RESEARCH ARTICLE

Training Curriculum on E-Government: An Empirical Study on Senior Civil Servants of Bangladesh

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Abstract

E-Government is to be ensured for good governance. There is a limited work in Bangladesh Public Administration Training Centre (BPATC) to identify the need for e-Government knowledge and skill as well as attitude at the level of Joint Secretary. Therefore, the outcome of the research would contribute to identify the e-Government training need areas in terms of knowledge, skill and attitude of senior civil servant of Bangladesh, for which Senior Staff Course (SSC) curriculum may be redesigned.

The objective of this study was to identify and assess the training needs of the participants of SSC to modify the Information and Computer Technology (ICT) curriculum of SSC; specifically to identify the relevant area of knowledge and skill of the SSC participant towards ensuring e-Government; to determine and identify the training need/module for SSC to manage e-Government and to suggest for policy guideline. As a research instrument this study is used structured questionnaire. This study extracted the core areas of training need related to e-government knowledge and skill and attitude. Thus, Principal Component Analysis has done with those core areas of skill and knowledge. Descriptive statistical results revealed that all those areas have high and significant relationship among the major variables and achieved high score of mean value. Descriptive statistics reveals that among the four major variables those are: 'ICT Skill'; 'E-government Management'; 'E-government Skill'; and 'Attitude' have relationship and those are important for Senior Level Civil Servant. But the mean score of those variables are not high as it is required. Therefore, these are the potential areas for the Joint Secretary Level official to formulate E-Government training module.

Keyword: *SSC, BPATC, E-government, Benefit of E-government, Factor Analysis, Bangladesh.*

Introduction

Background of the Study

Managerialism and New Public Management (NPM), which was introduced by many developed and developing countries during the 1980s, presented a model for organizations in the public sector mainly based on practices of private sector managerialism [1]. In today's technology-driven and globalised world, e-government is the next wave of public management reform. Governments in developing countries are striving to develop the crucial institutional framework, together with essential policies and funds in knowledge infrastructure and technological innovations, and it would redefine development initiatives and public management systems through increase in efficiency, reduction of corruption and improvement of accountability standards. Digital empowerment of society and public management systems could become the corner stone of age [2].

Thus e-government can play an important role and change the whole service delivery system as well as the relationship between governments and their citizens [3]. E-government requires consumer centric approach to service delivery which will "create public value". Developed countries have passed the transitional period of e-government infrastructure development, and now are focusing on how to implement e-government practices to advance service delivery to the citizens and to explore prospective synergy from diverse technologies and an supporting milieu for the accomplishment of a knowledge-based society. Developing countries are still at the transitional phase, formulating policies and initiating processes to equip institutional capacity and people to benefit from e-government.

Senior Staff Course is one of the significant core courses of BPATC. A good number of areas of

professional knowledge and skills are covered under this course within the limited time-frame to prepare the participants to run the administration as the senior members of Bangladesh Civil Service. Under the SSC, the professional areas like Public Policy Studies, Public Service Management and Governance, Globalization and Negotiation, Macro-economic and Environment Management, Financial Management and Project Management, Professional Language Application and ICT Application in Office Management are the main input areas of Senior Staff Course.

The existing Module of ICT Application in Office Management is the only input for senior level officers of BCS. But the government is trying to introduce e-Governance including online service delivery and ICT based business process in public service delivery system. Under the Vision 2021, government is also committed to bring a significant transformation from traditional service delivery to the ICT-based service delivery to the general people of the country.

The Joint Secretaries of the government are the key players in leading, implementing, managing and monitoring the e-governance initiatives in their respective organizations. So, in order to lead the e-governance initiatives they must have sufficient knowledge, skills and attitude regarding e-Governance management. In this respect if we, analyze the, existing Module in SSC, that gives us very hopeless picture. The existing Module covers only the primary skills in ICT operation. Simply, this type of Module can enhance only some ICT skills for them.

Moreover, for the senior managers of the civil service, there is no special course. So it is now the demand of the time, to modify the ICT related existing curriculum. So, the main purpose of the study is to identify the e-government management training need for the senior officers of BCS. The study outcome will certainly help the curriculum development team to redesign ICT related module of SSC as well as design a special course on e-government management for senior officers of BCS.

However, the study is an endeavor to examine the training needs from the supply side for smooth introduction and implementation of e-governance in the country. This research has particularly dealt with the groups of Joint Secretary level officers of the Bangladesh Civil Service, who were the participants of Senior Staff Course (SSC) at

Bangladesh Public Administration Training Centre (BPATC). The overall purpose is to assess the e-government management training needs of the participants of SSC and to suggest for necessary adjustments in the relevant part of the curriculum of SSC to enhance levels of their knowledge, skills, awareness, aptitude, attitude and perception about e-governance.

It is noted that the driving force of any organization is its human resource. Public workforce being important driver is considered as the 'supply side' of e-governance; they are also vital for planning and implementing all e-governance initiatives. So, they require being equipped with necessary capacity (Skills and perception), outlook (desire) and change mindedness.

