Tourism Destination Competitiveness and Strategy Formulation: A Study on Bangladesh

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Abstract: The importance of tourism as an instrument of economic development and employment generation is recognized all over the world. The data released by different global bodies, including the World Tourism Organization (WNWTO) indicate significant contribution of tourism to country's GDP and foreign exchange reserves. This paper presents the findings of survey undertaken in the course of the study and throws light on the profile, preferences and perceptions regarding Bangladesh as a tourist destination country of the managers working in hotels and restaurants in Bangladesh. This research focuses on the issues that are the significant for the choosing Bangladesh as a destination country as well as the development of Tourism in Bangladesh and resolution of those in developing strategies. The study high lights on potentialities that are not exploited yet. The findings of this study may help the planners and related stakeholders to formulate and implement appropriate strategies and policies for the tourism sector in Bangladesh.

Keywords : Destination Competitiveness, Strategy.

Introduction

Today tourism has been treated as the world's largest industry among all the services industry[1]. Bangladesh is a developing country of Asian region holding high potentiality of tourism. As a developing country like Bangladesh, tourism can play an important role. Bangladesh is one of the fastest growing economies among the South Asian region where manufacturing sector brings the main driver for the economic growth. For the last 20 years the tourism sector has been showing significant contribution to the gross domestic product. In 2006, this tourism sector generated 10.3 percent of world gross domestic product, providing 234 million jobs. As a developing country, Bangladesh is trying to foster its economic development through utilizing country's resources and expertise in service sector.

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Bangladesh was an attractive destination to the tourists for its large and natural resources such as beaches, scenic beauty, tribal culture, historical resources, forests, wild life, hills, and multi religious rituals. However, at present, the position is not significant. A number of substantial variables affect the image of tourism industry in Bangladesh.

Tourism creates jobs, generates revenues for the local community, promotes cultural exchange and improves infrastructure[2]. Tourism measurement is important for the planning, management and development programs to achieve the competitive priorities in the global tourism market. Actually there is no well accepted definition of destination competitiveness. In a simple word, competitiveness is defined as the ability of a country to create add value. Destination competiveness is to create and integrate add value products that sustain its resources while maintaining market position relative to competitors. Some important relevant research works have been reviewed to search an acceptable analytical framework, which can be used for evaluating the competitiveness of a destination. The applicability to tourism destinations of competitiveness research and models in other contexts across companies and products, domestic industries, and national economies as well as competitiveness related to servicing industries have been examined by Crouch and Ritchie[3]. They claimed that, in absolute terms, the most competitive destination is one, which brings about the greatest success; that is, the most wellbeing for its residents on a sustainable basis, thus the most competitive destination is that which most effectively creates sustainable well-being for its residents.

Thus, in general, the destination competitiveness has been considered as tourism supply factors that represent the driving forces generating tourist demand[4]. Buhalis lists six major components of tourism attractions and resources that most of the tourism literatures commonly include in assessing the element of tourism destination[5]. These components are as follows:

- ✓ Attractions: natural, man-made, artificial, purpose-built, heritage, special Events,
- ✓ Accessibility: entire transportation system comprised of routed, terminals and vehicles ,
- ✓ Amenities: accommodations, catering facilities, retailing, other tourist services,
- ✓ Available packages: prearranged packages by intermediaries and principals,
- ✓ Activities: all activities available at the destination and what consumer will do during their visit

- ✓ Ancillary services: services used by tourists such as banks, telecommunications news agents, hospitals.

Having conferred the key tourism destination framework as recognized by distinguished tourism researchers, Dwyer and Kim[6]; Enright and Newton[7] argue that the main factors contributing to competitiveness will vary amongst destinations, and as such, destinations must take a more adapted approach in enhancing tourism competitiveness, rather than adopting a single, universal policy or strategy.

Objectives of the Study

The main objective of this study has focused on the destination choice parameters for choosing Bangladesh as a tourist destination country and to develop the strategies. However, the other objectives of this study are as under:

- To identify the demographic and economic profiles of the managers and receptionist , their preference and also their destination choice parameters ;
- To identify the strengths and weakness to the development of tourism,
- To formulate strategies for development of the tourism industry in Bangladesh.

Research Methodology

This study is descriptive in nature and both qualitative and quantitative data have been used.

Sample design

The sample design consists of

A) **Defining the target population-** The target population is defined to be the stake holders of the tourism industry in Bangladesh. The target populations are managers working at hotels and restaurants in Bangladesh considered the population.

B) **Determinations of sample size-** The foremost and important step of primary data collection is the selection of sample from which data to collect. In an attempt to gauge the perceptions/attitudes, a total number of twenty managers selected in the sample of this category. Required information has been collected from them to obtaining feedback on 10 selected issues of the tourism arrangements.

The respondent managers were asked to document their response on different dimensions of Five-point rating scale. These point questions helped to collect objective data like the extent of manager's positive and negative attitudes on different tourism destination parameters in

Bangladesh. The questionnaire for the respondents used a five-point Likert Scale ranging from 1 to 5 to obtaining and rating their opinion on different tourism destination parameters.

Data Presentation and Discussion

Socio-demographic status of the sample Managers and Purpose of the visit of the tourist by the respondents

Table A-1 shows the Socio-demographic status of the respondents.

A 1: Socio-demographic status of the respondents

Socio-demographic status	**Frequency**	**Percent of the respondents (%)**
Age of the Respondent		
Below 25 Years	1	5.0
25-34 Years	5	25.0
35-44 Years	9	45.0
45-54 Years	4	20.0
55-64 Years	1	5.0
Total	**20**	**100.0**
Gender of the Respondent		
Male	14	70.0
Female	6	30.0
Total	**20**	**100.0**
Marital Status of the Respondent		
Married	17	85.0
Single	3	15.0
Total	**20**	**100.0**
Educational Qualification of the Respondent		
No Education		
Secondary or upper Secondary	4	20.0
Higher Education	12	60.0
Technical Education	4	20.0
Total	**20**	**100.0**

Source: Field Study

Table A-1 presents the age of the member of the manager. In regard to the age of the sample member, it is observed that the member of Manger in the age group of Below 25 years constitutes 5 percent, 25-34 years constitutes 25 percent, followed by 45 percent of a member of Manager in the age group of 35-44 years & the member of Manager in the age group of 45-54 years constitutes 20 percent. It is observed that the member of the Manager in the age group of 55-64 years constitutes 5 percent. In regard to the gender of the manager, it is observed that 70 percent are the male and 30 percent are female. In regard to the marital status of the Manager member, it is observed that 85 percent respondents are married couple. And 15 percent respondents are single. It is observed that in regard to educational qualification of the manager, 60 percent are educated higher education, followed by 20 percent possesses secondary or upper Secondary. And it is also observed that 20 percent respondents are technical education.

Purpose of the visit of the tourist by the respondents is shown in Table A-2.

Table A-2: **Prime Attractions in Bangladesh of Managers by their business experience**

Prime Attractions	**Frequency**	**Percent**
Historical/ Cultural	4	20.0
Spiritual	3	15.0
Social Tour	3	15.0
Business related/ Official	4	20.0
Nature	1	5.0
Conference/ Seminar related	2	10.0
Educational Tours/ Excursions	3	15.0
Total	**20**	**100.0**

Source: Field Study

Table A-2 presents the member of Manager of hotel and restaurant. It is observed by the occupational experience of the sample member of the manager that a major portion of the purpose of the tourists visiting Bangladesh are for Business related / official and Historical/ Culture, and the percentage is 20 & tourist visited for Spiritual and Social tour, and Educational tour/ Excursion's purposes are 15 percent. It is also observed that 10 percent have shown their interest in conference/ seminar tourism in Bangladesh. And tourist visited for Nature tourism purpose are 5 percent.

The Ratings of the Destinations Dimension Parameter by the Managers

Table A-3 below shows the ratings of the destination dimension parameter “Status of air connectivity with tourists” home country and the air tariff” by the sample respondents.

Table A-3: Status of air connectivity with tourists’ home country and the air tariff

Rating	**Rating Score (assigned)**	**Frequency**	**Percent**	**Total Score (Col.2*Col3**
Very	-2			

dissatisfactory				
Dissatisfactory	-1			
Moderate	0	4	20.0	0
Satisfactory	1	14	70.0	14
Very satisfactory	2	2	10.0	4
Total		**20**	**100.0**	**18**
	Mean Score			**0.9**

Source: Field Study

Table A-3 presents the rating of "Status of air connectivity with tourists' home country and the air tariff" as a destination dimension parameter by the sample managers of hotel and restaurant operating experience. It is observed from the above table that 70 percent of the sample managers are of the opinion that the Status of air connectivity with tourists' home country and the air tariff "Satisfactory" and followed by 20 percent of the sample managers rated the Status of air connectivity with tourists' home country and the air tariff as "Moderate." However, it is also observed that 10 percent of the sample managers rated Status of air connectivity with tourists' home country and the air tariff in Bangladesh as "Very satisfactory." The mean score of the sample manager's rating of Status of air connectivity with tourists' home country and the air tariff is 0.9, which reflects that ratings of the respondents are in the range of "Moderate" to "Satisfactory."

Table A-4 below shows the rating of the destination dimension parameter "Visa and immigration formalities" by the sample respondents.

Table A-4: Visa and immigration formalities

Rating	**Rating Score (assigned)**	**Frequency**	**Percent**	**Total Score (Col.2*Col3**
Very dissatisfactory	-2			
Dissatisfactory	-1	1	5.0	-1
Moderate	0	6	30.0	0
Satisfactory	1	13	65.0	13
Very satisfactory	2			

Total		20	100.0	12
Mean Score				**0.6**

Source: Field Study

Table A-4 presents the ratings of “Visa and immigration formalities” as a destination dimension parameter by the sample managers of hotel and restaurant operating experience. It is observed from the above table that 65 percent of the sample managers are of the opinion that the Visa and immigration formalities “Satisfactory," and followed by 30 percent of the sample managers rated the Visa and immigration formalities in Bangladesh “Moderate." However, it is observed that percent of the sample managers are of the opinion that the Visa and immigration formalities in Bangladesh as “Dissatisfactory." The mean score of the Sample manager's rating of ‘Visa and immigration formalities are 0.6, which reflects that ratings of the respondents are in the range of “Moderate” to “Satisfactory."

Table A-5 below shows the ratings of the destination dimension parameter “Quality of accommodation” by the sample respondents.

Table A-5: Quality of accommodation

Rating	**Rating Score (assigned)**	**Frequency**	**Percent**	**Total Score (Col.2*Col3**
Very dissatisfactory	-2			
Dissatisfactory	-1			
Moderate	0	9	45.0	0
Satisfactory	1	11	55.0	11
Very satisfactory	2			
Total		**20**	**100.0**	**11**
Mean Score				**0.55**

Source: Field Study

Table A-5 presents the ratings of “Quality of accommodation” as a destination dimension parameter by the sample managers of hotel and restaurant operating experience. It is observed from the above table that 55 percent of the sample managers rated the Quality of accommodation in Bangladesh as “Satisfactory," followed by 45 percent of the sample managers who rated the Quality of accommodation in Bangladesh as “Moderate." The mean score of the sample manager's rating of ‘Quality of accommodation’ is .55, which reflects that ratings of the respondents are in the range of “Moderate” to “Satisfactory."

Table A-6 below shows the ratings of the destination dimension parameter “Accommodation Tariff” by the sample respondents.

Table A-6: Accommodation tariff

Rating	Rating Score (assigned)	Frequency	Percent	Total Score (Col.2*Col3
Very dissatisfactory	-2			
Dissatisfactory	-1			
Moderate	0	11	55.0	0
Satisfactory	1	9	45.0	9
Very satisfactory	2			
Total		**20**	**100.0**	**9**
Mean Score				**0.45**

Source: Field Study

Table A-6 presents the rating of “Accommodation Tariff” as a destination dimension parameter by the sample managers of hotel and restaurant operating experience. It is observed from the above table that 55 percent of the sample managers rated the Accommodation Tariff in Bangladesh as “Moderate," followed by 45 percent of the sample managers rated the Accommodation Tariff in Bangladesh as “Satisfactory. The mean score of the sample manager's rating of ‘Accommodation Tariff’ is 0.45, which reflects that ratings of the -respondents are in the range of “Moderate” to “Satisfactory.

Table A-7 below shows the ratings of the destination dimension parameter “Food prices” by the sample respondents.

Table A-7: Food prices

Rating	Rating Score (assigned)	Frequency	Percent	Total Score (Col.2*Col3
Very dissatisfactory	-2			
Dissatisfactory	-1	1	5.0	-1
Moderate	0	15	75.0	0
Satisfactory	1	4	20.0	4
Very satisfactory	2			

Total	20	100.0	3
Mean Score			**0.15**

Source: Field Study

Table A-7 presents the rating of "Food prices" as a destination dimension parameter by the sample managers of hotel and restaurant operating experience. It is observed from the above table that 75 percent of the sample managers rated the "Food prices" in Bangladesh as "Moderate," followed by 20 percent of the sample managers rated the "Food prices" in Bangladesh as "Satisfactory," however, it is observed that 5 percent of the sample managers rated the "Food prices" as "Dissatisfactory." The mean score of the sample manager's rating of 'Food price is 0.15, which reflects that ratings of the respondents are in the range of "Moderate" to "Satisfactory."

Table A-8 below shows the ratings of the destination dimension parameter "Public Transport facilities" by the sample respondents.

Table A-8: Public transport facilities

Rating	Rating Score (assigned)	Frequency	Percent	Total Score (Col.2*Col3
Very dissatisfactory	-2	1	5.0	-2
Dissatisfactory	-1	6	30.0	-6
Moderate	0	12	60.0	0
Satisfactory	1	1	5.0	1
Very satisfactory	2			
Total		**20**	**100.0**	**-7**
Mean Score				**-0.35**

Source: Field Study

Table A-8 presents the rating of "Public Transport facilities" as a destination dimension parameter by the sample managers of hotel and restaurant operating experience. It is observed from the above table that 60 percent of the sample managers rated the "Public Transport facilities" in Bangladesh as "Moderate," followed by 5 percent of the sample managers rated the "Public Transport facilities" in Bangladesh as "Satisfactory," however, it is observed that 30 percent of the sample managers rated the "Public Transport facilities" as "Dissatisfactory." 5 percent of the sample managers rated the "Public Transport facilities" in Bangladesh as "Very dissatisfactory." The mean score of the sample manager's rating of 'Public Transport facility is -.35, which reflects that the overall ratings of the respondents are negative and there is a need to improve the dimension.

Table A-9 below shows the ratings of the destination dimension parameter “Quality of roads” by the sample respondents.

Table A-9: Quality of roads

Rating	Rating Score (assigned)	Frequency	Percent	Total Score (Col.2*Col3
Very dissatisfactory	-2	2	10.0	-4
Dissatisfactory	-1	10	50.0	-10
Moderate	0	8	40.0	0
Satisfactory	1			
Very satisfactory	2			
Total		**20**	**100.0**	**-14**
Mean Score				**-0.7**

Source: Field Study

Table A-9 presents the rating of “Quality of roads” as a destination dimension parameter by the sample managers of hotel and restaurant operating experience. It is observed from the above table that 50 percent of the sample managers rated the “Quality of roads” in Bangladesh as “Dissatisfactory," followed by 40 percent of the sample managers rated the “Quality of roads” in Bangladesh as “Moderate," however, it is observed that 10 percent of the sample managers rated the “Quality of roads” as “Very dissatisfactory." The mean score of the sample manager's rating of ‘Quality of roads is -0.7, which reflects that the overall ratings of the respondents are negative and there is a need to improve the dimension.

Table A-10 below shows the ratings of the destination dimension parameter “Time required for travel” by the sample respondents.

Table A-10: Time required for travel

Rating	Rating Score (assigned)	Frequency	Percent	Total Score (Col.2*Col3
Very dissatisfactory	-2	1	5.0	-2
Dissatisfactory	-1	13	65.0	-13
Moderate	0	5	25.0	0
Satisfactory	1	1	5.0	1
Very satisfactory	2			-14
Total		**20**	**100.0**	

Mean Score	-0.7

Source: Field Study

Table A-10 presents the rating of “Time required for travel” as a destination dimension parameter by the sample managers of hotel and restaurant operating experience. It is observed from the above table that 65 percent of the sample managers rated the “Time required for travel” in Bangladesh as “Dissatisfactory," followed by 25 percent of the sample managers rated the “Time required for travel” in Bangladesh as “Moderate," however, it is observed that 5 percent of the sample managers rated the “Time required for travel” as “Satisfactory." 5 percent of the sample managers rated the “Time required for travel” in Bangladesh as “Very dissatisfactory." The mean score of the sample manager's rating of ‘Time required for travel’ is -0.7, which reflects that the overall ratings of the respondents are negative and there is a need to improve the dimension.

Table A-11 below shows the ratings of the destination dimension parameter “Co-operation from tourist information centers” by the sample respondents.

Table A-11: Co-operation for tourist information centre

Rating	Rating Score (assigned)	Frequency	Percent	Total Score (Col.2*Col3
Very dissatisfactory	-2	2	10.0	-4
Dissatisfactory	-1	12	60.0	-12
Moderate	0	5	25.0	0
Satisfactory	1	1	5.0	1
Very satisfactory	2			
Total		**20**	**100.0**	**-15**
Mean Score				**-0.75**

Source: Field Study

Table A-11 presents the rating of “Co-operation from tourist information centers” as a destination dimension parameter by the sample managers of hotel and restaurant operating experience. It is observed from the above table that 60 percent of the sample managers rated the “Co-operation from tourist information centers” in Bangladesh as “Dissatisfactory," followed by 25 percent of the sample managers rated the “Co-operation from tourist information centers” in Bangladesh as “Moderate," however, it is observed that 5 percent of the sample managers rated the “Co-operation from tourist information centers” as

“Satisfactory." 10 percent of the sample managers rated the “Time required for travel” in Bangladesh as “Very dissatisfactory." The mean score of the sample manager's rating of ‘Co-operation from tourist information centers is -0.75, which reflects that the overall ratings of the respondents are negative and there is need to improve the dimension.

Table A-12 below shows the rating of the destination dimension parameter “Recreational facilities” by the sample respondents.

Table A-12: Recreational facilities

Rating	**Rating Score (assigned)**	**Frequency**	**Percent**	**Total Score (Col.2*Col3**
Very dissatisfactory	-2			
Dissatisfactory	-1			
Moderate	0	5	25.0	0
Satisfactory	1	14	70.0	14
Very satisfactory	2	1	5.0	2
Total		**20**	**100.0**	**16**
Mean Score				**0.8**

Source: Field Study

Table A-12 presents the rating of “Recreational facilities” as a destination dimension parameter by the sample managers of hotel and restaurant operating experience. It is observed from the above table that 70 percent of the sample managers rated the “Recreational facilities” in Bangladesh as “Satisfactory," followed by 25 percent of the sample managers rated the “Recreational facilities” in Bangladesh as “Moderate," however, it is observed that 5 percent of the sample managers rated the “Recreational facilities” as “ Very satisfactory." The mean score of the sample manager's rating of ‘Recreational facility is 0.8, which reflects that ratings of the respondents are in the range of “Moderate” to “Satisfactory."

Table A-13: Mean Score on Tourism Parameters by member of managers

Response option on Tourism related Parameters	Manager	
	No. of Respondent	Mean Score
Status of air connectivity with tourists' home country and the air tariff	20	0.9
Visa and immigration formalities	20	0.6
Quality of accommodation	20	0.55
Accommodation tariff	20	0.45
Food prices	20	0.15
Public transport facilities	20	**-0.35**
Quality of roads	20	**-0.7**
Time required for travel	20	**-0.7**
Co-operation for tourist information centre	20	**-0.75**
Recreational facilities	20	0.8

Table A-13 presents the summary of Member of manager's rating of the destination dimension parameters. It is observed from the above table that out of 10 destination dimension parameters, the managers were found satisfied at varying degrees on the following 6 dimensions of their Professional experience:

I. status of air connectivity with tourists' home country and the air tariff
II. Visa and immigration formalities
III. Quality of accommodation
IV. Accommodation tariff
V. Food prices
VI. Recreational facilities

The rating the Managers in the above mentioned destination dimension parameters are in the range of “Moderate” to “Satisfactory”.

However, it is also observed that in 4 destination dimension parameters where Manager’ rated their experience as ‘Less than satisfactory’. These dimensions are:

I. Public transport facilities
II. Quality of roads
III. Time required for travel
IV. Co-operation for tourist information centre

The rating the managers in the above mentioned destination dimension parameters are in the range of “Moderate” and “Dissatisfactory”.

Expected tourism Strategy and Implementation

Strategy for Development Infrastructure within Bangladesh

Strategy formulations:

Quality of tourism greatly depends on the well-functioning public infrastructure. Bangladesh Parjatan Corporation, National Tourism Board and Private and foreign initiatives and investment are required to develop the public infrastructure at tourist sites.

Strategy implementations:

BPC has been promoting and creating various tourist facilities across the country. It has created as many as 29 tourism units at different places of tourist attractions of Bangladesh in order to facilities to the tourists. BPC’s vacant lands are being leased out to private sector investors to create tourist facilities. Private sector and foreign direct investment are required to establish world-class Hotels, preparing Satisfactory environment, management of Hotels hiring managers and other staffs not only Bangladesh but also from abroad. Bishwa Ijtema and other religious festivals can be more systematically arranged to attract both domestic and foreign tourists. As such religious places infrastructure should be developed with greater vision and mission. Govt. can develop necessary infrastructure: roads, highways and bridges; sea ports and airports; rivers and coastal waters worth navigation; always and rail road's, etc. these infrastructures are essential and should adequately connect the trade- centres as well as important spots and resorts worth visitation by tourists and the local people.

Strategy for Improving Public Transport

Strategy formulations:

To improve and develop painless and best traveling way.

Strategy implementations:

Improvement in road communication should be joined north to south and east to west cities without much trouble and hindrance. Bus services should be improved; Rail-way intercity train service has a considerable network to cover the major cities with the capital. However, services of the railway should be better; Railway line should be established up to Taknaf from Chittagong; Rail link between Dhaka and Cox’s Bazar should be established. Hill tract area should be come under well connected Railway and air system. The inland waterway facilitates easy and cheaper sources of transportation and possesses a great potential for tourism development; the government should maintain an international standard of the airport in Chittagong, Sylhet, Syedpur and Cox's bazaar. More airports should be built and the existing ones improved at Barisal, Rajshahi, Rangpur, Khulna, Dinajpur, etc. and the number of flights should be increased for easy movement of tourists. Private airlines should come forward to cover different tourist spots; Heron point should be well connected not by only sea transport but also the air system.

Strategy for Country Branding:

Strategy formulations:

Creating a favorable image of Bangladesh abroad.

Strategy implementations:

Country branding, which is about employing strategic marketing to promote a country's identity, has become a strategic tool of a country's competitiveness. However, only few developing countries have articulated and implemented a branding strategy. Malaysia developed a brand name "Malaysia Truly Asia." Bangladesh Govt. also to Moderate certain steps to build a brand name "Beautiful Bangladesh." As a part of publicity & marketing activities, two video films named 'Visit Bangladesh' and 'Discover Bangladesh' have been produced. Colorful brochures and folders have been printed describing the tourism products/ places of attractions in Bangladesh. Aggressive marketing is needed not only within the country but also outside the country. Bangladesh Embassy at abroad should work as a publicity campaign to encourage foreigners to tour.

Strategy for Awareness of the local people by institutions:

Strategy formulations:

To ensure the participation of the local people to the tourism development.

Strategy implementations:

Although the local population needs to be informed of the importance of tourism for general development of Bangladesh, the information on current income possibilities forms tourism activities and investments of individuals is more promising. Why, what and how to do! The way of inciting the interest of the local population for tourism is to open the options for employment and income.

Strengthening capacities of the local tourism organizations would turn them into promoters of the tourism business, the consultants in private initiative start-up in tourism and other related areas, creators of demand and the ones guiding supply development.

Conclusion

Bangladesh has very attractive tourism potentials. The tourism sector is economically very important because it is a source of foreign exchange as well as it creates job opportunities. But unfortunately, the present position of tourism is not significant in terms of global tourism market. On the other hand, most of the countries in the world are making their maximum efforts to develop tourism industry. Tourism is recognized as a tool of poverty alleviation all over the world, is yet to be recognized in Bangladesh. The policy makers of Bangladesh should give the top most priority for the sustainable development of tourism so that tourists can attract to visit Bangladesh.

References

1. Mclontosh, R. W., Goeldner, C. R., & Ritchie, J. B. 1995. *Tourism: principles, practices, philosophies* (No. Ed. 7). John Wiley and Sons.

2.Hao,H.,Long,P., & Kleckley,J.2011.Factors predicting homeowners' attitudes toward tourism:A case of a coastal resort community. Journal of Travel Research,49,381-394.

3. Crouch, G.I. & Ritchie, J.R.B 1999: "Tourism, competitiveness, and Societal Prosperity" Journal of Business Researcher, 44 (3). pp 137-152.

4. Uysal, M.S. 1998: The determinants of tourism demand: A theoretical Perspective. In D. loannides & K.G. Debbage (Eds.), The ecnomic geography of the tourists industry: A supply-side analysis. Routledge, New York.

5. Buhalis, D. 2000: "Marketing the competitive destination of the future" Tourism Management, *21* (1) pp. 97-116

6. Dwyer, L., & Kim, C. 2003: "Destination Competitiveness. Determinants and indicators." Current issues in Tourism, 6 (5) pp 369-414.

7. Enright, M. and Newton, J. 2005: "Determinants of Tourism Destination Competitiveness in Asia Pacific: Comprehensiveness and Universality." Journal of Travel Research, 43 (2) pp 339-350.

Public Sector Accounting in Bangladesh: A Study on Bangladesh Telecommunication Company Limited (BTCL)

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Abstract: The purpose of the study is to find out what standards of public sector accounting are applicable in Bangladesh, whether the standards are followed by public sector organizationsand to analyze the information of Bangladesh Telecommunication Company Limited (BTCL) about its transaction processing procedure and financial statements preparation. This study was done on case study method. The annual report of BTCL (2009-15) was gathered to collect the data. Moreover, previous literature reviews were also analyzed to get an overview about the transaction processing procedure and preparation of financial statements about a public sector organization. After collecting the desired data, a description was inferred about the financial statement preparation and recording process of BTCL.However, international public sector accounting standards (IPSASs) are not fully followed in Bangladesh. A partial accounting standards are being followed andfor this reason, the performance of BTCLcannot be measured numerically. This study will give a message to the stakeholders of BTCL about their presentation and preparation of financial statements and transaction processing systems. The present scenario of BTCL in public sectors accounting is not satisfactory as it is desired in compliance with accounting standards.BTCL can use full cash basis IPSASs and move towards applications of accrual basis IPSASs.

Key words: Public Sector Accounting, IPSASs, BTCL, Financial Statements.

Abbreviations: BTCL=Bangladesh Telecommunication Company Limited, IPSASs=International Public Sector Accounting Standards, ICAB= the Institute of Chartered Accountants of Bangladesh, CAG= Comptroller and Auditor General, IFAC=International Federation of Accountants

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Introduction

Public sector accounting is a method of accounting for government bodies that are especially entitled to non-profit pursuing entities. The preparation of public sector account has some unique features that distinguish it from the commercial or private sector account preparation. The international economic, political, social and technological recent changes have impacted the countries' public finances by limiting their governments' capacities to finance their public expense.[1]

Public sector accounting is a system or process which gathers, records, classifies and summarizes as reports the financial events existing in the public or government sector as financial statements and interprets as required by accountability and financial transparency to provide information to information users associated to public institutions. It is interested in the receipts, custody, disbursement and rendering of stewardship of public funds entrusted.[2]

The International Public Sector Accounting Standards Board (IPSASB) established accounting standards for public sector entities referred to as International Public Sector Accounting Standards (IPSASs) [3]. The IPSASB is among the four independent standard-setting boards of International Federation of Accountants (IFAC). Developed countries have already established good harmonization with IPSASs to prepare their national account.

Bangladesh is far lag behind in the public sector accounting development. However the government authority of Bangladesh has expressed both commitment and willingness to adopt the cash basis IPSAS and has taken an initiative to prepare the financial statements in accordance with the cash basis IPSAS. The government thinks the adoption of the cash basis IPSAS will be a point of departure towards implementing the accrual basis of accounting in the future.

The Public Sector emerged as the driver of economic growth consequent to the industrial revolution in Europe. With the advent of globalization, the public sector faced new challenges in the developed economies. Public sector management is one of the basic elements of governance structure of Bangladesh with the aim at achieving greater efficiencies in governmental operations, reducing corruption and system losses.[4]

Rationale of the study

Public sector accounting is one of the most buzzword issues in the modern world. In Bangladesh, there are many public organizations. But it is furtive whether the public sector organizations follow the standards those are relevant for them. BTCL, in Bangladesh, plays an important role in the economy of Bangladesh from public sector organization. But it is not clear what standards it maintains, what is its broad categories of transactions, what is its transaction processing, how does it prepare and present its financial statements. No study is found about BTCL whether it follows the international accounting standards in preparing and presenting its financial statements. So this study is aimed at finding out how BTCL records, measures and prepares its organizational performance.

The objectives of the study

The intended objective of the study is to acquire the absolute knowledge about the public sector accounting in Bangladesh. But the main objective of the study is to find out whether BTCL follows the public sector accounting standards in preparing and presenting its financial statements.

Literature review

Recently, governments from all over the world have employed a wide range of administrative and financial reforms because of increasing social, economic, political, and technological pressures on government. The pressure is to become more efficient, effective and accountable in use of public resources[5]; There are some reforms such as the introduction of accrual accounting, privatization, managing by outputs, a user pay regime, contracting out and standardization of financial reporting. In order to assess the practices that the public sector should and could adopt, the managers of public organization have increasingly observed how the private sector organizations record and present their operation[6]. In recent years for using the public resources, the government of Ghana strengthens the framework of legislation and amplifies oversight so that public financial management reforms can be developed and implemented[7]

Financial accounting is broadly divided into two categories: cash accounting and accrual accounting[8]. Cash accounting records the transactions once the cash is received or paid whereas accrual accounting records the transactions, events and conditions as and when they occur irrespective of cash flows. It is interesting to note that both private and government sectors were used to adopt cash-basis accounting practices until the 16th century with a focus on the single entry system[9]. The basic requirements for presenting accounts to shareholders were almost unknown before 18th century and became common only from the 1820s, usually in the form of cash-based receipts and payments accounts, which enabled investors to determine the legitimacy of the dividend payments and enabled them to calculate a cash-based version of the rate of return. The effective and successful implementation of accrual accounting reforms in the Greek hospitals is negatively affected for the lack of knowledge and expertise as well as lack of accounting training[10]. Human resource and their skill is an important factor for successfully implementing the accrual accounting in Germany[11].The World Bank Report (2006) recognized that sound accounting and auditing systems are most important drivers of fruitful public financial management reforms.

