USABILITY OF RESEARCH PROJECTS MANAGEMENT SYSTEM IN NORTHERN BORDER UNIVERSITY BASED ON ISO 9126 STANDARDS FROM USERS PERSPECTIVE: A CASE STUDY

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ABSTRACT:*Despite the extensive use of research projects management system and the significant investment in obtaining or developing them in house, there is no compromise on a standard framework for assessing system quality. Although, the main objective of this study is to investigate the research project management system understandability, learnability, operatability, attractiveness and usability from the perspective of the users. The data was collected from faculty members through survey questionnaire technique to see the different opinions. However, this paper proposes the ISO 9126 Quality Model as a useful tool for evaluating and using such systems, particularly for students, faculty members, researchers and educational administrators. The current study determines the validity of the model in a case study which can be applied on a commonly available conventional system and reveals that how this system can be used to identify design flaws. The findngs suggested that the metric would be applicable to other scientific research systems and can be applied as the basis for a comparison to advise purchase decisions and highly assist the scientific institutes in the management of all research affairs efficiently and effectively*.

Keywords: Research Project Management System, Scientific Research, ISO 9126

I. INTRODUCTION

Today, Information Technology (IT) and the advancement in its tools have influenced different aspects of life. While, the organizations are competing with each other in the development of such technologies by making huge investments in the field of research & development, ICT and innovation and by the utilization of scientific research techniques. However, some organizations like universities are more interested in the development and implementation of scientific research. Because universities are trying their best to provide the necessary arrangements, material resources, infrastructure and human capital to support scientific research projects. Moreover, the universities are planning for such activites for owning the most recent technologies and computer systems in order to compete with other univerisites and also to make their internal and external system more user friendly and supportive. Although, their main objective of this case study is to help the scholars in managing and following up with the research projects starting from the problem, accumulation, execution till it got published. Consequently, due to the advancements in the internet, web applications and digital campuses; it has become easier for universities to make use of models and patterns that support Scientific Research Systems [1].

Moreover, universities should plan to implement projects management systems and understand the benefits of this systems because these issues are beyond the control of the universities. There might be some support from from the external beneficiaries in order to interact with the system because system outcomes contributes in the advancement of all fields and gives better solutions for internal and external problems [2]. Therefore, while designing process of project management systems, it is imperative to adhere to the universal standards which ensures the efficiency, effectiveness, and quality of the system (ISO, 2001). Next, the system should consist of researchers, faculty administration unit, libraries administration unit; scientific research administration unit, technical support and security unit that encodes data and software programs that also offers other security measures [3].

Moreover, to achieve integration between the multiple parts and different tasks of the system, information about the projects is collected until it is classified, transferred, tracked, and used. However, the party should be responsible for the management of the projects' system by identifying the workflow process accurately and also how the information will be collected, treated as well as the storage mechanism [4]. Additionally, it is also necessary that the system should be integrated with other systems to facilitate the transfer of data and in issuance of the reports. Nevertheless, managing, implementing, approving, publishing and follow-up with research projects is not an easy task because it usually requires a specialized team members for analyzing, designing and managing research projects through cooperation and information exchange which ultimately improves the level and proficiency of research projects management [3].

Particularly, in the context of Northern Border University, which depends on the information system specialized in research projects management. The system provides the researchers with proper support to help them present their research projects, and follow up with their progress from the beginning until the projects are published in scientific journals. However, Northern Border University did not conduct an evaluation to distinguish the quality of using and applying the projects management system and its usability or compatibility from a user perspective. In line with the discussion, researchers are expected to face some difficulties while dealing with the system, which could prevent them from finishing their projects. Therefore, this study also aims at conducting a survey to see the opinions of the researchers to ensure the usability of the system. Besides, the researcher based his study on ISO (9126) which is related to the study of systems' quality while, ISO model depends on six secondary standards: functionality, reliability, usability, efficiency, maintainability and removability. These standards are applied to the systems to identify their quality (ISO, 2011). However, in th current study, the researcher employs third

standard that is usability to study the system from the perspective of the users. In further discussion, 'usability' standard consists of five secondary standards which are understandability, learnability, operability, attractiveness and compliance usability [5]. Thus, understanding these standards could help the users to develop and improve the performance of the projects management system.