E-governance is one of the most contemporary concepts of the present world. By this time, some nations already have proceeded much ahead with this. Some other countries are well prepared to take off. Countries like Bangladesh have just started moving. Therefore, in Bangladesh context, the proposed field remains almost a virgin one to be explored into, where substantial knowledge gap exists. Very few government business or technical reports, documents or articles are presently available in this connection. Particularly, in the area of preparedness of Bangladesh Civil Service, from public management perspective, there exists no academic research or study in Bangladesh so far the researchers' knowledge goes.

Senior Staff Course is one of the significant core courses of Bangladesh Public Administration Training Centre. Many areas of professional knowledge and skills are covered under this course within the limited time-frame to prepare the participants to run the administration as the senior members of Bangladesh Civil Service. Among others modules, e-government as a specific area of knowledge neither has received specific attention, nor the training needs of the participants have yet been taken into consideration in the existing curriculum of Senior Staff Course run by Bangladesh Public Administration Training Centre (BPATC). Therefore, in this context, it is a prime need to explore into the matter with due importance and necessary efforts.

The broad objective of this study is to assess the training needs and clusters those training needs into different categories for the participants of

SSC and to suggest for adjustments in the curriculum of SSC of e-government training module in BPATC. Specific objectives are:

- To identify the relevant knowledge and skill areas that the SSC participants require to manage e-government initiatives in their offices;
- To identify the training needs of the SSC participants specially on e-government; and

- To classify the training needs into different training modules and adjustments for the curriculum development of SSC.

The study report consists of five parts. The first part deals with introduction of this study. Part two describes concept of e-government, e-government status in different countries along with Bangladesh. Research methodology of this study is discussed in part three. Data analysis, study results and discussion is reported in part four. Conclusion, managerial implication, future research direction and limitation is reported in part five.

Literature Review

E-Government

"E-government is the use of technology to enhance the access to and delivery of government services to benefit citizens, business partners and employees" [4]. Sharma [5] suggests that e-government in its fully developed state is an e-portal. The e-portal is a one-stop government service shop that offers citizens links to all facets of government; links to non-profit organizations; links to private organizations and other agencies such as multilateral organizations. The e-portal can be owned by private firms as a one stop single portal entry to the interconnected public departments [6]. It may also allow self sufficient citizens to be better equipped to purse their own private interests, as they will be in a position to self-govern and self-regulate. In Australia this system is expected to '…improve the endemically faulty and constantly repaired machinery of the liberal democratic government' [7].

E-government can be considered as a public policy means that creates opportunities for public sector reforms and allows the system to operate more efficiently and effectively. Smith and Teicher [3] opined that it facilitates for a better and more cost

efficient system of service delivery as well as wider scope of people's empowerment. In developed countries, e-government is about transformation and the integration or seamless delivery of services to citizens. A fully committed

and functional government with a focus on service delivery is a prerequisite for the projected transformation. Australia is noted as a world leader in developing and implementing effective e-government strategies and related initiatives [8-10]. Australia has moved from traditional hierarchies to a more market centric approach to the delivery of government services [8]. This requires a shift of the governmental perspective from a fragmented public administration approach to a customer-oriented approach of service. This customer oriented approach requires clear and concise single portal entry that is relatively easy to navigate [6]. Engaging citizens and relevant stakeholders in the process of making and implementing of public policy is considered as a key goal of successful e-government in the public sector organizations [8]. Other significant features of e-government include that it is seen as a tool of saving cost for service delivery and also by creating easier accessibility to government actions it makes the government more accountable and transparent [4,10,11]).

Benefit of e-Government

E-government offers transparency and understandability of government, which highlights the governmental accountabilities [11]. For public management this can create liability and highlight deficient accountable public servants [4]. Governments in developing countries have formulated e-government policies citing its many benefits ranging from lowering costs, improving efficiency and providing more cohesive and responsive services to the public. But governments have not been able to create skilled, competent and motivated staff and good practices in order for a successful e-government [4]. The Global E-government Readiness Report 2004 ranked the 191 UN members to identify the degree of willingness and readiness of the governments across the globe to exploit the opportunities derived from ICT to develop and improve accessibility to and standard of fundamental public services. Developing countries are lagging behind, as evident below:

Table 1: E-government development in largest population countries

	E-gov. development index		World e-gov. Development ranking			
Country	2012	2010	2012	2010	Population (in millions)	

China	0.5359	0.4700	78	72	1,341
India	0.3829	0.3567	125	119	1,225
United States	0.8687	0.8510	5	2	310
Indonesia	0.4949	0.4026	97	109	240
Brazil	0.6167	0.5006	59	61	195
Pakistan	0.2823	0.2755	156	146	174
Nigeria	0.2676	0.2687	162	150	158
Bangladesh	0.2991	0.3028	150	134	149
Russian Federation	0.7345	0.5136	27	59	143
Japan	0.8019	0.7152	18	17	127
Mexico	0.6240	0.5150	55	56	113