It has been found in few research reports that due to lack of proper education, public sector accounting have faced problems in their operations. Over three decades ago, a study conducted into graduate-level public sector accounting education in the United States. In his survey it was found that only 13.6% of the sampled 81 business schools offer a graduate level public sector accounting course, however, these courses are limited in scope. Most business schools were not offering the courses because of various reasons: lack of resources, inadequate student and faculty interest and low employment opportunities[12].Most accepted institutions would like to expand public sector accounting courses by offering undergraduate and graduate programs but they failed for lack of qualified funds and faculty[13]. In most countries there is few opportunities for learning PSA and no strong curriculum about it. In Australian universities, for teaching PSA content the textbooks, lectures and illustrations are the primary approaches. Journals articles, especially the professional articles about PSA play an important role in higher education. Students also found those articles valuable.[14]

Recently the accountability and transparency of public sector accounting have caught an eye of the business world. Bangladesh is not beyond to this. The stakeholders have little idea about the presentation of financial information of public sector accounting. This study is trying to give an overview about Public Sector Accounting in Bangladesh.

Methodology of study

This study was done by case study method. Only one public sector company was randomly selected that was BTCL. The annual report of BTCL (2009-15) was collected. From there annual report data was taken as secondary sources. Moreover, previous literature reviews were also analyzed to get an overview about the transaction processing procedure and preparation of financial statements about a public sector organization. After collecting the desired data, description was inferred about the financial statement preparation and recording process of BTCL.

Challenges and Weaknesses of Public Sector Accounting

There are several empirical study conducted in Malaysia and Nigeria in the Public sector accounting area to find out the weakness and challenges. Nigeria's migration to the accrual basis of accounting will definitely not come without challenges[15]. The expected challenges include:

- Systematic identification and valuation of assets and liabilities as at the date from which accrual accounting is to commence.
- Lack of adequate technical resources
- Political ownership such as inadequate support at the highest levels of the executive
- Consolidation issues

In case of Bangladesh the following could be big challenges in Public sector accounting[4:]

- Inability to provide timely, relevant, and reliable financial information;
- Improving the financial governance arrangements for public corporations;
- Application of a code of conduct and characteristics of public sector accountants;
- Improving public expenditure management practices;
- Formatting a strategic planning for the Supreme Institution.
- Adaptation of Cash Basis IPSAS and International Standards and ;
- Transition from Cash basis IPSAS to the Accrual based IPSAS.

Some weakness in case of Bangladesh are the following [4]

- Lack freedom to hire suitably qualified, trained staff.
- C&AG office is not outside the ambit of the Government bureaucracy.
- Audit Staff are not adequately qualified and trained to prepare and verify the account

Standards for Public Sector Accounting in Bangladesh

In Bangladesh, cash basis of Accounting System is used for maintaining the accounts and preparing the financial statements of public sector organization. Features of government accounting systems of Bangladesh include: Consolidated Fund; Treasury Single Account; Limit of financial authority provided by the Parliament through Annual Budget but funds managed by a central entity & individual entities do not control the 'cash' they are authorized to spend. Public sector accounting of Bangladesh Complies with requirements of Cash Basis IPSASs by ensuring proper presentation, transparent financial reporting & enhanced comparability of general purpose financial statements In Bangladesh following standards are maintained in public sector accounting.

- Central Government – Cash Based IPSAS;
- Local Government Institution- Cash Accounting;
- Autonomous Bodies, Sector Corporations and SOEs-Accrual Accounting;
- Foreign Aided Project – IPSAS Compliant and Accrual Accounting;
- ICAB set up a Committee on Government Accounting System;
- ICAB members cognizant of IPSAS.

Understanding of the Business of BTCL

Bangladesh Telecommunications Company Limited (BTCL) is the largest telecommunications company in Bangladesh. The company was founded as the Bangladesh Telegraph & Telephone Board (BTTB) following Bangladesh's independence in 1971. On July 1, 2008 the BTTB became a public limited company and was renamed as BTCL.

BTCL provides land-line telephone services in Bangladesh's urban areas, including domestic long-distance calling and international services as well as internet services. In 2004, the Bangladesh Government issued a number of PSTN licenses to private companies, but they were barred from providing services in the lucrative Dhaka market (which accounts for the majority of the nationwide market). The monopoly held by BTCL was broken when other operators started to receive licenses from 2007.BTCL provides dial-up Internet access to all 64 districts of the country, making it the most-accessible Internet service provider in the country. As of January

2009, its total dial-up subscribers are 32,433. Since the beginning of 2007 BTCL has improved its Dial-up Internet service for better customer satisfaction. It also handles the .bd domain.

BTCL provides consumer-level broadband Internet services under the branding of BCUBE. The service is provided through ADSL2+ technology. BTCL has outsourced its BCUBE sales and customer support to EMEM Systems Ltd, System & Services Ltd (SSL) and Sisview Technologies Ltd. Till now BTCL has got about 15,000 customers. BTCL's monthly income is about Tk19, 000,000 per month from this service.

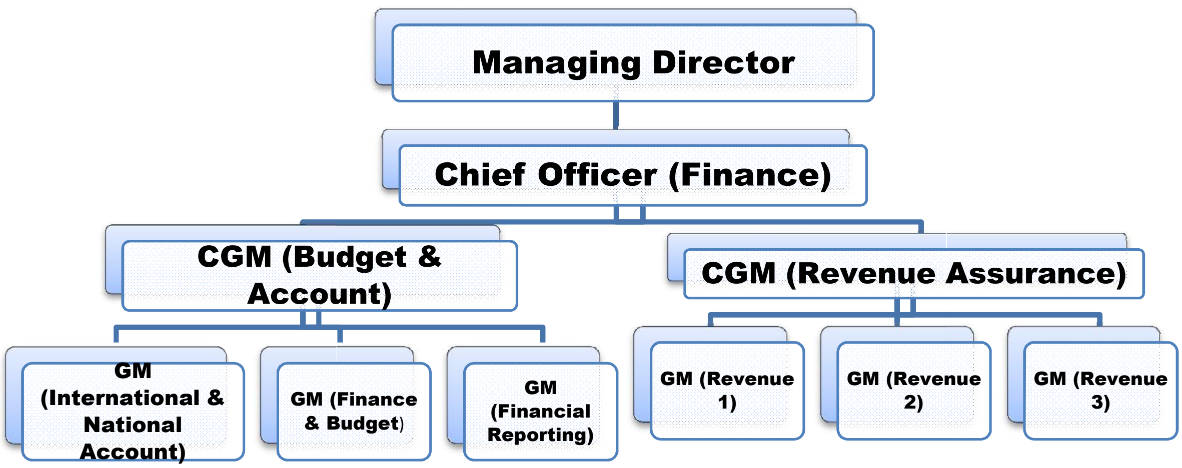

Figure 1: Accounting Department organogram of BTCL

Broad categories of transaction for BTCL

The transaction categories of BTCL is based on rendering telecommunication services and services provided by BTCL are as follows:

Telecom Service Licenses Issued in favor of BTCL:

- Public Switched Telephone Network (PSTN)
- International Gateway (IGW)
- Interconnection Exchange (ICX)
- International Internet Gateway (IIG)
- Internet Service Provider (ISP)

Telecom Service Licenses intended to acquire:

- Broadband Wireless Access (BWA)
- International Terrestrial Cable (ITC)
- Nationwide Telecom Transmission Network (NTTN)

Table 1: Different types of BTCL Services

Service Type	**Services**
Voice	▪ PoTs (Plain Old Telephone System) – On net/ Off net Voice Calls, International Calls, FAX, Different Supplementary Services (e.g. Call Forwarding, Hot Line, Do Not Disturb, Alarm etc.), PABX, Centrex ▪ Interconnection Exchange Service ▪ International Gateway Service
Data Communication	▪ Digital Data Node (DDN) ▪ Optical Fiber Based MPLS
Internet	▪ Dial-up Internet ▪ ADSL ▪ Leased Internet through Optical Fiber ▪ International Internet Gateway Service
Transmission	▪ Optical Fiber/ Microwave Based Nationwide Backhaul Transmission ▪ Copper/ Optical Fiber based Local loop ▪ GPON (Gigabit Passive Optical Network)- Voice, Video & 20 Mbps data over optical
Infrastructure	▪ Co-Location ▪ Space ▪ Power ▪ Tower Space ▪ Dark Fiber/ Fiber duct
Internet/ Data Related Services	▪ Web Hosting ▪ DNS Parking ▪ .bd Domain Name Registration

Transaction processing procedure for BTCL

To ensure strong financial reporting on commercial accounting system basis, BTCL has adopted effective policies and developed systems and procedures. Recently, BTCL has developed customized accounting software to facilitate smooth and timely recording of financial and accounting information. To ensure effective control in expense and to provide reasonable assurance of the entity achieving its objectives related to reliable financial reporting, operating efficiency and compliance with laws and regulations, BTCL has a separate and full-pledge internal audit department. Personnel of the internal audit department regularly monitor the financial transaction and report thereon to the designated authority.

Revenue Recognition:

a) Telecom Revenues are recognized when services are rendered.

b) Interests on term deposits are recognized on accrual basis.

c) Dividend income is recognized on cash receipt basis.

Preparation of Financial Statements

As per note and disclosures to the financial statements comprising six years from 2009-15

Statement of Compliance: The account has been prepared in accordance with International Accounting Standards (IAS), International Financial Reporting Standards (IFRS), the Companies Act 1994, and other applicable laws in Bangladesh.

Basis of Measurement: The accounts have been prepared on a going concern basis under historical cost convention.

Use of estimates and judgments: The preparation of account requires management to take judgments, estimates and assumption that affect the application of accounting policy and the reported amounts of assets, liability, expenses and revenue. The estimates and associated assumptions are based on historical experience and various other factors that are believed to be reasonable under the circumstance. The result of which form the basis making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates.

Estimates and underlying assumptions are reviewed on an ongoing basis. Revision to accounting estimates are recognized in the year in which the estimate is revised if the revision affects only that year, in the year of revision and future periods if the revision affects both current and future periods.

Recognition of Property, Plant and Equipment: These are capitalized at cost of acquisition and subsequently stated at cost less accumulated depreciation in compliance with the benchmark treatment of BAS 16 "Property, Plant and Equipment". The cost of acquisition of an asset comprises its purchase price and any directly attributable cost of bringing the asset to its operating condition for its intended use inclusive of inward freight, duties and non-refundable taxes.

Recognition and Measurement of Intangible Assets: Intangible assets are measured at cost less accumulated amortization. Intangible assets are recognized when all the conditions for recognition as per BAS 38: Intangible Assets are met. The cost of the intangible assets comprises its purchase price, import duties and non-refundable taxes and any directly attributable cost of preparing the assets for its intended use.

Employee benefits: Pursuant to the vendors agreement executed on 1 July 2008 between the Government of Bangladesh and BTCL, the employees will be on the account of Government for 2 (two) subsequent years and thereafter options will be obtained as to their preference whether employment of any employee or staff should be transferred to the company or shall remain with the Government.

In view of the above, no provision for pension and gratuity has been made in the accompanying financial statements.

In addition, BTCL maintains both defined contribution plan and defined benefit plan for its eligible permanent employees. The eligibility is determined according to the terms and conditions approved by the Government.

Foreign currency transactions: Transactions in foreign currencies are recorded at the exchange rates prevailing on the date of the transactions. Monetary assets and liabilities in foreign currencies at the balance sheet date are translated into Bangladesh Taka at the rate of exchange prevailing at the balance sheet date.

Prior year's adjustment: The Company has restated net profit before tax for Taka 2,998 million for 2010-2011 and opening retained earnings as of 1 July 2010 for Taka 676 million as a result of foreign exchange loss not accounted for in the earlier years. Further, balances of long term loan both current portion and the remaining balance have been adjusted accordingly in the accompanying financial statements.

Checking and Authorization of Financial Statements: The CAG has the responsibility of audit of the state owned company. BTCL's account is prepared by its account and finance department but CAG the audit the account. The Board of Director authorizes the financial statements as its share is not traded in stock exchange so no option of authorization by shareholder.

Feedback: Basically there is no feedback of financial statements as its financial statements are not provided to general people through report, it is simply uploaded in its website but people of Bangladesh has no available internet access.

Adequate Disclosure: There is no indication in the annual report of BTCL whether it follows IPSASs which is mainly for public sector accounting. The transaction processing and recording system are not mentioned.

Current Scenario of IPSAS in BTCL

The following table describes the important aspects regarding IPSASs and BTCL corporate scenario in different sectors especially in accounting

Table 2: Current Scenario of IPSASs in BTCL

Questions	Current status
1. Does the BTCL adopt IPSASs?	NO. There is an accounts code.
2. Is the education and training of accountants of BTCL in accordance with IES?	No. But BTCL provides foreign training and local training including seminar workshop
3. Does the ICAB code of ethics match international	Partially followed

standards and that are followed by BTCL?	
4. Is there a body to prescribe public sector accounting standards?	There is no dedicated body. CGA does this but not as a Standards Board. CAG is responsible for prescribing the form and manner of maintaining the public accounts.
5. Are the financial statements of BTCL are prepared in accordance with the IPSAS standard?	No. The Cash Basis IPSASs for financial statements is not followed.
6. Is the statement of cash receipts and payments in IPSASs form?	No. This information is currently presented in formats inconsistent with the IPSASs
7. Are accounting policies and explanatory notes required?	No. Statements of accounting policies are not provided in the budget or accounts documents
8. Are other disclosures in accord with IPSASs?	No.

Findings and Recommendation

After analyzing the BTCL information the following factors are found:

- BTCL does not follow IPSASs at all
- The transaction processing and financial statement presentation is ambiguous which creates confusion for reasonable decision making by investors
- BTCL merely follows IFRSs for preparing financial statements and there is no specific declaration regarding which IFRS is followed
- BTCL has prepared its financial statements on going concern basis under historical cost convention.
- No feedback procedure policy
- BTCL partially follows the ICAB code of ethics to match international standards.

BTCL should adopt International Public Sector Accounting Standards (IPSASs). Along with the adoption of IPSASs, the Cash Basis IPSASs should be applied first, with subsequent gradual implementation of the accrual IPSASs. At the present time, BTCL does not comply with the Cash Basis IPSAS in its financial statements. The following step may be recommended to practice in BTCL for better financial accountability of public organization.

- BTCL should use full Cash basis IPSASs and move toward application of Accrual basis IPSASs.
- Better technology and integrated financial management system are needed for improved public sector accounting.
- A code of conduct for accountants based on IFAC or ICAB codes is needed.
- Ensuring an effective selection and training framework

Conclusion

The present scenario of BTCL in public sectors accounting is not satisfactory as it is desired in compliance with standards. Since BTCL is a government organization, Government should be strong for cohesive accounting profession by encouraging leadership on emerging issues like Public Sector Financial Management and ensure coordination with national, regional and international professional bodies for achieving the objectives of global harmonization in public sector accounting.

References

1. Wallace, Sally. 2003 Fiscal Architecture: A Framework for analysis of Public Expenditure Needs and Revenue Capacity. *Prepared for the World Bank Thematic Group On Taxation and Tax Policy*. (April).
2. The Institute of Chartered Accountants-Ghana (ICA-Ghana). 2010. Public Sector Accounting. ICAG, Ghana.
3. Ijeoma, N. B. 2014,The Impact Of International Public Sector Accounting Standard (IPSAS) On Reliability, Credibility And Integrity Of Financial Reporting In State Government Administration In Nigeria. *International Journal of Technology*

Enhancements and Emerging Engineering Research. VOL 2, ISSUE 3 1, ISSN 2347-4289.

4. Chowdhury A. 2012, Strengthening Public Sector Accounting and Auditing in Bangladesh. *The Bangladesh Accountant,* January- March issues.
5. Hoque, Z .and Mol, J 2001, Public sector reform: Implications for accounting,accountability and performance of state owned entities an Australian perspective, *International Journal of Public Sector Management,* Vol. 14 No.4. pp 304 – 36.
6. Sciulli, N and Sims, R 2007, Public sector accounting education in Australia Universities: An exploratory study, *Sunway Academic Journal*, Vol.4, pp 45 – 58 .
7. World Bank Report 2006, Public financial management performance report and performance indicators: External review of public financial management, Vol. 2, No 36384-GH
8. Nagendrakumar, N., Fonseka, M., and Dissanayake,K., 2015. The development of public sector accounting and financial reporting in SriLanka,https://www.researchgate.net/publication/287195133.
9. Al-husaini, M. and Gowda, M. 2008. The Conceptual Framework of Accrual Accounting as Applicable to Government Activities. *The ICFAI University Journal of Accounting Research*, 7(3), 59-70.
10. Stamatiadis, F.G. 2009, Investigating government accounting reforms in the Greek National.
11. RidderH, Bruns H and Spier F 2005, Analysis of public management change process: Thecase of local government accounting reforms in Germany, *Public Administration*, Vol.83,No. 2, pp443 -471.
12. Holder. W.W 1978, “Graduate level public sector accounting: status and forecast”, TheAccounting Review, Vol. 53. No. 3, pp 746-751.
13. Engstrom, J.H 1979, Public sector accounting: status and extension, *The Accounting Review*, Vol.54, No 4, pp 794 – 799.
14. Hoque, Z 2002, Using journals articles to teach public sector accounting in higher education, *Journal of Accounting Education*, Vol. 20 No.3, pp139 – 161.

15. Ijeoma. N. B. and, Oghoghomeh. T. 2014, “Adoption of international public sector accounting standards in Nigeria: Expectations, benefits and challenges”, Journal of Investment and Management.

Service Quality Dimensions in Telecommunication Industry—An Evaluation of Customer Care Services in Bangladesh

Sadia Mahjabeen

Abstract: *Telecommunication is one of the most fiercely-competitive industries of Bangladesh. But, in this age of competition, companies need to come up with new ideas to remain competitive.* Customer service is vital to the ongoing success of any company *In Bangladesh; the expansion of telecommunication is beset with several institutional and regulatory constraints such as inadequate availability of skilled manpower and training facilities, absence of supportive policies, guidelines, rules and regulations relating to customer services and the like. The major telecom companies provide cellular as well as customer services in both urban and rural areas of Bangladesh. There are nationwide customer care centers of such companies in Bangladesh. However the aim of the paper is to evaluate the effects of service quality dimensions on customer satisfaction in TSP customer service centers of Dhaka. The paper also finds out the relationship between the five SERVQUAL dimensions and customer satisfaction. Therefore, the study recommends some strategies under the umbrella of different service dimensions to enhance service quality to benefit consumers, policy makers and service providers of Bangladesh.*

Keywords: *Service quality, Reliability, Responsiveness, Assurance, Empathy and Tangibility.*

Introduction

Telecom industry is one of the fastest growing industries in Bangladesh. People are nowadays more inclined towards frequent communication and due to the telecommunication industry we can now say that no matter what the distance is, people are just 'a call away'. So in course of time and with the growth rate of population and appeal for high standard living, telecom industry is growing at a high rate. In fact, the mobile phone is more of a commodity now rather than an accessory and therefore the demand for mobile phones has been increasing among the low-income group also. This fastest growing industry has already attracted many research and telecommunication companies to explore opportunities and innovate something new in the market. The mobile operators, along with researchers are trying to study different markets and potentials of those markets, so that they can introduce innovative offers and sustain competition.

Telecommunication service providers (TSPs) are of paramount importance to both developed and emerging economies. In Bangladesh, TSPs are projected to contribute greatly to the national goal of achieving status as a digital nation. With stiff competition between six providers of Global System for Mobile Communications (GSM) and one public landline provider, customer satisfaction is a necessity for survival in the market. At the same time, Bangladeshis are becoming equipped with necessary knowledge about quality service delivery. Many telecommunication service providers in

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Bangladesh offer various products and services in the market. TSPs have to compete with each other to ensure optimal customer satisfaction in terms of products or services.

In terms of the number of subscribers, up to February 2017, Grameenphone is clearly the market leader with a maximum 28.487 million subscribers. Although Banglalink entered the industry long after Citycell (1993) and Robi Axiata (1997) did, in terms of number of subscribers, it has surpassed both the operators and currently holds the second position. This shows how rapidly Banglalink penetrated the market.[1]

	Grameenphone	Banglalink	Airtel	Robi	Teletalk	Citycell
Year of inception	1997	2005	2007	1997	2005	1993
Number of subscribers - 2017(million)	59.306	31.309	8.209	27.017	3.733	0.000

Source:http://www.btrc.gov.bd/newsandevents/mobile_phone_subscribers/February_2017.ph

The figure above shows a comparative analysis of the mobile operators operating in Bangladesh. Apart from Grameenphone, there are five other operators providing communication services to the Bangladeshi consumers. Of the six mobile operators in Bangladesh, as shown in the table, Citycell was the first mobile operator to commence its operations and services in Bangladesh, in 1993. Citycell was later followed by Grameenphone which began its operations in March 1997 and Robi Axiata, previously known as Aktel, launched its services in October 1997. In the year 2005, two mobile operators commenced their services, Teletalk and Banglalink and the last operator to enter the industry is Airtel previously known as Warid, which began its operations in the year 2007.[2]

Quality is generally regarded as being a key factor in the creation of worth and in influencing customer satisfaction. Hence, the telecommunication industry in Bangladesh has to be strategically positioned to provide quality services to satisfy customers. To provide improved quality service, telecommunication companies need to investigate degree of customers' sensitivity and expectations toward service quality. Armed with such information, telecommunication outfits are then able to strategically focus service quality objectives and procedures to fit the Bangladeshi market. The purpose of this study is to examine the impact of service delivery factors on dimensions of service quality and to evaluate the effects of these dimensions on satisfaction of customers of TSP customer care in Dhaka.

Problem Definition

Background of the Problem

Customer service is vital to the ongoing success of a company. Customers needs, wants and attitudes change very quickly. It is important for companies to be continually changing and evaluating their customer service in order to meet these ever changing trends. Customer service is not merely customer relations or how nice frontline workers are to customers, rather, it is satisfying or even delighting customers. Customers for different types of services have different needs; customer service strategies will differ and must be tailored to the target customer. The researcher tried to find out the consumer profile and level of customer satisfaction from the services which users get from TSP customer care centers situated in Dhaka city using SERVQUAL model. This study, in this regards, would break new ground on the issue as it explores and explains the core issues of successful customer relationship management. Such studies, thus, not only contributes to the academic enrichment of services marketing, but also contributes significantly in the policy formulation and implementation by the competent authorities for the continuous development of the telecommunication sector of Bangladesh.

Statement of the Problem

Through the research, customer profile, service quality dimensions and the actual impact of customer services on the customers is described. So, this is essentially a descriptive research. The focus of the research is to find out the **SERVQUAL Dimensions in Telecommunication Services—An Evaluation of Customer Care Services in Bangladesh**. There are nationwide customer care centers of TSPs in Bangladesh. For such centers and customer care executives, a reasonable amount of resources are being utilized. Therefore it is quite relevant to find out the effectiveness of the customer care executives and the level of customer expectation and satisfaction from those services.

Literature Review

Service Quality

Service quality can be described as a rationale of differences between expectation and competence along the important quality dimensions. Parasuraman identified ten requirements useful for customers' evaluation of the quality of services: reliability, responsiveness, tangibles, communication, credibility, security, competence, courtesy, understanding the customers and service accessibility. [3] These dimensions were then reduced to five to develop the SERVQUAL instrument. [4]

1. Reliability: The ability to perform the promised service dependably and accurately.
2. Responsiveness: The willingness to help customers and provide prompt service.
3. Assurance: The knowledge, ability or courtesy of employees to inspire trust and confidence.
4. Empathy: The caring, individualized attention the firm provides to its customers.
5. Tangibles: The appearance of physical facilities, equipment, appearance of personnel, and communication materials.

This instrument continues to be widely used in marketing studies of customer satisfaction and consumer preference; despite some argument that other models may be better. The stage of performance that a top quality service will need to give was conditioned through the expectation of the customers. Service quality is judged low when the performance was below expectation. The SERVQUAL model is a common diagnostic tool used to measure customer service and perceived satisfaction.[5]

Service Quality Gap

In previous service research, meeting and exceeding expectations of clients and customers is a perspective that has gained most attraction. This concept is all inclusive and cuts across service domains, but expectations change and experiences with alternate service providers could shape the customers' expectations. The important research gap here is attaining customers' expectation towards a particular service.[6]

A gap is the difference, imbalance or disparity which is determined to exist between customers' perception of firm performance and their prior expectation. Service quality (SQ) perceived by customers is therefore as a result of a comparison of customers' expectation (E) of services that the organization should offer versus their perception of the performance (P) delivered by the service organization. ***Service Quality Gap = Customer's Perception (P) – Customer's Expectations (E)***

Management of service quality largely focuses on managing the gaps between expectations and perceptions of customers. [7] The goal of the firm is to minimize the gap between (P) and (E). [8]

Customer Satisfaction

As discussed by earlier researchers is an evaluation of a choice that happens after a customer has made a purchase.[9] Kotler on the other hand defined satisfaction as 'a person's feelings of pleasure or disappointment resulting from comparing a product or service perceived performance in relation to his or her expectations'. [4] Furthermore, overall customer satisfaction has a positive effect on loyalty in situations where customers are satisfied with products or services been offered. [10] According to Gagnon and Chu, organizations can measure customer satisfaction through a number of complaints made by customers, number of returned products or by conduction a customer satisfaction survey that involves customers responding to questions that are meant to establish if they are satisfied with what is offered. [11]

Service Quality and Customer Satisfaction

Customer satisfaction with an organization's products or services is often perceived as the key to an organization's success and long-term competitiveness and is highly related to service quality. [12] If the service matches the customers' expectations, the customers are satisfied. On the other hand, if the service is below their expectations customers are dissatisfied, and if the gap between their expectations and actual experience is wide, customers are likely to communicate negative word-of-mouth or in worst cases, customers never return to the organization. [13] These are reasons as to why service organizations today are aiming for customer satisfaction as increased customer satisfaction leads to favorable word-of-mouth, customer retention and customer loyalty. [14]

Research Objectives

This research aims at one main objective and five subsidiary objectives that are discussed as:

General objective: To study dimensions of service quality and to evaluate the effects of these dimensions on satisfaction and demographics of customers of GP customer care in Dhaka.

Specific objectives

1. To study the effect of reliability of services on the satisfaction of telco customers in Dhaka.
2. To study the effect of service responsiveness on the satisfaction of telco customers in Dhaka.
3. To study the effect of trustworthiness on the satisfaction of telco customers in Dhaka.
4. To study the effect of empathy against services on satisfaction of telco customers in Dhaka.
5. To study the effect of tangibility of services on the satisfaction of telco customers in Dhaka.

Methodology

This study was conducted through collecting and analyzing both primary and secondary data. This is essentially a descriptive research. The methodology for the study is as follows:

Nature of Research: Both qualitative and quantitative research designs were employed to conduct the study. The quantitative study, in the form of questionnaire survey compiled benchmark data on the issues of the study and was used to test research hypothesis. This required collecting relevant information regarding present status of the customer care services through field visit in at least five customer care centers. Moreover, the researcher also carried out a survey through a questionnaire and in-depth interviews. The qualitative studies contributed in establishing the conceptual framework of the study. This involved collecting information mainly from the internet, including Grameenphone, Telenor and Bangladesh Telecommunication Regulatory Commission.

Research Questions: The researcher evaluated five dimensions of service quality according Parasuraman model. So answers to the following questions about GP Customer Care Centers were necessary:

1 How does reliability influence customer satisfaction in telco customer care centers?

2 How does responsiveness influence on customer satisfaction in telco customer care centers?

3 How does assurance influence customer' satisfaction in telco customer care centers?

4 How does empathy of services influence customer satisfaction in telco care centers?

5 How does tangibility of services influence customer satisfaction in telco service centers?

Research Hypotheses: The five sets of null and alternative hypotheses are as follows:

$H_0$1: Reliability will not have any significant impact on customer satisfaction

$H_1$1: Reliability will have a significant impact on customer satisfaction

$H_0$2: Responsiveness will not have any significant impact on customer satisfaction

$H_1$2: Responsiveness will have a significant impact on customer satisfaction

$H_0$3: Assurance will not have any significant impact on customer satisfaction

$H_1$3: Assurance will have a significant impact on customer satisfaction

$H_0$4: Empathy will not have any significant impact on customer satisfaction

$H_1$4: Empathy will have a significant impact on customer satisfaction

$H_0$5: Tangibility will not have any significant impact on customer satisfaction

$H_1$5: Tangibility will have a significant impact on customer satisfaction

Population and Sampling: The total size of the research population is 7.2 million in Dhaka (telco serves 48% of 15 million telecom subscribers in Dhaka). To determine the appropriate sample size to conduct the survey of telco customers. [15]

$$\text{Sample Size,} \quad n = \frac{Z^2 * (p) * (1-p)}{C^2} = \frac{1.96^2 * (0.48) * (1-0.48)}{(0.05)^2} = 383.55 \simeq 384$$

Where: Z = Z value (e.g. 1.96 for 95% confidence level)

p = Served Market, expressed as decimal (0.48 used for sample size needed)

C = Confidence Interval, expressed as decimal (e.g., .05 = ±5)

The geographic coverage of the study covered the collecting relevant information regarding present status of the customer care services through field visit in five customer care centers. Sample of 50 customers (10 from each of the five customer care centers) were constructed from Dhaka city given the limited scope. As the research is targeted toward Dhaka city, Non-Probability sampling methods were used. Due to the sparse geographic distribution of the population, a combination of Convenience and Judgmental sampling techniques were appropriate for research of this sort. What that means is that research questionnaire was handed to individuals who were found in any of telco Customer care premises. Also other users were surveyed as per the researcher's convenience.

Scaling Techniques and Questionnaire development: Rank order scaling had been used to develop the questionnaire. A five point Likert Scale was used to develop a questionnaire of 21 close ended questions among which one was dependent variable and rest twenty were independent. The Independent variables are four questions related to each of Reliability, Responsiveness, Assurance, Empathy and Tangibles of provided services and Dependant variable is customer satisfaction. Though the questionnaire has not been pretested but it has been checked by the supervisor.

*** The Questionnaire is attached in the Appendix.*

Research Scope

Subjective Scope: To evaluate the effect of dimensions of quality of services in telecommunication industry on customer satisfaction.

Spatial Scope: Bangladesh, telecommunication Customer Care centers of Dhaka city.