Finally, the main purpose the current study is to answer the following questions:

1. Does the system have Understandability from the perspective of the users?
2. Does the system have Learnability from the perspective of the users?
3. Does the system have Operability from the perspective of the users?
4. Does the system have Attractiveness from the perspective of the users?
5. Does the system help the researchers in improving the quality of their searches and help them finish their projects faster (compliance usability)?
6. Does the system have Usability from the perspective of the users?

This study aims at recognizing the projects management system in Northern Border University. In addition, it aims at identifying how effective ISO standard (9126) is, and how compatible it is with the projects management system. Finally, it aims at conducting an analytical study on the projects management system applied in Border University depending on ISO standard (9126) and its usability.

II. Literature Review

In a study entitled "ISO Standards 9126 to Evaluate the Quality of a Computer Software Using Coquet Integral Theory" [6] found that, the evaluation process of the quality of a computer software is highly important and essential in the development process because it offers a competitive program product. Therefore, it is vital to choose the best program depending on certain specifications or quality. While, the researchers worked on developing the quantitative evaluation processes of the software programs through merging and comparing ISO 9126 standards to Coquet Integral Theory, which is interested in offering collection methods such as AM, and WAM. Through the evaluation and arrangement of the alternatives, the comparisons showed that the software programs are based on 6 features related mainly to ISO 9126. The evaluation experiments must depend on real, collected data from multiple case studies, which can help in conducting more effective evaluations of the software. Such evaluations can support users and developers in decision making. The researchers recommended the importance of taking into consideration the secondary features of quality, which are derived from the main features. They also recommended reviewing the different opinions of programs' producers, and the need to conduct experiments on software programs using a huge quantity of experimental data so to improve the results and develop the tools that would facilitate the processes of application or experiments.

In a study entitled "Designing Projects Management System at Universities", [7] believe that the universities adopting a special projects management system helps in the following up, directing and managing of the project's lifecycle from the second the proposal is presented until the research is published. The system can facilitate the process of decision making for the research managers, which allows advancement in scientific research. In this study, the researchers identified the main problems which hinder the management of research projects. Then, the researcher designed a basic structure for the projects management system based on the demands of the manager. The researchers utilized advanced tools to come up with a system that manages and follows the projects from three dimensions: advancement, resources and possible results. The researchers made sure to design a system that offers the directors of the research projects management with complete support in the management of the project, and provides them with comprehensive information about all scientific projects supported by different authorities. As a result, the researcher was able to identify the problems of the university's projects management system, and offered some methods for the development and designing of the system. The study identified the system's structure; designing mechanism; organizational structure; scientific research database; scientific, technological and academic communication achievements; and research management, registration and signing in mechanism. This system can greatly assist scientific institutes in the management of all research affairs effectively and efficiently.

In a study entitled "Systems and Software Programs Model Using the Model of Dillon and McLean and 9126 ISO Standards", [8] pointed to the need to accurately know the main and secondary standards of software quality models, and the results of applying them on systems and software programs. In addition, any system developer or designer should have great knowledge about the standards of quality models. Researchers pointed to the lack of research that presents models made specifically for the quality of systems and software. The objective of the study was to identify the standards and present a model made specifically for the quality of the systems and software program through combining Dillon and McLean Models and the six 9126 ISO standards. The researchers suggested a model for the quality of the systems and software programs that consists of 4 main standards: quality system, information type, software procedures quality, and security quality. There are other multiple secondary standards added to the main standards that affect the satisfaction of the system's users.

In a study entitled "The Challenges of Developing Software Quality Models" by [9] conclude that if organizations specialized in software to survive in the competition market then they have to develop models that guarantee high quality. Because, costumers expect high quality software programs that highly contributes in the management process. Besides, systems which based on quality standards are capable of identifying success factors for businesses have several benefits such as being reused, on-time deliveries, and high quality processes at lesser costs. However, the success of systems based on quality standards highly depends on the quality of the components that are used. The researchers recommended multiple high quality models to provide specialized, high-quality systems. Such models can be developed for specific purposes or modified in accordance

with 9126 ISO standards. Moreover, the researchers concentrated on highlighting the major challenges that hinder the development of specialized models in the measurement of systems and software quality, and the main motives behind developing software quality models. In addition, they highlighted some solutions for those challenges, and pointed out the importance of such models in improving the performance of systems and software programs. Based on the above, the following hypotheses were set:

1- There is no statistically significant relation at α= 0.05 level between the scientific degree and years of experience, and the skills of using computers.
2- There is no statistically significant relation at α = 0.05 between the skills of using computers and scientific publication.
3- There are no statistically significant differences at α = 0.05 between the total averages of the study themes and the skills of using computers.
4- There is a statistically significant relation between the five study themes.

