Evaluating Citizen e-Satisfaction from e-Government Services: A Case of Pakistan

Babur Hayat Malik
Cai Shuqin
School of Management,
Huazhong University of Science and Technology, Wuhan China
Abdul Ghaffar Mastoi
School of Public Administration,
Huazhong University of Science and Technology, Wuhan China
Noreen Gul
School of Public Administration, Punjab University , Lahore , Pakistan
Hifza Gul
University of Gujrat

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Abstract

Citizen satisfaction is a critical and decisive factor for persistent use of e-Government services as it can substantially impact on failure or success of e-Government projects. Main hurdle for e-government planners and practitioners in Pakistan is to find out the key determinants of e-satisfaction of their citizens. This article actually tries to identify the major factors that drive Pakistani citizen's e-Satisfaction while using Punjab Province Portal (http://www.punjab.gov.pk/) in Pakistan. After extensive relevant literature review we formulated 7 hypotheses and distinguished 7 different determinants namely trust, accessibility, awareness of e-services, quality of e-services, computer anxiety, customer expectations and security/privacy. A sample of survey data from 200 employees in 8 universities in different cities of Punjab Province of Pakistan was gathered to perform data analysis. Several key outcomes based on multiple linear regression and factor analysis were exhibited. These final results would help to understand the degree of satisfaction of Pakistani citizens. E-governmental policy-makers and practitioners both would be benefitted by this analysis and results of these determinants of e-satisfaction. Some recommendations and implications of our findings were also addressed at the end.

Keywords: e-Government, e-Satisfaction, Security, Privacy, Trust, Accessibility, e- Service Quality and Pakistan.

1. Introduction

Information Technology (IT) has altered digital way of work of governments and citizens in recent years. Web now a day has settled as an essential medium by using the spread of information and a lot of services. In many areas including shopping, traveling, marketing, learning, trading and many more citizens choose to use web as a business instrument. Carter and Belanger (2003) evinced the usage of IT to enhance skillfulness and digital approach to governmental online services related to each stakeholder in Government to Citizen, Government to Employee, Government to Government and Government to Business related online facilities. Governments have recognized the importance of web technologies and assure criticality acclaimed modifications to reuse it for public online services so as citizens can easily use and access them irrespective of their location (Abdulkarim, 2003). E-Government is a proper method for world's governments to use the most progressive IT services and web-based online applications (Fang, 2002). Online applications serve up citizens and modern businesses with more favorable access to government services and information by improving the quality of services and accommodate more possibilities. Issues such as security, accessibility, trust, privacy, awareness, familiarity, quality of citizen related services are important in any E-Government paradigm (Jaeger; 2003). Some specific attentiveness has been acknowledged to e-Government projects by the Pakistan government to cope with modern digital needs.

Fast evolution of e-Government and its initiatives around all over the world especially in Asia indicates its favorable advantages such as enhanced low cost infrastructure, better governmental performance, more flexibility, broad scaling of online services, more transparency and more accountability. Continual engagement of Citizens in e-Government related services is a big challenge since web also offers various online other services with a few mouse clicks. Being as essential driving factor of online customer's constant behavior e-Satisfaction is the main ingredient to build and retain a firm foundation of long-term e-customers. United Nations, World Bank, Canadian Common Measurement Tool (CMT) of satisfaction, Europe's Information Society DG, American Customer Satisfaction Index, European Customer Satisfaction Index (using different indices and methods) measure exact e-Government satisfaction and advancement (Fitsilis, Anthopoulos and Gerogiannis; 2010). Featuring and investigating behavioral, technical and marketing decisive factor for online user's satisfaction is actual research problem here in case of Pakistan.

In this research article we try to determine the most significant decisive factors on the Pakistani citizen's satisfaction from the e-Government services provided by the Pakistan Punjab Province e-Government portal.

