ESTABLISHMENT FEASIBILITY OF R.F.I.D SYSTEM IN LIBRARIES OF MAZANDARAN MEDICAL SCIENCE UNIVERSITY

PARVIZ NASEHI [1], SAFIYEH TAHMASEBI LIMOONI[2*]

1, 2: Department of Knowledge and Information Science, Babol Branch, Islamic Azad University, Babol, Iran

*Author for Correspondence: Sa.tahmasebi2@gmail.com

ABSTRACT

The aim of this study is to Establishment feasibility of R.F.I.D system in libraries of MAZANDARAN medical science universities from the viewpoint of staff.

This applied study is in survey-analytical method. Statistical population of this survey, includes all 66 members of library staff of SARI and BABOL medical science universities. Questionnaire research tool is pre-made and previously was used by DOLATABADI (2010). And its validity is based on Cronbach's alpha 0/7. Data were analyzed using descriptive statistics and Kolmogorov-Smirnov test, T-single sample, T-Student, and Friedman tests. Among variable factors, knowing the technology of R.F.E.D, The highest use of this technology (RFID) was on factor "using R.F.I.D in library management (3/74). Among variable factors of initial costs, the most effective factor was "relationship in lack of using the R.F.I.D with expenditures" (3/35). Among variable factors of set size, the most effective factor was "impact of RFID systems in large libraries" (4/12). Among variable factors of software facilities, most effective factor was "system management of trust with library software" (3/56). Among the variable factors of reducing the costs, the most effective factor was "saving in employing manpower with RFID technology" (3/74). The familiarities of the library staff of MAZANDARAN Medical Science Universities, the initial costs of using RFID technology and the software facilities, used in libraries MAZANDARAN medical science universities were in average. Set size of libraries of Medical Science Universities and the role of RFID system in reducing the costs were higher than the average.

Key words: Feasibility, Radio Frequency Identification, RFID Technology

INTRODUCTION

Importance and validity of every institution, mostly depends on existence of its active libraries. And without library can`t continue for the activity. library as educational and research arm in university centers, by providing information center sand putting them in to the circulation, causes the intellectual richness of academic community [1],Efficient university libraries, whether in case of human force or in case of presenting service and using the new technology, is the support leverage for higher education programs and aligned with growth of university libraries, the education will also grow [5],Main role of a university library is to provide backup information for professors and students. Library has to provide information bases for personal needs of the students and masters and also access facilities to foreign information resources by the education society. And also provide information needed for current programs and future plans [14].

Development of information resources and rapid growth of information and communication technologies, provided the new phenomena in the context of scientific life and its institutions such as universities and research organizations. Available information resources in the libraries are

prepared, organized and are made ready to use with lot of expenditure. maintenance frame, trust and said resource services requires the necessity of security issue in libraries and information centers, libraries of Iranian universities are considered to be higher education institutions and always mother organizations are allocating the significant capital for the development of the resources to libraries. Technology development in these centers are considered to be the first goals of the organizations. Therefore various aspects of security system establishment with the help of technology in these libraries are to be justified [10],In the few recent decades, the application of the electronic devices and information technology, to increase the accuracy and speed in doing the works has been widespread and with passing the time and developments, alternately the emerging of technologies and systems with improved functionality, more better than past is provided. Hence, university libraries should be more in line with the new technologies and better coordination to be able to serve their own user community in better ways [3].

Over the past few years, a new technology called the RFID (Radio Frequency Identification), due to its superior benefits in

compare with the other technologies, is in great attention and now in the globe, majority of the identification systems, are designed and implemented with using this technology [11],Technological advances have lead the rapid use of R.F.I.D in many commercial applications such as supply chain management, logistic and transfer [15],and this technology, became quickly a key and effective technology in industry field and today`s services. and is considered to be a revolution in identification of bodies [10],Identification with radio waves is improved technology which has become alternative to the barcode. Tag can`t be read by eyes and is readable by reader tool from behind of the book`s cover. Tags can store more information compare to the barcodes. And are not limited to the recovery numbers. by using this system, customers will receive library materials automatically, ease to receive materials, and will get high benefit from advanced situation of library`s customer services. Library staff will have more time to help customers and will not have any kind of time consumption work and repeatable in relation to delivery of books and other items [8], in this field, [9],in his research, verified the use of identification system with radio frequency in Indian law institute library and national

library of documents and science in new Delhi and showed that, after completing the RFID system in both the libraries, the input and output times decreased to less than 20 seconds per minute, and use of libraries by referring members, increased largely. As a result, using this system, duration of library resources loan, is decreased. [16],also verified the technology use of RFID in central library of P.E.C technology and Science College in CHANDIGARH city in north India. his research findings represents an accurate picture of how the RFID system works as an effective guide in libraries and as a result, we can observe high trust factor, high speed, access and automatic mobility of materials and books.