Data Analysis and Reporting: Both descriptive and inferential statistical analyses were employed on a large scale to test research hypotheses and drawing results of the study. To test the hypotheses of the study, Regression and ANOVA have been used. After completing data analysis and finding generation, a thorough research thesis has been prepared and submitted for evaluation. However, regular reporting to the supervisor took part to ensure effective study.

Limitations

The paper has a number of limitation because of which the researcher was unable to present the report to the extreme level of accuracy. These were-

Time constraint: The period for writing this report was restricted to 3 months. To make this report more accurate and present it more descriptively more time was needed.

Availability of data: The data required for this project was not easily accessible. There can be some limitations of access to information, which are strictly confidential for the company.

Bias results: While doing the survey, many respondents marked most of the questions without spending enough time on reading the questions. This could result inaccurate results.

Sample Size: 50 respondents are not enough to get any accurate information for the true nature of outcome of our survey. The sample size should have been a lot more.

Despite all these limitations, the researcher tried best to ensure the most up to date and accurate presentation of information in this research report to make this an acceptable and useful one.

Findings

Projection of the Research Data: A series of simple Regression Analyses have been adopted to reveal the relationship between service quality and user satisfaction. The five individual regression analyses compare whether all the independent variables would determine the Satisfaction with telco customer care centers. The respondents were asked whether they were satisfied or not on a 5 point Likert scales ranging from strongly agree to strongly disagree.

Variables	Summarized questions	Questions of questionnaire
Independent	Effect of reliability on customer satisfaction	1-4
Independent	Effect of responsiveness on customer satisfaction	5-8
Independent	Effect of assurance on customer satisfaction	9-12
Independent	Effect of empathy on customer satisfaction	13-16
Independent	Effect of tangibility on customer satisfaction	17-20
Dependent	Satisfaction with services provided by the GP Customer Care Executives	21

1. Reliability

Descriptive Statistics

	Mean	Std. Deviation	N
21. I am satisfied with the services provided by the telco Customer Care Executives	3.50	0.763	50
1. When the service provider promises to do something by a certain time, services are delivered as promised	3.92	0.601	50
2. When I face problems, the service provider staff is sympathetic and reassuring	3.48	0.886	50
3. The service provider staff is dependable	3.42	0.810	50
4. The service provider staff keeps the transaction records accurately	3.62	0.945	50

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0.480[a]	0.230	0.162	0.698	0.230	3.365	4	45	0.017

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.562	4	1.641	3.365	0.017[a]
	Residual	21.938	45	0.488		
	Total	28.500	49			

a. Predictors: (Constant), When the service provider promises to do something by a certain time, services are delivered as promised (X1), When I face problems, the service provider staff is sympathetic and reassuring (X2), The service provider staff is dependable (X3), The service provider staff keeps the transaction records accurately (X4)

b. Dependent Variable: I am satisfied with the services provided by the Customer Care Executives (Y)

Results: Linear regression analysis was used with the four factors of reliability as independent variables to test the model for customer satisfaction. The correlation as indicated by R=0.480 tells that the dependent variable is positively correlated with all the 4 independent variables. This means reliability of customer service staffs and the level of satisfaction with telco care centers would move in the same direction. However, the R^2 which indicates the coefficient of determination indicates that 23.0% data can be explained by the dependent variable. Hence a relatively small proportion of the level of satisfaction with service staffs depends on reliability factors.

ANOVA table reveals that calculated F=3.365. It is more than the critical F value of 0.488.

Hence, the null hypothesis can be rejected. This means it can be said that Reliability does influence the level of satisfaction with telco Customer Care Executives.

2. Responsiveness

Descriptive Statistics	Mean	Std. Dev.	N
21. I am satisfied with the services provided by the telco Customer Care Executives	3.50	0.763	50
5. The service provider staff tells the customer exactly when services will be performed	3.50	0.931	50
6. I receive prompt service from the service provider staff	3.38	1.008	50
7. Service provider staff is always willing to help the customers	3.56	1.053	50
8. Service provider staff does not appear to be too busy in responding customer requests	3.24	1.021	50

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0.670[a]	0.449	0.400	0.591	0.449	9.156	4	45	0.000

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.787	4	3.197	9.156	0.000[a]
	Residual	15.713	45	0.349		
	Total	28.500	49			

a. Predictors: (Constant), The service provider staff tells the customer exactly when services will be performed (X5), I receive prompt service from the service provider staff (X6),Service provider staff is always willing to help the customers (X7), Service provider staff does not appear to be too busy in responding customer requests (X8)

b. Dependent Variable: Satisfied with the services provided by the Customer Care Executives (Y)

Results: The correlation as indicated by R=0.670 tells that the customer satisfaction is positively correlated with all the 4 factors of responsiveness. The regression model explained 44.9% of the variation in the dependent variable, satisfaction, as indicated by the R^2 value. Hence a significant proportion of the level of customer satisfaction depends on responsiveness factors. ANOVA table reveals that calculated F=9.156. It is more than the critical F value of 0.349.

Hence, the null hypothesis can be rejected. This means it can be said that Responsiveness does have an impact on customer satisfaction with Customer Care Executives.

3. Assurance

Descriptive Statistics	Mean	Std. Dev.	N
21. I am satisfied with the services provided by the telco Customer Care Executives	3.50	0.763	50
9. I can trust the service provider staff	3.24	0.716	50
10. I feel safe when conducting business with the service provider staff	3.30	0.735	50
11. The customer service staff is polite	3.62	0.987	50
12. Service staff seems to have received adequate supports from the service provider to do their job well	3.68	0.794	50

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0.470[a]	0.221	0.152	0.702	0.221	3.196	4	45	0.022

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.306	4	1.576	3.196	0.022[a]
	Residual	22.194	45	0.493		
	Total	28.500	49			

a. Predictors: (Constant), I can trust the service provider staff (X9), I feel safe when conducting business with the service provider staff (X10), The customer service staff is polite (X11), Service staff seems to have received adequate supports from the service provider to do their job well (X12),

b. Dependent Variable: I am satisfied with the services provided by the Customer Care Executives (Y)

Results: The correlation as indicated by R=0.470 tells that the dependent variable is positively correlated with all the 4 independent variables. This means assurance of customer service staffs and the level of satisfaction with GP care executives would move in the same direction. However, the R^2 which indicates the coefficient of determination indicates that 22.1% data can be explained by the dependent variable. Hence a relatively small proportion of the level of satisfaction with GP service staffs depends on reliability factors. ANOVA table reveals that calculated F=3.196. It is more than the critical F value of 0.493. Hence, the null hypothesis can be rejected. This means it can be said that Assurance influences the level of satisfaction with Customer Care Executives.

4. Empathy

Descriptive Statistics	Mean	Std. Deviation	N
21. I am satisfied with the services provided by the telco Customer Care Executives	3.50	0.763	50
13. The service provider staff gives me individual attention	3.18	1.082	50
14. The service provider staff knows what I actually want	3.36	0.875	50
15. I have interest in the services provided by the service provider	3.26	0.944	50
16. The service provider operates according to business hours that are convenient to most of the customers	3.40	0.948	50

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0.409[a]	0.167	0.093	0.726	0.167	2.262	4	45	0.077

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.772	4	1.193	2.262	0.077[a]
	Residual	23.728	45	0.527		
	Total	28.500	49			

a. Predictors: (Constant), The service provider staff gives me individual attention (X13), The service provider staff knows what I actually want (X14), I have interest in the services provided by the service provider (X15), The service provider operates according to business hours that are convenient to most of the customers (X16)

b. Dependent Variable: I am satisfied with the services provided by the Customer Care Executives (Y)

Results: The correlation as indicated by R=0.409 tells that the customer satisfaction is positively correlated with all the 4 factors of empathy. The regression model explained 16.7% of the variation in the dependent variable, satisfaction, as indicated by the R^2 value. Hence a small proportion of the level of customer satisfaction depends on empathy factors. ANOVA table reveals that calculated F=2.262 which is more than the critical F value of 0.527. Hence, the null hypothesis can be rejected. This means that empathy does influence customer satisfaction with Customer Care Executives.

5. Tangibility

Descriptive Statistics	Mean	Std. Dev.	N
21. I am satisfied with the services provided by the telco Customer Care staffs	3.50	0.763	50
17. Customer service counter is well-equipped with modern facilities e.g. reload/top-up machine, WIFI	3.84	0.766	50
18. Physical layout of equipment and furniture are comfortable for interaction	3.56	0.837	50
19. Staffs are well-dressed and appear neat	4.04	0.669	50
20. Material and information associated with the service (e.g. promotional brochure) are visually appealing at the customer service counter	3.78	0.679	50

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0.729[a]	0.531	0.489	0.545	0.531	12.726	4	45	0.000

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15.127	4	3.782	12.726	.000[a]
	Residual	13.373	45	0.297		
	Total	28.500	49			

a. Predictors: (Constant), Customer service counter is well-equipped with modern facilities e.g. reload/top-up machine, WIFI (X17) , Physical layout of equipment and furniture are comfortable for customer interacting with staff (X18), Staffs are well-dressed and appear neat (X19), Material and information associated with the service (e.g. promotional brochure) are visually appealing at the customer service counter (X20)

b. Dependent Variable: I am satisfied with the services provided by the Customer Care Executives (Y)

Result: The correlation as indicated by R=0.729 tells that the dependent variable is positively correlated with all the 4 independent variables. This means tangibility of customer service centers and the level of customer satisfaction would move in the same direction. However, the R^2 which indicates the coefficient of determination indicates that 53.1% data can be explained by the dependent variable. Hence a very significant proportion of the level of satisfaction with customer service depends on tangibility or physical appearance factors. ANOVA table reveals that calculated F=12.726, is more than the critical F value of 0.297. Hence, by rejecting null hypothesis, it can be said that Tangibility of service centers and staffs influence customer satisfaction.

Analysis

Based on the regression results, all the research hypotheses were supported. This finding has confirmed a significant positive relationship between service quality and customer satisfaction. The two independent variables, Tangibility and Responsiveness were significantly associated with satisfaction, derived from level of significance. Tangibility had a greatest influence on overall satisfaction. Consequently, Responsiveness, Assurance and Reliability also had significant influence on overall satisfaction. Empathy did not emerge as significant dimensions in predicting customer satisfaction.

This is explicable as the customers seemed to emphasize more on the appearance of the physical aspects provided by the telecommunication firm. They want the service centers well equipped with modern facilities e.g. reload/top-up machine, WIFI and also expect physical layout of equipment and furniture are comfortable for customer interacting with staff. Prompt and timely services are also vital to attract, serve and retain the customers as Responsiveness factors.

Since Assurance was conceptualized as the employees' knowledge and courtesy, and the ability to inspire trust and confidence, such finding indicated that the ability of the staff to communicate trust and assurance to the customers is lacking. However, it was not significantly affecting customer satisfaction. Reliability factors like ability to perform the promised service dependably and accurately are affecting customer satisfaction but not significantly.

The importance of Empathy in influencing satisfaction was not significant enough. This means, customers of telecommunication services of Dhaka do not expect caring, individualized attention from the customer care executives. So, it is suggested that customer relationship management strategy should focus on improving in-depth understanding of consumer motivation and lifestyle factors. The training and performance measurement of customer service agents needs to include relational elements allowing them to realize and articulate client needs.

Recommendations and Managerial Implications

There are nationwide customer care centers of TSPs in Bangladesh. For such centers and customer care executives, a reasonable amount of resources are being utilized. Therefore it is quite relevant to find out ways to further improve quality of services provided by telecommunication customer care centers and executives and what is the actual impact on the consumer satisfaction.

As the present research examined service quality factors in a single city, Dhaka, additional studies need to be undertaken to examine customer satisfaction patterns in different regions of Bangladesh other than Dhaka with larger samples. Nevertheless, findings from this study provide additional insight into customer satisfaction within the telecommunications domain. Results of this study should encourage strategy development for superior service quality management particularly in the areas of Empathy, Assurance and Responsiveness. In this respect, this paper suggests certain policy implications for telecommunication service providers.

Developing appropriate programs and providing ongoing training should equip staffs with necessary skills to better serve the customers and ultimately to remain competitive in the market. In addition, other factors that customers consider important at telecommunication service centers are behavior of staff, politeness and quality of the information system. This implies that customer care executives must be trained in such a way that their “soft” skills are enhanced and budget on training executives can be increased. Although easy to suggest, instilling these qualities in the frontline personnel and gaining their commitment can be challenging. However, if service companies want to deliver high levels of customer satisfaction, they could periodically track staff performance. By doing so, managers of telecommunication firms can design targeted training programs that encourage employees to instill this dimension of service quality.

Appropriate action plans may be taken to further enhance basic physical facilities by making the care centers more spacious and changing the décor in a more user friendly way. Increasing budget on eCare (online services) can also be effective. With the growing use of various social networking sites, the usage of digital media should be increased to reach customers efficiently. Creative aspect offers and campaigns should also reflect in the customer services.

The proposed recommendations may be used as a basis to plan efforts towards increasing customer satisfaction. This study, although designed in a specific context, may be extended to other similar services and help improve quality of life for the masses and thus increase overall satisfaction.

Conclusion

Telecommunication is one of the most fiercely-competitive industries of Bangladesh. There are nationwide customer care centers of TSPs in Bangladesh. For such centers and customer care executives, a reasonable amount of resources are being utilized. Customer service is vital to the ongoing success of any company. It is important for companies to be continually changing and evaluating their customer service in order to meet the ever changing needs, wants and attitudes of customers and understand the dynamics customer satisfaction, especially when a disgruntled customer can become a saboteur, dissuading other potential customers away from a particular service provider. As a marketing researcher, the researcher have given the best to generate information about the consumer profile and find out the **SERVQUAL Dimensions in Telecommunication Services—An Evaluation of Customer Care Services in Bangladesh**. The target customer is Dhaka based for this research. The consumer survey shows positive results, that is, a significant positive relationship between the five SERVQUAL dimensions and customer satisfaction exists. Tangibility and Responsiveness were most significantly associated with satisfaction whereas Assurance and Reliability had moderate influence on satisfaction. Empathy did not emerge as significant dimensions in predicting customer satisfaction. The study thus provides a direction for telecom administration whereby areas for improving services may be identified and user satisfaction may be enhanced. Although several studies have attempted to identify factors determining overall user satisfaction with banking or restaurant services, not so many studies have been conducted in the telecommunication services in Bangladesh. This study, in this regards, should not only contribute to the academic enrichment of services marketing, but would also contribute significantly in the policy formulation and implementation by the competent authorities for the further development of the telecommunication sector of Bangladesh.

References

1. Bangladesh Mobile Telecom Industry . (n.d.). *http://www.weeklyblitz.net/988/mobile-telecom-industry-in-bangladesh*. Retrieved February 12, 2014, from Mobile Telecom Industry in Bangladesh.

2. Mobile phone subscribers in Bangladesh. (n.d.). *http://bdmobiletips.blogspot.com/2010/04/mobile-phone-subscribers-in-bangladesh.html*. Retrieved February 12, 2014, from Mobile phone subscribers in Bangladesh.

3. Parasuraman, A., Valarie A. Zeithaml, and Leonard L. Berry 1988, "SERVQUAL: A Multiple-Item Scale for Measuring Consumer Perceptions of Service Quality," Journal of Retailing 64 (1), 12-40.

4. Zeithmal, Parasuram and Berry 1990 - "Delivering Quality Service - Balancing customer perceptions and expectations", The Free-Press, New York 1990.

5. Kotler, P and Amstrong, G. (2006). *Principles of Marketing*, 11th Ed., New Jersey, Pearson Prentice Hall.

6. Hernon, P., & Whitman, J. R. 2001. Delousing satisfaction and service quality: A customer-based approach for libraries. Chicago: American Library Association.

7. Zeithaml, V. and Bitner, M. J. 2003. *Services Marketing*, 3rd Edition, McGraw-Hill.

8. Lehtinen, U. and J. R. Lehtinen 1992, Service Quality: A Study of Quality Dimensions, Helsinki, Service Management Institute.

9. Roger *Hallowell*, 1996 "The relationships of customer satisfaction, customer loyalty, and profitability: an empirical study", International Journal of Service Industry Management, Vol. 7 Issue: 4, pp.27-42, https://doi.org/10.1108/09564239610129931.

10. Gray, B.J., et al. 2001, *Best Practices in Marketing and Managing Service Businesses*, Marketing Performance Centre, University of Otago

11. Joseph L. *Gagnon*, Julian J. *Chu*, *2005* "Retail in 2010: a world of extremes", Strategy & Leadership, Vol. 33 Issue: 5, pp.13-23, https://doi.org/10.1108/10878570510616843.

12. Hennig-Thurau, Thorsten and Klee Alexander 1997, *"The Impact of Customer Satisfaction and Relationship Quality on Customer Retention: A Critical Reassessment and Model Development,"* Psychology and Marketing, 14 (8), 737-764.

13. Taylor, S. A. and T. L. Baker 1994, *"An Assessment of the Relationship Between Service Quality and Customer Satisfaction in the Formation of Consumers' Purchase Intentions,"* Journal of Retailing, 70 (2), 163-178.

14. Karin Newman, 2001 *"Interrogating SERVQUAL: a critical assessment of service quality measurement in a high street retail bank"*, International Journal of Bank Marketing, Vol. 19 Issue: 3, pp.126-139, https://doi.org/10.1108/02652320110388559.

15. Malhotra, K. Naresh & Dash, S. 2012. *Marketing Research: An Applied Orientation,* 6th edition. Dorling Kindersley (India) Pvt. Ltd.

16. Zikmund G. William, 2003, *Exploring Marketing Research*, 8th Edition, South-Western.

Appendix
Questionnaire

Topic: This questionnaire is designed to investigate "*Service Quality Dimensions in Telecommunication Services (An Evaluation of Customer Care Services in Bangladesh)*" The information disclosed in response to the following questions will be confidential and will be used solely for academic purpose.

Gender: ☐ Male ☐ Female **Age:** ________Years **Occupation:** _______________

Education: ☐SSC/O-Level ☐HSC/A-Level ☐Graduate ☐Masters ☐Other__________

Instruction: Please read the questions carefully and indicate your agreement/disagreement with each of the following statements by putting a tick mark (√)

1. When the service provider promises to do something by a certain time, services are delivered as promised.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

2. When I face problems, the service provider staff is sympathetic and reassuring.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

3. The service provider staff is dependable.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

4. The service provider staff keeps the transaction records accurately.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

5. The service provider staff tells the customer exactly when services will be performed.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

6. I receive prompt service from the service provider staff.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

7. Service provider staff is always willing to help the customers.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

8. Service provider staff does not appear to be too busy in responding customer requests.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

9. I can trust the service provider staff.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

10. I feel safe when conducting business with the service provider staff.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

11. The customer service staff is polite.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

12. Service staff seems to receive adequate support from the service provider to do their job well.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

13. The service provider staff gives me individual attention.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

14. The service provider staff knows what I actually want.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

15. I have interest in the services provided by the service provider.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

16. The service provider operates according to business hours that are convenient to most of the customer.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

17. Customer service counter is well-equipped with modern facilities e.g. reload/top-up machine, WIFI

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

18. Physical layout of equipment and furniture are comfortable for customer interacting with staff.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

19. Staffs are well-dressed and appear neat.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

20. Material and information associated with the service (e.g. promotional brochure) are visually appealing at the customer service counter.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

21. I am satisfied with the services provided by the GP Customer Care Executives.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

Linguistic and Cultural Identity in Language, and Problematic Aspects of Teaching English in Bangladesh: Ideas and Solutions*

Md. Abu Zafor*

Abstract: The objective of the paper is to discuss some ideological issues related to second or foreign language learning with special focus on English in Bangladesh. It highlights the importance of English for the development of Bangladesh but simultaneously warns to prevent Englishisation so that no harm is done to Bangladesh's own identity and culture. Considering the needs of English, various efforts and/or strategies have been taken by the Govt of Bangladesh but expected result is yet to achieve. The paper provides some newer ideas and insights to make English language learning more entertaining and more effective. If these ideas and recommendations are taken into consideration a change might come in areas of English language teaching and learning in Bangladesh.

Key words: language, culture, identity, motivation and entertainment

Introduction

In the present socio-economic and geopolitical condition English has been the most widely used language in the world. It is called a 'lingua franca' which means a shared language of communication between people whose main languages are different. In today's globalized world English is considered a tool of individual success and national development. Therefore, countries in the world, where English is not the first language, are giving more emphasis on the teaching and learning of English, and obviously Bangladesh is not an exception. A small country in the globe Bangladesh has been burdened with its huge population. If this population can be made into resources properly, there are bright prospects for the country. Knowledge and skill of the English language can play an important role in this regard because proficiency in English is considered a vital indicator of success today. Possibility of one's employability, international mobility, migration, tourism, levels of education etc increase remarkably when someone achieves a good skill in English. But a lot of politics has been done, is being done and can be done with one's language. Language has a power to construct ideology, cultural identity and nationhood. In a developing and comparatively new-born country like Bangladesh the teaching

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and learning of English should be enhanced for national development but care must be taken so that national feeling and identity is not hampered much for Englishization or English hegemony. More clearly, in the global trend of the dominance of English language, Bangladesh will have to be strategic to cope with English language. Obviously, in post independent Bangladesh, considering the needs of English for national development, various efforts and/or strategies have been taken by the Govt. Despite many efforts, however, the overall condition of English language skill achieved by the vast majority of learners in the mainstream education of Bangladesh is not satisfactory though English is being taught as a compulsory subject from the very elementary level through the higher secondary level. The present paper critically discusses and analyzes the issues of teaching and learning of English in Bangladesh from a historical perspective, identifies the defects with the existing conditions/situations and put forward some ground breaking ideas and/or solutions to bring about a change so that our needs and expectations about English language skill are fulfilled along with other expectations. The paper, therefore, is analytical and critical in nature. In order to prepare it I have mainly used available secondary data and my personal observations as a language teacher for nearly two decades.

Issues of Language in Politics and National Identity

Language far and away is seen as the most critical to national identity, and it is very important to speak the native language to be considered a true member of the nation.[1] Undoubtedly, language has played, and is always playing very important role in human civilization. But language has also been a tool of cultural aggression, colonialism and hegemony. According to William Klein "Language is the medium through which a child acquires the cultural, moral, religious and other values of society."[1] Richard Pugh argues that when an alien language is imposed upon a language community, the event leads to inequality of communication that enables the most powerful groups in the society to exert their influence.[2] After the publication of Edward Said's *Orientalism* in 1978 newer insights evolved in the study of colonizer-colonized phenomenon. It is a known fact that language was used as a tool of colonization. The territory comprising today's Bangladesh has badly experienced the foul game of language. In British colonial rule, English knowing *Babu* or *Shahib* had developed some notion that their native language and culture is

[1] "Language the cornerstone of Identity" in http://www.pewglobal.org/2017/02/01/language-the-cornerstone-of-national-identity/

inferior to that of the Europeans. They turned themselves an agent of the colonial masters as Lord Maculay's education policy in India aimed at creating an educated class "who may be interpreters between us and the millions whom we govern; a class of persons, Indian in blood and colour, but English in taste, in opinions, in morals, and in intellect.'[3] However, after a long colonial rule in India when the British withdrew in 1947, the two independent countries, India and Pakistan, were formed on the basis of religion. The first attack that came upon the people of East Bengal (named East Pakistan in 1956, and became free in 1971 as People's Republic of Bangladesh) was with language. The rulers of Pakistan who were from the West Pakistan had planned to make the people of the Eastern part (Bangladesh) culturally impoverished by reducing the use of their language, that is, Bangla. Mohammad Ali Jinnah, first Governor General of Pakistan, in his address on March 28, 1948, at Curzon Hall in Dhaka University declared: "...There can, however, be one lingua franca, that is, the language for inter-communication between the various provinces of the state, and that language should be Urdu and cannot be any other. The state language, therefore, must obviously be Urdu." Some valiant students of Dhaka University present there instantly shouted at such declaration saying "no, no"[4]. The movement on the issue of language got momentum and culminated with martyrdom of some valiant sons of the soil namely Rafiq, Jabbar, Barkat and others. Thus the issue of the mother tongue Bangla occupied a very emotional place among the Bangalees of the region. The event of language movement has touchingly been depicted in literatures of Bangladesh. In his poem "Maago, Oraa Bale" (Oh, Mother, They Might Do) very emotionally Abu Zafar Obaidullah has fictionalized the love between the mother and son, and how the son wants to defend the language of his mother and himself. The son writes a letter to his mother about the cause of his delay,

> "Mother, they would, as if, snatch words of all
> They will not let us listen to stories from your mouth
> Lying in your lap
> Say, mother, is it possible?
> That's why I'm late" (lines 1-7)

Conspiracy of the West Pakistani rulers against Bangla has also been beautifully reflected in another poem titled "Barnamaala, Aamaar Duhkhini Barnamaalaa" (Alphabets, My Sad Suffering Alphabets" written by Shamsur Rahman. However, mother tongue issue for the people of Bangladesh was such an important event that it helped the Bangalees to get united for greater movement against west Pakistani rulers' step-mother-like treatment, and ultimately Bangladesh becomes independent after a nine-month-long bloody war. The achievement of freedom from

Pakistan in exchange of millions of lives and irreparable devastations has been another traumatic event for the people of Bangladesh. It is not irrational to say that language movement became an insBangladesh came into being riding on the back of language movement. Also, sacrificing life for the cause of one's mother tongue is a unique example in world history for the people of Bangladesh. Taking this event into consideration UNESCO declared 21st February as the International Mother Language Day in 1999, and now the day is observed all over the world. In post independent Bangladesh the spirit of the 21st February and the liberation war has been a great strength and inspiration for development.

Issues of the global Status of English in relation with Bangla in Post-independent Bangladesh

In post independent Bangladesh the issue of the national language Bangla got priority everywhere because, with independence, Bangladesh basically appears as a monolingual country apart from some tribal languages spoken by the *adibashi* (tribal) communities whose total population is very insignificant compared to mainstream population. It is worth remembering that in Pakistan period English as a colonial legacy had the status of a second language which was usually used as a medium of instruction in the education system and also used intralingually and officially within Pakistan. After independence the great statesman Bangabandhu Sheikh Mujibur Rahman concentrated on the formation of a new war-ravaged nation with a spirit of patriotic feeling where Bangla, the mother tongue of the people of this region, was to be loved and practiced over everything else. It was Sheikh Mujib's effort that poet Kazi Nazrul Islam was brought to Bangladesh from India and he was given the title of the National Poet of Bangladesh. In the new country's cultural milieu Rabindranath Tagore and Kazi Nazrul Islam occupied the most important position. In 1974 Bangabandhu set another example by delivering his speech in Bangla in the 29th General Assembly of the United Nations Organizations. It was Sheikh Mujibur Rahman's Govt that took initiatives to formulate an education policy that could reflect the nation's dreams and aspirations. He wanted to make a uniformed education system that could inspire true love and patriotism in the minds of the learners first. He was also inspired by poet and thinker Rabindranath Tagore who emphasized on the needs for learning the mother tongue Bangla well first, and then preparing the ground for other necessary language/languages. Therefore, as per Sheikh Mujib's instruction a team of educationists headed by scientist Kudrat-

E-Khuda worked to prepare a uniformed national education policy. But ironically, with the tragic assassination of Sheikh Mujibur Rahman on 15th August, 1975 the policy could not see the light of the day. However, for reasons of discourse some of the recommendations of this education commission with regard to English language are quoted here:

i. Instruction through the medium of the national language is more readily intelligible to the pupils as it helps them develop learners' original thinking and imagination. We must therefore, use Bangla as the medium of instruction at all levels of education to make our educational schemes successful.
ii. Bangla must be used as a compulsory language up to class XII. Textbooks at the higher stages of education, especially in the field of science and technology, professional and vocational education must be written in Bengali and translated from foreign languages at Government expenditure.
iii. Even after the introduction of Bangla as the medium of instruction at all levels of education, the necessity will remain for English to be learnt as a foreign language. It is not necessary to learn any language other than Bangla up to class V. From class VI to class XII, however, a modern and developed foreign language must be learnt compulsorily. For historical reasons and for the sake of reality, English will continue as a compulsory language[5] (Bangladesh Education Commission 1974, p. 15).

Obviously, policies and/or strategies regarding the national education system adopted by Sheikh Mujibur Rahman's Govt and the subsequent governments have been important factors in the matter of teaching and learning of English in independent Bangladesh. Immediately after liberation English gradually gains the status of a foreign language instead of a second language because Government policies were to use Bangla as a medium of instruction in its education system and English gradually was replaced by Bangla in Govt offices. Its intralingual use, that is, its use for communication among people within Bangladesh, becomes almost zero because with independence Bangladesh appeared mainly as a monolingual country. Some language researchers comment that after the independence of Bangladesh the teaching-learning and practices of English underwent a serious setback. In his Mphil thesis Enamul Hoque says:

> After the independence of Bangladesh, English language suffered a serious negligence for the first few years. It so happened because of the strong public sentiment in favour of the mother tongue Bengali. Consequently, English language teaching and learning condition in our educational institutions suffered badly, and English lost its previous dominant status, though English was still a compulsory subject from secondary to higher secondary levels.[6]

It is evident that in post independent Bangladesh national feeling and identity with Bangla occupies the central position while use of English within the country becomes increasingly marginalized, and obviously, this phenomenon has an influence on the teaching and learning of English. The above statement from Hoque's thesis, however, makes me ask the following questions: Do we actually want that English should have the dominant status in today's independent Bangladesh? Do we want that use of English be not marginalized in our day today life? Do we want that English be the medium of instruction in our education system from the primary level? Do we merely aim at increasing the language skill while teaching English? How can we cope with the cultural factors while teaching English in Bangladesh? What should be our feeling/attitude towards English in relation to the native language Bangla? What should be the attitude towards English and other foreign languages? Do we want to make English a second language instead of a foreign language? Do we want that a Bangladeshi/speaker will speak English with another Bangladeshi except for purpose of language practice?