They are such as accessibility, trust, security and privacy, quality of public services, awareness of public services, computer anxiety and customer expectations. These determinants are transcribed from American Customer Satisfaction Index (ACSI), the European Customer Satisfaction Index (ECSI), the Canadian Common Measurement Tool (CMT) and the original Swedish Customer Satisfaction Barometer model (SCSB). Regarding the measuring of citizen satisfaction and influence of e-Government services in the concerned countries; these factors were the main focus of studies by Batini, Viscusi and Cherubini (2009), Eid (2011), European Commission Information Society and Medical Directorate, Kang and Lee (2010), Lee, Choi and Kang (2009), Lee and Chung (2009), Schaupp and Carter (2005), Tung and Rieck (2005), Verdegem and Verleye (2009), Welch, Hinnant and Moon (2005), Yang, Wu and Wang (2009), Yoon (2010) and Zavareh et al. (2012). Our study has engrossed on the above mentioned 7 potential factors of e-Satisfaction because they unite the technical, behavioral and economical dimensions. Citizen satisfaction has been investigated and evaluated in an indirect way through the related technical dimensions of systems such as system quality, information quality and service quality. Citizen satisfaction has been deeply examined through some of its relevant theoretical aspects of information systems adoption and diffusion theories such as TAM, TRA, DOI and TPB. Lastly citizen user's satisfaction has been investigated based on the economical and productive dimensions through service quality related models such as WEBQUAl and SERVQUAl. Security and privacy, and accessibility are classified as technical constructs. Computer anxiety, customer expectations, trust and awareness of e-Government public services are classified as behavioral constructs. Quality of e-Government public services are described as productive and economical constructs. 7 potential determinants of e-Satisfaction are presented through developing e-Government portal in Pakistan. Many previous researches have investigated customer's satisfaction from Business to Consumer e-commerce services and applications (e-Ticketing, e-Auctions, online stocks trading, e-Banking services and e-Employment services) in many different countries ((Cyr, 2008); (Flavia'n and Guinaly, 2006); (Kim, Donald and Raghav Rao, 2009)). There exists an insufficient quantity of significant researches that investigate user satisfaction from Business to Commerce e-business services and relevant applications (e-Learning, e-Government, e-Health) in a developing country such as Pakistan. As many studies presented in the literature yet depend mostly on e-commerce services in many developed countries. First reason is the huge lack of empirical cogent evidence to investigate e-Satisfaction and its influence on failure or success of e-business and e-commerce applications. Second reason is the vast difficulty of corresponding developing measurements and data collection ((Alawneh, 2009a); (Hattab,

2009b)).

This empirical research was conducted in Pakistan a developing country facing currently various infrastructure challenges due to terrorism and other internal crises (electricity shortfall) affecting overall e-Government service delivery capabilities. Even though Pakistan has formulated very clear Information Technology/e-Government policies and strategies which are associated with a keen devotion of the government's leadership to equip better e-Government services to Pakistani citizens and related businesses.

Although there is a huge lack of financial and economic resources but Pakistan has designed and projected comparatively advanced e-Government service delivery facilities. Actually the real effort of this research article is to perform data analysis by investigating the most significant determinants of users' satisfaction which will benefit Pakistan e-Government policy-makers, developers, planners and practitioners while concentrating their endeavors on key satisfaction factors in the Pakistani Punjab province e-Government portal. By contributing actually to enhance citizen's acceptance and providing mostly positive feelings after e-Government services usage. The outcome of this research article would be advantageous to different developing countries providing e-Government services in Asia/rest of the world having similar IT infrastructure competency, political and culture dimensions. Section 2 provides a brief case study description about e-Government in Pakistan. In Section 3, we present a review of the key factors of satisfaction as described in the previous literature. This section also deduces the hypothesized relations between e-satisfaction and its factors. In Section 4 we give an overview of previous and related works which gives the actual foundation for the current article. Then we present research methodology, data analysis, hypotheses testing and outcomes. At the end the paper deduces by investigating the key outcomes and conclusions. We also suggest future research directions, practical and theoretical recommendations.

2. E-Government in Pakistan

E-Government in Pakistan was established actually in October 2002. The E-Government was created by the Ministry of Information Technology. Following projects have been completed so far (http://www.e-government.gov.pk).

- Online Processing of Hajj Applications and Status Tracking for arrangements for Hujjaj.
- Automation of Prime Minister Secretariat, Islamabad.
- E-Enablement of Senate & National Assembly of Pakistan.
- E-service for submission of documents at Securities and Exchange Commission of Pakistan.

- Automation of Estate Office.
- Development of Urdu Lexicon, Machine Translation and Text to Speech Software for Urdu Language.
- Online Access to Statutory Case Laws at District Bar Associations.
- Automation of Patent Office, Karachi.
- E-Enablement of Press Clubs.
- Salary Disbursement through ATMs.
- IT Skills Training Programme for Probationary Government Officers.
- Process Mapping for improving efficiency of Ministry of Science and Technology.
- Installation of LAN and implementation of Mail Tracking and Internal E-mail System at 07 Federal Government Divisions.
- IT Technical Support to Provinces and AJK.
- Development of PPHI Website.
- http://www.punjab.gov.pk/ *{Punjab portal were designed for the Punjab province under Punjab Government.}*

3. Determinants of e-Satisfaction

Oliver (1980) presented *Expectation Confirmation Theory* (ECT) to examine consumer satisfaction and re-purchase behavior. The ECT theory explains that consumers create a very initial expectation before buying and then frame perceptions about the functioning of consumed service or product after a trail period of initial activity. Then consumers will determine on their satisfaction level based on the degree to which their expectation is affirmed while examining the actual performance of the service or product as compared to initial of expectation related performance. Accordingly satisfied consumers will make the mind to re-purchase. Satisfaction is attached to service quality and composed of a behavioral dimension developed due to experience and a mental dimension which is developed due to work up attitude (Oliver, 1999). Due to technological failure customer's dissatisfaction (using electronic services) may occur resulting in the negative type of perception of functional quality of related service. Service-design problems or technology-design problems may also cause dissatisfaction. Other problems include such as too slow systems and different type of difficulties for user to navigate the system or problems in determining how easily to log off that service (Meuter, Ostrom, Roundtree and Bitner, 2000).