in the year 2013, DWIVEDI, and others verified the effective factors on using the systems based on identification with radio frequency (RFID) and satisfaction of users in India, their research findings also showed that, if technology services quality of RFID is suitable, will lead to increase of using the identification technology with radio frequency (RFID). And as a result, satisfaction of users will be increased. Thus, according to the background and previous researches, we can say, with establishment of identification technology by radio frequency in a library, highest possible

facilities in all fields for management of the library affairs will be provided and quality and quantity growth in different dimensions of strategy and library services will be justified [2],Therefore, with attention to the previous matters, the present research will discuss the available facilities in libraries of MAZANDARAN medical science universities, for establishment of RFID system.

Profit and importance of research:

the growing information needs of the academic community and more rapid access necessity to proper information, creates a need to verify the use of new tools including the identification technology by radio frequency in the libraries [2],The most important factors for using the RFID technology in libraries, inefficient use of educated librarians, long lines of input and output, lost books or misplaced books and [13],Exponential growth and importance of critical information, necessity to save in costs, time of users and ineffectiveness of traditional methods, all said factors have forced the libraries and information centers to have a greater and more rapid move toward mechanism (DOLATABADI, 2010). The results of this research can provide useful data for decreasing the present problems in the field of management

improvement and library control in universities. libraries of MAZANDARAN medical science universities, are not exempted from this rule and also as pioneer in the field of science and technology, are undertaking the training and education of an important section of country`s medical science experts and are responsible for monumental task of providing services to this part of country`s scientific community. Therefore, we expect, this library, plays a leading role in using the new technologies, especially RFDI technology to present better and more services to its users. and also, results of the present research can recognize and identify the problems and existed difficulties in libraries of MAZANDARAN state medical science universities, such as lack of human force, high labor costs, high volume of books displacement for arranging them in terms of time and budget, increase in theft of library materials, entry and exit control of members, difficulty in inventory listing of library resources, long lines to deliver the books and difficulty in shelves reading. And with presenting some solutions on discussed problems are helping and finally increase the quality of presenting the services to the users with minimum time and cost and this means: efficient use of librarians from time, resources and cost.

MATERIALS AND METHODS

The present research is of analyze-survey and applied type. Statistical population of this study includes all library staff of BABOL and SARI Medical Science Universities (consisted of colleges and hospitals), who are 66 persons. In this research, due to limitation of statistical society, we used sampling by the method of census. To gather the information we used the pre-made questionnaire of DOLATABADI (2010), entitled: Establishment feasibility of R.F.I.D system in libraries of science ministry universities. In the present research, to evaluate the reliability, we used CRONBACH` alpha coefficient. If the value of CRONBACH` alpha coefficient is greater than 0/7, indicates that, discussed questions are validated. And in this survey in all cases, this value is greater than 0/7, which indicates the high validity of the questionnaire. in order to analyze the data, we used the S.S.P.S software, edition 22, and in the level of descriptive statistics, frequency, percentage of frequency, average and criteria deviation and in the level of analyze statistics, we used KOLMOGOROV-SMIRNOV test, to verify the normality of data, and to verify the research theories, we used T- test one

sample, T-student and for classification of variables, we used FRIEDMAN test.

RESULTS

According to the findings of the research, 37/88 of responders were male and 62/12 percent of them were female. Education course of 72/73 percent of responders was librarianship and 27/27 percent of them was not librarianship. Education of majority of responders was degree (54/55%) and least of them was doctorate. this means that majority of librarians, working in libraries of MAZANDARAN medical science universities are women. and also most of them have librarianship degree and information degree which related to their job.

To continue the issue, we are expressing and verifying the questions and theories of the research:

First theory: between familiarity level of staff libraries of MAZANDARAN medical science Universities and RFID system with medium level. There is a significant relationship.

To verify the familiarity level of staff libraries of MAZANDARAN medical science universities and RFID system with medium level, average gained score with medium level of (3) was compared.

We can state the above theory as follow:

$:H_o:$ Between familiarity level of staff libraries of MAZANDARAN Medical Science Universities and RFID system with medium level. There is no significant relationship.

$:H_1:$ Between familiarity level of staff libraries of MAZANDARAN medical science Universities, and RFID system with medium level, there is a significant relationship.

To perform this test, we used the one sample T-student. Related result for this test is given in (table 1).

With attention to table (1), significance level of test is bigger than 0/05 (0/274). Therefore, in the confidence level of 95 percent, research hypothesis is rejected and null theory is accepted. In other words, between familiarity level of staff libraries of MAZANDARAN medical science universities and RFID system with medium level, there is a relationship.

