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ASSESSING USER PERCEIVED SERVICE QUALITY OF DIGITAL LIBRARY

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ABSTRACT

The main objective of this empirical study is to assess user perceived service quality in using the digital library services. Data gathered from this empirical research was analysed by using Kruskal-Wallis test. The samples consist of 497 respondents from a local university in Malaysia and were gathered through collection of distributed questionnaire. The results show that there are significant differences between two groups of users (male and female) for using the digital library services in terms of the perceived service quality constructs of (i) usability, (ii) usefulness, (iii) adequacy of information, (iv) accessibility and (v) interaction. Thus, provide indication for customization and better understanding for users to improve the quality of the digital library services from the user and gender's perspectives.

Keywords: perceived service quality, digital library.

INTRODUCTION

The digital libraries have addressed the real requirements of the users and provide useful information to evaluate and improve operations [1]. In general, the development and management of information resources are associated to digital libraries [2]. To differentiate among good digital libraries normally lies in the quality of its services and content [3]. Searching and browsing activities are often associated with modern users in using digital libraries [4]. Table-1 shows summarizes studies related to digital library services and information.

Table-1. Studies on digital library.

Title	Country	Author
User interaction in digital libraries	Greece	[1]
Evaluating and classification scheme (Digital Library)	Germany	[2]
Assessment of User Satisfaction (Digital Library)	UK	[5]
Evaluation (Digital Library)	Turkey	[6]
Tools and interfaces (Digital Library)	Jordan	[7]
User acceptance (digital libraries)	USA	[8]
Information retrieval and digital library	Malaysia	[9]
Evaluating academic library portal effectiveness		[10]

RESEARCH METHOD

The questionnaire was adapted from Yang, Cai, Zhou and Zhou (2005) [11]. The questionnaires were self-administered by the researcher with the help of administration staffs in libraries from four different locations (buildings) to a total number of 497 respondents from a local university in Malaysia.

RESULT AND ANALYSIS

Descriptive Statistics

Table-2. Descriptive Statistics (Respondents profile).

Measure	Item	Frequency	Percentage
Gender	Male	195	39.2
	Female	302	60.8
Country	Malaysia	447	89.9
	Somalia	14	2.8
	Iraq	13	2.6
	Yemen	10	2.0
	Iran	9	1.8
	Indonesia	2	0.4
	Germany	2	0.4
Age	<25	456	91.8
	25-35	41	8.2
Position	Students	497	100.0

Table-3. Number of days of using the digital library services (Frequency).

Item	Frequency	Percentage
Less than 3 per day	386	77.7
3 to 4 per day	76	15.3
5 to 6 per day	16	3.2
More than 7 per day	19	3.8

Table-4. Descriptive Statistics (services being used in the digital library).

Service	Frequency	Percentage
Event calendar	174	35.0
Online database	267	53.7
My outgoing	1	0.2
Patron detail	52	10.5
My facilities booking	22	4.4
My on loan item (circulation & renewals)	57	11.5
Web OPAC (find a book)	176	35.4
New arrivals	20	4.0
Web info line	35	7.0
my message (Mail)	9	1.8
my reservation status	17	3.4
my academic forum	55	11.1
my bill statement	194	39.0
Digital collections (exam & seminar papers)	374	75.3
Digital collections (exam papers, seminar papers.)/Taxonomy	158	31.8
repository browser	6	1.2
my suggestion	5	1.0
my item request	9	1.8
my research	66	16.3
my document enquiry	15	3.0
my receipt transaction	12	2.4

Table-2, Table-3 and Table-4 showed the relevant descriptive statistics to this research.

Usability of the digital library services

To test the normality of Usability of the digital library services, a set of hypotheses is formulated. The list of the hypotheses is presented as follow:

Ho: The sample comes from normal distribution
Ha: The sample does not come from normal distribution

By using the kolmogorov-smirnov's test, the p-value is .000, which is less than 0.05 and the distribution is not normal (as showed in Table-5). Thus we reject Ho.