In this article e-Satisfaction construct is described as the Pakistani (Punjab Province) citizen's feelings about the Punjab Province official e-Government portal after using it.

3.1. Security and Privacy

The most critical aspect in e-commerce is Information security concerns. Customers and businesses are always posting confidential and private type information to vendors and clients on web. Increasing number of these operations increases more security/cyber-attacks such as e-business shutdown, data theft and malicious file corruption. Cronin (1995) described several issues like censorship and security would try to prevent communication. It is clear to observe that security is one of the significant factors to growth and the integrity of e-business. Affecting satisfaction and trust; security is to keep the consumers procure safely from any penetration to their privacy. As a deep relationship of security to trust; offenses of security violations may be miscalculated by the fact to raise negative word-of-mouth and to lose customers (Dixit and Datta, 2010).

For our current article security and privacy is described as the Pakistani citizens' perception of the Pakistan Punjab Province e-Government portal as highly secure stage without any dubiousness after using e-Government and competency to find to what extent and when information and relevant items about them is conveyed to others while to sustain privateers. Due to above mentioned discussions and on the description of constructs of CMT, ACSI, SCSB and ECSI indexes and previous research works we proposed following hypothesis:

H1. High security and privacy of the Pakistan Punjab Province e-Government portal are positively influencing degree of e-Satisfaction of Pakistani citizens.

3.2. Trust

A critical part of success of a productive e-Government project is trust. Privacy is the key building block in e-Government service in citizen's trust (Kim et al., 2009). Entrusting sensitive financial, personal and medical data to the government by making citizens communicate with e-Government is essential to maintain a better relation. Misdemeanoring citizens' privacy can enhance citizen's intentions to stay off to interact with e-Government services and thus e-Government related projects would cause a failure. Mcknight et al. (2002) also described in his model of trust of e-commerce customer that to trust actually on different beliefs would lead to trust using intentions, influencing and increasing trust based behaviors such as commitment, loyalty and satisfaction. Describing and defining customer trust as a complete set of beliefs kept in mind by an online Consumer relating certain peculiar qualities of the e-supplier along with a future possible behavior of the e-supplier (Coulter and Coulter, 2002). Lee and Lin (2005) proposed in their research that trust conduces purchasing online and influences customer's attitude for purchasing from e-retailers in online

business. Kim et al. (2009) dealt with a longitudinal research in the U.S.A and discovered that online customer's trust is very strongly attached to loyalty. Trust is critical factor for a long-term business related relation. It is crucial while uncertainty risk and relevant interdependence coexist; as it lessens attached risk. Web marketers are concerned to build better exchange relations with their consumers. Important predecessors for the continuance of exchange relations are consumer's beliefs and their intentions attached to trust in the web marketer. These beliefs rely on the degree of risk sensed by consumers also their relevant perceived degree of control on related information and data that they must interchange with the web marketer (Palvia, 2009). Carter and Belanger (2005) actually differentiated the construct of trust into two views; traditional view of trust in a particularized entity also trusts in reliability of the enabled technology (internet). In an article trust on e-Government shows that citizens' trust on any form of government attached organization lessened their perceptions of attached risks to use actual e-Government services (Belanger and Carter, 2008). In our article trust is described as the Pakistani citizens' eagerness to depend on the Pakistan Punjab Province e-Government portal to conduct government related transactions based on sensitivity of assurance and confidence. Due to above mentioned discussions and on the description of constructs of CMT, ACSI, SCSB and ECSI indexes and previous research works; we proposed following hypothesis:

H2. High trust on the Pakistan Punjab Province e-Government portal is positively influencing the degree of e-Satisfaction of Pakistani citizens.

3.3. Accessibility

Web is very fast paced and huge source of information and services; a well-crafted e-Government portal has transformed as essential means to engage citizens to access public related information and revitalize their e-participation. Government portals function as a mean and channel for both public relations and communication for general citizens. Data and Information can be utilized with and trans-located to external stakeholders easily (Moon, 2002).

Web accessibility is to get people to perceive, use, navigate, understand and interact with the web (Henry, 2006). Definition of accessibility according to the International Standards Organizations (ISO) is "the usability of a product, service, environment or facility by people with the widest range of capabilities". Gummerus et al. (2004) described the user interface as the mean by which customers are in contact to e-service providers. Park and Kim (2003) described that the quality of user interface directly impacts on customer satisfaction; providing physical argument of service provider's competency and assisting in effortless usage of relevant

service. Tan, Tung, and Xu (2009) described due to importance to customer satisfaction by identifying 14 key factors for developing an efficient B2C e-commerce related websites. Gummerus et al. (2004) proposed that the actual quality of user interface is supposed to directly influence trust. Roy et al. (2001) discovered that user guidance, ease of navigation and interface design directly impact on consumer view of trust. Moreover; Srinivansan et al. (2002) discovered that the interactivity view of e-commerce systems and applications is strongly attached to customer loyalty. While Cyr (2008) described the impact of B2C e-commerce website user interface designated factors (navigation design, information design and visual design) on satisfaction and trust across 3 developed countries; Germany, Canada and China. Cyr also discovered that the user interface design related variables are key cause to e-satisfaction website and trust across different cultures. In our article accessibility is described as the Pakistan citizens' percept of user interface quality of the Pakistan Punjab Province e-Government portal to conduct government related transactions from specific location during all the day (24h). Due to above mentioned discussions and on the description of constructs of CMT, ACSI, SCSB and ECSI indexes along with previous research works we proposed following hypothesis:

