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Online Teaching Platforms: Examining Dimensions Of Electronic Service Quality

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Abstract:
Nowadays, it is being assumed that e-learning is the future of education and questions are being asked if it can replace the traditional class-based teaching practices. The importance of measuring the E-service quality is gaining momentum in the current scenario because it was discovered by the researchers that dropout rates from online platforms are nearly 10–20% higher than in conventional learning methods. The measurement of e-service quality of online education is very complex as the service delivery is continuous and evaluative over a long period of time. Hence present need is to build up a suitable structure for assessing the quality of E-Learning. In this study an attempt is made to identify the dimensions of electronic service quality in E-learning environment and the factors that users (teachers & students) undertake to evaluate the quality of the virtual learning environment. The study through a primary data based analysis identified five dimensions of E-SQ to assess the quality of virtual learning platforms as: Interesting & Easy Learning, Innovative Usage & Privacy Features, Self Paced Quality Learning, Portal Functionality and Customer Support.

Keywords: *E-Learning, E-SQ, Dimensions of E-SQ, Factors Analysis.*

Introduction:

Amidst COVID 19 crisis a pioneering revolution is experiencing across the education institutes at all levels across the globe and particularly in India. Education and knowledge sharing is independent of any physical classroom or presence of a Teacher all the time to supervise the effectiveness of learning process (Rui-Hsin & Lin, 2018). Various E-Learning platforms give flexible access to a large set of course materials irrespective of the restrictions of place, time, resources etc. (Raspopovic & Jankulovic, 2017). Due to exponential digital revolution of e-

learning Industry, every learner is focusing on enrolling for a large number of online courses to enhance his/her knowledge, skills and resume building. Nowadays, it is being assumed that e-learning is the future of education and questions are being asked if it can replace the traditional class-based teaching practices. It is predicted that magnitude of online courses will be going to surpass the number traditional courses in near future (Sheshasaayee & Bee, 2018).

It was discovered through many research studies that students going for e-learning are more proactive and objective in their approach towards education (Praveen et al., 2012). However it was also noted in few cases that most of the learners are not able to complete the course enrolled on online portals due to one or the other reasons (Kumar et al., 2012). According to a research study conducted by Sheshasaayee & Bee, (2018) it is found that 10 to 20 percent students dropout in online courses which is much higher than traditional courses. Further there is also a question mark on the quality of online courses available on various e-portals. However in order to supervise online education delivery, it is essential that the environment of e-learning is assessed specifically to support e-learning service providers in ensuing the need based education catering to the requirements of Indian students. In order to be successful online education environment, service providers should also aimed at understanding users perceptions of service quality of online education particularly in terms of the quality aspects of the portals can be termed as Electronic Service Quality (Singh N. and Chahal R., 2017).

Literature Review:

Relevance of Measuring e-SQ

Since there is minute incongruity on the significance of e-service quality issues with regards to the various online service delivery mechanism channels in online education, the dispute is to categorize and apply the suitable measurement instrument in order to achieve a sound understanding of the e-service quality issues that play an important role in the perception of students towards quality of service delivery portals (O'Neill and Palmer 2004). The importance of measuring the E-service quality is gaining momentum in the current scenario because it was discovered by the researchers that dropout rates from online platforms are nearly 10–20% higher than in conventional learning methods (Diaz and Cartnal, 1999), and one of the reasons for the same is attributed to perceived lower quality of online service mechanism adopted by many channels (Levy, 2007; Lykourentzou et al., 2009). Also, the capability to develop and implement metrics that correctly recognize factors affecting e-learning must be determined to improve quality of the e-learning (Udo et al., 2011). In many past research studies, authors found that e-learning environment is influenced by technology, course website and other factors (Liu et al., 2009).

Dimensions of e-SQ

Xu et al (2013**)** in a study conducted demonstrated that e-service quality is determined by three types of quality namely: information quality, system quality & service quality. The researchers

portrayed that online service quality is defined by information and system quality. Kritikos et al (2013) described the software based services dependent on Service Quality of online platforms and the Experience that users come across while using these services. Also the researchers attributed the online quality to few objective and subjective criteria used by respective users to evaluate the services. Jayawardhena C, (2004) based on the survey results conducted in e-banking sector identified access, website interface, trust, attention and credibility as the dimensions to measure the electronic quality of services.