Source: United Nations E-Government Survey 2012: E-Government for the People

In the absence of an implementation plan, the use of e-government policies is restricted to those with the necessary resources and the skills, thus creating an elite group within the public management system that will reinforce a digital divide [13]. Basu [13] also urges that access of high ranking officials to existing limited e-government practice, absence of trained managers at various levels, shortage of equipment and presence of undeveloped infrastructure created some degree of dysfunctionalism in an already corrupt and inefficient administration. Information poverty, according to Meredyth, Ewing and Thomas [7] is increasingly emerging to government as a significant problem in many countries. The digital divide creates questions for government as to how they are able to bridge the gap by creating technology centers subsidizing access to the internet. In order to execute policies, it is urgent to augment e-readiness of the supply side through learning and development programs backed by operational strategies. Lee-Kelley and James [14] suggest that the technological gulf is widening between those individuals who are e-literate, the people who have access to the Internet and the people who cannot afford the cost of access. It is the responsibility of a government to create the necessary skills, readiness and resources so that public managers know how to access computers and the Internet and use it as an efficient public policy making and implementation tool. Singapore has created a position where a successful e-government system has been implemented, e-government has given the government great monetary savings, it is a country that maximizes its technology and the public in Singapore is well wired and up to date with awareness what technology can offer [15]. Powerful tool, devoid of political meaning and is a window for information service delivery to the community but the managers of public services as the providers of cost effective quality services to the people must develop necessary e-readiness. Otherwise, service delivery will remain poor and unsatisfactory.

Full access to contemporary know-how and ability to restructure the governance machinery are two vital requirements of E-government systems in the public sector organisations as a whole. With a view to fulfilling the continuous public demands for better services and thus coordinating the service factors both internal and external, strong human capital capability is a must in any given situation [6].

The government needs to implement the following in order to create a successful e-government: public awareness; legal and regulatory infrastructure; manpower, knowledge and skills of the people who can develop the system in order to help others use the system and maintain a high service level [5]. There is a need to have a strong commitment from governments to make the necessary infrastructural changes and to introduce modern technologies [6]. Sharma [5] highlights that governmental staff needs to be adequately trained to deal with problems, and to support the introduction and further maintenance of the services of e-government. Without the necessary skills and willingness, the development of e-government will remain at a public debate level. There requires a well devised strategic plan to take it to the interactive stage in the short term and then to at an advanced stage at the long term. Successful implementation of e-government policies demand not only availability of technology and infrastructural facilities but also a skilled and capable manpower willing to take a lead in using cutting edge technology.

E-readiness as a Critical Building Block for E-government in Bangladesh

Transformation from traditional government is not a linear process. The public management system in Bangladesh is faced with strategic problems that demand attention in a planned way to ensure readiness in all enabling institutional factors. Just availability of technology and expansion of connectivity are not enough for success in e-governance initiatives. Its success

depends on many more things including policy issues development of infrastructure and skills which are mostly non-technical in character [16]. E-governance requires prime attention in the areas of administrative changes, procedural and legal issues, and preparedness of the supply and the demand sides of the public management system. Supply side refers to the public officials, who are the main drivers of e-governance as they are employed in the supply chain of public utilities and services. In order to properly implement e-governance initiatives and aptly evade resistance, effective motivation and active participation of employees at all levels are significant prerequisites in any public sector body.

In Bangladesh, for public sector reform and good governance, e-governance is seen as an important public agenda. For which certain preparatory steps are taken to execute e-government practices in every phase of public organizations. Although a national ICT Policy exists in the country, no national vision, strategy or action plan regarding e-governance has yet been elaborated by its authorities concerned.

Bangladesh is facing a crisis in governance as the governance systems here are increasingly turning indifferent to and inappropriate for the needs of the vast majority. In the international seminar (held in Dhaka on 12-14 February 2002, on 'Poverty Reduction Strategy Paper', jointly organized by Government of Bangladesh, WB and IMF), the attendees identified transparency, accountability, administrative reform, decentralization, and clients' satisfaction as main gray areas in governance system in contemporary Bangladesh. The seminar came up with some valuable recommendations including a need to focus on e-governance and to explore the potentials of IT sector in implementing a major change to improve prevailing condition. The recent research findings highlight the critical success factors of the e-governance system, ranging from effective strategies, government leadership and knowledge readiness of public managers in a developing country context. Singapore is a leading example of successful e-government. According to Ke and Wei [15] this can be attributed to strong leadership, which has created a strategic action plan for e-government implementation including e-literate public officials. Governments in developing countries need strong leadership and commitment to create e-capability. E-government initiatives need to be politically acceptable to the relevant opinion makers and Government at that time to

strengthen the supply side of e-government [13]. Technology can make the government transparent; in developing countries this may not be ideal especially where the governments are obscure, inefficient, e-illiterate and corrupt [13,17].The general consensus is that e-governance refers to government service delivery mechanism to the people though electronic support but its potential goes beyond the electronic t service delivery system. However, E-governance truly means the use of ICT to facilitate good governance. It should be considered as a wider issue that goes beyond the traditional concept of 'IT in government'. Thus, e-citizen and e-services initiatives, e-administration, and the components of e-society that relates government together creates a model for e-governance which is networked government model., Its overall aim is to ensure effective utilization of Information and Communication Technologies for governance reforms and thus to attain good governance. A networked government model can build newer partnerships as beside strengthening present relationships within the public management system by allowing important stakeholders including civil society groups to engage in creating the architecture of good governance. To introduce a networked government model, the public management system requires trained and knowledgeable mangers. To create e-awareness and establish readiness, Bangladesh needs to develop well trained and motivated public mangers who will be in charge of efficiently use of existing resources. They should have the ability to integrate technology with development, planning and implementation of appropriate action plans for effective and speedy solution of public service problems.