H3. High accessibility to the Pakistan Punjab Province e-Government portal is positively influencing degree of the e-Satisfaction of Pakistan's' citizens.

3.4 Quality of e- services

Quality of e-service has 2 aspects; technological aspects referring to what actually delivered while second are functional aspects referring to how e-service is being delivered. Response speed, update offers, website effectiveness etc. are actually referred as technical quality (Rust and Lemon, 2009). Mutual communication, personalization for shared communication and of e-service including some new types of customer accesses are referred as functional dimension of quality. Service or Product is described as customer's actual perception of quality of data and information about the service or product that is offered by a website (Park and Kim, 2003). Moreover quality of website's contents has been suggested as to be a cause of e-customer trust (Mcknight et al., 2002). Park and Kim (2003) discussed that information and data quality directly influences customer satisfaction. In our article quality of e-service is described as the Pakistan citizens' perception of the quality of services and products that are offered by the Pakistani Province e-Government portal. Due to above mentioned discussions and on the description of constructs of CMT, ACSI, SCSB and ECSI indexes and previous research works we proposed following hypothesis:

H4. High quality of e-services at the Pakistani Punjab Province e-Government portal is positively influencing degree of the e-Satisfaction of Pakistan's' citizens.

3.5 Awareness of e-services

Another crucial factor is awareness of e-service in affecting customer's usage of e-services and its adoption. Customers have a real need and realize of the advantages of any e-application otherwise they will be skeptic and unwilling to use it. Pikkarainen et al. (2004) has described on the scale value of data and information, a customer knows about any e-application/system and its advantages may have a crucial influence on adoption of the specific applications. In our research article awareness of e-services is described as Pakistani citizens' percept of advantages and knowledge about services and products that are offered by Pakistan Punjab Province e-Government portal and degree to which Pakistanis are really aware of that specific portal. Due to above mentioned discussions and on the description of constructs of CMT, ACSI, SCSB and ECSI indexes and previous research works we proposed following hypothesis:

H5. High awareness of e-services at Pakistan Punjab Province e-Government portal is positively influencing degree of the e-Satisfaction of Pakistani citizens.

3.6 Computer Anxiety

Another critical factor which can impact on citizen's satisfaction is computer anxiety. Different type of customers has different level of computer anxiety based on their previous computer and internet experience, qualification and usability etc. Lee et al. (2009) has investigated about this factor describing those crucial factors in online systems adoption and usage is computer anxiety which can rely on some further factors like educational level of user, age, and previous I.T and Internet experiences. Different age group showed different level of computer anxiety. Kang and Lee (2010) also investigated this factor in their research work showing similar kind of outcomes and influences on the citizen adoption and intentions to use online systems. Due to above mentioned discussions and on the description of constructs of CMT, ACSI, SCSB and ECSI indexes and previous research works we proposed following hypothesis:

H6. High computer anxiety of using Pakistan Punjab Province e-Government portal is positively influencing degree of the e-Satisfaction of Pakistani citizens.

3.7 Customer Expectations

Another critical factor which can impact on citizen's satisfaction is customer expectations. Different type of citizens customers have different level of customer expectations based on their previous computer and internet experience, qualification and usability etc. American Customer Satisfaction Index has clearly mentioned this construct affecting citizen satisfaction and also the original Swedish Customer Satisfaction Barometer model described this factor in satisfaction of customer related activities. Due to above mentioned discussions and on the description of constructs of CMT, ACSI, SCSB and ECSI indexes and previous research works we proposed following hypothesis:

H7. A high customer expectation of Pakistan Punjab Province e-Government portal is positively influencing degree of the e-Satisfaction of Pakistani citizens.