To search answers of these questions, first of all, it is necessary to understand one's position nationally and internationally. In India English is the second language, and this is because of its multilingual reality. Besides, Indian people have made English their own by adjusting the language nationally and culturally in some way, and the variety of English called "Indian English" has been a widely known term. China looked at English as an enemy's language for many years. Japan's development has been possible without giving much emphasis on English. It is only recently that many Asian countries including China, Japan and Korea are putting more importance on English-language-teaching and learning by keeping their national language and heritage on the top. Again, current linguistic phenomena show that some languages in the world are under serious threat and on the verge of extinction. Researchers have warned that 'half of all human languages will have disappeared by the end of the century, as smaller societies are assimilated into national and global cultures.'[7] David Lightfoot, a language researcher at Georgetown University, says, "But just as many minority languages are dying out, the languages that dominate the globe, such as Chinese, English and Spanish, are becoming increasingly varied and complex.[8] As Nicholas Ostler founder of endangered languages [ELF] said "English is killing off scores of minority languages in its wake to spread, with English creeping in among younger generations everywhere as the language of mass communications and symbol of progress minority regional languages are becoming increasingly difficult to accommodate"[9]. Marc Ettlinger PhD linguistics UC, Berkeley had also quite the same opinion. He says often Languages associated with a nation state kill minority languages as a function of Nationalized school where success is determined by knowing the dominant language.[10] The fact is that in an increasingly globalized world it has been all the more important, though difficult, to preserve one's own identity and culture. Rationally, it is necessary for Bangladesh to preserve its identity and culture by taking care of its language properly because language is the vital element of a language-community's, culture and identity. It is something to feel proud that among currently spoken 7102 more-or-less developed languages Bangla ranks 6th on the basis of people speaking their mother tongue.[11] It is also one of the sweetest languages in the world.[12] Though not successful yet, the present Govt of Bangladesh is maintaining a lobby to make Bangla one of the official languages in the United Nations Organizations.

Statistically, English as a language occupies 1st or 2nd position on the basis of native speakers speaking this language. But it certainly occupies the first position considering its use as a second language and as foreign language. Obviously, English is the most important language in today's world as far as its use across the globe is concerned. It is the language of technology, international business, higher studies, research and so on. Colonial influence of the British across the world for hundreds of years, America's being the superpower today etc increasingly contribute to the dominance of English language over other languages. UK and USA based English-language market across globe is highly profitable, though in today's context global English is thought to be neither British nor American. Geopolitically, it is assumed that if Japan had a victory in the Second World War the situation might have changed about English language. In that case people in the world might have needed to learn Japanese internationally. However, considering today's reality, countries in the world where English is not the native language are taking policies to enhance the teaching and learning of English. Even Japan, China and Korea which had some reservations in the teaching and learning of English are also taking various steps to enhance English-language proficiency for their people. But the Govt of these countries are always very careful about the nationalistic feelings of their own language and culture.

Institutional Varieties and English in Post-Independent Bangladesh

It was the strategy of the Sheikh Mujib Govt to develop a universal and uniform education system in Bangladesh especially in the primary level for purpose of similar cultural orientation in early education. But this could not be successful because of his assignation. However, in post-independent Bangladesh three varieties of education flourished over time – the costly English medium variety, the cheapest Madrasa Medium and the in-between mainstream Bangla medium. As a result of these varied streams, cultural orientations of the learners also vary significantly. Usually the learners of the costly English medium schools learn more about the British and American history and English language than their own language and history. Again, students of Madrasa education tend to be more inclined to the alien language and culture, i.e. Arabic, than their own culture and identity. Another variety, which is comparatively a recent phenomenon, is the English version of the Bengali Medium national curriculum. Currently, all cadet colleges in Bangladesh follow this variety. Also quite a good number of urban-based private schools and colleges also follow this. Some educational institutions run the Bangla and English versions parallel. Truly, against the backdrop of the decline of English language practice in the mainstream Bangla medium schools, the English medium varieties emerged and flourished. There are guardians who feel happy if their children can speak English because they think that proficiency in English will give their children a better career and brighter future. They hardly bother about cultural orientation and knowledge in the mother tongue.

English Language Teaching and Learning - Govt Initiatives and limitations

It is true that Bangladesh government has suffered from resource constraints investing in education. In terms of percentage of GDP, the country currently spends only around 2 percent for education, which remained almost static for the last one decade. The allocation of budget for education is 2.4 percent of the GDP for the 2016-17 fiscal year.[13] This is one of the lowest figures among most Asian countries. Again, the investment done on areas of English-language teaching and learning has not earned much success due to lack of policies and researches. Frequent changes of syllabus, faulty public examination system, shortage of reading materials, imported pedagogy etc contribute to this poor condition of language teaching and learning phenomenon. From early nineteen seventies till the late eighties the English text books and syllabuses under the national curriculum included more literary materials, and English teachers mainly followed the traditional Grammar translation method to teach English. During this period the pass rate in English was comparatively low. Since the early nineties English syllabuses, exam patterns etc undergo significant changes. Without much research Bangladesh introduces the modern method of language teaching that is the CLT (Communicative Language Teaching) though in examination system only reading and writing got priority. According to CLT's spirit, mistakes by the learners began to be considered positively and a more relaxed testing system was introduced. Cultural factor and lack of training on the part of the teachers ultimately turns CLT to a model-question based teaching-learning system resulting in a higher pass rate and lowering English-language skill. In his article "English Studies in Bangladesh: Quest for a Native Pedagogy", M. Shahidullah has shown why CLT has not worked well in Bangladesh, and why it is necessary to search for an appropriate native pedagogy.[14] Shahidulla quotes and/refers to most leading theorists on pedagogy including Kumaravadivelu's Post-Method pedagogy and puts forward his (Shadulla's) recommended approach. Referring to Fraser D Macedo's 'anti-method' pedagogy Shahidullah's remarks: "... Bangladesh needs ... a method, one that develops from the practices, from the actions and reflections on demand of the situation in the classroom, not a methodology which is not enslaved by the rigidity of models and methodological paradigms."

However, it is important to mention some efforts of the Govt to introduce CLT since the nineteen-nineties. The Govt of Bangladesh tried to bring a change in English teaching and learning mainly based on ideas of foreign consultants and donor agencies from UK and the USA. A baseline survey of the NCTB (National Curriculum and Textbook Board) and the British Government Overseas Development Administration (ODA) project find that in Primary and secondary level majority of the students did not have the proficiency required from them by their class text books. The situation was serious in rural areas. In 1992 the Govt took a decision to introduce English as a compulsory subject from class I. About this time English was reintroduced in B.A., B.S.S., B.Com., and B. Sc. courses as a compulsory subject of 100 marks. In 1992 Govt passed an act for the introduction of English at the tertiary level. In 1995, a study conducted by the British Council identified two major problems in the development of English language teaching, both of which were concerned with teachers. The English Language Teaching Improvement Project (ELTIP) was launched in 1997 by the Government of Bangladesh in collaboration with UK's Department for International Development (DFID). Although its initial enthusiasm was high, no remarkable success was visible. The project aimed at communicative-based language teaching which almost failed and somehow continued till 2012. Another project which had overlapped the ELTIP was TQI-SEP (Teaching Quality Improvement in Secondary Education Project) funded by Asian Development Bank, the Canadian International Development Agency and the Government of Bangladesh and implemented by Ministry of Education. Another small scale initiative was taken in 2008 by British Council to train the Primary school teachers. The project was named ETTE (English for Teaching and Teaching for English) and aimed at developing the English teachers' English and pedagogical skills predominantly in rural areas. About the success of ELTIP, TQI-SEP and ETTE M Obaidul Hamid and Elezabeth J Erling comments: "The projects had laudable aims and has met limited success, but none were able to make the impact required at scale to train English language teachers across the country and to radically improve the quality of education."[15] The latest megaproject (2008-2017) "English in Action" (EIA) funded by UK is designed based on the principles of communicative language learning with a strong emphasis on digital contents delivered through ICT platforms. According to their function, they can be categorized in three groups: Classroom based materials focused on developing the English language skills of the students; Training materials for the professional development of the teachers; Self-learning materials for the English language development of the teachers. Still there is no such proof that the project has brought a major change in the field of English language teaching and learning.

To reflect on the current state of English language teaching some articles and newspaper writings give the disappointing impression about the overall English-language skills of the students of mainstream education. In his essay captioned, "Problems of Learning and Teaching of English in Bangladesh", Shaikh Rezaul Haque focued on some drawbacks: lack of motivation both on the parts of the teachers and students, faulty examination system and students' attention only for the exams, shortage of competent English teachers, shortage of teaching aids, improper and insufficient teaching materials and last of all absence of listening and speaking in the examination system.[16]Many interesting findings about primary level education system emerged from a study by Education Watch. The study titled "An Assessment of Primary Education in Bangladesh" shows that the recent primary education completion education has given birth to unhealthy coaching business, immoral practices of question leakage, teachers' improper evaluation of scripts and so forth. Many children suffer from exam phobia that puts serious negative effect on their future life. The study finds no rationality of such a public exam, and internationally this type of exam after class five exists almost nowhere. In the current education policy primary level education was supposed to be increased to class eight. And in that case the first public exam could have been arranged after class eight. This study also finds the bad scenario of teaching learning condition in the Government primary schools in Bangladesh.[17]According to some scholars introduction of CLT and marginalizing literature in Englilsh syllabus was harmful. Sirajul Islam Chowdhury, noted educationist, writer and former Professor of English of Dhaka Univeristy, stated: "To try to teach language without the help of literature is doomed to be ineffective."[18] However, after independence it was quite usual for Bangladesh to increase the use of national language and marginalize the use of English. In this regard I would like to go back to Sheikh Mujibur Rahman's regime and argue that Sheikh Mujib was on the right track, and it is unwise to regret that English suffers a lot immediately after liberation. What Mujib wanted to do was to come out of a colonized mentality and create a genuine feeling for motherland and mother tongue without which one cannot be an ideal citizen. Afterwards, it was not inappropriate to make Bangla the language in Govt. offices and a medium of instruction in schools and colleges. According to some scholars a lot of politics was involved in English language teaching in post independent Bangladesh especially when Government relied on foreign experts especially the UK based experts and the British Council. In his essay "Using Postcolonial literature in ELT" Fakrul Alam, the noted scholar and Professor of English, has shown how *English for Today* was still manipulated to hold a colonial legacy both with its content and pedagogy. Alam emphasized the needs of incorporating literary materials especially stuff from the Bangladeshi and South Asian writers writing in English. Alam says, with such an incorporation it can be possible to excite the learner's imaginative faculty and make them more engaged in language learning activity. He also emphasized the need for a close integration of literary texts with language exercizes to make language learning activity more interesting, enjoyable and stimulating.[19]

Groundbreaking Ideas and Some Recommendations

Kudrat-E-Khuda Education Commission proposed to include English after class V. Its spirit was that first a child will have a firm foundation on its mother tongue which is his root and identity. If the root is strong a tree can grow well. Similarly it becomes easier for a person to learn one or more foreign language/s if his/her skill in the native tongue is strong. Many language scholars say that childhood period is more suitable for picking up a language. Others say that adolescent or adult period is no less suitable than childhood in the matter of learning a new language. However, according to some scholars, second/foreign language learning for children side by side with their first language may have some negative effects when the teacher forbids the class to speak their first language. In such case a child may suffer from a complexity that his mother tongue is inferior to the second/foreign language he is being taught to learn, and this complexity is very damaging for his future life. Such a generation may lose their root and identity and may turn unpatriotic.

Contextually, and argumentatively, I would like to put forward my ideas and recommendations that can improve the prevailing English language teaching and learning situation if implemented. First of all, the very notion of the term English language teaching is to be changed. We have to teach English in a way so that language learning becomes a consequence of achieving knowledge and skill rather than becoming 'language learning for the sake of language.' Secondly, we have to motivate the learners in the learning process by eliminate fear or phobia from the learners' minds. We have to bring a change in testing process and reduce the mental pressure of the learners. Thirdly, to make language learning interesting, enjoyable and stimulating we have to combine all the four skills of language that is reading, writing, listening and speaking, in all the four areas enough materials are to be prepared according to the learners' levels. Fourthly, English language research cells are to be established for continuous research and dissemination of research findings through organizing workshops, seminars etc. In the research cell/s Bangladeshi English language experts and educationists preferably from the university level are to be invited for their contribution for the sake of national needs. Fifthly, the English teachers are to be properly trained and motivated to devote more time to teach English. Financial matters are to be considered in all respects as far as possible. Sixthly, fundamental changes will have to be brought in the examination system. It has been found that students do not want to read anything not included as test material. So, reading, writing, listening and speaking test will have to be included and incorporated in all the levels. I would like to exemplify some of these ideas/recommendations. Central to all the points above is the level-wise material design (LMD) appropriate to learners' interest and curiosity, and the native pedagogy adopted by the teachers (NPAT). If the language learning can be entertaining and if the learner can learn as per the levels or the positions it is possible for the learners to learn English in a short time either within the mainstream national education system or in other initiatives by some language centre's, voluntary services etc. Four things are most importantly to be considered in English teaching: Levels of the Students, Motivation, Material and Teachers.

I suggest not including English in class One. In the present situation it can be started from Class Two. The Levels can be like this:

Level 1: From classes II to V; [can be expressed as I(i), I(ii), I (iii), I (iv), I (v)]

Level II: From VI to VIII;

Level III: From IX to XII

Level IV: Tertiary Level (Optional more advanced).

There should be some objectives to achieve in each of the levels both for micro and macro. For example, in Macro level I, the teacher will teach the English Alphabets; at least 250 naming words (Nouns) of the learner's surrounding environment; at least 50 verb words; some joining words such as 'and' 'or' 'but'. To cover all the four skills of this level the learners will have to be engaged with writing the alphabets and the simple words s/he has learnt. The teacher will have to pronounce the words with minimal English accent and students will reproduce those words orally. This level is mainly word level, but small talk such as 'come here,' 'sit down', 'bring the book' etc can be taught implicitly while using these in the classroom situations. Individual attention will have to be paid to the students in the class so that no student skips the learning process. The teacher will have to understand child psychology, behave with them friendly sometimes playing with them to teach some words or expressions. In all such cases the teacher can easily produce fun and amusement and engage the learners actively and enthusiastically. For example, when the teacher is teaching the English names of wild animals such as tiger, lion, bear etc s/he can produce ask the learners whether anyone can make the sounds of a tiger. Obviously, the children will try the activity and engage actively in the learning process. To teach vocabulary in this stage, the teacher will show pictures of different things and ask questions like "What is it? What is that? etc" .The teacher will use the learner's mother tongue and the familiar things/objects from the environment. Plants, birds, animals etc which are available in learner's climate, may not be available in English-speaking countries, and may not have any name in English. In such cases the teacher will make them clear about unavailabilty of the thing/ word in English language. Here teachers will have to keep in mind that no two languages can be sufficiently similar to each other as Edward Sapir comment "...No two languages are ever sufficiently similar to be considered as representing the same social reality. The worlds in which different societies live are distinct worlds, not merely the same world with different labels attached."[20] However, dealing with the beginners, teachers will have to start with the easiest words. In the Lii, the teachers will engage the students with both word level and phrase level practice. At the end of Lii, the students will learn around 1000 most common English words that can cover almost 90% communication. Students should be encouraged to memorize the words and teachers can reward the students offering chocolates etc for reproducing the words through some entertaining test-games. However, to teach phrase level communication the teacher will teach the students such phrases like 'Our school' 'Your pen','father in the office', 'birds in the sky', 'mother in the kitchen', 'pictures on the wall', 'flowers in the garden' etc. In the classroom the teachers may ask the students to express something by uttering one word or two words only. This is basically the stage of a baby's uttering two or three words together in its mother tongue environment. However, it is not difficult to make learning entertaining by using coloured pictures, practically acting out the words especially the action verb words such as run, play, walk, etc. In level-1iii, the teacher will teach sentence level stuff. Very easy and simple sentences will have to be produced. Grammatical ideas such as word classes/parts of speech can be taught with diagrams fun and entertainment. For example in the beginning class the teacher can introduce a part of speech tree where s/he can give an overall idea of the word classes at least the impression that nouns and verbs are vital elements and their numbers are more than the others. In this level individual simple and easy sentences and beautiful expressions can be used for translation. Obviously, mother tongue should be extensively used in the elementary/early stages of language learning. Here it is worth mentioning that some recent language scholars find fault with CLT and argues to bring back the use of native tongue in the process of language learning. In his award winning book *Translation in Language Teaching* Guy Cook briefly surveys how at the end of the 19th century, 'Grammar Translation Method' came under heavy attack and how translation began to be out in the language learning process. Cook argues that translation should be restored to ESL or FL classes. Cook says: "So what is wrong with it [translation]? Given all these apparent advantages, it seems most peculiar that the mainstream literature on language pedagogy and second language acquisition, has routinely dismissed translation as a desirable component of language teaching and learning for over a hundred years – without research, reasoning or evidence. Is there perhaps some other reasons that translation has been villainised in this way?"[21] I strongly argue that Banlga sentences and short Bangla passages can provide a lot of enthusiasm to the learners. If selected properly they can work like mathematical formula to solve many sentence patterns of the target language. They can be more entertaining and longer lasting as well. While teaching phonetics the comparison of English phoneme with Bangla alphabets especially the vowels- long sound, short sound etc teachers can provide a lot of entertainment while teaching.

From the second Macro Level and Third Macro Level English language teaching should be lab-based, and more time should be invested in the language class. Various methods and approaches should be adopted to make language learning more of a fun than a tiring job. In these levels the dependence on translation will have to be reduced and students will be engaged with group discussion, pair work, debate etc to use English both orally and in writing. Enough reading materials (funny stories, Aesop's fables, Bangla humourous stories in English translation etc can be supplied to the learners.) Macro Level IV is a more advanced level learning.

Thus if the teachers are given proper instruction and pedagogical training and, if they themselves are motivated and dedicated, and materials can be designed according to the learners' interest a significant change must come in areas of English language teaching and learning in Bangladesh. In every case, however, care must be taken about the public exam syllabus so that students are spontaneously are engaged to practice all the four skills of language instead of reading only for the exam. The first public exam in the national curriculum is to be held after the completion of class VIII.

Conclusion: The present paper has identified some shortcomings of the existing teaching learning condition of English in Bangladesh. It suggests that if proper materials can be prepared and if the teachers are trained and motivated properly it is possible to make English language teaching quite entertaining, enjoyable and interesting. It has been discussed that lack of interest and lack of proper motivation are the great barriers for our students in learning English. The paper also argues that teaching of English should not end in language teaching only. Literary materials and translations from our context and adequate language exercises can help build students' love for English as well as for their own language and culture. The paper also emphasizes on individual-level attention to the learners and helps each and every learner to learn

English in the classroom situation. Finally, English is a language like other languages. Anyone can learn it if a favorable environment is created and if the leaner is properly motivated to learn this language.

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[1] Klein, W. (1986) *Second Language Acquisition*, Cambridge: Cambridge University Press, p.6
[2] Pugh, R. 1996. *Effective Language in Health and Social Work*, London: Chapman and Hall, p.112
[3]Firstpost, How Thomas Macaulay educated India, http://www.firstpost.com/living/how-thomas-macaulay-educated-india-523146.html.
[4] "Jinnah Spoke at Curzon Hall" in *The Daily Star*, February 08, 2013.
[5] Bangladesh Education Commission, 1974, p. 15.
[6] Hoque, M. E. 2008 "English Language Teaching and Learning in Alim Level in the Madrashas in Bangladesh: Problems and Possible Sollutions", Dept of English, Jahingirnagar University, p.28.
[7] Quoted from "Half of all languages face extinction this century" "https://www.newscientist.com/article/dn4685-half-of-all-languages-face-extinction-this-century/. Retrieved on July, 2017.
[8] *ibid*
[9] " Is English killing others" https://studymoose.com/is-english-killing-other-languages-essay
[10] *ibid*
[11] "List of Language by Total Number of Speakers", https://en.wikipedia.org/
[12] "Bengali Language", (ranking 5th or 6th in the world). http://www.newworldencyclopedia.org/entry/Bengali_language. And youtube video: "Top ten sweetest languages in the world" https://www.youtube.com/watch?v=_gp1jlYzFrI.
[13] "Spend More on Education" *The Daily Star*, January 05, 2017
[14] M Shahidullah, (2014). "English Studies in Bangladesh: Quest for a Native Pedagogy" in *Literature, History and Culture*, Rajshahi: Department of English, Rajshahi University, p. 721-743.
[15] Hamid and J Erling. E.(2016). "English-in-Education Policy And Planning in Bangladesh: A Critical Examination" in *English-in-Education-Policy and Planning in Bangladesh ,* Ed, Robert Kirkpatrick, (Switzerland: Springer,), p.34
[16] *The Daily Sun*, 2 Nov, 2017.
[17] "An Assessment of Primary Education Completion in Bangladesh" (2015), in *Education Watch*, Ed., Samir Ranjan Nath etal*,* Dhaka: CAMPE
[18] Choudhury, S.I. (2001). Rethinking the Two Englishes. In *Revisiting English in Bangladesh*. (Eds.) Fakrul Alam, Niaz Zaman and Tahmina Ahmed: p. 17.
[19] Alam, Fakrul. "Using Post Colonial Literature in ELT" In *Emperial Entanglements and Literature in English*. (Dhaka: Writer.Ink, 2007. p.176
[20] Sapir, E. ((1958), *The Status of Linguistics as a Science,*. In E. Sapir: Culture, Language and Personality (ed. D. G. Mandelbaum). Berkeley, p. 69.

Necessity of Introducing Stress & Intonation as Suprasegmental Features of Speech in EFL Classrooms: A Bangladesh Perspective on Pronunciation

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Abstract: As an umbrella term, pronunciation covers not only the sounds but also features beyond individual sounds. These latter features are known as suprasegmentals**.** They convey information about linguistic and information structures, e.g. the part-of-speech of a word, syntactic structure of a compound word, narrow focus of an utterance, syntactic structure of an utterance (which is associated with its meaning), speech acts, etc. Traditional pronunciation teaching in EFL classrooms emphasises the importance of accurate production of individual sounds. However, it is believed that the teaching of these sounds in a flow of speech deserves more concerted effort in classroom procedures, especially in contexts where the amount of target language input is meager; attention in language instruction from individual phonemes to suprasegmentals and other features of the larger context of utterances should take place. While mastering the English intonation system could be a quite a challenge to some EFL learners, teaching intonation is more challenging. Unfortunately, pedagogical initiatives that aim to sensitise EFL learners to the importance of discourse intonation are barely noticeable in most Bangladeshi educational institutions. This paper aims to make students in general and teachers in particular aware of recognizing the importance of the main features of speaking skill.

Key Words: stress, intonation, minimal pairs, syllable, intelligibility, model, language input.

Introduction

The following statement may seem surprising: Pronouncing every word correctly leads to poor pronunciation! This is because English is a time-stressed language, and good pronunciation comes from stressing the right words. Learning stress and intonation is of great importance for communication in English in that it enables the speakers not only to express themselves easily but also to understand other (native) speakers well. Unlike Bangla, English is a 'stress' language. At least one syllable is stressed in an English word. For example, the first syllable of *present*—which is a noun meaning 'gift'—is stressed, while in *present*, the verb meaning 'to show, display' ,the second syllable receives greater stress. Misunderstanding may occur if either speakers or hearers pronounce incorrectly.

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Bangla, however, is a stressless language.[1] The syllables have approximately the same loudness, length and pitch. When Bangla speakers speak English, they fail to put stress where a native speaker would; that contributes to what English speakers would call a 'Bangla accent'. Not only

many L2 learners of English have major problems on stress placement in their pronunciation of major categories of words in English, but the teachers also encounter difficulties in teaching pronunciation to students.

On the other hand, intonation is an 'essential component of the prosodic continuity that makes connected stretches of speech—as opposed to individually spoken words or syllables—coherent and interpretable by the listener.'[2] But in most Bangladeshi schools and colleges intonation is seldom taught, and if it is done, only two types of intonation, the rising tone and the falling tone, are briefly introduced to students. Owing to time constraints and in some cases EFL teachers' inadequate training, EFL students and teachers in general do not have any awareness of the importance of intonation. Because of the paucity in instruction, many EFL students are graduating without fully understanding the importance of shades of meanings conveyed through variations of discourse intonation. In addition, because of their lack of such an awareness, when they are in cross-cultural communicative situations or in language classrooms, they are found using intonation patterns in peculiar ways in which the intended meaning is not expressed. Thus, ESL/EFL teachers who are looking for revised ways to teach pronunciation need to initiate new and significantly different trends in pronunciation instruction today.

Objectives

This study covers the following objectives: Firstly, it is hopefully aimed by this study to identify and discuss the importance of suprasegmental features of speech; secondly, to investigate the reasons of neglecting them by the students; thirdly, to explore the ways of helping EFL students to enhance intelligibility and communicability; and finally, to suggest some solutions that may help the students of English to overcome this problem.

Research Methodology

The research paper is designed to be analytical study. In order to conduct this qualitative research, the researcher has taken recourse to only the secondary sources of data gleaned from textbooks, journals, national and international research papers, websites and so on. The collected data have been analyzed and interpreted by the author.

Literature Review

Learning a language involves the learning of four skills: Writing, Reading, Listening, and Speaking. Each skill has its own features. Likewise, speaking skill has many features but two of them, namely stress and intonation, are considered the fundamental ones. As a result of neglecting practice of these two main features, the students' abilities to speak effectively, to communicate successfully and to perfectly understand the speech of native speakers are all badly affected. Therefore, studying these skills separately and further studying their features individually is of paramount importance. Language educators and practitioners both acknowledge that pronunciation should be made an important part of the language teaching agenda.[3]

Roach (2000:183), while explaining the functions of intonation, raises a very meaningful and useful question. He requests learners to imagine:

> What would be lost if we were to speak without intonation: you should try to imagine speech in which every syllable was said on the same level pitch, with no pauses, and no changes in speech or loudness. This is a sort of speech that would be produced by 'mechanical speech' device that made sentences by putting together recordings of isolated words.

In fact, intonation contours have relationships with meanings such as finality and continuation in questioning. Also, the meaning of a particular intonation contour may vary according to the context or the language in which it occurs. Intonation needs to be taught explicitly in such an input-poor environment as Bangladesh as much as the basic sounds of English. However, the importance of English intonation tends to be neglected in many EFL classes in our country, on the grounds that it is too difficult or complicated for students to learn, or that students themselves can pick it up gradually as they grow up.

The popular practice of teaching the students how to accurately produce vowels, diphthongs and consonants cannot give them enough information about how these sounds could be effectively produced or understood in a flow of speech. Intonation instruction helps them not only to figure out speaker-intentions more accurately but also to enhance their communicative competence and intelligibility in real verbal interactions.

When the grammar-translation method (GTM) was dominant, traditional notions such as minimal pairs, drills and short conversations were heavily emphasised. Still in most tertiary educational institutions, a course called “English Phonetics” is being offered. But it is noticed that most of the courses of this kind are focused on teaching the basics of English sounds and the like, confined to the tradition of analysing minimal pairs. Because of this, most teacher-trainers feel that intonation is just a subject for theoretical exploration. Nowadays, it seems that more emphasis should be placed on approaches that are ‘top-down’. This means that in teaching pronunciation, teachers need not necessarily start only from individual phonemes. They ought to aim at improving perceptions of the importance of suprasegmental and other features of the larger context of utterances of standard English e.g., word stress, sentence stress and discourse intonation. This, in turn, greatly develops the level of intelligibility and effectiveness in verbal communication among L2 students.

Stress

Stress is a property of syllables. O’Connor defines stress in this way: Stress is the name given to the stronger muscular effort, both respiratory and articulator, which we feel in connection with some syllables as opposed to others in English and other languages.[4] For instance*, insight* has more effort on the first syllable; but *incite* has the greater effort on the second syllable. Therefore, it is obvious that stress is a significant factor in English and words easily become unrecognizable if the stress is wrongly placed.

From the perceptual point of view, all stressed syllables are characterized by prominence—that is, stressed syllables are more prominent than unstressed syllables. Roach states four different factors which make a syllable prominent: i) loudness, ii) length, iii) pitch and iv) vowel quality. Normally these four factors work together in combination, although syllables may sometimes be made prominent by means of only one or two of them.[5]

Patterns of Stress

In order to understand the patterns of stress in English words, we may take the foot into account. It is an additional structural unit which organizes English syllables. Although the foot is quite common in the study of poetry (for example, iambic, trochaic and dactylic fee), metrical feet can play an important part in English phonology. Metrical feet can be regarded as units of prominence and timing[6]. Therefore, the first element of a foot (the first syllable) carries the strongest 'beat' and the following syllables within the word are relatively less prominent. Hence the beat of a foot is the property that provides words with their stress patterns.

Primary and secondary stress

Each word in English has only one main stress. In longer words, syllables bear different amount of stress; some are more prominent while others less prominent. If there are two syllables before the primary stress, the first will often receive a secondary stress:

ma-ga-ZINE   re-pre-SENT   u-ni-VER-si-ty

Content and Function words:

Stressed words are considered content words: Nouns e.g. kitchen, Peter - (most) principal verbs e.g. visit, construct - Adjectives e.g. beautiful, interesting - Adverbs e.g. often, carefully

Non-stressed words are considered function words[7]: Determiners e.g. the, a - Auxiliary verbs e.g. am, were - Prepositions e.g. before, of - Conjunctions e.g. but, and - Pronouns e.g. they, she

The teacher may get the students to immediately distinguish between content and function words. They will may be given such a task: Write down 'C' for content and 'F' for function (adopted from Kenneth Beare, 2017).[8] For example*: magazine (C) as (F) many (F)*

The syllable

It is defined as an articulatory unit, for example by counting peaks of activity of the breathing muscles. Also, it can be defined auditorily by counting peaks of audibility. To put it more simply, a syllable is something that contains a vowel, with or without surrounding consonants. In English, the vowel of the syllable may be preceded by up to three consonants and followed by up to four, abbreviated in the formula:

(CCC)V(CCCC)

The vowel may occur alone, as in *I*; it may have one, two or three consonants before it (known as onset), as in *pie, spy, spry* and one, two, three or four after it (known as coda), as in *tech, techs., text, texts.* O'Connor defines the syllable as 'a unit containing one and only one vowel either alone or surrounded by consonants in certain numbers and certain arrangements.'[9]

Syllabification: principle of onset maximisation

To determine the location of the syllable boundaries in polysyllabic words such as *plastic*--

pla-stic, plas-tic, plast-ic ?

we need to appeal to the principle of onset maximisation. That is, where possible, medial consonants (in the above word -*st*-) should be assigned to the onsets of the second syllable[10]:

plastic=PLA-stic

But, *frantic* should be syllabified as FRAN-tic, not FRA-ntic, because there is no word in English beginning with [nt].