Benlian A et al (2012) identified the dimensions of e-service quality for software based service delivery as fulfillment, system availability, security, flexibility, efficiency, and privacy. The most widely used measurement tool i.e. E-S-QUAL; to assess the Electronic Service Quality was given by Parasuraman A et al (2005). The measurement tool is designed for on-line shopping and is inclusive of 22 items categorized under four dimensions named as privacy, fulfillment efficiency and system availability.

Singh N. & Chahal R. (2017) proposed a scale to determine the electronic service quality of online services based on the study conducted on Internet Banking and proposed six dimensions to assess service quality of software based services as: Ease of Use, Security, Functionality, Customer Support, Availability of Information & Website design.

The authors of the current study enumerated the outcomes of various studies conducted in the past pertaining to identifying the dimensions of e-service quality in various modes of online service delivery:

Sr. No.	Items Chosen by Previous Researchers	Industry	Source
1	design, brand equity, aesthetic sense, ease of use, speed of processing, security, product uniqueness of features & quality assurance	Online Shopping	Donthu & Youh (2001)
2	responsiveness, access, understanding customer, continuous improvement, Content, ease of use, timelines, aesthetics, security, Product variety	Internet Banking	Jun & Cai (2001)
3	user interface, responsiveness, reliability, customization and assurance.	e-Recruitment	Liljander et. al. (2002)
4	access, ease of use, personalization, security, reliability & credibility	Online Shopping	Yang & Jun (2002)
5	Availability of information, Ease of use, Privacy, design Graphic, Reliability.	e-Service	Zeithmal et. al. (2002)

6	appearance, linkage, ease of use, layout, structure and content, incentives, communication, support, reliability, efficiency and security.	e-service	Santos (2003)
7	Customer Service, Reliability, Website Design & Fulfillment/Reliability	e-tail	Wolfinbarger & Gilly (2003)
8	Quick response, ease of use, credibility, attentiveness	Online retail	Jun et. al. (2003)
9	access, website interface, trust, attention and credibility	Online banking	Jayawardhena C, (2004)
10	tangibility, assurance, responsiveness, reliability & purchasing process	Online retail	Long & McMellon (2004)
11	usefulness, enjoyment, information availability, privacy	Online Banking	Pikkarainen et.al. (2004)
12	access, navigation, design, reliability, assurance, responsiveness, & customization	Online Travel Service	Van Riel et. al. (2004)
13	Reliability and credibility, courtesy, improvement, timeliness, aesthetic, system flexibility	Online Security & Brokerage	Yang & Fang (2004)
14	reliability, responsiveness, security, and ease of use	Online Banking	Yang et. al. (2004)
15	Fulfillment, Privacy, Responsiveness, Contact, Information & website graphics	Online Apparel Websites	Kim & Lennon (2006)
16	responsiveness, reliability and system availability, privacy, website design, experience, and empathy, ease of use & trust	Online Travel Service	Hongxiu et.al (2009)
17	information quality, website usability, reliability, responsiveness, assurance and personalization-	Web services	Swad & Wignaid (2009)

18	fulfillment, system availability, security, flexibility, efficiency, and privacy	Software based services	Benlian A et al (2012)
19	information quality, system quality & service quality	Software based services	Xu et al (2013)
20	Quality of Experience & Quality of Service	Software based services	Kritikos et al (2013)
21	Security, Functionality, Customer Support, Website design. Ease of Use & Availability of Information.	Internet Banking	Singh N. & Chahal R. (2017)

Research Gap & Objectives

As depicted above the most of the studies that are in use mostly by the researchers regarding assessing the service quality of online services are mostly aimed at online banking and retail. These dimensions are not considered to be very useful quality of E-Learning. Like for example, E-S-QUAL is intended for online shopping only. The measurement of e-service quality of online education is very complex as the service delivery is continuous and evaluative over a long period of time. Hence present need is to build up a suitable structure for assessing the quality of E-Learning. In this study an attempt is made to identify the dimensions of electronic service quality in E-learning environment and the factors that users (teachers & students) undertake to evaluate the quality of the virtual learning environment.