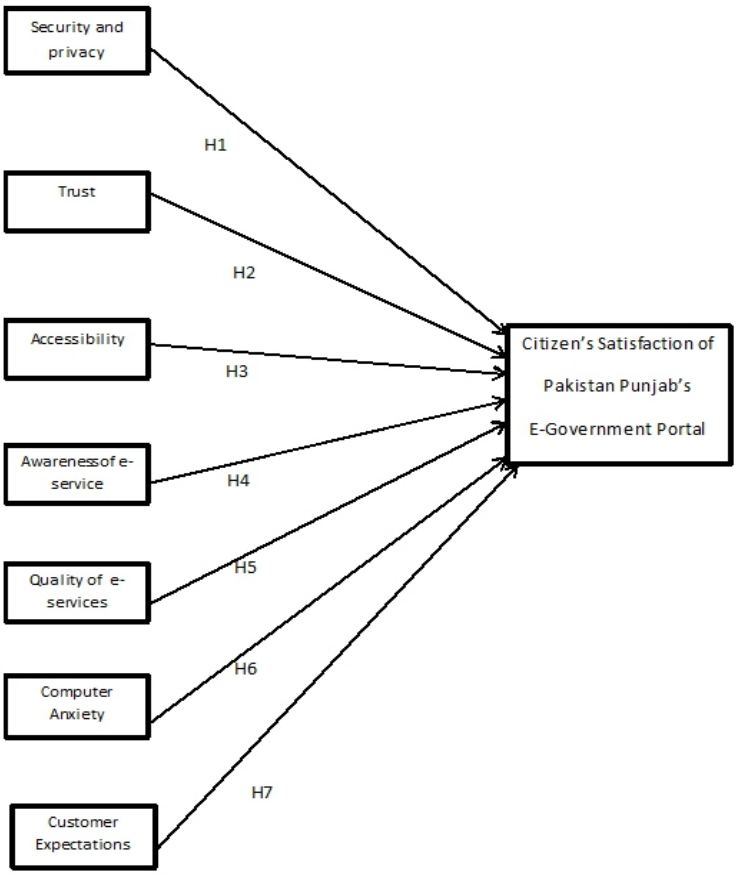

Fig1: Proposed Research Model

4. Previous works

Zavareh et al. (2012) have investigated the impact of e-Service Quality on e-Customer Satisfaction. Data of e-Service Quality and e-Customer Satisfaction were collected from 392 users of e-banking a corresponding response rate of 76%, of 4 main banks in Iran. Outcome showed that fulfillment, trust/security, reliability and efficient services, website aesthetics, contact/responsiveness and ease of use compose of e-Service Quality for e-banking services in Iran. A noteworthy positive relation between e-Service Quality and e-Customer Satisfaction discovered to exist in the e-banking. Performed regression analysis exhibited that ease of use; trust/security and website aesthetics of e-banking services have positive impact on e-Customer Satisfaction.

Karunasena and Deng (2012) have discovered the crucial factors for measuring public level value of e-Government in Sri Lanka. Their article suggested that user-orientation of e-services and information, the quality e-Services and information delivery, responsiveness and efficiency of public related organizations and contributions of public related organizations to the sustainable environment are the crucial factors to measure public scale value of e-Government in Sri Lanka.

Papadomichelaki and Mentzas (2012) have investigated e-Government service quality studying an e-Government service quality model was being conceptualized and for evaluating e-Government service quality of governmental websites a multiple-item scale where citizens quest service and information, is designed, over-refined, re-validated and tested. Within e-Government service quality model 4 different dimensions being used: were trust, efficiency, reliability and Citizen Support. The researchers deduced to identify the actual quality factors that will impact on citizen satisfaction level which may be used to know better use of requirements and sub-serve in the advancement of (G2c) Government to Citizens' systems specifications. Focusing on test efforts and measuring potential alterations to operations and designs of existing online Government site.

Bannister and Connolly (2011) have investigated the basic concepts of transformational government and trust. Outcome of this research suggested about expectations that technology enabled changes have abilities to enhance citizen’s trust hence transforming government might be too much high.

Eid (2011) discussed those factors of e-commerce customer satisfaction, loyalty and trust in Saudi Arabia. He discovered the determinants that impacts the extent to which Saudi costumers trust are actually satisfied with and are really loyal towards e-commerce B2C. By using a structured self-administered questionnaire in the eastern province of Saudi Arabia; he performed a survey among customers of B2C e-commerce.

Outcome of research showed that customer's (of B2C e-commerce) loyalty in Saudi Arabia is strongly impacted by customer satisfaction but weakly impacted by customer trust.

Dixit and Datta (2010) described about the acceptance of e-banking in India among only adult customers. Outcomes exhibited that many determinants like trust, innovativeness, familiarity, security and privacy, and awareness level enhances the acceptance of e-banking services among Indian adult customers.

Suki and Ramayah (2010) investigated in Malaysia about user acceptance of e-Government services indicating that the significant factors of user acceptance of the e-Government services are at ease of use, compatibility, facilitating conditions, self-efficacy, interpersonal influence, perceived usefulness, attitude, external influence, perceived behavioral control, subjective norms and intention to use e-Government services/system.

Al-Jaghoub, Al-Yaseen, and Al-Hourani (2010) described about outcome of a research that focuses to assess determinants which could impact the awareness and use of e-Government services in Jordan. They researched factors such as: citizen's attitude toward privacy and security, accessibility of e-Government and the required services and costs. Outcomes suggested that awareness of e-Government did not actually attain the required level.

