - 1.50 there is a comment level lowest

The results of the perception analysis for use the Warehouse Management Software (WMS) can be shown in Table 3.2.

Table 3.2 The results of the analysis on the realization of the use the Warehouse Management Software (WMS).

Awareness of the use of Warehouse Management Software (WMS)	Average	Level Comments
1. How much do you know about Warehouse Management Software (WMS)?	2.95	medium
2. How much do you know about the benefits of Warehouse Management Software (WMS) about logistics teaching?	3.39	medium
3. How much do you know the process for using the Warehouse Management Software (WMS)?	3.29	medium
4. The process for using the Warehouse Management Software (WMS) are clear. Is it easy to understand?	3.90	well
5. How much do you know about Warehouse Management Software (WMS)?	2.91	medium
6. How much do you know the equipment related to Warehouse Management Software (WMS)?	2.88	medium
7. How much have you heard or heard about the Warehouse Management Software (WMS)?	3.71	well
Total average	**3.29**	**well**

From table 3.2 the results of the analysis on the realization of the use the Warehouse Management Software (WMS). "The process for using the Warehouse Management Software (WMS) are clear, it easy to understand" is a well level. its mean equal to 3.90 and "How much have you heard or heard about the Warehouse Management Software (WMS)" have mean equal to 3.71. Next, "how much do you know about Warehouse Management Software (WMS)" have mean equal to 2.95, "how much do you know about the benefits of Warehouse Management Software (WMS) about logistics teaching" have mean equal to 3.39, "how much do you know the process for using the Warehouse Management Software (WMS)" have mean equal to 3.29, "how much do you know about Warehouse Management Software (WMS)" have mean equal to 2.91 and "how much do you know the equipment related to Warehouse Management Software (WMS)" have mean equal to 2.88 are comment level medium.

Information about the factors relating to the Warehouse Management Software (WMS) regarding the results for benefits analysis of the Warehouse Management Software (WMS) can be shown in Table 3.3.

Table 3.3 The result for benefits analysis of the Warehouse Management Software (WMS).

Awareness of the benefits of Warehouse Management Software (WMS)	Average	Level Comments
1. How much Warehouse Management Software (WMS) can be applied to teaching and learning?	3.67	well
2. Can be using the Warehouse Management Software (WMS) helps to understand the course content better.	3.63	well
3. How much Warehouse Management Software (WMS) can be applied to traditional teaching methods?	3.81	well
4. The use of Warehouse Management Software (WMS) helps teaching efficiency.	3.81	well
5. Warehouse Management Software (WMS) helps to understand the real work process more.	4.31	well
6. Overall, how useful is the Warehouse Management Software (WMS)?	4.53	most
7. The use of Warehouse Management Software (WMS) helps to work faster.	4.30	well
8. Using the Warehouse Management Software (WMS) helps to get accurate results.	4.91	most
Total average	**4.12**	**well**

Table 3.3 the result for benefits analysis of the Warehouse Management Software (WMS). "Overall, how useful is the Warehouse Management Software (WMS)" is a well level have Mean equal to 4.53 and "using the Warehouse Management Software (WMS)" helps to get accurate results is a well level have Mean equal to 4.91. Next, "how much Warehouse Management Software (WMS) can be applied to teaching and learning" have mean equal to 3.67 and its comment level is well. "Can be using the Warehouse Management Software (WMS) helps to understand the course content better" have mean equal to 3.63 and its comment level is well. "How much Warehouse Management Software (WMS) can be applied to traditional teaching methods" have mean equal to 3.81 and its comment level is well. "The use of Warehouse Management Software (WMS) helps teaching efficiency" have mean equal to 3.81 and its comment level is well. "Warehouse Management Software (WMS) helps to understand the real work process more" have mean equal to 4.31 and its comment level is well. The use of Warehouse Management Software (WMS) helps to work faster have mean equal to 4.30 and its comment level is well.

Information about the factors relating to the Warehouse Management Software (WMS) regarding the results of user expectations of the WMS warehouse management program can be shown in Table 3.4.

Table 3.4 The results of user expectations on the Warehouse Management Software (WMS).

Expectations of users towards the Warehouse Management Software (WMS)	Average	Level Comments
1.The Warehouse Management Software (WMS) within the logistics laboratory can be used for a complete range from product receipt to storage of products up to the delivery of goods.	4.23	well
2.The Warehouse Management Software (WMS) in the logistics lab is a virtual program. When going to work, can use the warehouse management program in the workplace.	3.97	well
3.You expect that the Warehouse Management Software (WMS) in the logistics laboratory is an international standard.	3.89	well
4.How much do you want to use the Warehouse Management Software (WMS) for teaching and learning?	3.95	well
5.You agree that the Warehouse Management Software (WMS) is used for teaching and learning management.	4.51	most
6. You agree to use the Warehouse Management Software (WMS).	4.64	most
Total average	**4.20**	**well**

From table 3.4 the results of user expectations on the Warehouse Management Software (WMS). "You agree that the Warehouse Management Software (WMS) is used for teaching and learning management" have mean equal to 4.51 and its comment level is most. "You agree to use the Warehouse Management Software (WMS)" have mean equal to 4.64 and its comment level is most. Next, "The Warehouse Management Software (WMS) within the logistics laboratory can be used for a complete range from product receipt to storage of products up to the delivery of goods" have mean equal to 4.23 and its comment level is well. "The Warehouse Management Software (WMS) in the logistics lab is a virtual program. When going to work, can use the warehouse management program in the workplace" have mean equal to 3.97 and its comment level is well. "You expect that the Warehouse Management Software (WMS) in the logistics laboratory is an international standard" have mean equal to 3.89 and its comment level is well. "How much do you want to use the Warehouse Management Software (WMS) for teaching and learning" have mean equal to 3.95 and its comment level is well.

CONCLUSION AND FUTURE WORK

The study indicated that

1. Most of samples were female and lower than 20 years. Studying Bachelor degree level, have work experience lower than 2 years.

2. From the questionnaire, the sample needs to use the Warehouse Management Software (WMS) in the logistics laboratory that has developed to be able to use completely according to international standards.

3. From the questionnaire, the results of the analysis on the realization of the use the Warehouse Management Software (WMS) have mean equal to 3.29 that comment level is well.

4. From the questionnaire, The result for benefits analysis of the Warehouse Management Software (WMS) have mean equal to 4.12 that comment level is well.

5. The results of user expectations on the Warehouse Management Software (WMS) have mean equal to 4.20 that comment level is well

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