World Bank [18] argues that the foundation stone on which good governance is to stand up is constituted of a public administration which is fully competent and -motivated. Employees and managers working under public management system have to realize that -they have the right aptitude and the desire to meaningfully contribute to the service of the society and this is the driving force that made them be engaged as Public Administration officials. Public Administration is responsible for improving citizens' life and delivering "public value". It is something more than that how efficiently the public servants undertake reform initiatives in his/her duties. This is about his/her professional commitment to contribute in a better life to all. This professional commitment has to manifest in the way they do their work, in the way they

network with public leaders, in the way they get engaged with general people and, in the way they implement desired changes in their workplaces and the communities they work for. They need to know as to who they are, why they are in the public administration why all supports including new technologies are around them, how to ensure appropriate use of those technologies in the daily work that will ultimately lead to citizens' benefits. How they perceive e-governance deeply relates the issue of how they get engaged in e-governance initiatives. "When everyone becomes partner in the enterprise, whatever its mission, the possibilities for quantum leaps in performance are very real…reinventing government can have dramatic results, but only if those involved are prepared to use dramatic methods" [19].

On the contrary, it is a well-known fact that any negative attitude of the employees may pose as a source of serious resistance against proposed changes, whereas any positive attitude of them can be treated as a powerhouse for implementation of such change initiatives. Employees usually feel comfortable with existing environment, procedures and tools because of long practiced organizational culture and habit. They often fear to adopt or handle new technologies, newer ways and means of functioning. Besides, corrupt civil servants may dislike a transparent and smooth functioning with e-governance efforts. Such cultural habits are difficult to fight with. A change in the mindset of public sector workforce helps enabling effective e-governance. Factors like lack in confidence, skills and knowledge of the workforce leads them to take a negative position. Lack of knowledge and skills may also cause e-governance project fail in many cases. Management and sustainability of any project usually become big problems for any agency when a project upon its completion is handed over to the said agency. According to, Gord Jenkins [20] an up-to-date aptitude of the programme mangers is an overriding necessity for successful functioning of e-governance in government sector organizations. In his words, "in every project I worked on, no matter the location, not enough time was spent on making sure that senior management understood exactly what e-governance was and how it would be implemented" [20].

It is a common observation that due to lack of knowledge, skills, awareness and confidence there lies a lack of commitment and leadership in e-governance among public sector officials. As a result their e-governance programmes are developed and driven by consultants and vendors. Consequently, the consultants and vendors without realizing the ground realities force to fit in inappropriate systems originated in different sectors or foreign cultures. . "Many recent e-development initiatives from bilateral and multilateral donors appear to be deliberately avoiding government. This is partly because of the human capacity and regulatory constraints within government, and partly because of continuing 'government bad, markets/NGO good' mentality. Therefore, many e-initiatives are seen bypassing the state and going for community telecentres, ICTs in schools, telemedicine, e-commerce, e-society, etc" [21].

Change in the mindset and skill level of senior level civil servants can be brought about by focused organization development interventions and training programs. Once this is done, they can take the lead as champions and act as 'change agent' that can ultimately result into a corresponding trickle-down effect right through the spectrum of government.

For successful initiatives of e-government, Bangladesh must require such public sector mangers who are well prepared to steer the wheel of e-development. For smoothly implementing e-governance programmes we first need to understand the following questions:

- What are the relevant knowledge and skill areas that this level of officers requires to manage e-government initiatives in public sector?

- What knowledge and skill gaps currently exist?

- What are their training needs to prepare them as driving force of e-government management?

- How the required training inputs could be adjusted with the existing training inputs?

Knowledge, Skill and Attitude Preparedness for e-Governance

Computer knowledge among top level civil servant does not indicate that they are very much skilled in using computer and related device. One digital device widely used in Bangladesh is mobile cell phone. The ratio of using cell phone at all level of total population is shown in the following Table 2.

However, in case of using computer by senior civil servants it is basically typing. Still, senior civil servants are very much dependent on their

Table 2: Current status of using Cell Phone by the citizen

Name of Company Operators	Active Subscribers (million)	% of Population
Grameen Phone Ltd. (GP)	39.556	41.763
Orascom Telecom Bangladesh Limited (Banglalink)	25.622	27.051
Robi Axiata Limited (Robi)	19.652	20.748
Airtel Bangladesh Limited (Airtel)	6.086	6.425
Pacific Bangladesh Telecom Limited (CityCell)	1.685	1.779
Teletalk Bangladesh Ltd. (Teletalk)	1.391	1.468
Total	94.714	

Source:http://www.btrc.gov.bd/index.php/telco-news-archive/543-mobile-phone-subscribers-in-bangladesh-january-2012, accessed on 4th September, 2012.

support staff. As a result, less interest of using office computer and its application for decision making process.

In the changing world, efficient and effective civil servants are most important to ensure good governance and civil servants are the agents for implementation good governance in Bangladesh. Therefore, senior civil servants attitude towards the use and application of computer and related device has to be changed. Where, special training module on computer can be arranged to learn computer for civil servants at every office. By the assistance of Australian Government's Public Sector Linkages Program (PSLP) administered by Aus AID, a project team is working for fostering ICT knowledge to enable efficient and productive government practices and better services for citizens [22].