III. Research Methodology

A. Framework of the Study:

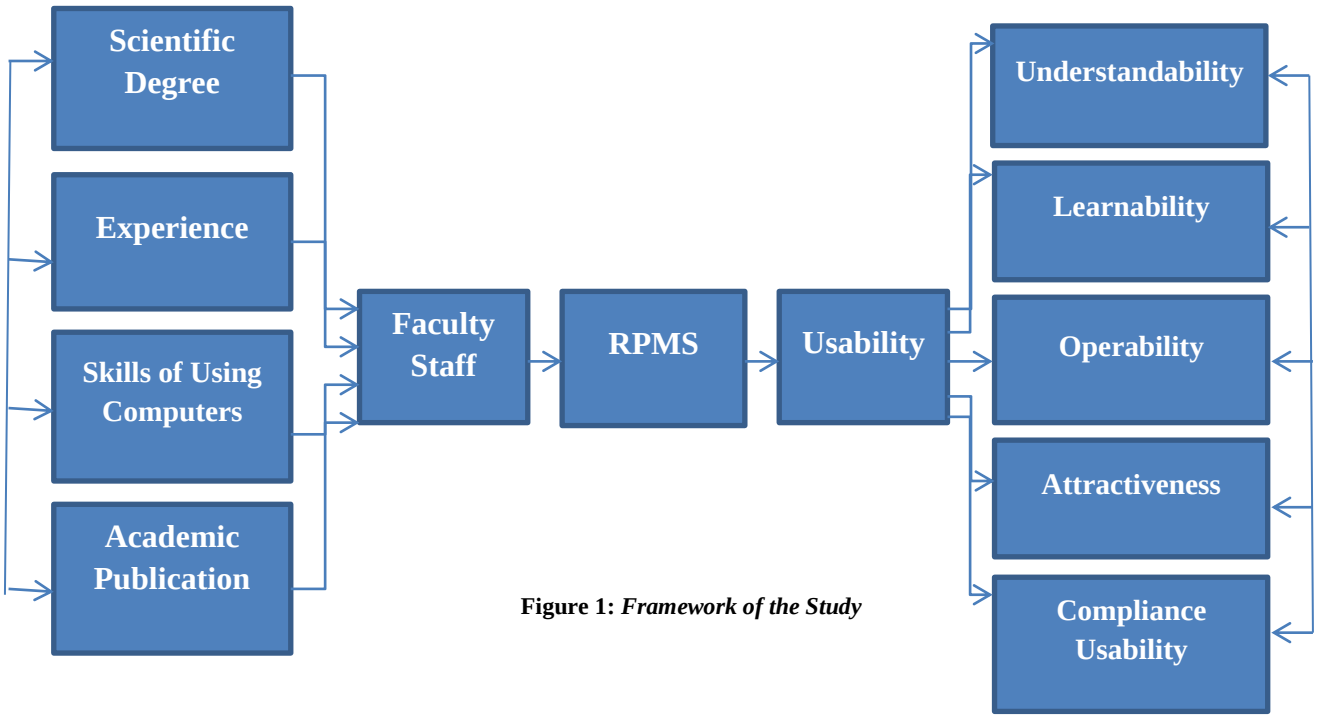

Figure 1: ***Framework of the Study***

B. Likert Scale

The Five Likert Scale was used. The average of the scale was calculated through finding the range used which is 1-5\5 = 0.80; the attitude of statements was found as in table 1:

In conducting this study, the researcher used the descriptive analytical approach to explain the projects management system to identify the potentials and features of the system regarding its usability. The questionnaire technique has been employed for data collection purpose and this survey technique is considered as one of the reliable way to identify the attitudes of the study sample towards the phenomenon under study. Moreover, the questionnaire of this study consisted of 5 main themes and was distributed to the study sample.