Verdegem and Verleye (2009) discussed through developing and testing a comprehensive model a user-centered e-Government in practice to measure user satisfaction using 5 Flemish e-Government websites. Both qualitative and quantitative research was being carried out to illustrate the model and to redevelop satisfactory indicators to measure user satisfaction. The research described factors of satisfaction as: awareness, availability, technical aspects, infrastructure, cost, security/privacy, content and usability in terms of customer friendliness.

Lee et al. (2009) explored about (e-Satisfaction) online customer satisfaction and re-purchase behavior in e-commerce. By attempting to propose a conceptual model to rewrite how e-Satisfaction is created. They described how computer-related individual differences such as computer anxiety and computer self-efficacy moderates this kind of formation. Analysis result gotten from a self-administrated survey of 274 e-buyers by suggesting that overall e-service quality website, information satisfaction and system satisfaction have key-roles to form e-Satisfaction.

Hamner and Al-Qahtani (2009) proposed in Saudi Arabia if the citizens would use e-Government as it would be available to them. Conclusion of the article is that the citizen of Saudi Arabia would use e-Government if it is available to them. By results it strongly recommended

that most important assignment for developing countries to manage in implementing e-Gov. would be continual for educating and training youth in information systems (as e-Gov.).

Wang and Liao (2008) explained DeLong and McLean's IS success model adoption in the context of G2C e-Government. Their proposed model composed of 6 dimensions: system quality, service quality, user satisfaction, information quality, use and perceived net benefit.

Structural equation modeling techniques were used to data analysis over collected data by questionnaires from 119 users of G2C e-Government systems in Taiwan. Research showed that information quality had a noteworthy impact on both use and user satisfaction. The impact of service quality on use and user satisfaction was not very significant. System quality had a very significant influence on user satisfaction but had not significant impact on use. But information quality showed a strong influence on system quality and service quality on use and user satisfaction. As user satisfaction discovered to be a very significant factor of perceived net benefit.

Welch et al. (2005) have described (using 4 direct questions,) citizen's trust in government. The authors restrict their research analysis to 3 main factors: transparency, transactions and interactivity. They exhibited that those individuals who really tend to trust on the government actually tend to use governmental websites and vice versa. Outcome described that citizens who are mostly satisfied with e-Government also really trust the government more but show that citizens who actually trust government are more likely to be actually satisfied and attached with e-Government.

Tung and Rieck's (2005) researched on e-Government services adoption by business (i.e., G2B) showing that increased degree of awareness of e-Government services along with security and quality of services may lead to higher adoption rate. Similar kind of results using TAM and DOI were presented in investigating the e-voting among college students where trust perceived usefulness and compatibility were found to be very significant relevant variables in explanation of young voters' intention to use G2C services especially e-voting services (Schaupp and Carter, 2005).

5. Research methodology

Based on previous researches and literature review a survey questionnaire was formulated by our team of researchers composed of (40) questions actually about the responders and their percept of the factors of e-Satisfaction from the Pakistan Punjab e-Government portal. Our questionnaire used construct using different type of items. All items exhibited in the survey's instrument used a 5-point rating scale. Questionnaire was composed of 2 parts: 1st part included Pakistan's citizens' demographic characteristics (age, work experience, gender, computer skills,

scientific degree and monthly income). A sample of 300 employees working in 8 different universities at the Punjab Province was chosen for an analysis's unit. Questionnaires were sent to the employees by e-mail. Total returned and answered questionnaires were 200 showing response rates of 66 percent. 2nd part showed at investigating Pakistani citizens' opinions and sentiments about factors of the degree of e-Satisfaction from Pakistan Punjab e-Government portal.

Data analysis was performed using the multiple linear regressions and factor analyses by SPSS 12.0 software. Multiple regression analysis is a multivariate statistical technique often used to investigate the relations between an outcome variable and several relevant predictors (Hair and Anderson et al., 1998) while proposing that multiple regression analysis gives a means of assessing with objectivity the magnitude and direction of each predictor's relations to its related outcome variable. In the exploratory research "stepwise" regression analysis is more appropriate and for predictions (forced entry regression method). Factor analysis is performed as a Structure Detection Method to justify degree of e-Satisfaction and for 7 factors. Factor analysis is performed to explain how the 7 different dimensions of this e-Satisfaction attached to construct while measuring it and to find consistence property of the items. To get the reliability of the measurement constructs Cronbach's alpha are calculated.

6. Research findings

6.1. Data analysis

In Table 1 below; descriptive statistics of the responders are shown as it provides the demographic characteristics of the responders.