Research Method

This research is based on quantitative study. This part elaborates the research process of this study and how this study is conducted. Drawn on primary data from structured questionnaire survey, this study took a statistical approach to examining skills and knowledge and attitudes of the senior level officers of Bangladesh under investigation of training needs for e-government.

Sampling Procedure

A structured questionnaire was administered from June, 2009 to October 2011. A total 90 questionnaires were distributed, and 72 valid questionnaires were received. Survey was done at Bangladesh Public Administration Training Centre within the Senior Staff Courses during their training period and also different ministries and other directorates and the respondents' are Joint Secretaries to the Bangladesh Government. A purposive sampling method was used for data collection.

Data Collection

This study was based a great deal on primary data. Here, the study questionnaire research instrument was used for data collection.

Target Population

For this study the targeted population was drawn from the Joint Secretaries, who are working at the different capacities of Bangladesh Government. For this study the respondents are drawn from the participants of Senior Staff Course batches at BPATC.

Survey Tools and Measurement Scale

Questionnaire survey is one of the main sources of the study to collect primary data. A structured questionnaire is used for this purpose. The questionnaire comprises of several major parts having different number of questions/statements. Questionnaires were distributed to the respondents for their voluntary filling up and were received after they had filled up.

Data Analysis Procedure

In the data presentation, data entry and date exploration was performed. Data entry started with the development of coding plan for questionnaire items. In this regard, to define variable SPSS is used. Therefore, data have been analysed by using SPSS 16.0 windows version. Data have been analysed with descriptive statistics such as mean and standard deviation; chi-square; frequency distribution of respondents profile; respondents needs of skills and knowledge at an individual level as well as organisational level.

Analysis of Scale Reliabilities

Multiple scale measurement was used in this study to measure the variables. The scales included the skill needs; knowledge needs; attitude toward ICT skills and knowledge needs. To asses the reliabilities of those variables Cronbach's alpha was conducted to explore the potential for scale purification [23, 24]

Factor Analysis

Following many other authors [25-28] this study adopted exploratory factor analysis method to identify the dimensions of training knowledge and skills related to e-government for senior level

officials. In this approach a principal component factor analysis with VARIMAX rotation was performed with an aim to identify the factors that are essential for e-government skill, aptitude and knowledge tools. From which training modules are categories, and proposed for curriculum development for SSC.

Results and Discussion

Demographic Data Analysis Results

The respondents' of this study were drawn from Joint Secretary level officers from different ministries. The representation from different ministries was presented in the following Table 4.1. In Bangladesh there are 47 ministries and 50 departments. A total number of Joint Secretaries and equivalent officers is 275 as sanction posts. At present the number of Joint Secretaries is 625. In this study, 72 from 11 ministries were represented. The majority was from the Ministry of Public Administration. The second highest is represented from the Ministry of Home. The third one was from Ministry of Information and Communication Technology.

Table 3: Respondent ministerial distribution

Ministries/Department	Frequency	Percent %
Ministry of Agriculture	5	6.9
Ministry of Cabinet Division	2	2.8
Ministry of Commerce	7	9.7
Ministry of Defense	2	2.8
Ministry of Finance	5	6.9
Ministry of Home	12	16.7
Ministry of Science and ICT	8	11.1
Ministry of Industry	5	6.9
Ministry of Planning and Commission	2	2.8
Ministry of Public Administration	23	31.9
Ministry of Shipping	1	1.4
Total	72	

Age Distribution of the Respondents

The following Table 4 demonstrates age distribution of the respondents. As per tier of Bangladesh Civil Service, a Joint Secretary is at the fourth tier out of six. Of the total respondents, 87.5% is the largest age group of 51 to 55 years. 12.5% respondents are from the age group of 45 to 50 years. In Bangladesh civil service the Preparatory Retirement Leave (PRL) starts at the age of 57.

Table 4: Age distribution of the respondents

Age group	Frequency	Percent
45-50	9	12.5
51-55	63	87.5

Length of Service of the Respondents

Length of service as a demographic profile of the respondent is presented in the following Table 5. Out of 72 respondents, it is found that length of service is higher at 25 to 30 years of job experience of the respondent. It is revealed that the respondents are quite senior and have good job experience.

Table 5: Respondents service length distribution

Service length (year)	Frequency	Percent
20-25	8	11.1
25-30	60	83.3
30-35	4	5.6

Respondents Educational Level

Respondent educational level Table 6 revealed that most of the respondents (86.1%) are with highest level of academic background (Master degree). The educational profile of the respondents reveals that senior level officers of government are with high educational degree.

Table 6: Respondents educational level distribution

Degree	Frequency	Percent
Bachelor	8	11.1
Masters	62	86.1
PhD	2	2.8

Additional Qualification on ICT/e-Governance

Apart from educational background the respondents were asked whether they do have additional qualification regarding ITC or e-Governance training or not. The following Table 7 reveals that very few (20.8%) are with ITC/e-governance background or knowledge. Most of the respondents (79.2%) do not have ITC knowledge or do not have undergone training on e-governance or ITC.