Teaching students to locate the stress of individual words:

Stress in some languages is fixed. For example, in French, isolated words have stress on the last syllable, and in Czech it is fixed on the first syllable. However, English stress is free in that one cannot predict just from counting the number of syllables in a word. Sometimes it is on the first syllable, as in *emperor, parody;* sometimes on the second, as in *disaster, polite;* or on the third, as in *international, congregation.* In order to decide stress placement in English, the following factors need to be taken into consideration[11]:

a. Whether the word is morphologically simple, or whether it is complex;
b. The grammatical category of the word (noun, verb, adjective, etc)
c. The number of syllables in the word and
d. The phonological structure of the syllable (whether it is strong or weak)

The rules for complex words differ from those for simple words. For two-syllable words, if it is a noun or an adjective, the first syllable is stressed, as in *money, product, equal, lovely*; but, if the word is a verb, stress falls on the second syllable, as in *arrive, maintain.* Nevertheless, it has to remembered that these are only some general tendencies; they all have exceptions.

Placing stress on the wrong syllable is a fairly common mistake L2 students make while pronouncing words. The following exercise may prove to be useful[12]. The teacher may prepare a chart on the board having three columns if he or she is working with three-syllable words. At the top of each, to represent each syllable the numbers 1, 2 and 3 should be written and one of the numbers be underlined to mark the stressed syllable. For example, a list of three syllable words (enmity, encounter, resurrect etc) may be given to the students which they will place in the corresponding column:

1 – 2 – 3	1 – **2** – 3	1 – 2 – **3**
ENmity	enCOUNTer	resuRRECT

Tone and intonation languages:

The majority of the languages in the world are tone languages. In Thai, which is a tone language, the same string of segmental sounds represented by [naa] will mean different things if one says the sound with a low tone, a mid tone, a high tone. In contrast, English is an intonation language in that pitch is not used to distinguish words from each other.[13] In English, it does not matter whether you say *hen* with a high pitch or low pitch. It will still mean 'hen'.

Intonation

The intonation of a sentence is 'the pattern of pitch changes that occurs.'[14] **S**peakers of all languages vary the pitch of their voices when they talk. Further, in ordinary speech, the intonation tends to happen within the lower part of the speaker's pitch range, but in situations where strong feelings are to be expressed it is usual to make use of extra pitch height.

Mastering the English intonation system could be a quite a challenge to some EFL learners. L2 learners of English need to learn English intonation. As Roach puts it, 'unless the foreign learner learns the appropriate way to use intonation in a given situation, there is a risk that he or she may unintentionally give offence.'[15] For instance, if the learner is unaware of what is needed to express gratitude, he or she might end up using an intonation suitable for expressing boredom or discontent.

Diacritics to represent distinctive tones are shown in the following phonetic transcription:

[\]	Fall
[/]	Rise
[\/]	Fall-rise

[/\]   Rise-fall

[_]   Level

Functions of intonation:

The five tones along with their associated meanings are introduced here.

i. Fall (usually gives an impression of finality):

    \No. He could not be seen.

ii. Rise (often suggests a question):

    /Here? Shall we sit /here?

iii. Fall-rise (normally refers to uncertainty/hesitation):

    Hafiz: Is it a good hotel?

    Nafis: per\/haps.

iv. Rise-fall (generally conveys rather strong feelings of surprise, approval or disapproval):

    Habib: Isn't the view lovely!

    Nazib:/\Yes.

v. Level (always conveys a feeling of saying something routine, uninteresting or boring): A tutor calling the names of students from a register may use a level tone on each name.

Once these intonation patterns and the meanings in connection with them were introduced to the students, the next task can be to engage them in communicative activities, which involved practising these intonation patterns. Moreover, this may be implemented through listening to the limited authentic audio- or audio-video materials available and making judgments as to the meanings of utterances in larger discourse contexts.

Recommendations

English stress and intonation which are two main features of speaking skill have to be studied, practiced, and applied by the students when they attempt to communicate in English. Although it is impossible for students to achieve perfect native-like pronunciation, especially intonation, in order to be acceptable points of reference and models of guidance, nonnative teachers still need to approximate to a standard native model. Jenkins (1998) argues that a difference between a model and a norm should be made clear. Rather than treating a native norm as the goal for production, learners can always be made aware of the native model as a reference point.[16]

More importantly, what pronunciation/intonation model should be the basis for classroom teaching with reference to EFL education programmes remains a question within the CLT framework. It seems that teachers make decisions according to their intuitions, and students' perceptions of the phonological models and sociolinguistic and psychological needs are not given sufficient attention. Thus, the pedagogical aim of pronunciation teaching is not to attain the "perfect" pronunciation of the native speaker, but instead to aim at a more realistic goal of developing students' functional intelligibility, communicative competence and increased self-confidence.

Conclusions

Exposure to acquire the pronunciation naturally might be possible for those who are in an ESL context, where the target language input is sufficient and authentic audio-video materials are easily available. However, in a context like Bangladesh where students are deprived of necessary target language exposure, pronunciation teaching should become an inseparable part of the language curriculum to expedite the learning process. Intonation component is especially useful when school and college textbooks in Bangladesh are becoming communicative in orientation, which requires that teachers have some degrees of familiarity with English intonation. Instructional emphases still need to be placed not only on the sound level but also on the supra-segmental level in the communicative implementation of EFL teacher-training initiatives. Students' awareness of the importance of discourse intonation should also be raised. Such instruction needs to be integrated into the phonetics course. While it is obvious that nonnative English teachers should not adopt a pure native-speaker norm as instructional objectives because it is impractical for learners, other nonnative models, if there is one that is carefully described and documented, can be suggested as models in teaching. Of course, the students are likely to be faced with difficulty in achieving precision and accuracy in pronunciation and intonation, yet they have to be motivated not to give up.

References

1. Hai, M.A. 2000, *Dhvani Vijnan O Bangla Dhvani-Tattwa*, Mullick Brothers, Dhaka, p. 243.

2. Zhang, L. J. 2004, Awareness-Raising in the TEFL Phonology Classroom: Student Voices and Sociocultural and Psychological Considerations, *ITL Int'l J of Applied Linguistics , No. 1* p.227.

3. Ibid, p. 224.

4. O'Connor, J.D., 1988 *Phonetics*, Penguin Books Limited, London, p. 194.

5. Roach, P. 2009, *English Phonetics and Phonology:A Practical Course,* Cambridge University Press India Pvt Ltd, New Delhi, p. 74.

6. Akmajian, A., Demers, R. A., Farmer, A. K. & Harnish, R. M. 2004, *An Introduction to Language and Communication,*5^{th} ed., the MIT Press, Cambridge, p.130.

7. Roach, P. 2009, *English Phonetics and Phonology: A Practical Course,* Cambridge University Press India Pvt Ltd, New Delhi, p. 89.

8. http://www.thoughtco.com/practice-stress-and-intonation.

9. O'Connor, JD, *Phonetics* (1973, 1988), Penguin Books Limited, London, p. 200.

10. Davenport, M. & Hannahs, S. J. 2011, *Introducing Phonetics and Phonology*, 3^{rd} ed., Hodder Education, London, p.77.

11. Roach, P. 2009, *English Phonetics and Phonology: A Practical Course,* Cambridge University Press India Pvt Ltd, New Delhi, p. 76.

12. http://www.busyteacher.org/15088-how-to-improve-esl-intonation.

13. Fromkin, V., Rodman, R. & Hyams, N. 2003, *An Introduction to Language* 7^{th} ed, Thomson Wadsworth, Singapore, pp.260-61.

14. Ladefoged, P 2000, *A Course in Phonetics*, 4^{th} ed., Thomson Wadsworth, Boston, p. 99.

15. Roach, P. 2009, *English Phonetics and Phonology:A Practical Course* Cambridge University Press India Pvt Ltd, New Delhi, p.148.

16. Jenkins, J. 1998, Which pronunciation norms and models for English as an international language? *ELT Journal*, 52 (2), pp.119-126.

Braving the New Frontiers: Overcoming Problems Faced by Bangladeshi Learners in Speaking English

S. Jubair Al Ahmed*

Abstract: The predominance of English language has enormously deployed to such an elevated status that efficiency of speaking English has unanimously envisaged as one of the exigent language skills, especially, in the non-native countries like Bangladesh. This study ventures for investigating the factual condition of Bangladeshi learners' interactive dexterity in English language through a surveying questionnaire, semi-structured interviews with some English teachers and focus group discussions (FGD) with participant learners. Several problems and barriers in the way to the very specialized skill have been identified after the collected data have been scrutinized, and possible research-based way outs and solutions for Bangladeshi context have been comprehensively delineated in this paper. Given the proper implementation of the proposed linguistic and other elementary facets, the communicative competence of the target language (TL) can flourish to the epitome of achievement among the non-native learners.

Key words: Speaking English, learners, factual condition, problems, way outs, communicative competence.

Introduction

There is no doubt that English language has been tuned into nothing but a skill. Before launching a foreign language as a second language (SL/L2) or foreign language (FL), a non-native country or the syllabus designers of that country esteem many aspects of which economic and technological development is one of the salient factors. On this basis English language is prior to and more advanced than any other languages in the world. Through the British colonization, this Indian subcontinent including Bangladesh has felt the touch of civilization, modernity and a huge scope of scientific researches. Considering these advanced levels of English language, it has been the most applicable language in the developing countries like Bangladesh. Through such process, speaking English essentially superintends a wider significant arena in the globalized communications, education, trade and business, and other fields.

In Bangladesh several teaching and learning methodologies, such as – Grammar-Translation Method (GTM) and Communicative Language Teaching (CLT) method, have been applied to the English syllabuses of secondary and higher secondary levels, even to the graduation level with a view to improving the four skills of English language (speaking, listening, reading and writing) but the result is disappointing. Comparing with such circumstances and conditions, our learners' capability of this skill does not cope with the standard level in the strenuous world. But why is it so? This is because, as the survey shows, the learners, in the learning and/or acquiring process of English speaking skill, face many problems – i.e. weakness in grammar, shortage of

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vocabulary, lack of practice, shame and fear, lack of perfect environment and such other reasons – which should be overcome by following the systematic processes with the moderation of English syllabi, teaching methods, and with the equal emphasis on the examination systems.

Objectives of the Study

This study has been accomplished in order to:

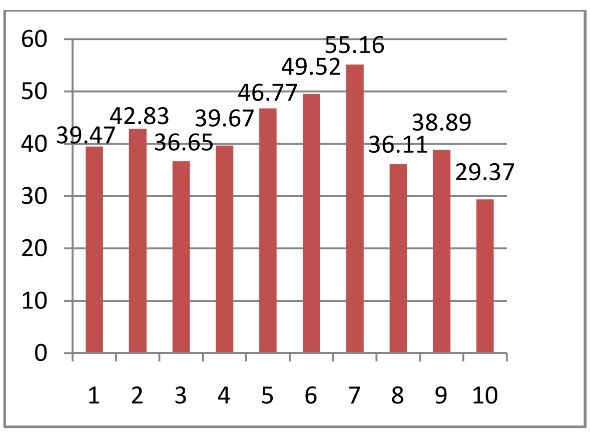
- find out the problems and obstacles in the way of speaking English for Bangladeshi learners
- seek out the possible way outs to overcome the problems
- expose some research-based linguistic phenomena for both teachers and learners engaged in L2 teaching and learning.

Methodology

Because of the nature of this paper both qualitative and quantitative approaches have been adopted. Data have been collected through a surveying questionnaire from 117 learners, among which 63 are from secondary level (class X of Dhaka Collegiate School, Dhaka) and 54 are from higher secondary level (class XII of KabiNazrul Islam Govt. College, Dhaka). Interviews have also been conducted with some learners of both secondary and higher secondary levels, and six language teachers who have been teaching English language for long years.

Findings

On the basis of the questionnaire, the survey report is exhibited in the following two respective graphs, one of which is for secondary level and another is for higher secondary level.



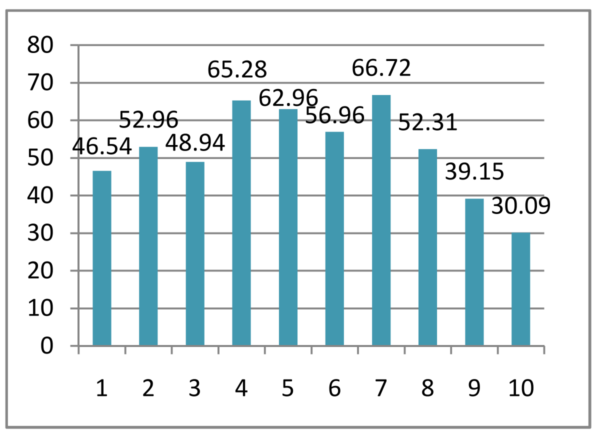


Figure 1: Secondary Level (2016)**Figur2:**Higher Secondary Level (2016)

1. Knowledge on grammar	6. Confidence in speaking English
2. Vocabulary	7. Motivation for speaking
3. Students' speaking English in classes	8. Group work
4. Teachers' using English in classes	9. Technological equipment
5. Classroom environment	10. Aptitude test

The graphs show that 39.47% learners of the secondary level and 46.54% learners of the higher secondary level have the command on the English grammar while speaking. The learners' enrichment of vocabulary and its frequency of usage in speaking English reach 42.83% and 48.94% respectively for secondary and higher secondary levels. The figures also indicate that 36.65% learners of secondary level and 48.94% of higher secondary level use English in English classes. In this case, most of the learners are possessed by the feeling of inertia, shy and fear which act as the affective filters[1]impeding them to be expressive with the target language (TL).One thing is necessary to add here that the learners speaking in English are sometimes criticized by the fellow learners or some other people saying *footany* (showy) *manushkeshunacche* (making people listen) and so forth. It is very empirical in the author's own life.

The survey denotes that 39.67% English teachers of secondary level and 65.28% of higher secondary level use English in classroom teaching. It is mentionable here, in this regard, that the teachers are not well trained for communication in the TL, that the trainings carried out for the English teachers are not well-to-do in Bangladesh, and the learners, at the same time, are not fully capable of comprehending the classes held in English language thoroughly. These very scenarios have been come into light through semi-structured interviews with the teachers and focused group discussions with the participant learners.

46.77% learners at the secondary level and 62.96% learners at the higher secondary level assume that their institutions can, more or less, provide convenient classroom environment for both speaking and listening. The real scenario is that the classroom environment lacks calm and quiet environment, a little amount of students in a classroom, and other related privileges. In this regard, Syed Manzoorul Islam's comment is mentionable. He says, "… a major part of the failure cannot acquire success in spite of their great effort. And the reason behind this incapability is not their dull-headedness, rather is the lack of necessary privileges, conducive environment and motivation to thrive their merit. The colleges, whose students could not pass in the exam, have no library, well-trained teachers, or the students did not attend the classes, rather went to the coaching centres that provide learners with memorization-based lessons, and those very lessons might be of lower quality (translated from *The ProthomAlo*)".[2]

The confidence level of the secondary and higher secondary learners in speaking English reach 49.52% and 56.96% respectively. The rest of the learners believe that the lack of grammatical knowledge, the shortage of vocabulary, the possibility of mistakes and the lack of practice of speaking result in their confidence lessness, and ultimately they do not speak in the TL. Again, the motivation for speaking gets the highest levels that are 55.16% for secondary learners and 66.72% for higher secondary learners. The learners are motivated by some factors i.e. teachers, challenges of career, educated family, sports commentary, to be smart before the opposite sexes and so on. And the rest of the learners are not motivated because of their uneducated or less educated family, rigidness and commercial-mindedness of some English teachers, difficulty of the TL, disinclination to build education-based career and so forth.

The survey manifests that 36.11% secondary learners and 52.31% higher secondary learners are advanced in group work for speaking in the TL. Through FGD, it is exposed that learners' group work is not directed and designed by any expert teacher; rather they do it out of their own enthusiasm and self-motivation. Nevertheless, group work for speaking English is directly assigned almost in every lesson of both Part 1(one) English texts, but the most of the English teachers skip these exercises and directions. Even some teachers, especially at the secondary level, are beyond the notion of group work-based skills, and some opine that group work is nothing but fun and wastage of time.

38.89% secondary learners and 39.5% higher secondary learners postulate that they are provided with technology assisted speaking equipment or audio-visual materials. But this ration is not applicable for all institutions. Very few schools and colleges provide technology-supported speaking and listening aids. Finally, as to the aptitude test, most of the teachers and learners, especially at the secondary level, are not familiar with it. 29.37% secondary learners and 30.09% higher secondary learners, even so, assume that the aptitude test, anyway, is carried out structurally or non-structurally, verbally or non-verbally in the classroom, but it is not adequate and satisfactory in terms of the need for teaching and learning English as an SL/FL.

Way Outs for the Problems

Grammar and Vocabulary

One of the major purposes of inaugurating an SL/FL in a non-native country is to make the learners skilled incommunication, and communication is, undoubtedly, nothing but to express mental dispositions and/or senses. These senses can be revealed correctly by adopting certain types of grammatical structures, for example, we use *past tenses* for revealing past senses (i.e. *The parcel arrived last week.*)[3] again we use *have to/has to* in order to explain both the senses of external obligation and of logical necessity (i.e.*I have to wipe my feet every time I come in*[4]; *You have to be joking*[5]). Here it is conspicuous that sentences with correct grammatical formation, though maintaining grammar is not necessarily mandatory for communication, facilitate to make others understand speakers exactly want to express. So there is great necessity for the instruction of grammar as Ellis (2006) says, "Grammar teaching involves any instructional technique that draws learners' attention to some specific grammatical form in such a way that it helps them either to understand it metalinguistically and/or process it incomprehension and/or production so that they can internalise it".[6] Grammar, however, can be taught in a traditional prescriptive way as found in GTM or in an interactive way as found in CLT. Teachers, in this regard, must be well conversant with both the methods and use them conveniently and strictly with the involvement of the learners. According to Richards (1990), second language acquisition (SLA) researchers have argued that learners acquire language through conversation. In using conversation to interact with others, learners gradually acquire the competence that underlies the ability to use language.[7] Hatch(1978), therefore, puts the position in this way: "One learns how to do conversation , one learns how to interact verbally, and out of this interaction syntactic structures are developed”.[8]At the same time, the learning of the TL vocabulary is another important part of language skill. Sentence building with new vocabulary, therefore, must be taught in relation to our real life situation so that the learners may have much opportunity to relate our teaching and learning with their familiar world, because speaking skill is the need for daily spontaneous communication.

Classroom Speaking Practice and Group Work

Classroom speaking practice, undoubtedly, has multitude dimensions including increasing motivation, creating conducive environment, dropping the affective filter down and so many things which enhance L2 learning and its communication skills. Teachers should engage learners in this kind of practice with the form of drills in which one learner would ask questions and another would give answers. The purpose of asking and answering the questions is to demonstrate the ability to ask and answer the question. Authentic communication practice involves *information gap activities* – each participant has information that the other does not have and *jigsaw activities* –group members must work together as a team to accomplish a common goal, each person depends on all the others. No student can succeed completely unless everyone works well together as a team. This "cooperation by design" facilitates interaction among all students in the class.[9]Classroom speaking practice may also be carried out through picture describing, storytelling, role playing, discussion on given topics and through so many interactive tasks. Brown (2001), in addition to, has identified six types of classroom speaking performances: *imitative* – students imitate the words or sentences of the teacher or tape script; *intensive* – students practice phonological or grammatical aspects of speaking; *responsive* – students respond to the questions of teachers or peers; *transactional* – students practice dialogue with other classmates; *interpersonal* – students take part in talks exchanging information; and *extensive*–students present report, summary or speech.[10]Some other co-curricular activities like debating, group presentation, staging drama, et cetera may be included as the classroom activities, and all these things must be essentially held in English. All these drills and activities can only be carried out when learners work in group and have similar or nearer aims of learning English.

Role of Teachers

Teachers, actually, are the resourceful figures for creating a classroom environment convenient to speaking in the TL. A teacher must use the TL as the medium of teaching the TL. The common feature, especially at the secondary level, is that teachers are not used to and/or inclined to using English in the EFL/ESL (English as foreign language/English as second language) classroom teaching, because both/either the teachers are not well-trained in English communication and/or students are not capable of comprehending the classes held by using English thoroughly, as this scenario is exposed through interviews with the teachers. English teachers, in such circumstances, should give classes through bilingual method; she/he, firstly, should use English language (SL/FL) and the same thing, then, should be translated into Bengali language (L1). The ratio of using English and Bengali language the teachers, at first, maymaintain at about 50:50 (L2:L1), and it is wise to decrease the ratio gradually like 60:40, 70:30, 80:20, 90:10 and 100:00. This very strategy is empirically successful in the author's classroom teaching experience at the university level. In the progress of yielding better result, seven principles Brown (2001) suggests for designing speaking techniques:

1. The teachers will use techniques that cover the spectrum of learner needs, from language-based focus on accuracy to message-based focus on interaction, meaning and fluency.
2. The teachers will provide intrinsically motivation techniques.
3. The teachers will encourage the use of authentic language in meaningful context.
4. The teachers will provide appropriate feedback and correction.
5. The teachers will capitalise on the natural link between speaking and listening.
6. The teachers will give students opportunities to initiate oral communication.
7. The teachers will encourage the development of speaking strategies.[11]

Teachers, after all, must be communicative and interactive in speaking English in the ESL/EFL classroom teaching.

Classroom Environment

Classroom environment is a great factor affecting learning and teaching processes. Learners learn better when they find the environment as positive and supportive. A positive environment is one in which students feel a sense of belonging, trust others, and feel encouraged to tackle challenges, take risks, and ask questions. Such an environment provides relevant content, clear learning goals and feedback, opportunities to build social skills, and strategies to help students succeed.[12]Teachers, therefore, should create the physical environment of the speaking classroom by arranging learners' chairs and tables in semicircle, with 3-4 students at each, some with their backs to the table for most activities. A semicircle encourages interaction and enables all students to see each other. This is important if one places a high value on relationships between students, building community and creating an open environment. Such physical environment can enhance that environment, increase the feeling of classroom community, and give students a sense of empowerment.[13] In this kind of environment, all the speaking drills both teachers and learners can undertake successfully.

Confidence

Confidence, for the ESL learner is a form of self-reliance and often linked to self-esteem and motivation. It is viewed as a social aspect of language teaching and part of the personal attributes of the language learner. Confidence can be fostered in language learners at any proficiency level: confident learners are usually more effective, happier learners, whatever their level. They are more likely to take risks when they communicate with others and are therefore more likely to have conversations in English, and this, in turn, is likely to help their language to improve. With better English, they will be more willing to seek out more interactions in English, the interactions are more likely to be successful, and this success will help to build their confidence, and so on. Confidence and competence therefore depend very closely on each other.[14]

Teachers can help learners feel more confident by not only making their expectations very explicit, but also by providing them with the tools they will need to find out and check what is going on for themselves. To this end, it is useful to actively teach both the language and the communication strategies that they will need to ask for help, check instructions or show that they have not understood what is required.[15]Research has shown that this kind of teaching – 'Participation Instruction' – leads to greater classroom participation and satisfaction, as well as improved performance on assessment tasks.[16]Another way to encourage the learners lacking confidence in their ability to participate successfully in oral interaction is to help them build up a stock of *minimal responses,* so that they can use in different types of exchanges. Such *responses* can be especially useful for beginners. An example of *minimal response* is:

A: Do you like it?

B: Yes, I do/ No, I don't.[17]

Minimal responses are often idiomatic phrases that conversation participants use to indicate understanding, agreement, doubt and other functions. Such responses gradually increase confidence in the learners and ultimately pave the way to being instinctive speakers in English.

Motivation

Motivation is a stimulating factor that drives a person to execute certain actions with success or failure depending on the relevancy and intensity of motivation in operation. In view of L2 learning, Gardner (1985) considers, "Motivation involves four aspects – a goal, effortful behaviour, a desire to attain the goal and favourable attitudes toward the activity in question".[18]A recent approach to understanding motivation in language learners, developed by Dörnyei (2007) and colleagues, draws on the psychological concept of the 'possible self'. The idea is that learners are motivated by three different conceptions of themselves: the *'ideal' self* – a potential and idealised self or self-guide representing what the learner wants to become; the *'ought to' self* – representing what the learner thinks they ought to become; the *'fear of' self* – representing what the learner is afraid of becoming.[19]By drawing on their hopes and desires, perhaps from powerful role models (i.e. shop-keeper and customer, doctor and patient, visitors and guides, interview board and job seeker and so on related to daily life), learners can develop a dynamic and forward-looking conception of themselves. This can influence their expectations of themselves and help them to recognise and overcome potential obstacles. This approach suggests the importance of developing a repertoire of concrete action plans in order to understand and pursue future learning pathways and of setting goals for an individualised study plan, together with specific instructions on how to meet them.[20]Teachers, therefore, should be well-familiar with the future plans, aims and cherished careers of the learners so that they can design speaking lesson plan according to the learners' needs. Learners, thus, will spontaneously be motivated to participate at every speaking roles and drills, and it will mould them as good speakers, even renowned public speakers.

Technology for Speaking and Listening

In this techno-modern era, language teaching and learning are dependent not only on pedagogical experience but also, to a great extent, on technological expertise. The advent and application of technologies have been immensely successful in allowing students to learn independently or collaboratively through the internet. There are several applications which are very facilitative for language learning, especially for speaking and listening. Web2.0 (second generation of World Wide Web) and CALL (Computer Assisted Language Learning), they are specialized applications for language purposes. Some speaking and listening-oriented applications and tools are:

- **www.voxopop.com:**Voxopop is a web-based audio tool. It allows users to record their speaking on a given topic. It, as a result, develops speaking skills of the learners using voice recorded answers of them o a given discussion topic. Other classmates can also listen to it. It also contributes to participation of the shy and/or unwilling learners in the class discussion.

- **Podcasts:** Audio podcasts (ESLpod.com) offer learners the opportunity to record their own speech in multiple genres (reports, simulated broadcasts, oral presentations, etc.) to share with classmates or others or to review themselves later to reflect on their language-learning progress. Some educators report that students pay especially close attention to detailed aspects of their speech when recording such podcasts.[21]

- **EnglishCentral.com:** English Central uses speech recognition to assist second language learners in improving their pronunciation and spoken language. The free online site was launched in 2009 with funding from Google. Learners choose from popular videos on the site, listen to words or sentences from them at controlled speeds, read and repeat what they have heard, and receive feedback on their syntax and pronunciation, and thus compare their utterances to that of the native speaker.[22]

Modern learners are very concern and smart with various technological devices and new applications. If they are provided with devices (computer, tab, smartphone, etc.) and such learning applications and tools both in and outside of the classroom, they, the author strongly expects, must cut an extremely good figure in terms of speaking and other specialised fields of language. Teachers must have a good command on these aspects.

Syllabus Design and Examination System

In fact, it is a long term process to overcome the problems faced by the learners in speaking English. Education board and syllabus designers, first of all, should be concern about the problems going on for several decades. English syllabus designers, in this regard, may design the secondary and higher secondary's syllabi combining two widely conventional methodologies – GTM and CLT – since they are partly successful in different fields of language skills, GTM is grammar and vocabulary-oriented, and CLT is communication-oriented. GTM, thus, will help learners know easily the grammar and vocabulary, while CLT will make them communicative with the pedagogy of grammar and vocabulary, and such process will hopefully accelerate the learning of L2 competence. Examination system and marks distribution other two phenomenamust be in consideration in order to have a positive output. The aims and objectives of both teachers and learners in Bangladesh are, in most cases, pass-oriented. Equal emphasis on the fours skills of English language (listening, speaking, reading and writing) must be given in the examination system, and equal marks must be allotted for every skill of English language, for example:

Exam Area	**Marks**
Listening	20
Speaking	20
Reading	20
Writing	20
Class Attendance and Performance	10
Assignment/Group Work	10
Total	**100**

The learners, thus, must be compelled and easily motivated to acquire the language skills.

Conclusion

Specialists in different fields are required for the betterment and development of any nation like Bangladesh and one thing is very common for every specialisation, that is, expertise in English language. Speaking English, no doubt, is one of the most important skills in English language. The learners, therefore, should be taught in such a way that they can strongly be competent in speaking English by overcoming the problems they are facing. In the way of such process, the way outs proposed in this paper might be applied in the secondary and higher secondary levels to have expected outcomes and successes. Teachers, nevertheless, should be dynamic and concerned about the application of appropriate theory, the development of careful instructional designs and strategies, and the study of what actually happens in the classroom. Because these ingredients may change according to the teaching context, and effective teaching is continually evolving throughout one's teaching career.

References

1. Krashen, S. 1981. *Second Language Acquisition and Second Language Learning.* Oxford: Pergamon.

2. Manzoorul, S. I. 2016. অকার্যদেরদিকেওদৃষ্টিদিতেহবে(Concern should also be on the failure), *The Daily ProthomAlo*, August 21, 2016, p.10.
3. Leech, G., and Svartvik, J. 2002. *A Communicative Grammar of English.* Pearson Education Ltd., 2ndedn., p. 69.
4. Thomson, A. J., and Martinet, A. V. 1986. *A Practical English Grammar.* Oxford University Press, fourth edn., p. 140.
5. Leech, G., and Svartvik, J. 2002. *A Communicative Grammar of English.* Pearson Education Ltd., 2ndedn., p. 153.
6. Ellis, R. 2006. Current Issues in the Teaching of Grammar: An SLA Perspective. *TESOL Quarterly,* Vol. 40, No. 1, March, 2006, p. 84.
7. Richards, J. C. 1990. *The Language Teaching Matrix.* Cambridge: Cambridge University Press, p. 77.
8. Hatch, E. 1978. *Second Language Acquisition.* Rowley, Mass.: Newbury House.
9. Retrieved from http://www.dailyteachingtools.com/cooperative-learning-jigsaw.html.
10. Brown, H. D. 2001. *Teaching by Principles: An Interactive Approach to Language Pedagogy.* New York: Longman.
11. Brown, H. D. 2001. *Teaching by Principles: An Interactive Approach to Language Pedagogy.* New York: Longman.
12. Young, Joan. 2014. *Encouragement in the Classroom.* ASCD Arias Publication, Alexandria. Retrieved from http://www.ascd.org/publications/books/sf114049/chapters/The-Importance-of-a-Positive-Classroom.aspx.
13. Philips, Mark. 2014. A *Place for Learning: The Physical Environment of Classrooms*. Retrieved from https://www.edutopia.org/blog/the-physical-environment-of-classrooms-mark-phillips.
14. Retrieved from http://www.neas.org.au/wp-content/uploads/Building-Confidence-Fact-Sheet-1.pdf.
15. Retrieved from http://www.neas.org.au/wp-content/uploads/Building-Confidence-Fact-Sheet-2.pdf.
16. Tsou, W. 2005. Improving speaking skills through the instruction in oral classroom participation. *Foreign Language Annals,* Vol. 38, No. 1, p. 46–55.
17. Barman, B., and Basu, B. L. 2013. *Approaches and Methods of Language Teaching.* Dhaka: Friends Book Corner, p. 355.
18. Gardner, R. C. 1985. *Social Psychology and Second Language Learning: The Role of Attitudes and Motivation.* London: Edward Arnold.
19. Dörnyei, Z. 2007. Creating a motivating classroom environment. In J. Cummins & C. Davidson (Eds.), *The International Handbook of English Language Teaching,*New York: Springer, p. 719–731.
20. Retrieved from http://www.neas.org.au/wp-content/uploads/Building-Confidence-Fact-Sheet-1.pdf

21. Warschauer, M., & Liaw, M. 2011. Emerging technologies for autonomous language learning. *Studies in Self-Access Learning Journal*, Vol. 2, No. 3, p. 107-118.
22. Warschauer, M., & Liaw, M. 2011. Emerging technologies for autonomous language learning. *Studies in Self-Access Learning Journal*, Vol. 2, No. 3, p. 107-118.