The study population consisted of the faculty members working at Northern Border University who are registered in the projects management system (total sample size= 84 members). These 84 faculty memebers has been considered as the sample size of the study. Next, 84 questionnaires were distributed out of which 56 questionnaires were received, that derives the response rate of 69%. Besides, 3 questionnaires were disregarded due to the high ratio of missing values. Finally, the total usable questionnaires were 53 questionnaires (i.e. 65%) which is considered as an acceptable rate for study purposes based on the several past studies.

Table 1 : The weighted average of Five Likert Scale

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1.79 – 1	2.59 – 1.80	3.39 – 2.60	4.19 – 3.40	5-4.20

IV. Data analysis and results

Descriptive Analysis

Table 2 : Frequency of the sample based on the scientific degree, experience, skills of using computers and academic publication

		Frequency	Rate
Scientific Degree	PhD	51	69.20%
	MA	2	30.80%
Experience	1 to 5	40	75.40%
	6 to 10	7	13.20%
	More than 10	6	11.30%
Skills of using computers	advanced	47	88.60%
	Medium	6	11.40%
Academic publication	1 to 3	46	86.80%
	3 to 5	4	7.60%
	More than 5	3	5.60%

From the Table (2), the table illustrates that in scientific degree program the PHD are more in numbers by 69.20% than the MA degree which are only 30.80%. Moreover, the users with less experience (1 to 5 years) are more by 75.40%, and with little more experience like 6 to 10 years are 13.20% and experience with more than 10 years are only 11.30%. Furthermore, users having skills of using computers are more in numbers which are 88.60% and with medium skills are only 11.40%. Moreover, in terms of academic publication the participants with PhD are newly employed and didn't published more than 3 scientific papers and their ratio in current study is 86.80% where participants with 3 to 5 publications are only 7.60% and more than 5 publications by 5.60%.

Reliability and Validity of the Tool

In current stydy, cronbach's Alpha was used to test the validity of the items by five themes, as the findings revealed that, the cronbach's alpha value as given in Table 3 is more than the threshold value, so in this study, the value retrieved by understandability was 0.87 by 10 articles, learnability value is 0.86 of 9 articles, operability value is 0.84 by 14 articles, attractivesness value is 0.75 by 5 articles, and compliance uability cronbach's alpha value is only 0.72.

Table 3 : Cronbach's Alpha Correlation

Theme	Articles	Cronbach's Alpha
Understandability	10	0.87
Learnability	9	0.86
Operability	14	0.84
Attractiveness	5	0.75
Compliance Usability	4	0.72

Statistical Analysis

First question: Is the system understandable from the perspective of users?

To answer this question, the mean of the answers related to the first theme (understandability) was calculated.

Table 4 : The mean of the first theme (Understandability)

N	The first theme	W.	Std.	Attitude
1	Identifying the key objectives of the system	4.47	0.51	Strongly Agree
2	Understanding the key functions of the system	4.26	0.56	Strongly Agree
3	Understanding the manual and guidelines of the system	3.74	0.99	Agree
4	Understanding the messages and popups of the system while using it	3.89	0.8	Agree
5	The ability to deal with the manual of the system when some issue are	3.63	1.11	Agree
6	Understanding the interface of the system and its screens	4.05	0.84	Agree
7	The ability to deal with the main lists of the programs (file, insert, edit …	4.11	0.31	Agree
8	The ability to use the help tools of the system	3.84	0.76	Agree
9	Understanding the inputs of the system from the required data	4.11	0.45	Agree
10	Understanding the system's outputs (information) and how to deal with it	3.89	0.65	Agree
		4	0.51	Agree

Understandability theme

From Table 4, it is clear that most of the averages ranged from (3.50 – 4.50), and that the sample's attitudes were either 'agree' or 'strongly agree'. Therefore, the mean of the first theme reached 4.00. This attitude shows that there is an agreement on the understandability of the system from the perspective of the users. Therefore, the system is understandable according to the perspective of user.

Second question: Is the system learnable from the perspective of the users?

To answer this question, the mean of the answers of the second theme (learnability) was calculated.