Table 7: Qualification on ITC/e-Governance

Opinion	Frequency	Percent
Yes	15	20.8
No	57	79.2

Scale Reliability Test

It is necessary for the researcher to assess and report reliability coefficients specific to this study. To test the reliability of the questionnaires, Cronbach's alpha coefficient was calculated to assess internal consistency reliability of the instruments. Among the measures of internal consistency, Cronbach's alpha is the most preferred .

The researcher used Nunnally and Berstien' [23] criterion of an alpha coefficient of at least 0.70 for an instrument in its early stages of development. A coefficient of at least 0.80 was considered adequate for a further developed instrument. However, a very high alpha may be indicative of redundancy among items. Therefore, inter-item correlation was also examined. If inter-item correlations were consistently above 0.70, redundancy among items was pointed out. If inter-item correlations were consistently below 0.30, a lack of substantive relation among items was indicated [23]. On completing the pilot study, the questionnaire was refined and administered to all respondents in the study.

However, by measuring the concept the consistency of a set of items variables is determined. Similarly, in this study, reliability of variables consistencies is verified by means of ICT skills, organization knowledge relating to e-government, skills on e-government and attitude on e-government management. The Table 7 is presented with variables items and Cronbach's Alpha value.

Table 8: Variable reliability Cronbach's Alpha results

Variables	No. of items	Alpha
ICT skill	12	.8491
Organization knowledge on e-government	7	.8977
Skill on e-Government	7	.9466
Attitude on e-government management	8	.5510

Descriptive Statistics

Correlation Analysis on Observed Variables

The Pearson Correlation was run to find out the relationship among all the variables and find out

the degree of their association for e-government management by the Joint Secretary level government officials in Bangladesh. The results

provide an understanding of the direct relationship among ITC skill of individual level (ICTSKILL), e-government management skills for organizational level (E-GOVSKIL), essential knowledge for e-Government management (E-GOVMGT) and proper attitude towards e-governance issues (E-ATTITUDE). Particularly, the attitude variable has no significant relationship with other variables.

Table 9: Relationship between the major variables

Variables	1	2	3	4
ICTSKILL	1			
E-GOVMGT	.394**	1		
E-GOVSKIL	.356**	.493**	1	
E-ATTITUD	-.025	.089	.065	1

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

Result of Factor Analysis

To identify the factors that have positive impact on e-government management by the senior officials of BCS, a detailed exploratory factor analysis has been done. To identify the contribution of individual level ICT skills, organizational level ICL skills, e-government knowledge, and attitude towards e-government as much as 34 items of variables were measured. Factor analysis was run to find out the item's communality as well as principal factors.

Principal Component Analysis (PCA)

Principal Component Analysis (PCA) has given 8 factors (Table 9). These are related to factor 1:'knowledge on using ICT'; factor 2:'knowledge on internet and web portal'; factor 3: 'presentation skill'; 'factor 4: 'basic knowledge and skill on ICT'; factor 5: 'leadership skill on managing ICT/e-Government'; factor 6: 'e-Service and e-Procurement for e-Government'; factor 7: 'skill and knowledge on using analytical statistical tools' ; and finally, factor 8: 'knowledge on webpage maintenance.

Variance Explained

PCA has given 8 factors component; all together it explained 78.17% of total variance. In respect of variance explained, eigenvalues is considered more than 1.

Table 10: Total variance explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.275	27.280	27.280	9.275	27.280	27.280	5.840	17.176	17.176
2	4.467	13.137	40.417	4.467	13.137	40.417	4.865	14.310	31.486
3	3.827	11.256	51.673	3.827	11.256	51.673	4.520	13.293	44.779
4	2.949	8.674	60.347	2.949	8.674	60.347	3.313	9.744	54.523
5	2.442	7.183	67.530	2.442	7.183	67.530	2.833	8.333	62.857
6	1.455	4.280	71.810	1.455	4.280	71.810	2.038	5.995	68.851
7	1.149	3.379	75.189	1.149	3.379	75.189	1.691	4.974	73.826
8	1.014	2.984	78.173	1.014	2.984	78.173	1.478	4.347	78.173

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. A Rotation converged in 8 iterations.

Knowledge on ICT

Knowledge on ICT factor is important for e-government management that explained 27.28 percent of the variance in e-government knowledge. The eigenvalue of ICT knowledge is 9.27. The variables formed in this factor include 'MIS for decision making (.745)'; 'e-Procurement (.827); 'work automation (.908)'; 're-engineering business process (.905)'; 'e-Service for citizen (.720); 'managing ICT project (.842)'. All the extracted factors are with high correlation among the variables and observed high loading factors (Table-10).

Table 11: ICT knowledge related factors for e-governance

Variables PC: Knowledge on ICT	Factor loading (FL)
Using MIS and data base in decision making	.745
Using e-Procurement for procuring goods and services for the organization	.827
Working in an automated office	.908
Re-engineering business process in own organization due to ICT introduction	.905
Providing e-Service for the citizen	.872
Using and providing interactive intranet for the clients of the organization	.720
Managing ICT project (plan and implement)	.842
Eigenvalue	**9.275**
Percentage of variance	**27.280**

Knowledge on Web Portal and Internet

Basic knowledge on web portal and internet is an important factor for implementation of e-government especially for the Joint Secretaries as they are responsible for decision making and policy implementation. Factor 2 'knowledge on internet and web-portal' explains 13.13 percent of the variance in e-government curriculum. The eigenvalue of knowledge on internet and web portal is 4.46. This factor is composed with 'knowledge on web portal'; 'knowledge in networked government'; 'knowledge on MIS'; 'knowledge on managing web portal'; 'knowledge on business process re-engineering'; 'knowledge on internet'; 'knowledge on ICT project management'. All these factors are of high loading value, presented in the Table 12.