Table-5. Test of normality (usability of the digital library services-total usability).

	Kolmogorov-Smirnov		
	Statistic	Df	Sig.
Total Usability	.124	497	.000

Since data not normal, we use Kruskal-Wallis test. We compare the mean of two independent groups.

RQ1: Is there enough evidence that on the average total usability of the digital library services are different for gender (male, female)?

As showed in Table-6, the sig-value was 0.000. This is less than alpha level 0.05, so we can conclude that there is statistically significant different in the Total Usability of the digital library services score across two groups (male and female). An inspection of the mean ranks in Table-7, suggests that Female had the highest satisfaction on the Usability of the digital library services.

Table-6. Test Statistics (a, b) (usability of the digital library services-total usability).

	Total usability
Chi-square	14.132
Df	1
Asymp. Sig.	.000

a. Kruskal Wallis Test
b. Grouping Variable: Gender

Table-7. Mean Rank of two Independent Groups (Usability of the Digital Library Services-Total Usability).

	Gender	N	Mean rank
Total usability	Male	195	219.11
	Female	302	268.30
	Total	497	

Usefulness of the digital library services

To test the normality of usefulness of the digital library services a set of hypotheses is formulated. The list of the hypotheses is presented as follow:

Ho: The sample comes from normal distribution
Ha: The sample does not come from normal distribution

By using Kolmogorov Smirnov's test, the p-value is .000 is less than 0.05 (as showed in Table-8), thus the distribution is not normal. Thus we reject Ho. This sample is not normal.

Table-8. Test of normality (Usefulness of content in the digital library services-total usefulness of content).

	Kolmogorov-Smirnov		
	Statistic	**df**	**Sig.**
Total Usefulness Of Content	.128	497	.000

Since data not normal, we use Kruskal-Wallis test. We compare the mean of two independent groups.

RQ1: Is there enough evidence that on the average total usefulness of the content in the digital library services are different for gender (male, female)?

As showed in Table-9, the sig-value was 0.053. This is less than alpha level 0.05, so we can conclude that there is statistically significant different in the Total Usefulness of content in the digital library services score across two groups. An inspection of the mean ranks in Table-10 suggests Female had the highest satisfaction on the Usefulness of content in the digital library services.

Table-9. Test Statistics (a,b) (Usefulness of the digital library services - total usefulness of content.

	Total usefulness of content
Chi-square	3.744
df	1
Asymp. Sig.	.053

a. Kruskal Wallis Test
b. Grouping Variable: Gender

Table-10. Mean Rank of two Independent Groups (Usefulness of the Digital Library Services - Total Usefulness of Content).

	Gender	**N**	**Mean rank**
Total Usefulness Of Content	Male	195	233.74
	Female	302	258.85
	Total	497	

Adequacy of information in the digital library services

To test the normality of Adequacy of information in the digital library services a set of hypotheses is formulated. The list of the hypotheses is presented as follow:

Ho: The sample comes from normal distribution
Ha: The sample does not comes from normal distribution

By using the Kolmogorov-Smirnov's test, the p-value is .000 is less than 0.05 (as showed in Table-11), the distribution is not normal. Thus we reject Ho. This sample is not normal.

Table-11. Test of Normality (Adequacy of information in the digital library services-total adequacy of information).

	Kolmogorov-Smirnov		
	Statistic	**df**	**Sig.**
Total Adequacy Of Information	.102	497	.000

Since the data are not normal, we use Kruskal-Wallis test. We compare the mean of two independent groups.

RQ1: Is there enough evidence that on the average total adequacy of information in the digital library services are different for gender (male, female)?

As showed in Table-12, the sig-value was 0.000. This is less than alpha level 0.05, so we can conclude that there is statistically significant different in the Total Adequacy of the digital library services score across two groups. An inspection of the mean ranks in Table-13 suggests Female had the highest satisfaction on the Adequacy of the digital library services.