Table 5 : The mean of the second theme (learnability)

N	Second Theme	W.	Std.	Attitude
1	The ability to deal with the system's screens easily	4.21	0.41	Strongly agree
2	The easiness to learn how to accomplish specified tasks in the system	4.16	0.6	Agree
3	The easiness to reach certain windows shortly	3.89	0.87	Agree
4	The easiness to use the help tools	3.79	0.78	Agree
5	The ability to accomplish tasks after using the help tools or the manual	3.58	0.9	Agree
6	The ability to develop the utilization skills of the system after multiple uses	3.95	0.84	Agree
7	The system requires advanced skills in using computers	3.42	1.01	Agree
8	I can easily remember how to deal with the system's commands every now and	3.95	0.62	Agree
9	The system can be easily used and does not require training	3.74	0.99	Agree
	Learnability theme	3.85	0.56	Agree

From Table 5, it is clear that most of the averages ranged from (3.40 – 4.20), and that the sample's attitudes were either 'agree' or 'strongly agree'. Therefore, the mean of the second theme (learnability) reached 3.85. This attitude shows that there is an agreement on the learnability of the system from the perspective of the users. Therefore, the system is learnable according to the perspective of user.

Third question: Is the system operable from the perspective of the users?

To answer this question, the mean of the answers related to the third theme (operability) was calculated.

Table 6 : The mean of the third theme (operability)

N	Third Theme	W.	Std.	Attitude
1	The ability to send data quickly and to receive responses from the	3.84	0.83	Agree
2	The ability to easily edit wrongly inserted data	3.84	0.68	Agree
3	The system's ability to save data in archives for later use	3.58	0.69	Agree
4	The system includes usual items such as sex, nationality, marital status	3.84	0.95	Agree
5	The system sends alarm messages in cases of error in the insertion of	3.63	0.89	Agree
6	The ability to retrieve archives of the inserted data	3.74	0.73	Agree
7	The system's ability to work for long durations without stopping or	3.16	1.214	Neutral
8	The user's ability to display some tasks depending on his needs so to	3.84	0.68	Agree
9	The user's ability to follow less procedures in the execution of tasks	3.74	0.56	Agree
10	The ability to access the system from different ways (internal\ external	3.84	0.89	Agree
11	The system supports more than one language (Arabic\ English)	4.11	0.56	Agree
12	The functions of the system support people with special needs	3.58	0.76	Agree
13	The system allows access from multiple devices (laptops, smart	4	0.57	Agree
14	The possibility of retrieving user name and password in case the user	3.95	0.7	Agree
	Operability Theme	3.76	0.45	Agree

From Table 6, it is clear that most of the averages ranged from (3.15 – 4.00), and that the sample's attitudes were either 'agree' or 'neutral'. Therefore, the mean of the third theme (operability) reached 3.76. This attitude shows that there is an agreement on the operability of the system from the perspective of the users. Therefore, the system is operable according to the perspective of user.

Fourth question: Is the system attractive from the perspective of the users?

To answer this question, the mean of the answers related to the fourth theme (attractiveness) was calculated.

Table 7 : The mean of the fourth theme (attractiveness)

N	Fourth Theme	W. Average	Std. Deviation	Attitude
1	The colors and designs of the system are attractive	4.05	0.52	Agree
2	You can read and change the fonts	3.68	0.74	Agree
3	The system can organize and display the information for the user conveniently	4	0.57	Agree
4	The user can modify the colors of the system as needed	3.74	0.73	Agree
5	The user can change the system's fonts size	4	0.74	Agree
Attractiveness Theme		3.89	0.47	Agree

From Table 7, it is clear that most of the averages ranged from (3.74 – 4.00), and that the sample's attitudes were all 'agree'. Therefore, the mean of the fourth theme (attractiveness) reached 3.89. This attitude shows that there is an agreement on the attractiveness of the system from the perspective of the users. Therefore, the system is attractive ,according to the perspective of user.

The fifth question: Does the system help the researchers in improving the quality of their searches and help them finish their projects faster (compliance usability)?

To answer this question, the mean of the answers related to the fifth theme (compliance usability) was calculated.