Table 12: Knowledge on internet

Factors/Variables PC: Knowledge on web portal	FL
Knowledge in networked government	.688
Knowledge in MIS and data base in decision making	.844
Knowledge in managing intranet and web portal	.790
Knowledge in business process re-engineering in organization	.803
Knowledge in managing interactive web portal and intranet	.813
Knowledge in ICT project management	.830
Eigenvalue	**4.467**
Percentage of variance	**13.137**

Skills on Data Base Management

Factor 3 is related to skills on database management. This factor is composed with 'skills on database management'; 'skills on PowerPoint presentation'; 'desktop publishing'; 'skills on creation of database'. This factor explains 11.25 percent of total variance on skills of database for e-government curriculum. The eigenvalue of skills on database is 3.827. All the variable items are with high loading value which is presented in the Table 13.

Table 13: Skills on database management

Factor/Variable	FL
PC: Presentation skill/skill on database management	
Preparing Power Point Presentations	.709
Desktop Publishing	.885
Database Creation	.772
Eigenvalue	**3.827**
Percentage of variance	**11.256**

Basic Knowledge and Skill on Office Package

Factor component 4 is related to 'knowledge on office package'. This factor is composed with 4 variable items, these are: 'word processing'; 'internet browsing'; 'uploading pages from the web server'; and 'using MIS in decision making'. This factor explains 8.67 percent of total variance and eigenevalue is 2.95. Variable items are of high loading values; presented in the Table 14.

Table 14: knowledge on office package

Factor/Variable	FL
PC: Preliminary knowledge and skill on office package	
Word (MS) Processing	.852
Internet Browsing	.741
Upload pages to the web server	.597
Using MIS and data base in decision making increases effectiveness in managerial works	.580
Eigenvalue	**2.949**
Percentage of variance	**8.674**

Leadership Skill on Managing ICT and e-Government

Factor component five is related to leadership skills on managing e-government. This factor is composed with 4 items. These are: 'e-governance for better transparency'; 'leadership quality for managing ICT and change management';

'sufficient managerial quality for business process re-engineering'. The magnitude of those variable items are '.700'; '.868'; and '.677' respectively. This factor explains 7.183 percent of total variance and eigenevalue is 2.44. Variable items are of high loading values; presented in the Table 15.

Table 15: Leadership skills on e-government

Factor/Variable:	FL
PC: Leadership skills on managing ICT and e-government	
Introducing e-governance can ensure better transparency in public service delivery	.700
Excellent leadership quality in senior level officers of BCS and lead ICT change management	.868
Sufficient managerial quality in senior level officers of BCS can lead BPR (business process re-engineering) with good exposure of e-Governance	.677
Eigen value	**2.442**
Percentage of variance	**7.183**

e-Service and e-Procurement Skills

The outcome of e-government is to render goods and services to the citizens at minimum time and cost. E-Government is one of the important means for ensuring the good governance in Bangladesh. The senior level civil servants of Bangladesh has specific role to contribute for ensuring good governance. PCA has rightly extracted a factor which is related with 'e-Service and e-

Procurement'. Therefore, this factor is very important to incorporate in SSC curriculum. This factor explains 4.28 percent of total variance and the eigenvalue is 1.45. This factor composed with 'using e-Procurement for procuring goods and service for the organization for ensuring quality procurement' and 'using and providing interactive intranet for the client of the organization for reducing cost'. These items are also with high loading value, presented in the Table 16.

Table 16: Skills on e-service and e-procurement system

Factor/Variable:	FL
PC: Knowledge on e-Service and e-Procurement	
Using e-Procurement for procuring goods and services for the organization ensures quality procurement	.583
Using and providing interactive intranet for the clients of the organization reduces cost and time	.901
Eigenvalue	**1.455**
Percentage of variance	**4.280**

Skills and Knowledge on Different Statistical Packages

Skills and knowledge on different statistical packages for analyzing data is important for decision making. Therefore, this factor is also important for SSC curriculum. This factor is composed with 'skills and knowledge on statistical tools'; 'statistical package like SPSS'; 'producing spreadsheet'. This factor is explained with 3.37 percent of total variance. The eigenvalue of this factor is 1.14. All these variable items are with high loading values; presented in Table 17.

Table 17: Knowledge and skills on statistical packages

Factor/Variable	FL
PC: Skill and Knowledge on statistical tools	
Statistical Analysis SPSS	.547
Producing Spreadsheet	.749
Eigenvalue	**1.149**
Percentage of variance	**3.379**

Skills on Webpage Domain Maintenance

Webpage domain is important for every organization to implement e-government for delivering goods and services. There is a website in every organization of public sector. The organizational website is considered as the window of the organization. It is an important means to inform vision, mission, service delivery process, citizen charter etc. So, as the leader of the organization, the prospective participants of SSC course must have preliminary knowledge on webpage and portal management. This factor contains the eigenvalue of 1.014 and the variance of 2.984 percent (Table 18). This factor is formed with only one factor, which has high loading value.