Second theory:

Between initial costs of implementing the RFID technology in libraries of MAZANDARAN medical science universities with medium level, there is a significant level.

To verify the initial costs of implementing the RFID technology with medium level in libraries of MAZANDARAN medical science universities, the average gained scores was compared with middle level of (3).

We can state the above theory as follow:

$:H_o:$ Between the initial costs of implementing the RFID technology with medium level in libraries of MAZANDARAN medical science universities, there is no significant relationship.

$:H_1:$ Between the initial costs of implementing the RFID technology with medium level in libraries of MAZANDARAN medical science universities, there is a significant relationship.

To perform this test, we used the one sample T-student. Related result for this test is given in (table 2).

With attention to table (2), significance level of test is bigger than 0/05 (0/087). Therefore, in the confidence level of 95 percent, research hypothesis is rejected and null theory is accepted. In other words, between initial costs of implementing RFID technology in libraries of MAZANDARAN medical science universities, with medium level, there is no significant relationship.

Third theory:

Between set volume of MAZANDARAN medical science universities libraries and RFID system, with medium level. There is significant relationship.

To verify set volume of MAZANDARAN medical science universities libraries and RFID system, with medium level, the average gained scores, compared with medium level of (3).

We can state the above theory as follow:

$: H_o :$ Between set volume of MAZANDARAN medical science universities libraries and RFID system, with medium level. There is no significant relationship.

$: H_1 :$ Between set volume of MAZANDARAN medical science universities libraries and RFID system, with medium level. There is significant relationship.

To perform this test, we used the one sample T-student. Related result for this test is given in (table 3).

With attention to table (3), significance level of test is smaller than 0/05 (0/001). Therefore, in the confidence level of 95 percent, research hypothesis is accepted and null theory is rejected. In other words, between set volume of RFID system and libraries of MAZANDARAN medical

science universities, with medium level, there is a significant relationship.

Fourth theory:

Between used software in libraries of MAZANDARAN medical science universities and RFDI system with medium level, there is significant level.

To verify the condition of used software in libraries of MAZANDARAN medical science universities and RFDI system with medium level, average gained scores were compared with medium level of (3).

We can state the above theory as follow:

$: H_o :$ Between used software in MAZANDARAN medical science universities libraries and RFID system, with medium level. There is no significant relationship.

$: H_1 :$ Between used software of MAZANDARAN medical science universities libraries and RFID system, with medium level. There is significant relationship.

To perform this test, we used the one sample T-student. Related result for this test is given in (table 4).

With attention to table (4), significance level of test is bigger than 0/05 (0/949). Therefore, in the confidence level of 95 percent, research hypothesis is rejected and

null theory is accepted. In other words, between used software in libraries of MAZANDARAN medical science universities, and RFID system, with medium level, there is a significant relationship.

Fifth theory:

Between RFID system role in decreasing the costs with medium level, there is a significant level.

To verify the role of RFID system in reducing the costs in libraries of MAZANDARAN medical science universities with medium level, average gained scores were compared with medium level of (3).

We can state the above theory as follow:

H_o : Between RFID system role in decreasing the costs, with medium level, there is no significant relationship.

H_1: Between RFID system role in decreasing the costs, with medium level , there is significant relationship.

To perform this test, we used the one sample T-student. Related result for this test is given in (table 5).

With attention to table (5), significance level of test is smaller than 0/05 (0/001).

Therefore, in the confidence level of 95 percent, research hypothesis is accepted and null theory is rejected. In other words, between RFID system role in reducing the costs, with medium level, there is a significant relationship.

To prioritize the effect of using RFID system on equipment and facilities of library, we used the FRIEDMAN test. The results related to this test is given in the below table 6.

As in the data (table 6), it is clear that, significant level of FRIEDMAN test is smaller than the amount of 0/05, therefore the assuming the equality of effect in using the RFID system on equipment and facilities of library is rejected. from column of ranks average, it is clear that: effect of using the RFDA system on factor of " reducing the costs"(with rank average 4/080 in first rank, factor "set volume"(with rank average 3/29) in second rank, factor " familiarity with RFID"(with rank average2/73) in third rank, factor "software facilities"(with rank average 2/63) in fourth rank and factor "initial costs"(with rank average 3/28) in fifth rank is situated.