Table 8: The mean of the fifth theme (Compliance Usability)

N	Fifth Theme	W. Average	Std. Deviation	Attitude
1	Through the system, I could accomplishment my research easily and conveniently and Shortly	3.84	0.37	Agree
2	Through the system, I could increase the number of my searches	3.68	0.47	Agree
3	Through the system, I could improve the quality and prominence of my research	3.58	0.5	Agree
4	Through the system, I could ensure the originality of my research to avoid plagiarism	3.42	0.5	Agree
Compliance Usability Theme		3.63	0.34	Agree

From Table 8, it is clear that most of the averages ranged from (3.40 – 3.84), and that the sample's attitudes were all 'agree'. Therefore, the mean of the fifth theme (compliance usability) reached 3.63. This attitude shows that there is an agreement on the compliance usability of the system from the perspective of the users. Therefore, the system can be used with compliance according to the perspective of user.

Sixth Question: Is the system usable from the perspective of the users?

To answer this question, the means of all the themes of the questionnaire were calculated (Usability).

Table 9: The Mean of Usability

Theme	N	Mean	Std. Deviation	Attitude
First theme (Understandability)	53	4	0.51	Agree
Second theme (learnability)	53	3.85	0.56	Agree
Third theme (operability)	53	3.76	0.45	Agree
Fourth theme (Attractiveness)	53	3.89	0.48	Agree
Fifth theme (Compliance Usability)	53	3.63	0.35	Agree
Usability	53	3.83	0.33	Agree

We notice from Table 9 that most of the five themes' means range from (3.60 – 4.00), and that the sample's response to all themes is "agree". Therefore, the usability mean reached 3.83. This indicates that the users approve the usability of the system. According to the users, the system is usable.

Testing the Research Hypotheses:

1- There is no statistically significant relation at $\alpha = 0.05$ between the degrees, years of experience and the skills of using computers.

Table 10:Chi-Square test for the relation between the scientific degrees and the skills of using computers

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	0.64[a]	1	0.42
Likelihood Ratio	0.57	1	0.44
Linear-by-Linear Association	0.61	1	0.43
N of Valid Cases	53		

a. 3 cells (75.0%) have expected count less than 5. The minimum expected count is .53.

First: the Degree * the skills of using computers

We notice from Table 10 that Chi-square value = (0.64) and Asymptotic Significance = 0.42 which is more than the significance level 0.05. This means that there is no statistically significant relation between the scientific degrees and the skills of using computers.

Second: Research and Academic Experience * Skills of Using Computers

Table 11: Chi-Square for the relation between research and academic experience and the skills of using computers

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.52[a]	2	0.46
Likelihood Ratio	1.41	2	0.49
Linear-by-Linear Association	0.72	1	0.39
N of Valid Cases	53		

a. 5 cells (83.3%) have expected count less than 5. The minimum expected count is 1.05.

We notice from table 11 that Chi-square value = (1.52) and Asymptotic Significance = 0.46 which is more than the significance level 0.05. This means that there is no statistically significant relation between research and academic experience and the skills of using computers.

2- There is no statistically significant relation at α = 0.05 between the skill of using computers and scientific publication.

Table 12:Chi-Square Test the skills of using computers and scientific publications

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2.42[a]	2	0.29
Likelihood Ratio	3.65	2	0.16
Linear-by-Linear Association	2.15	1	0.14
N of Valid Cases	53		

a. 5 cells (83.3%) have expected count less than 5. The minimum expected count is .26.

We notice from Table 12 that Chi-square value = (2.42) and Asymptotic Significance = 0.29 which is more than the significance level 0.05. This means that there is no statistically significant relationship between the skills of using computers and scientific publications.

3- There are no statistically significant differences at α = 0.05 between the total averages of the study themes and the skills of using computers.

Table 13: The Mean, Standard Deviation based on the skill of using computers and the study themes

Skill of Using Computers		N	Mean	Std. Deviation	Std. Error Mean
First theme(Understandability)	Advanced	47	3.96	0.59	0.15
	Intermediate	6	4.10	0.12	0.05
Second theme(Learnability)	Advanced	47	3.88	0.65	0.17
	Intermediate	6	3.77	0.07	0.03
Third theme(Operability)	Advanced	47	3.81	0.42	0.11
	Intermediate	6	3.61	0.55	0.25
Fourth theme(Attractiveness)	Advanced	47	3.94	0.52	0.13
	Intermediate	6	3.76	0.32	0.14
Fifth theme(Compliance Usability)	Advanced	47	3.69	0.34	0.09
	Intermediate	6	3.45	0.32	0.14