Table 1: Demographic data of the main survey

Demographic Object	The valid items	Percent %
Gender	Female	22.4
	Male	68.3
Employee experience	<=5 years	55.5
	6-10 years	16.2
	11-15 years	17.7
	>=16 years	3.8
Education	General Secondary	0.0
	College	8.6
	Bachelor	16.3
	Master	24.8
	Doctoral	48.2
Age	<=25	42.7
	26-30	23.3
	31-35	18.7
	36-40	14.3
	41-45	4.5

	>=45	3.2
Monthly Income	<=50000 PKR	13.8
	50001-100000 PKR	20.2
	100001-150000 PKR	48.7
	>=150000 PKR	17.2
Computer literacy	Professional	55.3
	Advanced	39.2
	Beginners	5.5

Table2: Demographic statistics of Pakistani's

Demographic Indicator	Percent %
Female	47.6
Male	52.4
Population less than 15 year of age (%)	35.5
Population age 15–64 years (%)	60.3
Population age 65+ years (%)	3.2
Urban population (%)	60.7
Rural population (%)	39.3
Average household size (person)	6.3
Population median age (year)	22.5
Female/male academic staff ratio, for university stage	24.8
Illiteracy among population 15+ years (%)	27.7
Unemployment rate (%)	21.4
Pakistani households who own PC (%)	26.5
Pakistani households who has internet access (%)	6.9
Proportion of computer users for age 5+ years 55.7	56.7
Proportion of internet using for age 5+ years 27.2	22.6
Percentage of Pakistanis age (15+) years have secondary educational level	19.7
Percentage of Pakistanis age (15+) years have intermediate diploma educational level	10.3
Percentage of Pakistanis age (15+) years have bachelor and above educational level	18.0

Using confirmatory factor analysis (CFA) measurement items of 7 constructs were examined and calculated by (Varimax rotation) principal component extraction process (Anderson and Gerbing, 1988). Table 3 exhibits factor loadings of relevant observed variables (questions /the items).

Table 3: Confirmatory factor analysis (CFA)

Measurement Items	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
Security and privacy							
▪ Punjab e-Government portal has enough safeguards to make me feel comfortable in conducting governmental transactions.	0.91						
▪ Punjab e-Government portal ensures the confidentiality of my personal information.	0.66						
▪ Punjab e-Government portal will never misuse my personal information.	0.52						
▪ Punjab e-Government portal has adequate technological standards and tools to ensure that the data I send cannot be modified by unauthorized people.	0.83						
▪ Punjab e-Government portal adheres to personal data protection laws.	0.79						
▪ Punjab e-Government portal only collects users' personal data that are necessary for its functioning.	0.64						
▪ Punjab e-Government portal shows attention for privacy of its users.	0.53						
Trust							
▪ Punjab e-Government portal is trustworthy to deliver governmental services to its users.		1.04					
▪ I expect my use of the Punjab e-Government portal will increase in future.		0.81					
▪ I trust that my all personal information will remain in the Punjab e-Government portal.		0.48					
▪ Punjab e-Government portal is always increasing Pakistanis' attention and interest.		0.83					
▪ I trust the benefits provided by the Punjab e-Government portal.		0.89					
Accessibility							
▪ Punjab e-Government portal design is very efficient.			0.91				
▪ Punjab e-Government portal provides clear and easy to follow procedures, processes and instructions.			1.11				
▪ Punjab e-Government portal is interactive and attractive to its users.			0.85				
▪ Punjab e-Government portal is visually appealing.			1.02				
▪ Punjab e-Government portal is always increasing my search capability.			0.67				
Awareness of e-services							
▪ I receive enough information about the Punjab e-Government portal.				0.93			
▪ I receive enough information about the benefits of the Punjab e-Government portal.				1.09			
▪ I receive enough information for using the Punjab e-Government portal.				1.01			
▪ Punjab e-Government portal keeps all promises and commitment of its users.				0.63			
▪ Punjab e-Government portal increases the awareness about security of its data.				0.61			

▪ Punjab e-Government portal always encourage its users to conduct governmental transactions online.				0.89			
Quality of e-services ▪ Punjab e-Government portal enables me to accomplish governmental transactions more quickly ▪ Punjab e-Government portal enables me to enhance performance of utilizing governmental transactions through online support. ▪ Punjab e-Government portal enables me to accomplish more governmental transactions in fewer steps. ▪ Interaction with the Punjab e-Government portal is clear and understandable. ▪ It is easy to do what I want to do using the Punjab e-Government portal. ▪ Punjab e-Government portal enables me to track governmental transactions with a variety of options and less errors. ▪ Punjab e-Government portal enhances my ability to complete governmental transactions without problems, misunderstandings and delays. ▪ I intend to use the Punjab e-Government portal in the future. ▪ Punjab e-Government portal provides a problem solution platform. ▪ I will recommend others to use the Punjab e-Government portal.					0.63 0.67 0.73 0.86 0.68 0.64 0.71 0.88 0.73 0.81		
Computer anxiety ▪ When I use Punjab e-Government portal I fear of losing my personal data. ▪ When I use Punjab e-Government portal I fear of having insufficient computer skills ▪ When I use Punjab e-Government portal I might lose an opportunity or service due to lack of my computer skills.						1.09 0.97 0.77	
User expectations ▪ When I use Punjab e-Government portal I expect highly efficient services. ▪ When I use Punjab e-Government portal I wish not to have any difficulty locating my concerned information.							0.85 0.78
Eigenvalues	4.95	4.97	4.89	4.67	3.69	4.91	3.83
Percentage of Variance	20.48	20.81	20.37	19.67	15.29	20.56	17.6
Cumulative variance	20.52	41.25	60.97	21.12	95.25	35.7	80.3
Cronbach's alpha	0.73	0.64	0.83	0.92	0.79	0.81	0.79

6.2. Hypotheses H1–H7 (e-Satisfaction vs. factors of e-Satisfaction)

Using multiple regression analysis for testing every hypothesis; model of regression was actually run very separately for each and every

independent variable.