The following objective is framed as the scope of this study:

a. To explore the dimensions of Online Service Quality of Virtual Teaching platforms.

Research Methodology:

In order to achieve the intended objectives the researchers undertook a primary survey based on Google Forms. Google Forms was created to understand the perceptions of the users of various online platforms to assess the most sought after dimensions of online service quality. The 5 point likert scale is constructed to gain responses from the users. The population for the survey was defined as all the students and teachers of the Higher Education Institutes in Northern India. The non-probability reference and convenience sampling was used to select the sample of respondents by sharing the Google Form with the respondents through various channels i.e. Whatsapp groups, e-mails etc. across the various parts of the State of Punjab (India). A total of 139 complete responses were used in the data analysis collected from respondents. The responses thus obtained were analyzed through Descriptive & Inferential statistics methods to find answers to the research questions.

Data Analysis:

In order to arrive at the intended outcomes of the study, first of all a set of statements were selected after a careful Literature survey and researchers own insights collected through an exploratory approach towards the study. The statements thus identified were then tested for multicollinearity in order to determine any inter correlation among the responses given by the respondents. The results of the Inter Item correlations obtained through IBM SPSS 22 are presented in Table 4 below. As is clear from the table below the majority of the statements showed a significant correlation at 1% and 5% significant level. These findings lead the researchers to apply EFA to identify the Factors underlying the correlated statements and subsequently identifying the dimensions of Online Service quality. The applicability of the Factor analysis and sample adequacy was tested through KMO & Bartlets Test of Sphercity and data is found to be statistically significant with KMO values at 0.819 and Bartlets Test having significant p-value of 0.000 at 5% LoS as depicted in Table 1.

Table 1

KMO and Bartlett's Test		
KMO Measure of Sampling Adequacy		.819
Bartlett's Test of Sphericity	Approx. Chi-Square	1458.044
	Df	153
	Sig.	.000

The Principal Component Analysis was applied to extract the minimum unrelated factors from the set of statements given to respondents to identify the dimensions of Online Service Quality of E-Learning platforms in use by the learners. The communalities score of the all the items taken for the study was more than 0.500 for all. The Varimax Rotation with Kaiser Normalization resulted in data reduction to five factors explaining 69.67% of the total variation among the user perception towards the dimension of electronic service quality of E-Learning portals. After undergoing the critical evaluation of the rotated component matrix as depicted in Tables below the authors identified and named the dimensions of Electronic Service Quality as: ***Interesting & Easy Learning, Innovative Usage & Privacy Features, Self Paced Quality Learning, Portal Functionality, and Customer Support.***

Table 2

Rotated Component Matrix	Component				
	1	2	3	4	5
S1:Contents of the e-learning programs are easy to understand.	.562				
S2:E-learning portal experience is interesting.	.599				
S3:The portal is user friendly.		.625			

S4: There is less waiting time between my actions and the portal's response.				.802	
S5:E-learning Helps in meeting individual learning needs			.700		
S6:The content available online is of good quality			.561		
S7: The portal has adequate security features to secure my online presence.	.	.478			
S8: The portal provides me the ability to talk to support centre executive or a chat box in case of a problem.					.876
S9: The layout of Portal generates my interest in learning.	.669				
S10:Portal promotes greater participation and interaction	.776				
S11: I trust that my provider will not misuse my personal information.		.552			
S12: Service provider is interested in customer feedback.			.483		
S13: Contents of e-learning contain illustrations and animations which are more interesting than the traditional method.	.		.780		
S14: It is easy for me to complete the operations on Portal.	.682				
S15:The portal take less time to load.				.467	
S16:I enjoyed Self paced Learning practice of E-portal.			.784		
S17:The Courses details and other features are described well on portal.		.785			
S18:Portal is visually pleasing		.750			

Table 3

Scale Development (Factors Identification)