Table 18: Skills on webpage maintenance

Factor/Variable	FL
PC: Skills on webpage maintenance	
Website maintenance	.783
Eigen value	**1.014**
Percentage of variance	**2.984**

Conclusion

Joint Secretaries to the government are working as the senior leadership positions in public organizations. They have specific role to play in planning, implementing, managing and maintaining of e-governance system in own organization. They have specific role to assist in formulating public policy as well as implement those strategies and policies. The technical aspects are obviously are the business of technical people but as the senior managers of the organization; they must have minimum knowledge and skills in e-government management.

Under this study, a rigorous attempt was taken to identify the training need for the senior managers of civil service. In that connection, training curriculum has to be formulated considering their role in the organization. The study also considered the vision of the government: the Digital Bangladesh.

The study specifically aimed at identifying the training needs of the participants of Senior Staff Course. Under this study a close ended structured questionnaire is used to identify their level of skills, knowledge and attitude on ICT as well as e-government management. It also attempted to identify what sorts of skills, knowledge and attitudes are required for the senior level civil servants to manage and implement e-government in their own organization. As per their need analysis, SSC curriculum on e-government

module would be modified. The research outcome also can be used for formulate new special or short course for them.

In this study, 58 items were included in a structured questionnaire related to demographic information as well as e-government and ITC related skills, knowledge and attitudes. In order to reduce and separate questionnaire items which do not have high correlation and loading value, Principal Component Analysis (PCA) is used with the help of statistical tools called SPSS. Therefore, Principal Component Analysis (PCA) was used to identify the factors and reduce the number of items. PCA has given 8 major/principal factors.

On the basis of analysis done in previous part, the following recommendations are set out for consideration e-government curriculum for SSC:

Training Need for Individual Level Skills

From the study, it is evidently revealed that the levels of individual skills of the prospective participants are poor. They need to undergo practical training on Word (MS) Processing, Preparing Power Point Presentations, Desktop Publishing, Database Creation, Producing Spreadsheet, Internet Browsing, Download documents from website, Website Development, Website maintenance, Upload pages to the web server and Insert web links.

Training need in e-Government Management Knowledge

The prospective participants must have sufficient knowledge on techniques and process of e-Government management in organizational level. But from the analysis it is revealed that the Joint Secretaries have low level of knowledge in 'Concept of e-government'; 'networked government'; 'MIS and data based decision making'; 'managing intranet and web portal'; 'business process reengineering'; and 'knowledge in ICT project management'. Since the Joint Secretaries of government are playing a key role for formulating and implementing e-governance strategies, so they need to well equipped with essential knowledge of e-government management in organizational level.

Training need in e-Government Management Skill

From the analysis done in previous chapter, the it is evident that the skills in using MIS and data base in decision making, using e-Procurement for procuring goods and services for the organization, working in an automated office, re-engineering business process in own organization due to ICT introduction, providing e-Service for the citizen, using and providing interactive intranet for the clients of the organization and Managing ICT project are very poor. So, their level of skill in management of e-government in own organization must be enhanced to the professional level.

Developing Leadership Quality for Managing ICT and e-government

Above all leadership quality has to be developed for the senior level government officials. Leadership skills are required for managing ICT, e-government and change management. This component is to be segmented into 'skills and knowledge on transparency'; 'knowledge on managing ICT and change management'; and 'managerial skills on business process re-engineering'. Therefore, e-government management curriculum for the SSC will consider those items as course contents.

Major Areas for Intervention (Must Learn Areas)

From the Principal Component Analysis, the following components are found very important for the prospective participants. Those are 1:'knowledge on using ICT'; 2:'knowledge on internet and web portal'; 3: 'presentation skill'; 4: 'basic knowledge and skill on ICT'; 5: 'leadership skill on managing ICT/e-Government'; 6: 'e-Service and e-Procurement for e-Government'; 7: 'skill & knowledge on using analytical statistical tools'; and 8: 'knowledge on webpage maintaining'. So, in developing the e-Government Management module for the SSC course those factors can be considered as the areas of **Must Learn**.

Managerial Implications

Introducing Short Course

Considering the training needs in e-Government management, BPATC could formulate a short course with two weeks duration for the senior officers of Bangladesh Civil Service.

Modification of ICT related Existing Module of Senior Staff Course

The existing ICT related module of Senior Staff Course is not sufficed to fulfill the needs of the participants. The existing module of SSC covers some areas of preliminary skills of ICT. So, on the basis of research findings, the existing module should be modified.

Limitations

This study has been done with questionnaire survey only and the sample size was not much bigger. Mostly survey was done with the SSC participants who came for training at BPATC.

Also it was single way survey; Joint Secretaries supervisors (Additional Secretaries or Secretaries) are not consulted to validate their e-government training needs [29-33].

Future Research Direction

The sample was drawn mostly from the Joint Secretary level officers. Therefore, triangulation of data validation was missing and sample size was small. Thus, next research could be done with large sample size with validation Joint Secretaries training needs and with data collection from Additional Secretaries as well as Secretaries.

Acknowledgement

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