Appendix

The Questionnaire

The survey was held through a questionnaire which has been given here.

Evaluate the following aspects by marking "√" in the box of corresponding columns according to the scale given:

4–Strongly agree; **3**–Agree; **2**–Disagree; **1**–Strongly disagree;

(Note: The figures in the parentheses indicate the standards)

Aspects of Evaluation	**4**	**3**	**2**	**1**
1. You have sufficient knowledge on grammatical items for speaking English.				
2. You have enough vocabulary while speaking in English.				
3. You speak English spontaneously in your English classes.				
4. Your English teachers use English language in classroom teaching.				
5. You find classroom environment convenient to practising speaking English.				
6. You feel confident while speaking English.				
7. You are well motivated to speak in English.				
8. You do group work for speaking English.				
9. Your institution provides you with technological equipment for correct pronunciation.				
10. Your aptitude (talent) and intelligence are tested and you are grouped accordingly.				

Online Reading of Energy Meter (OREM)

Mohammad Tareq[1], Tafsir Ahmed Khan[2]

ABSTRACT

In this project, an energy meter has been designed and developed using Arduino board. The Arduino board has been used to monitor and record the consumed power. The Ethernet shield and the Arduino Mega have been used to connect the meter with the relay (CMH-SH-1240) and other components like LDR, LCD LMD16L, Bluetooth HC-05, resistor etc. An android application also has been developed to control the power connection through android-based mobile phone. In this project, the power supply company is able to observe the status of consumer and they can disconnect the consumer connection if required. The connection between the device and the power supply company has been maintained through existing Ethernet protocol. In this system, the consumer can observe the status of his power consumption through the android application. In future, this project will be developed security and critical commands, which should be updated meter security keys and enhancement network management. Overall, the developed model has been titled as – Online Reading of Energy Meter (OREM).

Key words: energy meter, Arduino, OREM

INTRODUCTION

The present system of Energy Metering as well as billing in Bangladesh uses electromechanical and somewhere digital Energy Meter. It consumes more time and labor. Today accuracy in electricity billing is highly recommended. The smart Energy Meter gives real power consumption as well as accurate billing. It provides real time monitoring of electricity uses. It is less time consuming and cost effective.

An electricity meter or Energy Meter is a device that measures the amount of electric energy consumed by a residence, business, or an electrically powered device. However, sometimes the limited functionality of these meters restricts their area of application; especially in inaccessible positions or in the area. A possible solution is a Wireless Energy Meter (WEM), which is able to send its data via wireless communication to a PC or a remote device where monitoring and analysis of the data will be easily made. This measurement system is aimed to be used in measuring energy related quantities such as units consumed, consumed power, active load etc. of a house.

In the project the RTC in the main part. All operations are done using real time clock. This meter consists of digital clock, implemented using DS1307 IC. This document describes the design and implementation of a digital Online based Smart Energy Meter Based on mobile application. Sending details to consumer or utility company through mobile application network by the Bluetooth and Ethernet are distinct feature of this project. LDR is used to measure the real power and convert it into frequency for further analysis.

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FLAWS IN CONVENTIONAL BILLING

There are many flaws and errors in conventional billing. Some human mistakes may also occur in manual billing. Analyzing the conventional billing some of the common observed errors and mistakes are:

- It's a time consuming procedure
- There is always a chance of human error while taking the manual meter reading
- There is no check and balance and verification procedure of this meter reading
- There is always a chance of theft and corruption
- Extra human power is required
- Consumer is not updated of his usage
- Consumer may not get the bill slip within due date

SMART ENERGY METER

The size of smart meters and traditional meters is same and smart meters are digital [1]. Smart Energy Meter measures more detailed readings than KWhr so that utility can plan the expansion of network and power quality [2 - 4]. The Smart Energy Meter is designed so that it measures voltage and load currents by the use of voltage and current sensors instead of potential and current transformers and then feeds these values of voltage and current into power factor controller IC and energy metering IC for the power factor and power calculations respectively [5].

The design of Smart Energy Meter involves the measuring of load current and voltage using sensors and then feeding them to energy metering IC which converts it into the real power consumed by the load. Power factor is measured by measuring the phase shift between voltage and load current. Microcontroller used to perform the calculations related to power and energy consumed and shows the reading on LCD as well as it sends the reading of Smart Energy Meter with the help of GSM modem [6]. Active power, reactive power, voltage, load current, power factor and units (kWh) are measured and displayed successfully. Meter reading are sent from GSM modem and received on mobile successfully. Two-way communication is done by smart energy meter between the meter and utility administration as well as between meter and customer so that customer is able to check the status of his consumed energy units and can manage his load accordingly to reduce his bill[7-8].

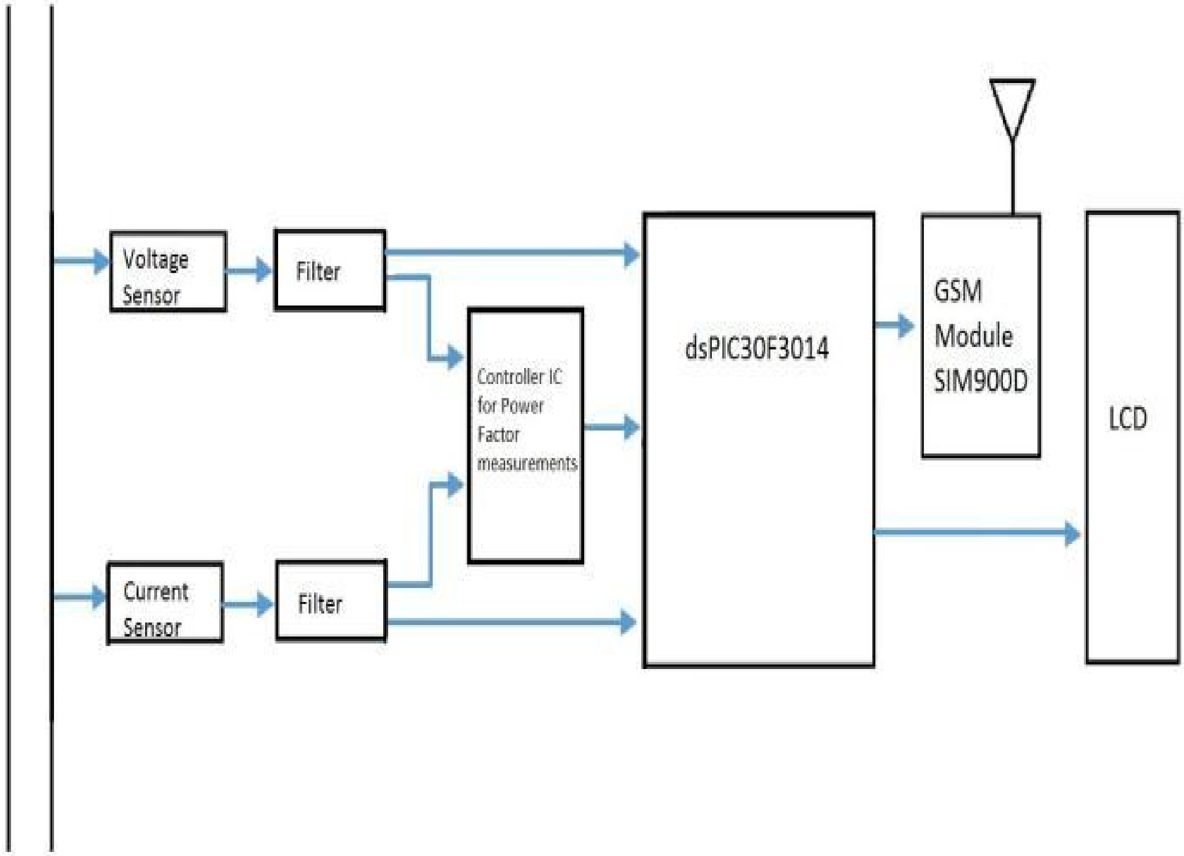

Fig. 1 Simple block diagram of Smart Energy Meter.

Simple block diagram of Smart Energy Meter is shown in Fig.1.

Wireless Electricity Consumption Meter

Wireless power meters or wireless energy meters are wireless technology based on electricity consumption meters. They are used for measuring power or electric energy and to monitor using wireless communication. Wireless communication modules (such as GSM) enable the conventional energy meters to become wireless energy meters. These wireless meters eliminate workers for metering and billing the customer's electricity consumption.

In the Fig. 2 microcontroller based wireless energy meter block diagram is shown.

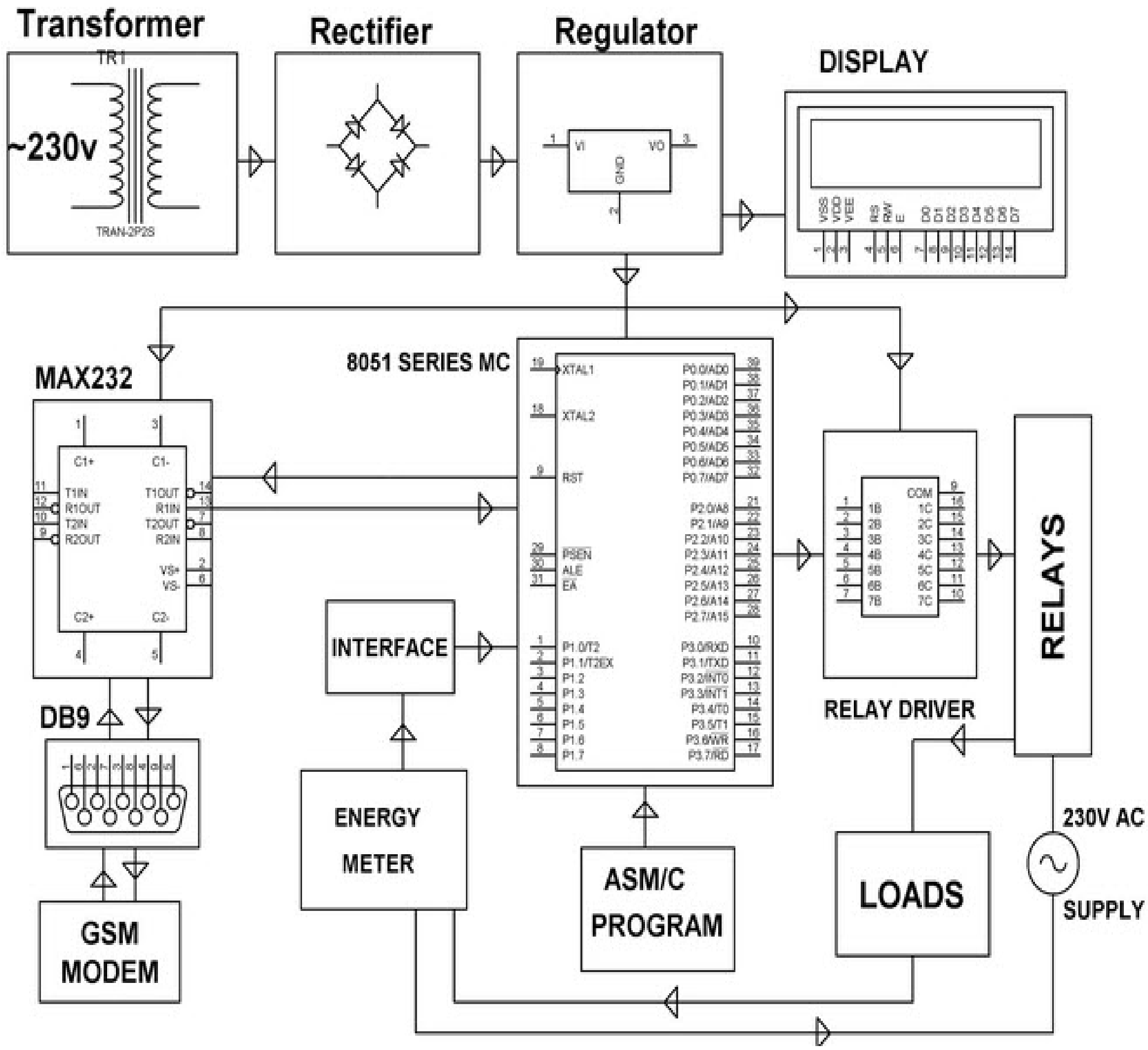

Fig. 2Microcontroller based Wireless Energy Meter Block Diagram.

Working Principle of Wireless Microcontroller Based Energy Meter

The electricity consumption meter shown in the Fig. 2 facilitates the billing of energy meter along with load control using wireless GSM technology. This is a microcontroller based wireless energy meter, as 8051 microcontrollers is used for controlling the entire system. This microcontroller basedwireless energy meter consists of major components or blocks such as microcontroller, relays, loads, electricity consumption meter, LCD display, power supply circuit, GSM modem, DB9 connector, MAX232, and relay driver[9].It can be utilized in case when the utility company needs to disconnect a consumer due to non- payment of bills or some other reasons. Another major feature of Smart energy meter is that it gives alarm when the consumer load is exceeding the upper limit for which he got the utility connection [10]. If the consumer does not reduce his load, the meter automatically cuts off the consumer connection. GSM communications network is required to transfer the electricity consumed data to the utility administration as well as to the customer. Antenna, attached on or near meter box, can be used to improve the signal strength in GSM communication.

Design Methodology

In this project, several design steps have been followed. All necessary steps required for the project have been listed below.

Step 1: Layout of the circuit has been designed in the Fritzing.

Step 2: OREMcircuit consiststhe followingequipment - Ethernet shield HR911105A,Arduino Mega 2560 R3, Relay CMH-SH-1240, LDR, LCD LMD16L, Bluetooth HC-05, Resistor 1k etc.

Step 3: Finally, simulations have been carried out to complete the project according to the requirements.

Step 4:A mobile application has been developed for the project.

Step 5: TheEthernet shield and the Arduino Mega have been connected with themeter and the other component like Relay CMH-SH-1240, LDR, LCD LMD16L, Bluetooth HC-05, Resistor (1k Ohm)also have been connected accordingly.

Step 6: After that the mobile application has beenconnected to the device through Bluetooth.

Step 7: Then meterhas beenconnected with the internet by using Blynk software and the Ethernet.

Step 8: Meter has been turned on and data has been obtained through the application.

Flowchart

The Functioning of the smart meter is based on program embedded in the microcontroller. The program is designed in accordance with hardware connection of the smart meter. The application has been developed using MIT App Inventor. The electronic Energy Meter is calibrated such a way that one-unit energy consumption is equal to 1600 pulses. The application will notify the consumer according to the status of billing. The subscriber will get the notification on the application. Flowchart of the OREM is shown in the Fig. 3.

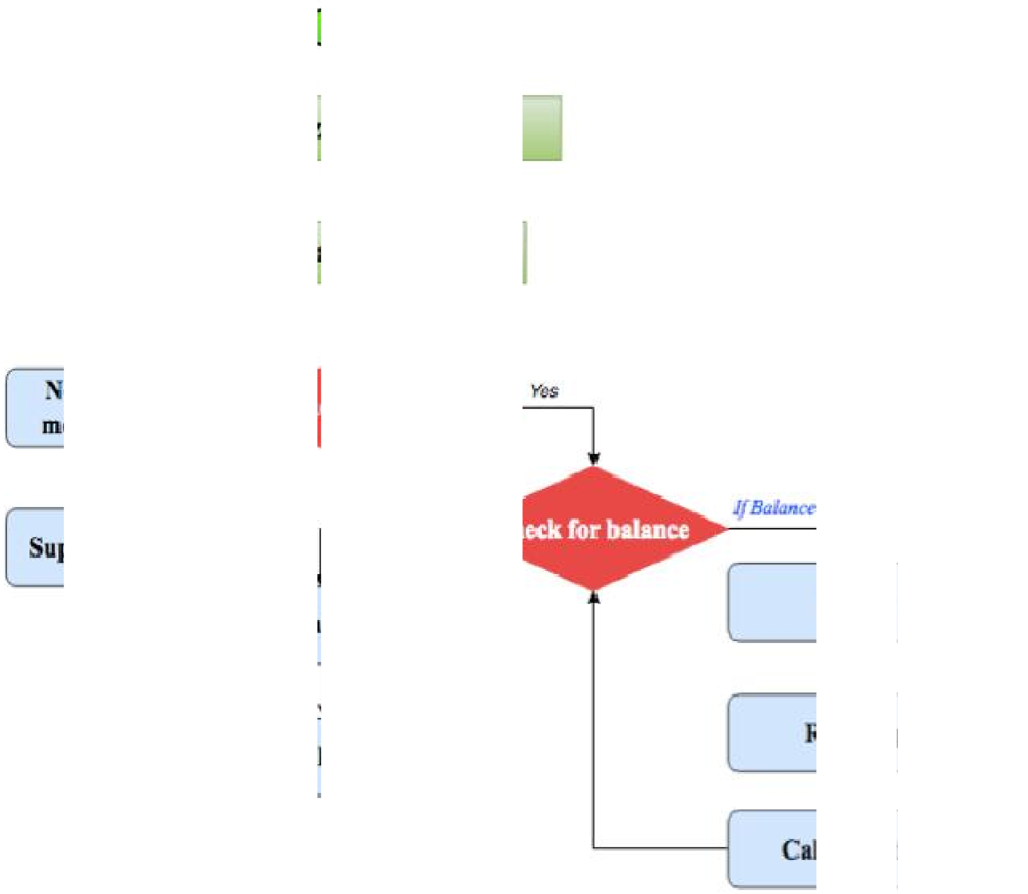

Fig. 3 Flowchart of the OREM.

Fritzing Toolkit

Before implementing the actual hardware, the system has been designed using a software named Fritzing. Fritzing is an application that helps to design the circuit in breadboard very easily.

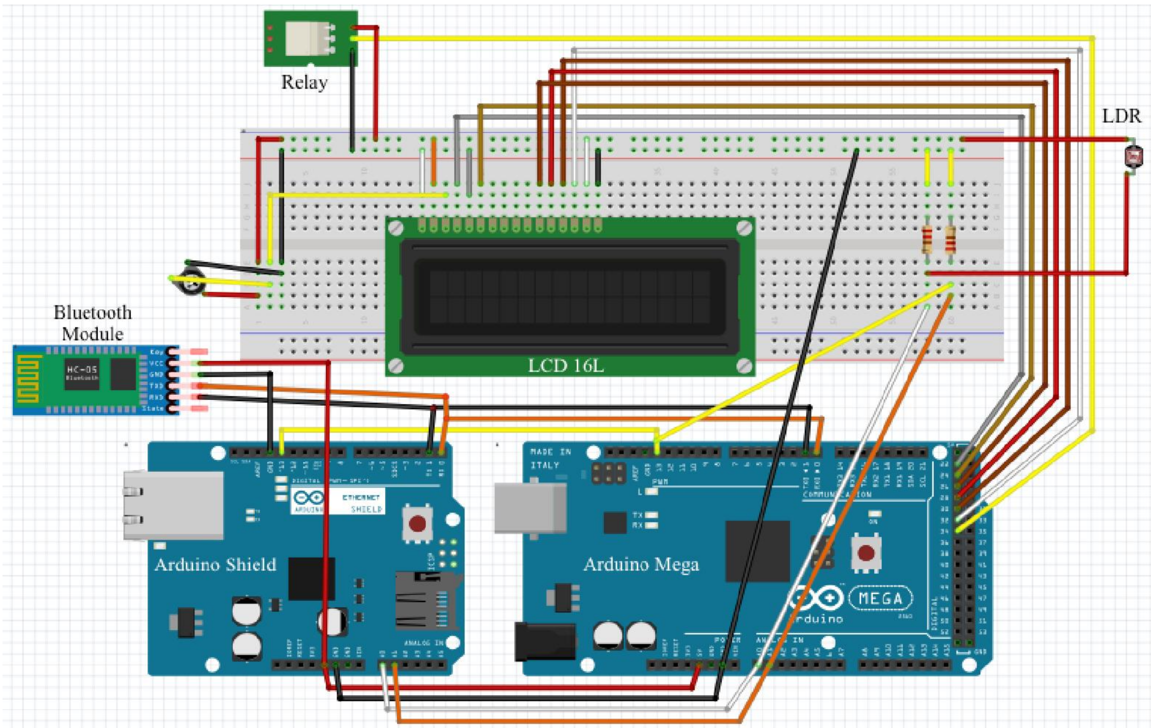

Fig. 4 Circuit diagram design-using Fritzing.

Circuit diagram design of Online Reading of Energy Meter using Fritzing software is given in the Fig. 4.

Simulation/Test Results

The results obtained from the simulation/experiment are presented in the Fig.5 and the Fig. 6 respectively.

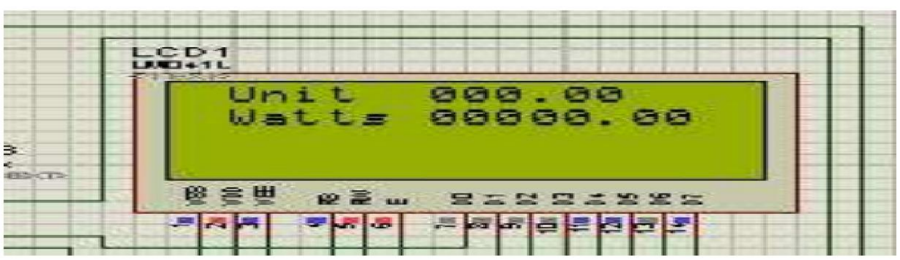

Fig. 5 LCD display at no load and zero-unit balance[11].

Fig.6 LCD display at load and above zero-unit balance state [11].

Mobile Application

A. Mobile application LOGO and Home page of OREM is given in the Fig.7.

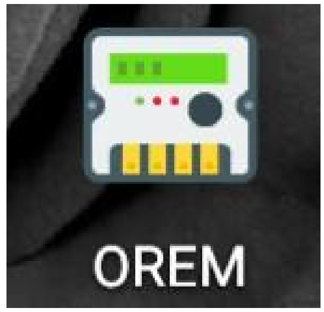

Fig. 7This is Mobile application Logo.

B. Connection to the Device using Bluetooth is in the Fig.8.

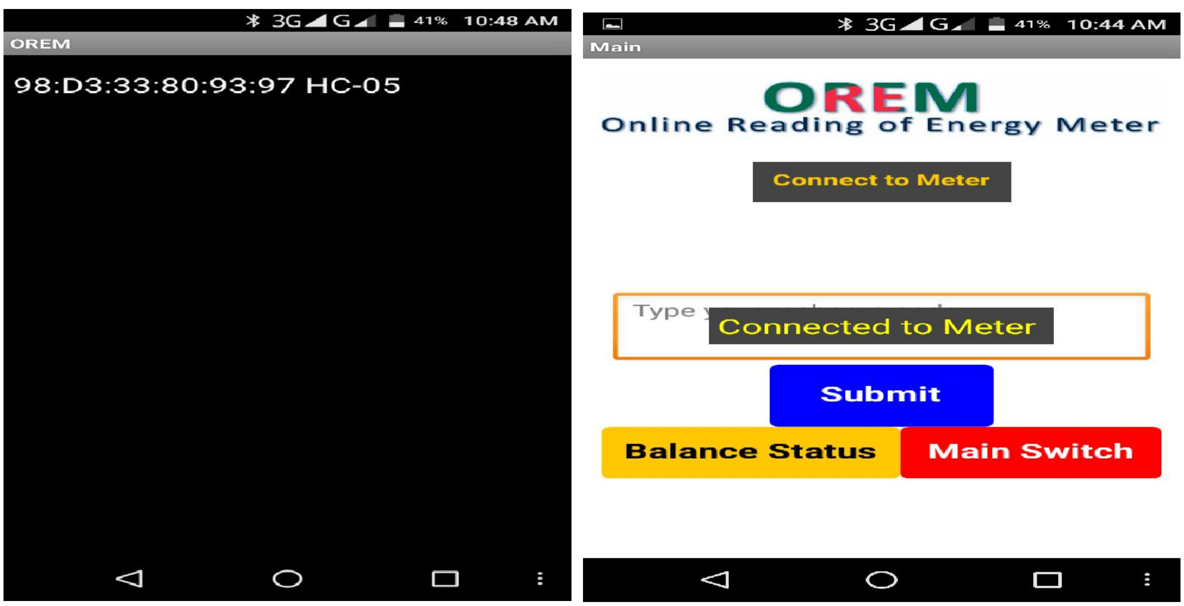

Fig. 8 Bluetooth IP Number & Connected to the OREM.

C. The subscriber need to type the recharging code on the mobile application. Information regarding his balance will be displayed on the specific zone of the mobile application; which is shown in the Fig. 9.

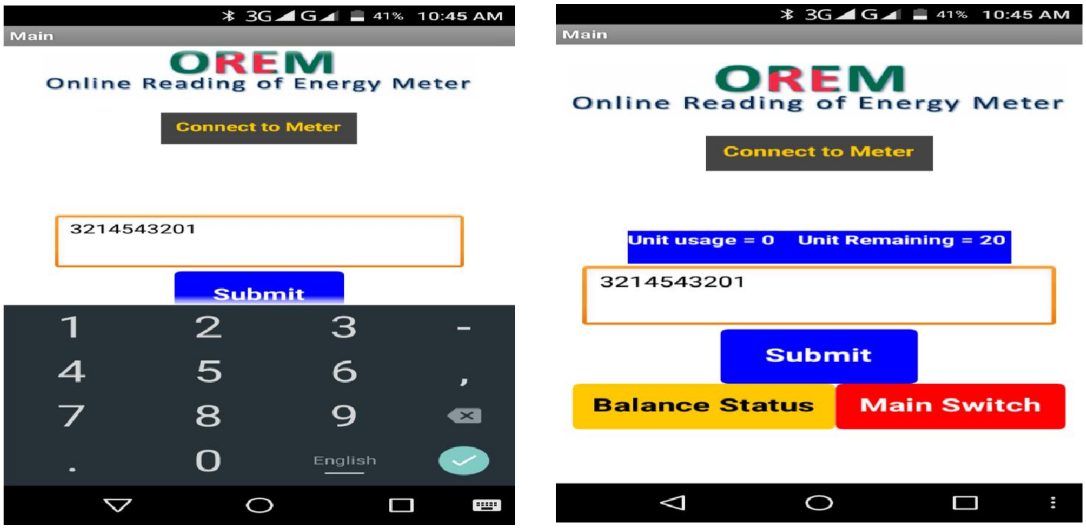

Fig.9 Recharge code using of Mobile Application and status of Unit Usages and Balance.

Mobile Applications Facility

i. Consumersmeter was successfully recharged with 20 units
ii. Consumer unit balance is critically low; recharge as soon as possible to avoid loss of power supply.
iii. Unit exhausted; recharge to continue to receive power supply.
iv. The power supply company will disconnect consumer.
v. The power supply company will reconnect consumer.

Online look of OREM

Online application mode of the OREM has been shown in the Fig. 10. Where one is ON mode another one is OFF mode.

Fig.10 Online applications are ON mode and OFF mode.

Hardware Implementation of OREM

Hardware implementation and output result of OREM have been shown in the Fig. 11 and Fig. 12 respectively.

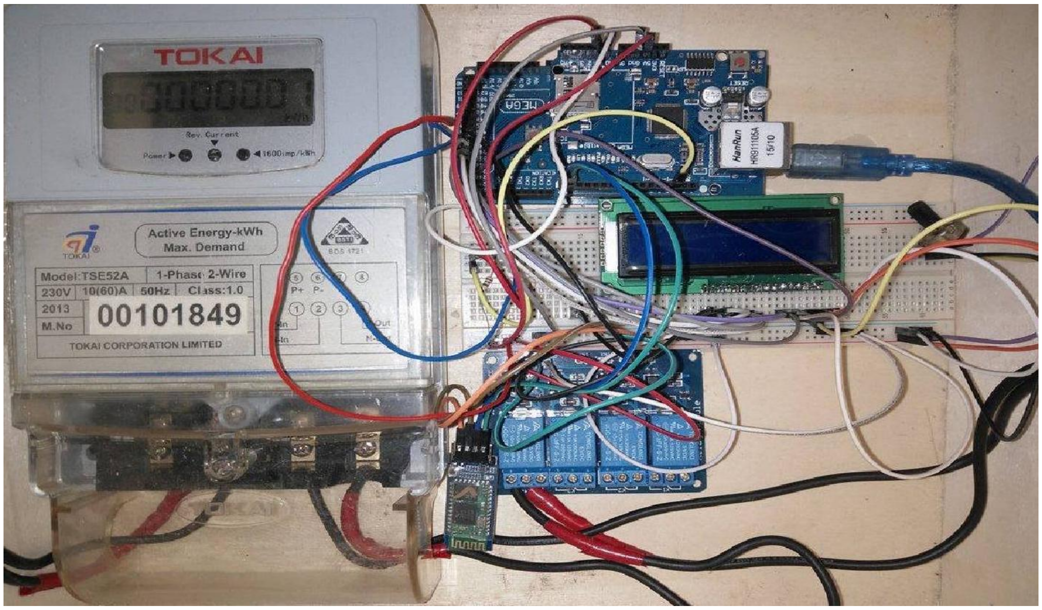

Fig.11 This is Inside of the OREM project.

Fig.12 Balance Status of the OREM project.

CONCLUSION

The complete working model of a smart Energy Meter hasbeen developedbyBluetooth and Ethernet system. The Energy Meter has been designedusing the Arduino board. The power supply company can easily observe the status of consumers and they can disconnect the consumer's connection if required. Through the mobile application,consumers can easily check their used electricity. So consumers can easily understand about extra used power. Financial losses of electricity board and labor charges would be minimized.In future, this project should be updated meter security keys and enhancement network management. Finally, Smart metering system has the potential to revolutionize the relationship between suppliers and their consumers'.

FUTURE RECOMMENDATIONS

I thought there are few possibilities that can also be done on this project in future as I have provided flexibility in the project especially in controller section. The future research should include the proper methodology for measuring the power factor of the load.