Sr. No.	Item No./Statement	Factor Name
1	S1: Content of the e-learning programs are easy to understand.	***Interesting & Easy Learning***
2	S2: E-learning portal experience is interesting.	
3	S9:The layout of Portal generates my interest in learning.	
4	S10:Portal promotes greater participation and interaction	
5	S14: It is easy for me to complete the operations on Portal	
6	S3: The portal is user friendly.	***Innovative Usage & Privacy Features***
7	S7:The portal has adequate security features to secure my online presence	
8	S11: I trust that my provider will not	

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	misuse my personal information.	
9	S17: The Courses details and other features are described well on portal.	
10	S18:Portal is visually pleasing	
11	S5:E-learning Helps in meeting individual learning needs	***Self Paced Quality Learning***
12	S6:The content available online is of good quality	
13	S12: Service provider is interested in customer feedback.	
14	S13: Contents of e-learning contain illustrations and animations which are more interesting than the traditional method.	
15	S16: I enjoyed Self paced Learning practice of E-portal.	
16	S4: There is less waiting time between actions and the portal's response.	***Portal Functionality***
17	S15: The portal take less time to load.	
18	S8: The portal provides me the ability to talk to support centre executive or a chat box in case of a problem. telephone number in case of a problem	***Customer Support***

Table 4:Correlations

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		S1:Contents of the e-learning programs	S2:E-learning portal experience is	S3:The portal is user friendly	S4:When I use portal ; there is very little	S5:E-learning Helps in meeting individual	S6:The content available online is of	S7:The portal has adequate security	S8:The portal provides me the ability to talk to a	S9:The layout of Portal generates my	S10:Portal promotes greater participation	S11:I trust that my provider will not	S12:Service Provider is interested in	S13:Contents of e-learning contain illustrations and	S14:It is easy for me to complete the	S15:The portal take less time to load.	S16:I enjoyed Self paced Learning	S17:The Courses details and other	S18:Portal is visually
	Correlation	1.00	.432**	.496**	.174*	.493**	.520**	.412**	0.12	.659**	.403**	.528**	.238**	.469**	.550**	.360**	.279**	.479**	.556
1	Sig. Value (2 tail)		0.00	0.00	0.04	0.00	0.00	0.00	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
	Correlation	.432**	1.00	.423**	0.16	.390**	.391**	.545**	0.13	.592**	.439**	.384**	.292**	.369**	.581**	.431**	.383**	.503**	.572
2	Sig. Value (2 tail)	0.00		0.00	0.07	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
	Correlation	.496**	.423**	1.00	.267**	.348**	.487**	.372**	0.02	.400**	.211*	.391**	.236**	.308**	.354**	.466**	.386**	.516**	.499
3	Sig. Value (2 tail)	0.00	0.00		0.00	0.00	0.00	0.00	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.0
	Correlation	.174*	0.16	.267**	1.00	0.08	.189*	0.07	-0.04	.267**	-0.12	.187*	0.09	0.15	.229**	.288**	0.17	.184*	0.0
4	Sig. Value (2 tail)	0.04	0.07	0.00		0.37	0.03	0.44	0.62	0.00	0.15	0.03	0.27	0.08	0.01	0.00	0.05	0.03	0.9
	Correlation	.493**	.390**	.348**	0.08	1.00	.532**	.330**	.422**	.530**	.288**	.474**	.475**	.537**	.535**	0.15	.580**	.292**	.332
5	Sig. Value (2 tail)	0.00	0.00	0.00	0.37		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.0
6	Correlation	.520**	.391**	.487**	.189*	.532**	1.00	.456**	.248**	.610**	.274**	.501**	.290**	.620**	.578**	.534**	.597**	.415**	.466