Table-12. Test Statistics (a,b) (Adequacy of the digital library services - total adequacy of information).

	Total adequacy of information
Chi-square	19.443
Df	1
Aymp. Sig.	.000

a. Kruskal Wallis Test
b. Grouping Variable: Gender

Table-13. Mean rank of two independent groups (adequacy of the digital library services - total adequacy of information).

	Gender	**N**	**Mean rank**
Total Adequacy Of Information	Male	195	213.91
	Female	302	271.66
	Total	497	

Accessibility of the digital library services

To test the normality of the Accessibility of the digital library services a set of hypotheses is formulated. The list of the hypotheses is presented as follow:

Ho: The sample comes from normal distribution
Ha: The sample does not come from normal distribution

Using Kolmogorov-Smirnov's test, the p-value is .000 is less than 0.05 (as showed in Table-14), so the distribution is not normal. Thus we reject Ho. This sample is not normal.

Table-14. Test of Normality (Accessibility of the digital library services - total accessibility).

	Kolmogorov-Smirnov		
	Statistic	**df**	**Sig.**
Total Accessibility	.175	497	.000

Since data are not normal, we use Kruskal-Wallis test. We compare the mean of two independent groups.

Research question1: Is there enough evidence that on the average total accessibility of the digital library services are different for gender (male, female)?

The sig-value was 0.384 (as showed in Table-15). This is greater than alpha level 0.05, so we conclude that there's no statistically different.

Table-15. Test Statistics (a, b) (Accessibility of the digital library services - total accessibility).

	Total accessibility
Chi-square	0.757
df	1
Asymp. Sig.	.384

a. Kruskal Wallis Test
b. Grouping Variable: Gender

Interaction of the digital library services

To test the normality of Interaction of the digital library services a set of hypotheses is formulated. The list of the hypotheses is presented as follow:

Ho: The sample comes from normal distribution
Ha: The sample does not come from normal distribution

By using the Kolmogorov-Smirnov's test, the p-value is .000 is less than 0.05 (as showed in Table-16), so the distribution is not normal. Thus we reject Ho. This sample is not normal.

Table-16. Test of Normality (Interaction of the digital library services-total interaction).

	Kolmogorov-Smirnov[a]		
	Statistic	**df**	**Sig.**
Total Interaction	.198	497	.000

RQ1: Is there enough evidence that on the average total interaction of the digital library services are different for gender (male, female)?

As showed in Table-17, the sig-value was 0.02. This is less than alpha level 0.05, so we can conclude that there is statistically significant different in the Total Interaction of the digital library services score across two groups. An inspection of the mean ranks in Table-18 suggests Female had the highest satisfaction on the Total Interaction in the digital library services.

Table-17. Test Statistics (a, b) (Interaction of the digital library services - total interaction).

	Total interaction
Chi-square	9.776
df	1
Asymp. Sig.	.002
a. Kruskal Wallis Test	
b. Grouping Variable: Gender	

Table-18. Test Statistics (a, b) (Interaction of the digital library services - total interaction).

	Gender	**N**	**Mean rank**
Total Interaction	Male	195	224.86
	Female	302	264.58
	Total	497	

CONCLUSIONS

This research examines the level of quality for using of the digital library services based from the input from students (as users). The results show that there are significant differences between two groups of users (male and female) for using the digital library services in terms of the perceived service quality constructs of (i) usability, (ii) usefulness, (iii) adequacy of information, (iv) accessibility and (v) interaction. Thus, provide indication for customization and better understanding for users to improve the quality of the digital library services from the user and gender's perspectives.

The result of this research can be used by librarians and developers to better understand requirements aspects of students based on gender for improving the service quality of digital library. It also can be used to avoid problems for new implementation of the system. Library information systems are very important in modern technological services thus finding shows that user perceived service quality is essential for the survival, maintenance and upgrading of the information system itself.

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