Recommendations for future are as follows:

i. Enhancement of network management
ii. Creating new revenue opportunities
iii. Developing security and critical commands to update meter security keys.
iv. Developing existing and future applications to utilize meter data.
v. Smart energy Meter can be modified for the detection of illegal use of electricity.

References

1. Smart meter Implementation Strategy Prospectus. July 2010. DECC, Ofgem/Ofgem E-Serve.
2. T. Chandler, “The technology development of automatic metering and monitoring systems,” in IEEE International Power Eng. Conf., Dec. 2005.
3. G. T. Heydt, “Virtual surrounding face geocasting in wireless ad hoc and sensor networks,” Electric Power Quality: A Tutorial Introduction, vol. 11, no. 1, pp. 15–19, Jan. 1998.
4. M. Faisal and A. Mohamed, “A new technique for power quality based condition monitoring,” in 17th Conf. Electrical Power Supply Industry, Oct. 2008.
5. P. RakeshMalhotra, Dr.R.Seethalakshmi “Automatic Meter Reading and Theft Control System by Using GSM P”.RakeshMalhotra et al. / International Journal of Engineering and Technology (IJET).
6. H. Tan, H. Lee, , and V. Mok, “Automatic power meter reading system using GSM network,” in IEEE International Power Eng. Conf., Dec. 2007.
7. J. Surrat, “Integration of cebus with utility load management and automatic meter reading,” in IEEE Trans. Consumer Electron., vol. 37,no. 3, Aug. 1991, pp. 406–412.
8. A. Abdollahi, M. Dehghani, and N. Zamanzadeh, “SMS-based reconfigurable automatic meter reading system,” in IEEE International Conf. Control Appl., Oct. 2007.
9. Tarek Khalifa, Kshirasagar Naik and Amiya Nayak “A Survey of Communication Protocols for Automatic Meter Reading Applications” in IEEE Communications Surveys & Tutorials, vol. 13, no. 2, second quarter 2011.
10. Ali Abdollahi, Marjan Dehghani, and Negar Zamanzadeh “SMS-based Reconfigurable Automatic Meter Reading System” in16th IEEE International Conference on Control Applications. Part of IEEE Multi-conference on Systems and Control Singapore, 1-3 October 2007
11. Kaoy B.S et al (2003).Design and implementation of Bluetooth Energy Meter Proceedings of the joint 4th international conference on Information, communication and signal processing and the 4th Pacific Rim conference on multimedia vol 3, pp.1474-1477

Biometric Voter Authentication, Vote Casting and Counting (BVACC) in Electronic Voting

Tafsir Ahmed Khan[1],
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Abstract: Electronic voting (also known as e-voting) is the most modern system for vote casting and counting in the world which uses electronic means to take care of casting and counting votes. The Biometric Voter Authentication, Vote Casting and Counting (BVACC) is such an e-voting system which includes biometric authentication of the voters. The BVACC can reduce the cost of voting system & time to count votes manually and can provide improved accessibility. This is due to easy and cost effective integration of existing and upcoming technologies. In BVACC, when a voter decides to vote, he will pass the fingerprint through the fingerprint sensor during the designated voting period. The system will then record that data and compare it to the template already stored. If the data is matched, the voter will be entered into the voting process and can cast vote. An android application is developed for controlling a display which shows the voter information while voting and result after the end of vote casting period. The primary goal is to deploy an experimental e-voting system that can be used in Bangladesh & other countries.

Keywords: E-voting, Biometric Fingerprint, Authentication, Arduino, Casting,& Counting.

Introduction

Trusted voting schemes are basic requirements for democratic societies in many countries. In such countries, the Government leaders must be elected properly so that people can trust them. Currently, paper based voting schemes have some serious weaknesses that leave space for corruption and irregularities. These problems accelerate the need for secured/computerized e-voting schemes. In the Indian subcontinent (particularly in India, Pakistan and Bangladesh), the issue of electoral procedures is very prominent one. It is observed that people in the government face difficulties and challenges in offering secure elections in such a way that opposition parties can accept the outcome of an election. In some countries, a short-term caretaker government conducts the election with the expectation that all parties can accept this. For example, in 1990, 1996, 2001, and 2008 the national elections were conducted by a caretaker government in Bangladesh. In Pakistan, a caretaker government was proposed in 2013 for the national election. The caretaker governments sometimes make the election process lengthier intentionally in order to retain power for longer period of time.

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In 2006, the major parties were not satisfied with the people in the caretaker government and there were changes within the caretaker government a number of times in Bangladesh. Then the caretaker government took more than two years to conduct the national election in 2008.

Many countries over the world (For example, The United Kingdom, the Netherlands, the United States, and France) have already introduced electronic voting in their areas. In 2007, Estonia introduced Internet voting though flaws have been found in that voting system. Bangladesh has conducted electronic voting, in city corporation election (on June 17, 2009 in the Chittagong city corporation elections). However, the major opposition parties have questioned the validity of these elections because of security issues. As a result, the election commission of Bangladesh is yet to seek the compliance of all parties for introducing electronic voting in the upcoming city corporation and national election.

This paper attempts to provide better chances for secure electronic voting by reducing the problems and irregularities of the existing voting schemes by biometric voter authentication, automatic vote casting and simultaneous vote counting.

Related Work

The first major proposal for the use of voting machines came from the Chartists in 1838[1]. The Chartist voting machine allows each voter to cast one vote in a single race that matches the requirements of a British parliamentary election. In this voting scheme, each voter casts his/her vote by dropping a brass ball into the appropriate hole in the top of the machine by the candidate's name. Each voter can only vote once because each voter is given just one brass ball. The ball advances a clockwork counter for the corresponding candidate as it passes through the machine, and then falls out the front where it can be given to the next voter.

There is an ongoing discussion in many countries about e-voting. While some kind of e-voting is already widely used by society, organizations and private industry voting in non-professional/non-official polling, the situation is quite different when it comes to national elections and referendums. Switzerland is considering the introduction of remote Internet voting and is running a variety of pilot projects. Norway has concluded the testing phase and Estonia has introduced a standard voting channel.

The fingerprint with smartcard technology is proposed as the biometric authentication of voters in[2-4]. However, in this paper, we implement BVACC.

The Requirements of Secure Electronic Voting

Constructing a comprehensive cryptographic protocol for secure electronic voting is very challenging due to its complex security requirements. The main requirements for a secure electronic voting scheme are listed below:

- Fairness
- Eligibility
- Privacy of the Ballot
- Receipt-freeness
- Coercion-resistance
- Soundness and Completeness
- Ballot Verification
- Election Verifiability

Proposed Model

The term authentication refers to an electronic process that allows for the electronic identification of a valid voter. Additionally, authentication may also confirm the origin and integrity of data in electronic form. First, some of the possible biometric properties need to be overlooked that can be used for the authentication of individual persons. In this paper, we restrict ourselves to present just a subset of different biometric properties. We explicitly do not focus on their feasibility, but rather try to show the wide spectrum of "theoretically" possible human properties that can be used in biometric systems. Possible biometric identifications are fingerprints, iris pattern, face, voice, signature, DNA analysis etc.

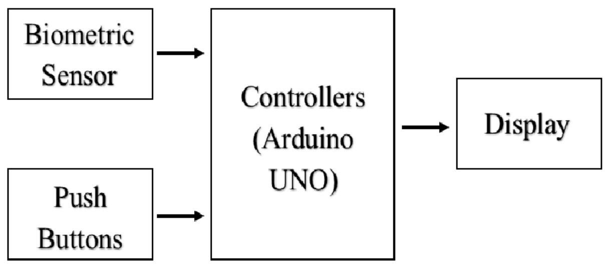

Fig 1: Basic block diagram of BVACC.

The basic block diagram of the proposed BVACC is shown in Fig. 1. In BVACC, a fingerprint scanner[5] is used as the biometric sensor for authenticating voters as fingerprint scanner provides a very satisfactory amount of security at a very small cost. The BVACC has been divided into the following units:

1. **Fingerprint Unit:** It is possible to verify that the voter is valid through this unit; only valid voters can cast his vote and can vote only once.

2. **Control Unit:**Control unit refers Arduino A1 which takes data from the Fingerprint Unit. The Presiding Officer or The Responsible Person sets time in Control Unit and can control the inception or the conclusion of voting session. This unit is also responsible for publishing result at the end of voting period.

3. **Counter Unit:**Counter unit refers Arduino A2. This unit needs to be connected with the push buttons. It keeps track of votes by writing in a memory and count them as well. This unit publishes the result at the end of the voting period only if it gets instruction from the Control unit.

4. **Vote Casting Unit:** A voter can cast his vote when he receives a signed key, and push button will be activated after receiving the signed key. This signed key comes from Control Unit and read by Counter Unit.

5. **Display Unit:** This unit shows the voter information, vote casting and results at the end of the vote casting period.

The detailed block diagram of BVACC is shown in Fig. 2.

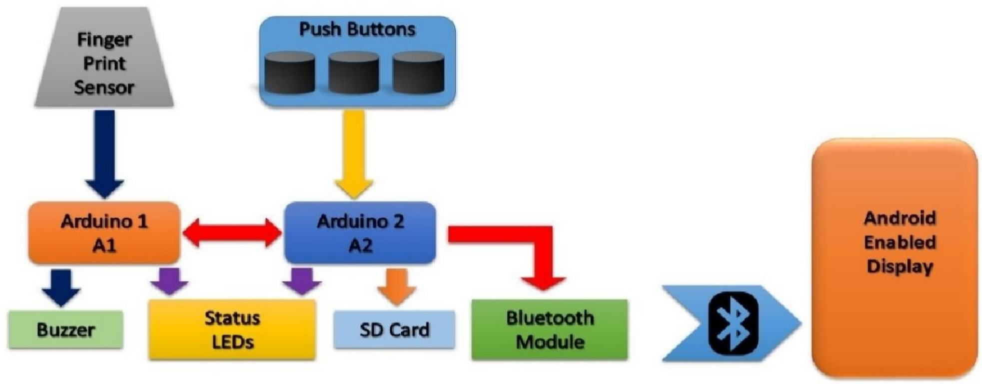

Fig. 2: Detailed block diagram of BVACC.

A voter's data comes from the Fingerprint sensor to Arduino A1 (Control Unit)[6] which authenticates a voter through a buzzer and by passing a signed key to Arduino A2 (Counter Unit). If the voter is eligible to vote then A2 opens up the push buttons (Vote Casting Unit) and waits for response from the voter. It also shows different status by lighting up the Light Emitting Diodes (LEDs) and sending data to display unit via a Bluetooth module. The detailed circuit diagram of BVACC is shown in Fig. 3.

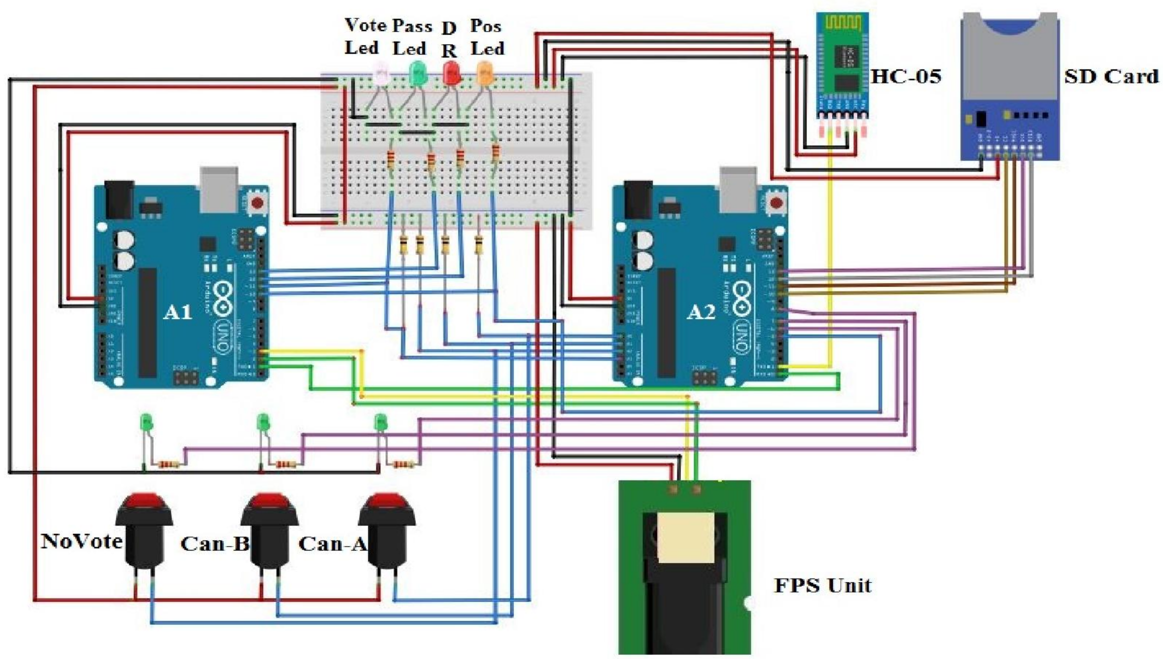

Fig. 3: Detailed circuit diagram of BVACC.

Working Procedure

The functioning of the Fingerprint is based on the program embedded in the microcontroller. The program is designed in accordance with hardware connection of BVACC. The flowchart that has been developed for programming BVACC device is shown in Fig 4. The working procedure starts from the Fingerprint Sensor (FPS) unit. Then its output goes to the control unit of BVACC which decides the FPS status. If the status is "Yes" the fingerprint is registered in the BVACC system. For status "No", a buzzer will buzz to notify and that will terminate the voting process for a particular voter. For status "Yes", a signed key will be issued for a particular voter by the control unit and read by the counter unit. This event will also turn on an LED named "Passled". The Counter unit is responsible for deciding vote status for a particular registered voter. If the response (V) is "Low" (O) then pushbuttons will be activated and person can vote in 30 sec. If they do so vote will be counted and the counter for a particular candidate will update the vote count integer. If the response is "High" (1) then Buzzer will buzz to notify that the voter has given his vote before. That will conclude the session for that voter.

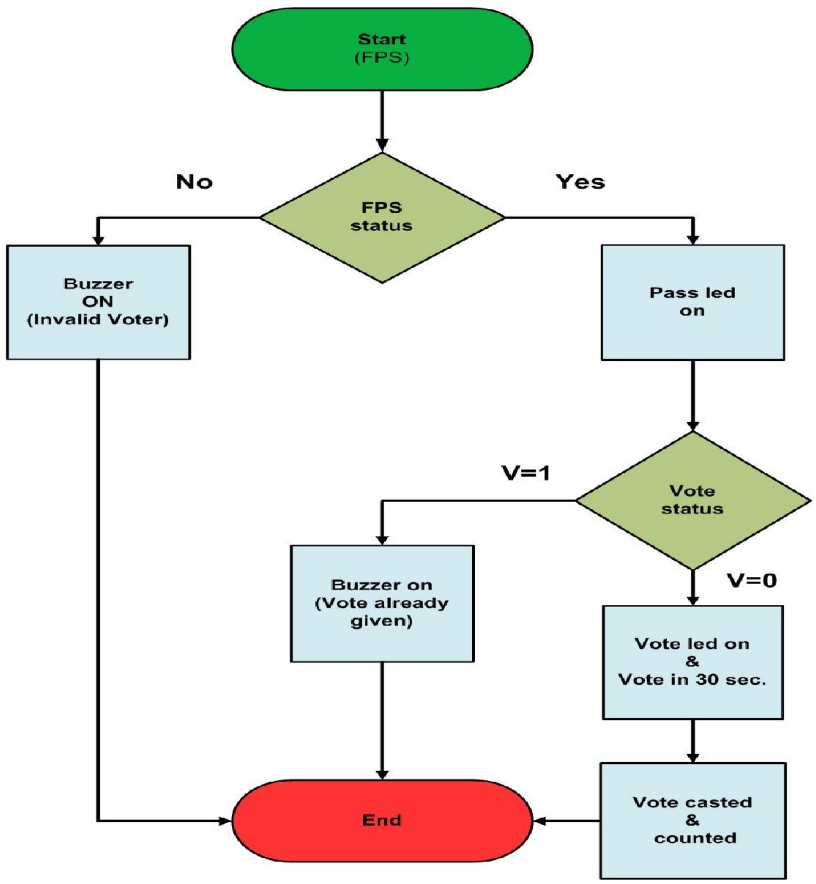

Fig.4: Fingerprint and vote status flow chart.

An android application (titled as BVACC) is developed for showing voter information, vote casting notification, invalid voter and for showing results using the Massachusetts Institute of Technology (MIT) app invertor[6] to minimize the cost of connecting a dedicated Liquid Crystal Display (LCD) graphic display by using an android smartphone instead. App Inventor for Android is an open-source web application originally provided by Google, and now maintained by MIT. It allows newcomers to computer programming to create software applications for the Android Operating System (OS). It uses a Lego type graphical interface to program an application.

A secure and reliable e-voting system demands that only an authenticate voter can cast his vote. The authenticate voter should place his/her registered finger on fingerprint sensor and get access for 30 seconds to cast his/her vote for once. Within this small timeframe he needs to cast his vote by pressing the push button which is assigned for his chosen candidate. If he misses the timeframe and fails to press any button, then his vote will be rejected. It is impossible to try again or give another vote by placing his finger on FPS.

Voters give their votes after selecting candidates by pushing mechanical buttons which increments a mechanical counter for the appropriate candidate. Initially vote count is zero. Individual vote count function has been used for individual candidate. Initially all vote counts are zero. For example, when a voter gives his vote to candidate A, vote count is increased by one for that candidate.

After the ending of vote casting period, the presiding officer will announce the results by placing his finger to FPS. For this action, the Control Unit will trigger a led call “pos” and send the data to the Counter Unit. After receiving the command from Control Unit it will transmit a signal followed by vote count result to Display Unit to change its regular page to result page before showing the final result on the app. The Display Unit will also announce the name of the winner.

Demo BVACC Device

The demo device of BVACC electronic voting is shown in Fig. 5.

Fig.5: Demo BVACC device.

Result and Discussions

The Display Unit is an additional part of this BVACC device. The reason behind the idea of using an external device as a display is to get an option of using the device without the display when display is not necessary. Overview of Display Unit is shown in brief with necessary screenshots.

After opening the app it will show a home page (shown in Fig. 6) where options of connecting the device with app is given. It will require a password to connect which is known and used only by the presiding officer. This page will show the information about the vote center and machine number.

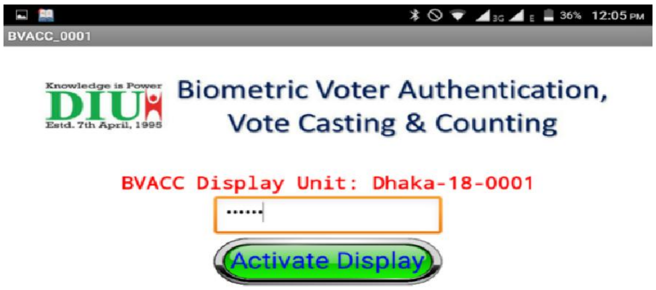

Fig.6: App home page.

After connecting to the BVACC machine this display will bring up another page named Status (shown in Fig. 7). This page will show the proper instruction about how to vote and when to press button.

Fig.7: Status display for instruction to place finger on fingerprint sensor.

Status page will also show the voter information (shown in Fig 8.) already kept in the database. This will also verify whether he is a valid voter or not and the fingerprint is registered in memory or not.

Fig.8: Voter information.

When a voter gives a vote to a certain candidate this information will come up on Status (shown in Fig. 9) display as pop-up.

Fig.9: Status for Candidate notification.

To verify whether he is a valid voter or invalid voter the fingerprint is checked with the fingerprint stored in fingerprint sensor's internal memory and matched the voter information which is stored external (Electrically Erasable Programmable Read Only Memory) EEPROM or Arduino (Erasable Programmable Read Only Memory) EPROM. If a voter is invalid, then shows invalid voter and buzzer is on as shown in Fig10.

Fig. 10: Status for Invalid voter notification.

After the end of the vote casting period, the presiding officer will announce the results through his fingerprint. The result page is shown in Fig. 11.

Fig. 11: Displaying the result.

The main advantages of BVACC are given below:

- Checks whether the voter is valid or not.
- Restricts people to cast other's vote.
- Allows a valid voter to cast vote for once.
- Makes it impossible to cast vote after the specified time.
- Result is fair & accurate.

- No delay for result announcement.
- Rejected vote will not be counted.
- Result cannot be manipulated by seizing the center/BVACC machine.
- Same BVACC device can be used in many elections.

Conclusion

Our proposed BVACC in e-voting system provides fast access, is easy to maintain, efficient and flexible method that enables a voter to cast his vote through fingerprint by being present in voting booth physically and thus eliminates the chances of proxy votes or multiples votes. In addition, it can provide easy and accurate counting without any troubles. Hence, the usage of such reliable and secure voting method can actually increase the voting percentage since usage of e-voting has the capability to reduce or remove unwanted human errors. In addition to its reliability, e-voting provides better scalability for large elections. Fingerprint of every person is unique and hence this system completely restricts the invalid voters. However, biometric devices should be deployed carefully.

Future Scope

There are many other possible scopes for future study as well. In this paper, one of the most challenging obstacles was to store mass number of fingerprints and mass information in the database as the internal memory was very limited. It leaded us to make a device that can be used among not more than 1000 persons.

As a solution of this problem along with other problems some future plans are proposed:

- Cryptographic aspectsof e-voting such as privacy, receipt-freeness, coercion-resistance & verifiability should be taken care of.
- A central online database can be used for storing fingerprint data instead of local database.
- Voter authentication can be done by processing the fingerprint images inside a computer instead of Arduino.

References

[1] Douglas W. Jones, Early Requirements for Mechanical Voting Systems, *First International Workshop on Requirements Engineering for E-voting Systems*, Aug. 31, 2009, Atlanta.

[2] M. A. Based. *Security Aspects of Internet based Voting*. In proceedings of the International Conferences on Telecommunications and Networking (TeNe 08), Novel Algorithms and Techniques in Telecommunication and Networking. Sobh et al, pp. 329-332, ISBN: 978-90-481-3661-2, Springer – Verilag, Berlin, 2010.

[3] M.A. Based, J.K. Tsay, and S.F. Mjolsnes. *PEVS: A Secure Electronic Voting Scheme using Polling Booths.* Y. Xiang et al. (Eds.): ICDKE 2012, Lecture Notes in Computer Science vol. 7696, pp. 189-205, Springer-VerLag, Berlin, 2012.

[4] M. A. Based, T. I. Reistad, and S. F. Mjolsnes. *Internet Voting using Multiparty Computations*. In Proceedings of the 2nd Norwegian Information Security Conference (NISK 2009), pp. 136-147, ISBN: 978-82-519-2492-4, Tapir AkademiskForlag, 2009.

[5] Adafruit Optical Fingerprint Sensor. Web Source: https://learn.adafruit.com/adafruit-optical-fingerprint-sensor/overview. Last Accessed on July, 2017.
[6] MIT App Inventor. Web Source: http://ai2.appinventor.mit.edu. Last Accessed on July, 2017.
[7] ArduinoUno. Web Source: https://www.arduino.cc/en/Guide/ArduinoUno. Last Accessed on July, 2017.

Urban Parenting: Working Mothers of Dhaka

Sumaiya Habib[1] ,Tahmina Khan[2]

Abstract: Urban working mothers of various classes have confronted a number of socio-economic and psychological turmoil. The vast development in job-sectors and urban commodity oriented life has made urban parenting much challenging and hard to manage. This study has investigated the problems and coping strategies of the urban working mothers in parenting children of 1 to 5 years of age and focus on the capitals they utilize in order to rearing their children. A total number of 120 working mothers were interviewed and qualitative data have been analyzed to understand the struggles of mothers from different classes. The study indicates the influence of Bourdieu's[i] cultural capital in the coping strategies of urban working mothers.

Key words: working mother, socio-economic class, cultural capital, urban parenting.

Introduction

In the context of South-Asian societies motherhood is vastly cherished and considered as a primary duty of women. Thus, the working women of South-Asian societies confront hazard in parenting their children as their 'must doing job' apart from their professional duties.[2-3] The socio-psychological situation of working mothers of Dhaka delivers optimal sets of experiences to exhibit the patriarchal obstacles that hinder the overall growth of women empowerment and economic development of the country. The working women of urban Dhaka meet distinct subjective experiences according to their socio-economic class orientation. There are various classes of working mothers earning their living in Dhaka city.[4] The struggles of urban parenting of different classes exhibit the influences not only their economic capitals but also their social

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and cultural capital in rearing children. The study has identified the problems and strains of working mothers of urban Dhaka from various socio-economic classes. In her book *The Second Shift,* Arlie Hochschild[5] detailed the "second shift" of childcare and housework that women perform. Hochschild found that despite the fact that many women work outside the home (their "first shift"), they remain responsible for household chores and the primary caretakers of children. The middle class working mother of Bangladesh are not much exceptional from these American women of Hochschild's study. The pains and pleasure of working mothers need to observed and dealt with much importance for the development of gender equity and empowerment. Education and involvement in wage earning will empower women, but uneven opportunities in workplace and domestic obligations put them in dilemma.[6-7] Like other US and European workplaces as Kirk and Rey[8] mentioned, the South Asian more specifically the workplace of Bangladesh still structured on the assumption that men are the breadwinner and women are homemakers. Though, most of the women employees are mothers, having motherly duties and doing their dual shifts without strong support network.[9] Undoubtedly, all working mother go through immense socio-psychological trauma dealing with their double shift of work.

Objective of the study

The broad objective of this paper is to identify the problems of urban parenting of the working mothers of various classes and find out their strategies of childcare. The study has focused the influence of Bourdieu's capital in order of deal with the double shifts of working mothers of urban Dhaka.

Methodology

The study is based on empirical qualitative data and profoundly descriptive in nature. The research was conducted among various social and status group of Dhaka city. A total number of 120 respondents were interviewed following a structured questionnaire. Random sampling was the procedure to choose respondents. The socio-economic class of the respondents were identified by their job criteria, salary structure and education level. The respondents aged between 23 to 35 years and having children of aged 1 to 5 years. The parents of this age group have a highly intense relation with their children as they are physically and psychologically more dependent. However, as living style and culture vary according to economic classes, the data were classified accordingly. The socio-economic classes of the respondents have been distributed eventually. The table bellow comprises the socio-economic classes of the respondents. The research was conducted among various socio-economic classes to understand the pains, struggles and coping strategies of urban working mothers in a wider range. The profiles of the respondents based on their socio-economic class, job categories and monthly salary, are shown in the Table 1.

Table 1: The socio-economic profile of the respondents

Socio-economic class	Job categories	Monthly salary in taka (approximate)	Number of respondents	Percentage
Marginal poor class	labour, RMG workers	4000-12000	23	19%
Poor class	office assistants	13000-17000	20	17%
Lower middle class	officers	18000-26000	19	16%
Middle class	assistant managers	27000-33000	22	18%
Upper middle class	managers	34000-50000	19	16%
Subsidiary upper class	senior managers	51000-70000	17	14%
Total			120	100%

Source: fieldwork 2016-17

The Table 1 represents the categorized socio-economic classes; as marginalized poor class, who are laboures and RMG workers depending on minimum salary structure. The poor class of Dhaka comprises the office assistants with minimum education level, working in different public and private organizations. The lower middle class belongs to the entry level officers with higher education. The upper middle class respondents are senior to the pervious group with more experiences in profession. And the subsidiary upper class is educated, experienced work force and valued for their high skill. The research indicates 'subsidiary' upper class by the salary range they draw monthly.

Findings

In Bangladesh, motherhood is highly valued. Women are recognized through their ability of giving birth and taking care of the children. Thus, the duties and obligations of motherhood cannot be eliminated from the life schedule of a woman in Bangladesh; rather it could be managed and distorted by mother's supervision; if required.[10] The working mothers have no other option but to fiddle with her two-folded work load in various ways. The children of urban working mothers have different experiences according to the socio-economic class of their parents. And their socio-economic class plays important role in parenting. It is so obvious that the parents will provide safe accommodation, arrange baby-sitter, food and other necessary goods according to their class. The urban working mothers of 1 to 5 years old children spoke of a number of anxieties in parenting. Firstly, safe accommodation; the marginal poor class mothers lack safe accommodation to leave children at home. Secondly, scarce of friendly neighbours and close relatives with whom working mothers feel that children are in safe hands. Thirdly, most of the mothers are mystified by the food provided to their children in their absence; fourthly, the upper middle class and subsidiary upper class working mothers are worried about the quality education of the schools. These upper middle class and subsidiary upper class mothers have seen many of their co-hearts leaving job and career in order to take care of children. As a result, many of the young potential careers oriented working women setback to be mother for a certain period.

The marginal poor mothers could not provide safe accommodation, they admit. Many of them have no other option but to rely on the neighbourhood. Though there are a few choices for poor working mother to keep their children in free day-care centers, their family orientation does not allow them to do so. The practice of keeping children away from close relations could be harmful as they perceive. Most of the marginal poor and poor working mothers feel that their children would remain unattended by others in the neighbourhood and day care center. However, many of them keep children to their house premises under supervision of sibling, with anxiety but and feel that their children will be free and self-depending within a short period of time. As they could not provide safe and friendly accommodation many send their children to natal village. Among the 23 marginal poor respondents 18 (78% of the marginalized poor working mothers) has send their children to natal village and residing in Dhaka for living. The rest 5 (22% of the marginalized poor working mothers) have children of 3 to 5 years age group with sibling; they keep their door open so that children could roam around the street and nearby neighbors. The type of job they attain is temporary in many ways; moreover, their earning could not give them a safe accommodation, to keep small children with them. Many of them reside beside busy

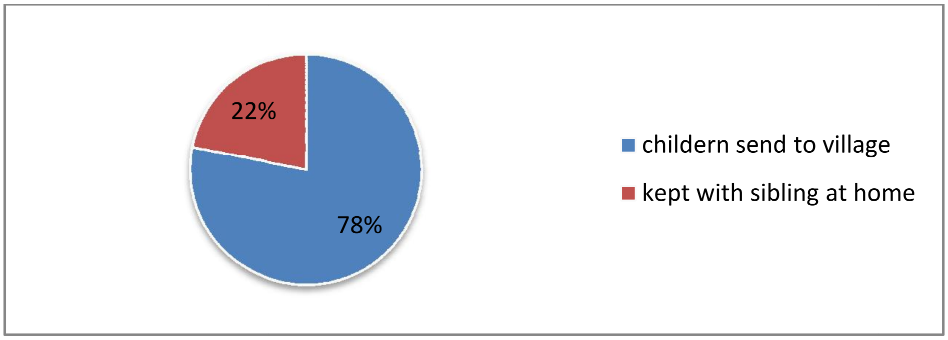

Figure 1: The strategy of marginalized poor working mothers of Dhaka.