: Table 14 : Equality of Variances Test and a Comparison between the Averages

	F	Sig.	t	Df	Sig.	Avg.D.	Std. Er	95% Confidence Interval Lower	Upper
Equal variances assumed	3.81	0.06	-0.47	17	0.626	-0.13	0.27	-0.71	0.44
Equal variances not assumed			-0.86	15.52	0.432	-0.13	0.16	-0.49	0.22
Equal variances assumed	4.48	0.**54**	0.35	17	0.735	0.10	0.29	-0.52	0.73
Equal variances not assumed			0.57	13.92	0.573	0.10	0.17	-0.28	0.48
Equal variances assumed	0.04	0.83	0.88	17	0.408	0.20	0.23	-0.30	0.70
Equal variances not assumed			0.77	5.70	0.490	0.20	0.27	-0.47	0.88
Equal variances assumed	1.03	0.32	0.72	17	0.47	0.18	0.25	-0.34	0.71
Equal variances not assumed			0.90	11.58	0.38	0.18	0.20	-0.26	0.62
Equal variances assumed	0.01	0.89	1.39	17	0.18	0.24	0.17	-0.12	0.61
Equal variances not assumed			1.43	7.41	0.19	0.24	0.17	-0.15	0.64

Regarding Equality of Variances test, we notice from Table 13 that there is no statistical significance; the significance value of the five themes, consecutively, reached 0.068, 0.54, 0.838, 0.324, and .892. They all were higher than 0.05; which means there is equality of variances between the skill levels (advanced and intermediate) of using a computer. Therefore, we can use T-test depending on the equality of variances significance.

We notice from table 13 that the significance levels of T-test that are related to the study's five themes were 0.626, 0.735, 0.408, 0.478, and 0.180, consecutively; those levels were higher than the significance level 0.05. Therefore, we approve this hypothesis because there are not any statistically significant differences at α = 0.05 level between the total averages of the study's themes and the skills of using a computer.

4- There is a statistically significant relation between the study's five themes.

Table 15: Pearson Correlation of the Study's Theme

	Understandability	Learnability	Operability	Attractiveness	Compliance
Pearson Correlation	1				
Sig. (2-tailed)					
Pearson Correlation	.652**	1			
Sig. (2-tailed)	0.002				
Pearson Correlation	0.005	0.16	1		
Sig. (2-tailed)	0.98	0.5			
Pearson Correlation	0.213	0.391	.596**	1	
Sig. (2-tailed)	0.38	0.09	0.007		
Pearson Correlation	0.08	0.27	.593**	.540*	1
Sig. (2-tailed)	0.72	0.26	0.007	0.017	

* & ** denote the significance of correlation at 0.05 & 0.01 level respectively (2-tailed).

We notice from Table 18 that there is a direct proportional relation between the study's themes at different statistical significance levels. We notice that the first and second themes (Understandability) and (learnability), consecutively, are the most strongly correlated; Pearson Correlation reached 0.652 at a low significance level that reached 0.002. However, the first and third themes (Understandability) and (Operability), consecutively, are the least correlated themes. Pearson Correlation reached 0.005, which is almost zero, at a high significance level that reached 0.983.

V. Findings and Conclusion

In this article, we have argued that how ISO 9126 Quality Model can be applied to evaluate the research project management systems I northern border university. It provides a detailed analytical tool and is useful in stirring beyond the artificial evaluation to attain a more detailed view of the system weaknesses and strength that can be delivered by less organized approaches. For administrators and faculty members in the educational field, who are planning to make the decision for buying a particular research project management system, in this case ISO 9126 helps in the buying decision by providing a true evaluation of the product. Moreover, it delivers a potential standard for comparison between the various products obtainable from the market. Similarly it can provide a basis for informed and rational decision making and avoid costly mistakes.

However, in our study findings, we exposed some essential weaknesses in the model, particularly with respects to the Usability characteristics. To make the model moresimpler to use for faculty members and students, who may not be usability experts, we propose that this characteristic should be extended to include more specific factors such as understandability, learnability, operability, attractiveness and usability from the perspective of the users. Moreover, in the context of te Northern Border University, It has been found that the projects Management System applied is understandable from users' perspective. The average of the answers reached (4.00) out of (5.00). Also, the Projects Management System applied in this university is learnable and the average of the answers reached (3.85) out of (5.00).