Table 4 exhibited the outcomes of multiple linear regressions for hypotheses H1→H7. Table presents standardized regression's coefficient of every predicator i.e. R, R2 and F (for all of the predictors in this linear regression analysis).

Table 4: Outcomes of multiple regression analysis

Independent	Dependent (e-satisfaction)
All Determinants	**e-**Satisfaction R^2 = .810 F = 108.345
Security and privacy	β = .089 t = 1.003
Trust	β = .087 t = 0.880
Accessibility	β = .687 t = 8.542
Awareness of e-services	β = .497 t = 6.877
Quality of e-services	β = .719 t = 8.833
Computer anxiety	β = .077 t = 7.897
Customer expectations	β = .86 t = 7.873

The results discovers that accessibility, awareness of public services, quality of e-services and customer expectations (4 factors) affect significantly and positively on e-Satisfaction ($p < 0.01$) supporting H3, H4, H5 and H7 respectively. But security and privacy, trust and computer anxiety (H1, H2 and H6) are drawn into "Not Supported" category. The outcomes exhibited that the Hypotheses H3, H4, H5 and H7 are very justified by the significance of 4 determinants. Accessibility is related to the Pakistani citizen's percept of user interface quality in the Pakistan Punjab e-Government portal to conduct governmental transactions. Awareness of public services is attached to the Pakistani citizen's percept of advantages and information about services and products provided in the Pakistan Punjab e-Government portal. Quality of e- services is related to the Pakistan citizen's percept of quality of services and products that are provided in the Pakistan Punjab e-Government portal. In different cultures different types of application have been used and such outcomes are somehow similar with results of Eid (2011), Zavareh et al. (2012), Lee et al. (2009), Dixit and Data(2010), Suki and Ramayah(2010), Wang and Liao (2008), Verdegem and Verleye (2009), Karunasena and Deng (2012) and Al-Jaghoub et al. (2010).

7. Conclusion and future work

Main objective of this article is to evaluate the factors related to the degree of e-Satisfaction of the users of Pakistan Punjab e-Government portal. E-Satisfaction is described as online user's impact for and feeling about e-Services usage which is main aspect for online customer continual behavior toward retaining and building loyal long-term customers. 7 key factors impacting e-Satisfaction are proposed and validated. Identified 7 factors are; security and privacy of Pakistan Punjab e-Government portal, trust with Pakistan Punjab e-Government portal, accessibility to Pakistan Punjab e-Government portal, awareness of e-services on the Pakistan Punjab e-Government portal, computer anxiety while using Pakistan Punjab e-Government portal, customer expectations while using Pakistan Punjab e-Government portal and quality of e-services with the Pakistan Punjab e-Government portal. Factors including accessibility, awareness of e-services, and quality of e-services and customer's expectations of Pakistan Punjab e-Government portal were found to have a significant positive influence on e-Satisfaction degree for Pakistani citizens. Whereas it was found that security and privacy, trust and computer anxiety have no significant positive impact on degree of e-Satisfaction for Pakistani citizens. E-Government planners and policy makers in Pakistan have to face vital pressure to really answer the relevant question of how and whether the Pakistan Punjab e-Government portal would attain a high degree of satisfaction among Pakistani population. This research would assist (e-Government) planners and policy makers to re-define and re-identify the factors of e-Satisfaction effectively. This article endeavors to exhibit the key determinants/factors of e-Satisfaction for keeping a focus on e-Government services in order to reform the satisfaction level for Pakistani citizens. In this research we have investigated an interesting e-Government related topic (e-Satisfaction in Pakistan e-Government). Previously researches on e-Satisfaction with e-Government applications and ventures are very rare in Pakistani context. Hence this research is one of the very first to assist practitioners and academics to have discussions in Pakistan on this theme. To our knowledge this research is one of very first in Pakistan that has really attempted to evaluate and investigate the factors of e-Satisfaction with e-Government portal by Pakistani citizens.

By this research we have tried to bridge the gap between IS (Information Systems) researchers and marketing practitioners as we provide a very balanced aspect of e-Satisfaction formulation by investigating computer anxiety, website information awareness, customer expectation, security and privacy, its system accessibility, related trust and its e-service quality. This combinative analysis has not been yet available within marketing and the IS disciplines.

This research has some limitations. Sample size is not very large. It is

only from 8 universities in Punjab Province of Pakistan. To enhance generalization and accuracy of the research outcomes future articles should try even larger sample size to add participants from all provinces of Pakistan.

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