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	Sig. Value (2 tail)	0.00	0.00	0.00	0.03	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
	Correlation	.412**	.545**	.372**	0.07	.330**	.456**	1.00	-0.02	.471**	.326**	.436**	.228**	.429**	.622**	.461**	.252**	.578**	.565
7	Sig. Value (2 tail)	0.00	0.00	0.00	0.44	0.00	0.00		0.79	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.0
	Correlation	0.12	0.13	0.02	-0.04	.422**	.248**	-0.02	1.00	.322**	.289**	.307**	.277**	.231**	0.05	-0.01	.274**	-0.06	0.1
8	Sig. Value (2 tail)	0.16	0.12	0.84	0.62	0.00	0.00	0.79		0.00	0.00	0.00	0.00	0.01	0.57	0.93	0.00	0.50	0.1
	Correlation	.659**	.592**	.400**	.267**	.530**	.610**	.471**	.322**	1.00	.517**	.488**	.312**	.563**	.692**	.433**	.526**	.528**	.549
9	Sig. Value (2 tail)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
	Correlation	.403**	.439**	.211*	-0.12	.288**	.274**	.326**	.289**	.517**	1.00	0.14	.279**	.252**	.427**	.275**	.182*	.258**	.428
10	Sig. Value (2 tail)	0.00	0.00	0.01	0.15	0.00	0.00	0.00	0.00	0.00		0.10	0.00	0.00	0.00	0.00	0.03	0.00	0.0
	Correlation	.528**	.384**	.391**	.187*	.474**	.501**	.436**	.307**	.488**	0.14	1.00	.241**	.327**	.475**	.457**	.374**	.421**	.578
11	Sig. Value (2 tail)	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.10		0.00	0.00	0.00	0.00	0.00	0.00	0.0
	Correlation	.238**	.292**	.236**	0.09	.475**	.290**	.228**	.277**	.312**	.279**	.241**	1.00	.317**	.397**	0.16	.343**	.369**	.398
12	Sig. Value (2 tail)	0.00	0.00	0.01	0.27	0.00	0.00	0.01	0.00	0.00	0.00	0.00		0.00	0.00	0.06	0.00	0.00	0.0
	Correlation	.469**	.369**	.308**	0.15	.537**	.620**	.429**	.231**	.563**	.252**	.327**	.317**	1.00	.500**	.202*	.595**	.332**	.442
13	Sig. Value (2 tail)	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00		0.00	0.02	0.00	0.00	0.0

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	Correlation	.550**	.581**	.354**	.229**	.535**	.578**	.622**	0.05	.692**	.427**	.475**	.397**	.500**	1.00	.547**	.407**	.440**	.549
14	Sig. Value (2 tail)	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.57	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.0
	Correlation	.360**	.431**	.466**	.288**	0.15	.534**	.461**	-0.01	.433**	.275**	.457**	0.16	.202*	.547**	1.00	.300**	.438**	.508
15	Sig. Value (2 tail)	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.93	0.00	0.00	0.00	0.06	0.02	0.00		0.00	0.00	0.0
	Correlation	.279**	.383**	.386**	0.17	.580**	.597**	.252**	.274**	.526**	.182*	.374**	.343**	.595**	.407**	.300**	1.00	.481**	.349
16	Sig. Value (2 tail)	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00		0.00	0.0
	Correlation	.479**	.503**	.516**	.184*	.292**	.415**	.578**	-0.06	.528**	.258**	.421**	.369**	.332**	.440**	.438**	.481**	1.00	.704
17	Sig. Value (2 tail)	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.0
	Correlation	.556**	.572**	.499**	0.01	.332**	.466**	.565**	0.14	.549**	.428**	.578**	.398**	.442**	.549**	.508**	.349**	.704**	1.0
18	Sig. Value (2 tail)	0.00	0.00	0.00	0.92	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Conclusion:

As presented above, the study identified the factors to assess the Online Service Quality of e-portals. The above factors can be considered as a pre-requisite to build any application/platform by the future developers to ensure the Electronic Quality of online education. It is very crucial to understand the Quality consideration of virtual platforms by service providers to offer *Secure, Innovative, Functional, Interesting and Superior Content oriented* platforms to the users to remain competitive in this rapidly growing industry. The scale developed by the researchers in the current study can be tested in similar industry across various geographical, cultural and social settings in order to generalize the findings. The future researchers can be done to evaluate the performance of various platforms on the identified factors and meeting the expectations of the users.

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