The findings further revealed that, RPMS is more operable from users' perspective and the average of the answers reached (3.76) out of (5.00). Consequently, project management system is considered to be more attractive for the users and the average of the answers reached (3.89) out of (5.00). Although, the findings of the study also explained that RPMS applied in university is much understandable from users perspective and the average of the answers reached (4.00) out of (5.00). Moreover, the study found that projects management system applied in Northern Border University can be used with compliance, it is more usable, from the user's perspective and eventually he total average of the answers reached (3.63), and (3.83) out of (5.00). However, unfortunately, the relationship between degree, years of experience and the skill of using a computer has found statistically insignificant and also the relationship between the skill of using a computer and scientific publication has determined insignificant in current stuy. In line with the discussion, the study has found no much difference between the total average of the study's themes, and the skills of using a computer. Hence, there is a directly proportional relationship between the five themes of the study.

VI. Limitation and Recommendations

The study recommends that it provide essential tools for the users which assist them in the utilization of the system in case of any problem. Moreover, the study revealed that, the uers must care about the infrastructure of the system to ensure its process its operation in an efficient and effective way. Further, its provides a periodic report about the achievement level of the researcher in the process of the project's management from the user input till the information about the project got published. Even, it Provides advanced tools in the system to help the researcher finish the project more rapidly for instance, the research's originality (plagiarism), scientific journals, databases, and translated.

Furthermore, it is also suggested that, a Help sub-characteristic should be incorporated as a part of the Usability, generally to confirm that this significant factor must not be ignored in other studies. Additionally, it is also proposed that, the inclusion of user-satisfaction as a global characteristic to summarize the overall effect of the system on the user particularly in the context of education and given their precise requirements. However, with such improvements, the ISO 9126 could be a useful model for evaluating the quality of research projects management system.

REFERENCES

[1[Chen, C. X., & Zhang, R. (2012). The Research on Scientific Research Management System Based on Improved MVC Pattern. In *Applied Mechanics and Materials* (Vol. 155, pp. 459-463). Trans Tech Publications.

[2] Hu, H. Y., & Yan, H. (2013). Research and Realization on the University Scientific Research Information Management System Based on Workflow. In *Applied Mechanics and Materials* (Vol. 411, pp. 2897-2900). Trans Tech Publications.

[3] Li, X. Q., Song, X. F., & Zhao, B. (2013). Architecture Design of Scientific Research Project Management Information System. In *Applied Mechanics and Materials* (Vol. 347, pp. 3267-3272). Trans Tech Publications.

[4] Tang, J., & Hu, Z. M. (2013). Study on Integrated Scientific Research Management Information System in Higher Vocational College Based on Workflow. In *Applied Mechanics and Materials* (Vol. 389, pp. 908-912). Trans Tech Publications.

[5] Santos, C., Novais, T., Ferreira, M., Albuquerque, C., de Farias, I. H., & Furtado, A. P. C. (2016, June). Metrics focused on usability ISO 9126 based. In *Information Systems and Technologies (CISTI), 2016 11th Iberian Conference on* (pp. 1-3). IEEE.

[6] Alashqar, A. M., Elfetouh, A. A., & El-Bakry, H. M. (2015). ISO9126 BASED SOFTWARE QUALITY EVALUATION USING CHOQUET INTEGRAL. *International Journal of Software Engineering & Applications*, *6*(1), 111.

[7] Shuyan, S. U. N., Xiaojuan, Q. I., & Yongji, Y. A. N. G. (2014). The Design of Scientific Research Project Management System in Universities. *Management Science and Engineering*, *8*(1), 57-61.

[8] Jeong, H. Y., & Kim, Y. H. (2012). A system software quality model using DeLone & McLean model and ISO/IEC 9126. *International Journal of Digital Content Technology and its Applications*, *6*(5), 181-188.

[9] Thapar, S. S., Singh, P., & Rani, S. (2012). Challenges to Development of Standard Software Quality Model. *International Journal of Computer Applications*, *49*(10).