Table (1)-result of T-student test for verifying staff familiarity level, and RFID system with middle level:

Average	The standard deviation	Statistical level t	Degrees of freedom	Significance level	T-Student test results
3/09	0/706	0/103	65	0/274	Accepting the null hypothesis

Table 2- result of T-student test to verify the effect of initial costs for implementing the RFDI technology in libraries:

Average	The standard deviation	Statistical level t	Degrees of freedom	Significance level	T-Student test results
2/82	0/825	-1/740	65	0/087	Accepting the null hypothesis

Table 3- result of T- student test to verify the effect of set volume on using the RFDI system:

Average	The standard deviation	Statistical level t	Degrees of freedom	Significance level	T-Student test results
2/82	0/825	-1/740	65	0/087	Rejecting the null hypothesis

Table 4- result of T- student test to verify the effect of set volume on using the RFDI system:

Average	The standard deviation	Statistical level t	Degrees of freedom	Significance level	T-Student test results
2/99	0/547	-1/064	65	0/949	Accepting the null hypothesis

Table 5- result of T- student test to verify the effect of using the RFDI system on reducing the costs:

Average	The standard deviation	Statistical level t	Degrees of freedom	Significance level	T-Student test results
3/59	0/690	7/042	65	0/001	Rejecting the null hypothesis

Table 6- the result of FRIEDMAN test to prioritize the effect of using RFID system on equipment and facilities of library

Dimension	Average rating	The KAI DO Statistical level	Degrees of freedom	Significance level	Prioritize
Introduction with RFID technology	2/73		54/406	0/001	3
Initial costs	2/28				5
Set volume	3/29				2
Software facilities	2/63				4
Reduction in costs	4/08				1

DISCUSSION

Findings of the research showed that, familiarity of libraries staff of MAZANDARAN medical science universities with different applications of RFID system is in medium level. That means, staff are not familiar with this system sufficiently and they are not knowing how to use it in different sections of the library.

Therefore as much as familiarity with RFID increases, its use will also increase. And these two components are effecting each other. Among factors which staff are having familiarity with it, using the RFID in management, which indicates, it is better for staff to use RFID system for better management and better service to users and create safe environment. Trust section is one

of the most important sections of the library. And if they do not pay enough attention to it, it is possible, while delivery or return of the book, something goes wrong. for example: error in entry of membership or book`s number or loss or theft of resources, which easily goes out of the library, without notice of the staff. But by using this system, we can avoid many of such mistakes. Using the RFID system, is of much help in shelf-reading, if the book is not in the shelf or misplaced, we can easily find it out. And this issue avoids the repeat of the works. And causes a great save in time of the staff. Results of the present research are inconsistent with findings of DOLATABADI [2],and MADHU SOUDAN [9],and also research findings showed that, initial costs of implementing the RFID system in libraries of MAZANDARAN medical science universities are in the medium level. One of the problems of the RFID system is the high price of the equipment, which will not allow to use it everywhere. The cost for the installation of the RFID system is not in relationship with the library budget. Perhaps, one of the issues, that libraries do not use this system is its installation cost. The results of the present research is compatible with findings of JAMSHIDI, GOHAR RIZI

and POURKIYAEE (2013), DOLATABADI [2],and MADHU SUDHAN [9],Findings of the survey showed that set volume of libraries in MAZANDARAN medical science universities on using the RFID system is in above average. In fact, those libraries which have big resources and collections, it seems, are using more from RFID system. Because there no supervision on each of the sections and shelves, regularly, therefore, using this system for such kind of libraries is an advantage. Servicing of the university libraries is very difficult, because of number of students and professors and many courses, and use of this technology in big libraries will have great effect in time and servicing to the users. results of the present study is compatible with findings of the DOLATABADI [2],and also findings of the survey showed that, used software of libraries in MAZANDARAN medical science universities and its compatibility with RFID system is in the medium level. Library software which is used by the libraries in this research is very important because it should be in full harmony with RFID system. Implementation of this technology in a library, with attention to the information relationship of RFID software systems, with management systems of

library information and lending system, is possible only, with cooperation of the manufacturer company of library software, and without cooperation of that company, is not able to implement the RFID technology. The present research results are inconsistent with the findings of the DOLATABADI [2],And finally, research findings showed that, the role of RFID system in reducing the costs, in libraries of MAZANDARAN medical science universities is above the average level. The expenditures such as using the human force, time and cost for shelf-reading and … which exist in the library, sometimes will be more than the determined budget for the libraries. By using this system, we can somewhat reduce

The side costs. In some libraries, for shelf reading and arranging the books, forcibly some persons are employed who do not know the work and are inefficient but by using RFID system, we can prevent the unnecessary expenditure. The results of the present research are compatible with findings of DOLATABADI [2], and MADHU SOUDHAN [9].

Suggestions

-establishment feasibility of RFID system in libraries of MAZANDARAN state universities.

-survey about the relationship between establishment of RFID system and service quality in university libraries.

-study and comparison of libraries with RFID system and libraries without the said system, on the aspect of satisfaction rate of library members.

-verify and comparison of libraries with RFID system and libraries without the said system, on the aspect of reducing the human force.

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