Source : fieldwork 2016-17

road, without any boundary gate, which could be risky for children. They work with anxiety as children will not understand that street could be dangerous. Thus most of them force their children at village. Those who have send children to village have limited access to their children and feel guilty. They communicate with their parents or in-laws to talk to their children where their children are kept for a safe accommodation and good upbringing. All of these respondents have agreed about their emotional turmoil for children out of this separation. They are worried that their children would misunderstand them for not keeping them close. They have no other option but to listen their children's complains through phone. The mobile phone is the only way to communicate, they are also pleased with the rapid development of technology, which enables them to talk to their kids and send money through mobile banking. At the same time the mobile phone helps their relatives of rural society convey them emotional messages and make them feel guiltier. The relatives of their natal areas keep charging taxes over their earning in order to take care of their children. The 5 respondents who keep children at their residents of Dhaka seem happier, but busier to take care of the children after office. There are also anxious about their well-being of children in their absence. But they think that their neighborhood would be cooperative in emergency. Most of the marginal poor respondents are fond of having more than 3 kids, so that the elder one could take care of the junior one and help working at household. Though rearing children with minimum resource is a challenge for them, but they consider children as blessings and think that more children will profoundly help their living in the long run.

Similarly, the poor class and lower middle class working women consider children are blessings and are fond of having children in a row. They are less attentive to family planning compare to the middle, upper middle and subsidiary upper class working women. However, all of the lower middle class respondents reside with in-laws, so that their children would be cared in their absence. Among the 19 lower middle class respondents 8 had their in-laws temporary residents at Dhaka. The rest 11 have requested their in-laws to live-in with them, thus they left rural residence and came to Dhaka to take care of grand-children. However, those who asked their in-laws to take care of grand-children go through family conflicts in order to compromise with other members of the family. But, at the end of the day, theses working mothers think that their in-laws has supported them a lot, which helped them continue their job. They also talk of their compromising nature and amendment with in –laws.

The middle class, upper middle class and subsidiary upper class working mothers are more conscious about having children at proper time, regarding their career and expenditure of living according to their judgmental standard. Ignoring resistance from relatives, a few from these classes keep their children at private day-care centers after school, for example, 3 from the middle class, 3 from the upper middle class and 1 from the subsidiary upper class. The rest of the working mother's children depend either on paid maid and either paternal or maternal grand-parents for their rearing. However, the tendencies of prioritizing own parents as baby-sitters are high according to the socio-economic class, that is the more capital women gain the probability to have maternal relatives as baby-sitters.

Table 2: Distribution of child care during office among middle, upper middle and subsidiary upper class

Socio-economic class	Day-care	Own parents	In-laws	Total
Middle class	3	4	15	22
Upper middle class	3	9	7	19
Subsidiary upper class	1	11	5	17

Source: fieldwork 2016-17

According to the Table 2, most of the subsidiary upper class working mothers depend on their own parents in order to raising their children. The middle class working mothers depend on in-laws most. They also combat with their in-laws whenever they call own parents. The 4 middle class working mothers, who have struggled to have their own parents to look after the children stated that their in-laws do not want them to work. Instead, they prefer that these working mothers should stop their career and start a new motherly life and do all of the household chores. However, it is need to be mentioned that the marginalized poor, lower middle class and middle class women are not free from their household chores. Most of them could not afford house-maid. But the upper middle class and subsidiary upper class working mothers do have assistance in household chores.

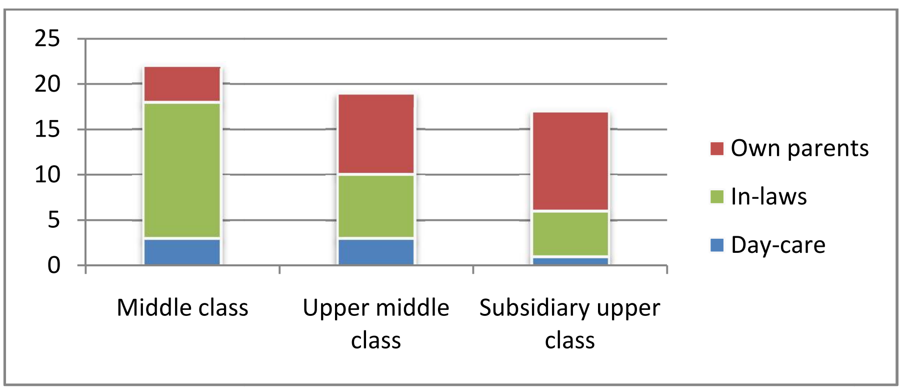

Figure 2: The strategy of middle, upper middle and subsidiary upper class.

Source: Fieldwork 2016-17

In their discussion of family and social change in India Joanna Liddle and Rama Joshi[11] circulated the idea that the professional women tend to nuclear family as they are imitating western model and as they want to escape from kin demands, specifically authority of their mother- in –laws. Similarly, Chowdhury[12] also focused on the trends of more nuclear families in the cities of Bangladesh. He also mentioned that the kin-network is very intense in Bangladeshi society, thus the possibility of having extended family in urban settings will be a choice for many. This study has interrogated the tendency to have an extended nature of family in Dhaka city in order to parenting the children of middle class to subsidiary upper class working mothers. Unlikely, Liddle and Joshi, this study has found a mutual understanding between mother-in-law and working daughter-in-law in most of the cases. Nowadays, many of the lower middle class and middle class working mothers are requesting their mother-in-laws to settle with them, in order to rear the children. It is only the subsidiary upper worker mothers who are more intimate to their own parents. In many cases these group of working women are more educated and take decisions about their children's future in a more rigorous ways than the other socio-economic class. Thus, the Figure 2 shows a tendency of having parents or parents in law as a strategy to provide the children a primary care-giver, which indicates the changing nature of family structure in urban Dhaka.

Influence of Capital on Parenting:

Bourdieu's social, cultural and economic capital influence and modify people's behavior and action in the field. Though economic capital enforces some of our cultural capital, there is social capital which has huge impact to achieve culture capitals, like gesture and posture, norms, tastes and choices, degree from well-known institutions etc. The learning, taste and choice of working mothers indicate their cultural capital. In many ways the social network, that is the social capital working mothers have regulate them to send their children to school and others creative learning projects though they could not afford. According to Bourdieu with more cultural capital people will get more opportunities to flourish. As a matter of fact cultural capital is one of cause of social inequalities, too. Moreover, the social capital is also influenced by the economic capital people have. In case of the working mother's parenting nature the study spotlights to the social capitals which are more influential in urban parenting. It was noticed that all of the working mothers have indicated that fathers of their children are not either capable or attentive to rear and care children as they also have work. Thus, most of the working mothers keep on searching for a wider safe social network despite any cost. Moreover, the marginal poor working mothers are also influenced by the social capital they have in the rural site they have. Though many have the opportunity to send their children to free government schooling and day- care centers, most of the working mothers search for better cultural capital and spend the major portion of their earnings for the purchasing better cultural and social capital by introducing their offspring to relatives with higher capital or school where he/she will meet others from equal or higher social and cultural capital. As the working mothers depend upon others in parenting they choose relatives with higher cultural and social capital to take care of their children. Thus, the higher level of cultural and social capital enables certain grandparents to be closer to their grand children as investigated. Those who lack social capital like grandparents, depend on the day care as purchasing cultural capital.

The lower middle class mothers are haunted by their upper class in the ways of urban parenting. Nowadays there are more options for children's learning techniques and amusements. Regardless all the economic class, all mothers want to provide their children the best. The lower middle class mothers feel low by their upper classes to see their failure to provide all the opportunities equally. Many of them bargain with themselves and try to find out the negatives of those opportunities and justify their own positions. The more opportunities are introduced by the commercial institutions, the more competition and anxiety appear among different stratum of middles classes working mothers.

Selecting proper educational institution is also a way to accumulate higher cultural and social capital. The working mothers with 3 to 5 years old children are more concern about choosing educational institution so that; the parents need not to worry about the upcoming social network and cultural capital the children are going to accumulate. Among the 120 working mothers 87 have children between the age group 3-5 years, these mothers are concern about the results of different schools and keep on observation that whose children are going to attend which school. These working mothers send their children to the institution they could afford, keeping on mind to earn higher social and cultural capital.

Though it seems that the upper class mothers are more profoundly afford higher cultural and social capital, they lack emotional integrity between mother-child relations. However, the marginal poor mothers also think in the same way. The upper class mothers have minimum time to see their children out of busy working schedule, whereas the marginal poor mothers cannot afford to keep children in a safe accommodation in Dhaka. Thus, both categories lack confidence in parenting. As a result, the upper class working mothers with higher economic capital and marginalized poor working mothers with low economic capital resemble under the same roof and seek help from the social capital they have. It was interesting to notice that mostly the maternal grandparents more accessible in raring grandchildren according to the working mothers of Dhaka. In choosing their social capitals as primary care-giver of their children, their cultural capital influences them more than any other capitals Bourdieu has introduced. According to Bourdieu, humans are adaptive, strategic and constitutive of their culture—they can also adapt to changes and may not necessarily be governed by norms, rules, and roles. Thus, individual's capitals play role in shaping his/her understanding of living.

Conclusion

Like other part of the world, as Hochchilde has explained the working mothers of Bangladesh are pre-occupied with double shifts of work and services. Their domestic duties are not separated from the duty of child care and raring. However, it is their cultural and social capitals that influence them in the orientation of child rearing management prior to office and economic earning. The working load and exclusive time consumption at work place do not permit working mothers of all socio-economic classes to give quality time to children. However, women of higher socio-economic classes rely on their own parents and forming new form of urban families, which is gradually increasing in the urban context of Bangladesh, as the research investigated. The middle class women seem more compromising and accommodative with the habitual practices. Thus, classes differ in their coping strategies in different ways which are much assisted by their cultural and social capital they possess.

References:

1. Bourdieu,P. 1986. The Forms of Capital. Pp 241-58, in Richard, J. *Handbook of Theory and Research for Sociology of Education*. Westport, CT: Greenwood.
2. Amin, S.N. 1996. *The World of Muslim Women in Colonial Bengal, 1876-1939*. New York: Brill Publication.
3. Tong, Rosemarie. 1982. *Feminist Thought: A Comprehensive Introduction*. Boulder and San Francisco: Westview Press.
4. Nuzhat, Kanti, A. 2012. *The New Urban Women in Bangladesh: Their Changing Economic Profiles*. Dhaka: Center for Urban Studies.

5. Hochschild, Arlie Russell. 1989. *The Second Shift: Working Families and Revolution at Home*. New York: N.Y. Viking.
6. Vanek, Joan. 1980. Household Work, Wage Work and Sexual Equality. Pp 275-291 in S.F. Berk (ed.), *Women and Household Labor*. Bevery Hills:Sage .
7. Waite, Linda J. 1981. *US Women at Work*. Santa Monica , CA: Rand.
8. Kirk, Gwyn and Rey, M. Okazawa . 1994. *Women's Lives: Multicultural Perspectives*. Mc Graw Hill: New York.
9. Andersen, M. 2000. Women, power and Politics. Pp 290-322 in *Thinking about women: Sociological perspective on sex and gender*, 5th ed. Boston: Allyn and Bacon.
10. Amin, S.N. 1999. Women and Society. Pp 718-769 in Islam. S. and Hossain, A. (eds.) *History of Bangladesh 1704-1971*. Dhaka: Asiatic Society of Bangladesh.
11. Liddle, Joanna and Joshi, Rama. 1986. *Daughters of Independence: Gender, Caste and Class in India*. London: Zed Press.
12. Chowdhury, Anwarullah. 1995. Families of Bangladesh. p. 27 in *Journal of Comparative Family Studies*, volume: 26. Issue: 1.

Poverty, Gender and Violence in Urban Slum: A Sociological Study

Tahmina Khan[1], Saiful Islam[2]

Abstract: The paper aims to explain violence against poor women living in urban slums. It will address the regular violence they are experiencing inside the slums, at their workplace, and at the public places. Data collected through observation, interview and discussions with slum population living in the city of Narayanganj will be used to document the vulnerabilities and harassment of the poor women. The study reveals that the women and girls living in urban slums are often become the target of violence by their partners and family male member and the community members. It reveals the vulnerability and harassment of working women at their workplace. It further reveals that the poor women often experience harassments at the public places while they are going to the marketplaces and using urban facilities. The paper argues that violence against the poor women continues due to the hegemony of the male under the existing social system. It further argues that the poor women are increasingly become the target of violence in the city due to their exposure to market under the neoliberal reforms and rapid urbanization. However, the urban development authorities have to take the necessary steps to make the city safe for women and girls.

Keywords: *Poverty, Gender, violence and urban slum***.**

Introduction

With the arrival of the new millennium, massive changes are taking place in patterns of urbanization on a global scale. But the 'South' is urbanizing very rapidly despite the fact that its various regions differ markedly in the level of urbanization they have attained. About 95 percent of humanity will live in the urban areas of the South, whose population will double to nearly four billion over the next generation.[1] The number of slum dwellers in the world has already crossed the one billion mark - when one in three city residents live in inadequate housing with no or few basic services and often forced evictions from their settlements.[2] Many of the fastest growing cities are witnessing a sharp escalation in the incidence and severity of various forms of violence, which has a number of implications for the prospects of achieving sustainable and equitable development.

Urbanization is one of the major challenges facing Bangladesh today. People in huge numbers are migrating to the cities from rural areas every year. Cities are experiencing rapid urban transformation in recent decades.[3-5] As the rapid growth of population in the cities of Bangladesh is not commensurate with their industrial development significant numbers of the new migrants take shelters in slums and squatter settlements. The poor urban communities generally living in urban slums experience poverty and vulnerability in their everyday life.[6-7] In recent time huge number of women and girls migrated to the cities of Bangladesh for employment in garment industries and other service sectors where they often experience various forms of harassment.[8-9]

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Women experience urban life differently from men, including levels of fear and types of violence. They continue to be labeled depending on their choice of dress while violence and harassment are frequently normalized in public spaces restricting women's mobility and security. These women and girls are facing a number of problems i.e. sexual harassment in public places. Besides, there are other problems in Bangladeshi cities that are contributing towards making a city unsafe and unsustainable for women and girls. In these contexts, it needs to be ensured that women and girls can break the cycle of poverty and violence, build economic alternatives and claim control over their bodies.

Objectives of the Study

This paper is accomplished to achieve following objectives-

- To explain violence against poor women living in urban slums.
- To identify the regular violence they are experiencing inside the slums, at their workplace, and at the public places.
- To addresses the violence against women's mobility and freedom, which hinders overall empowerment of women.

Methodology of the Study

This study employed a mixed method in which both qualitative and quantitative research approaches had been blended to accomplish expected research objectives. A social survey was conducted on 120 poor women and girls randomly sampled from four different urban slums of the city of Narayanganj. These slums were Chanmari slum, Rishipara slum, Chasara railway slum, and Kumidini Bagan Slum. 30 women and girls were randomly selected from each of these slums. A semi-structured questionnaire has been used as quantitative data collection tool in the survey. The study mainly focuses on ethnographic data collected from different city slums. These qualitative data were collected through observation, interview, key informant interview (KII) and discussions with slum population living in the city will be used to document the vulnerabilities and harassment of the poor women. To supplement primary data secondary data will be also used.

Rationale of the Study

The city of Narayanganj is known as an industrial city dominated by the garments and textiles industry which is the working place of the majority of women living in this city. One of the effects of migration to the city on these women is that the living standards of women garment workers have been improved since their involvement in the garment industry.[10] But the previous studies often ignore how women are experiencing violence at both domestic and public spheres. It is in this context, the study looks at violence and insecurity faced by women in urban slums of Narayanganj. The study has attempted to addresses the violence against women's mobility and freedom, which hinders overall empowerment of women. It reveals that the women and girls are experiencing violence inside the slums as well as outside the slums. In the neoliberal urban contexts, their vulnerability and marginality have been increased despite some opportunities for employment and income. However, the paper argues that the increasing violence and insecurity of women is directly linked to neoliberal urban transformation and the formation of the new urban slums.

Demographic and Socioeconomic Characteristics of the Respondents

The present study is conducted among 120 women and girls selected from above mentioned four slums in Narayanganj city. The age distribution of the respondents is presented in Table.1.

Table-1: Age distribution of the respondents

Age in years	Frequency	Percentage
10-18	40	33.33
19-26	41	34.17
27-34	22	18.33
35-42	12	10.00
43-50	4	3.33
51 and above	1	0.84
Total	**120**	**100**

Source: Fieldwork, 2017

It appears from the table that more than one-third of the respondents (33.33 percent) is under 18 and more than half of the respondents are under 26 year. This pattern is typical of a historically high fertility regime that has recently started to stabilize or decline.

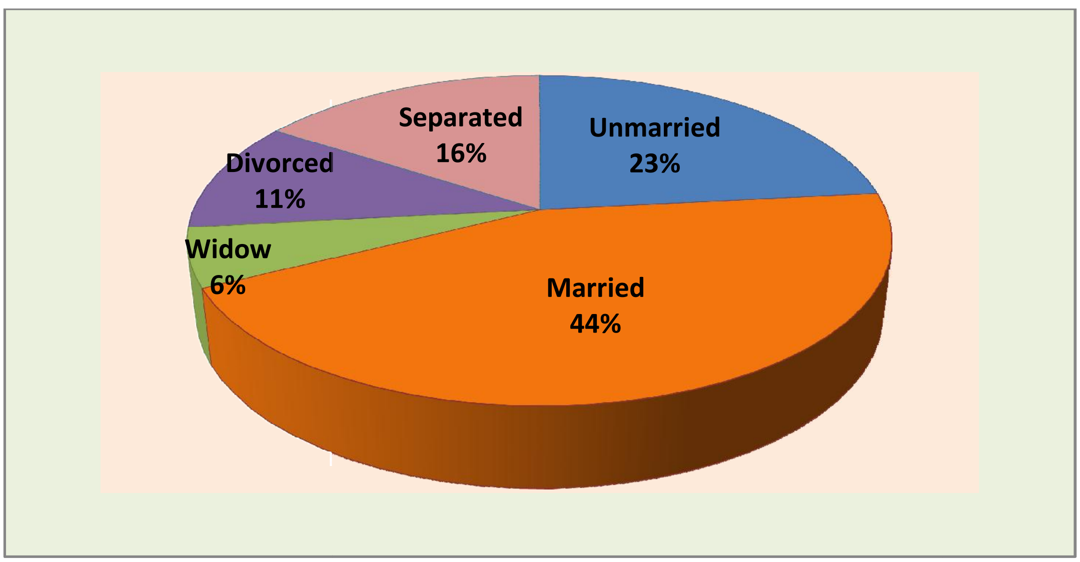

Figure- 1: Marital status of the respondents

Source: Fieldwork, 2017

The number of married population in the present study is higher than their unmarried counterparts. Figure-1 shows that 23 percent are unmarried, whereas 44 percent are married. Another 6 percent of them reported being widowed. The remaining 16 percent and 11 percent are separated and divorced respectively.

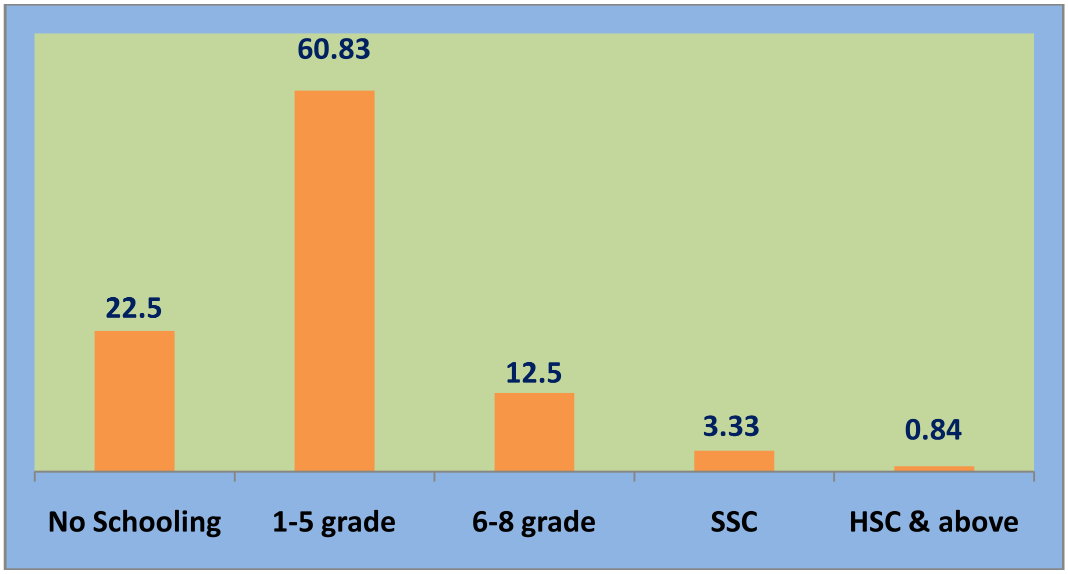

Figure-2: Literacy level of respondents

Source: Fieldwork, 2017

It is evident from the table that 22.5 percent of the poor participants are illiterate and have never attended school. Most of the respondents (60.83 percent) have attended primary level (grade 1-5) but most dropped during that period. About 16 percent attended secondary school (grade 6-10) but dropped out without completing their first degree at the secondary school. A very small portion (0.84 percent) of them matriculated from secondary school or attended a higher level of qualification.

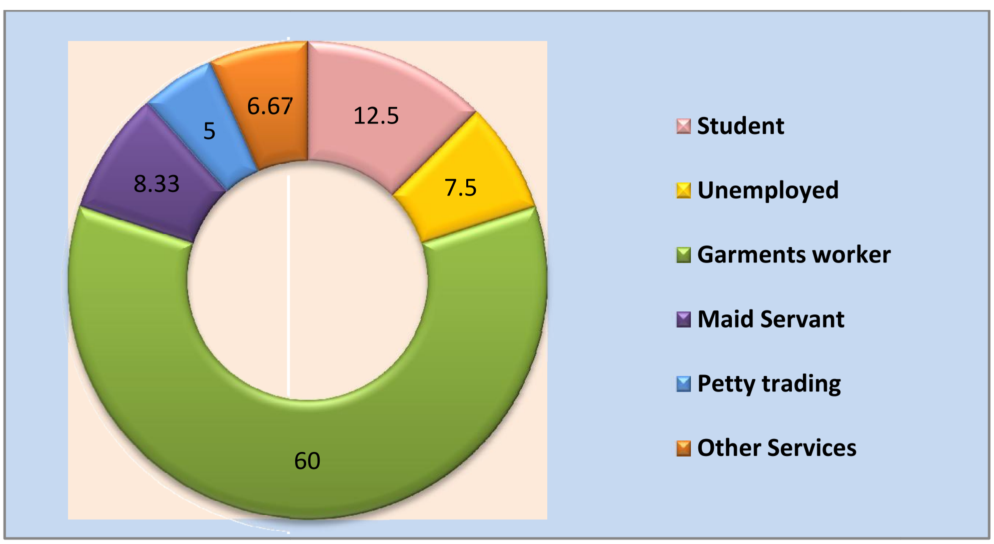

Figure- 3: Occupation of the respondents

Source: Fieldwork, 2017

As reported, majorities (60 percent) of the respondents are currently working in readymade garments factory for managing their livelihoods (Figure-3). It is notable that Narayanganj city is mostly known for readymade garments industries and special economic zone established here. Most of the respondents usually migrate to the cities for employment. A small portion of them is not working mainly due to illness and poor health condition. About 7.5 percent of the respondents are housewives. A significant portion of younger girls (12.5 percent) are currently enrolled in schools. This study reveals that 8.33 percent and 5 percents are maidservants and petty traders respectively. The remaining 6.67 percent is engaged in other services.

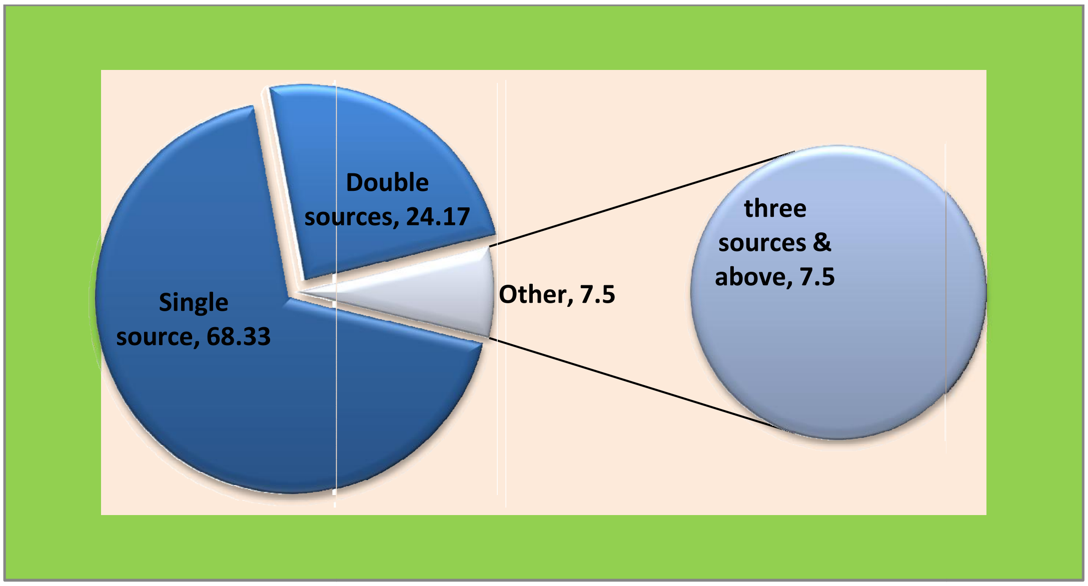

Figure-4: Number of income sources in the households

Source: Fieldwork, 2017

This study reveals that 68.33 percent households are dependent on a single source of income (Figure- 4); whereas 24.17 percent are dependent on double sources of income. The remaining 7.5 percent have three and more sources of income.

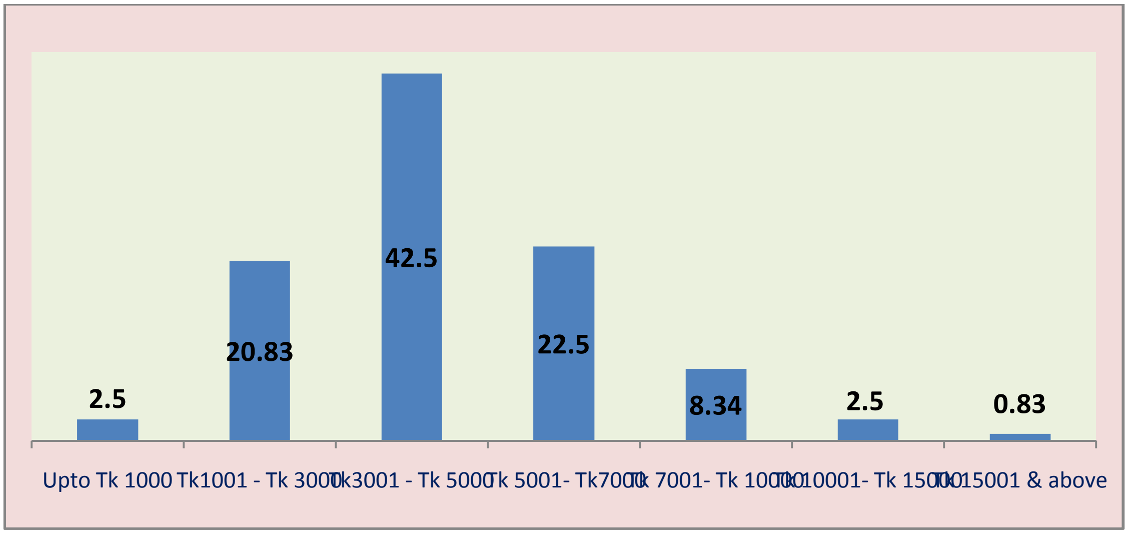

Figure-5: Monthly income of households

Source: Fieldwork, 2017

Monthly income of households has been presented in Figure-5. About 2.5 percent households have monthly average income up to Tk. 1000; whereas 20.83 percent have income between Tk. 1001-Tk. 3000. More than one-third of the poor (42.5 percent) have average monthly income between Tk. 3001- Tk. 5000. Another 22.5 percent and 8.34 percent have the monthly income between Tk. 5001- Tk. 7000 and Tk. 7001- Tk. 10000 respectively. The remaining 2.5 percent and 0.83 percent of the poor have the monthly income between Tk. 10001- Tk. 15000 and Tk. 15001 and above respectively.

Gender-based violence inside the poor neighborhoods

Women's security is determined by men and therefore male presence has been considered a source of security and social prestige for women in the urban slums. Thus women are desperate to keep a relationship with male ignoring all suffering in order to maintain the social status. However, marriage is still the only socially acceptable option for adult women. Women in the studied slums placed great emphasis on the social benefits of married; sometimes women feed their husband from their own earnings but never express any negative reaction. Rakhi (29) commented, "dispute between husband and wife continue everywhere and it is settled very quickly". In the context of Bangladesh, gender subordination is a striking feature to which women solely rely on male protection. There is a strong perception available in the society that woman without male protection is open to various forms of male harassment as well as female disapproval. For the young women, there is always a fear of sexual security, which would be generally protected by husband in their married life. Under these circumstances for the sake of safety, they even choose to live with dishonest husbands.

Violence against women is endemic in all corners of the slums. It is a common crisis which reflects the women's low status in the society. The nature of masculinity and patriarchy formalizes gender relations within the family; determined the lower status of women than to men. Both women and men's narratives suggested high levels of domestic violence. Most of the female respondents recounted their own experience of abuse by their husbands. Here the male violence against their wives continues to be sanctioned as a legitimate response to inadequacies or insubordination. A husband can beat his wife, which is the socially legal and this kind of social order manipulated the state law. Husbands get married several times and torture women in many ways. In few cases, the second wife had to stay under the same roof as she has no other options.

Women are often harassed by their partners despite they are working outside and significantly contribute to their families. In most of the cases, they cannot take the decision over their earnings. If the women refuse to give money to their male partners they are physically harassed. In many cases husband leave their wives if they are unable to earn and or refuse to give their hard earned money to them. In Chanmari slum, a woman mentioned that she gives her hard earning money to her husband to spend for drinking and gambling to prevent him from marrying another woman. Ultimately he left her alone with a young girl. It is observed that women who are abandoned by their husbands are more vulnerable in the slums. They are often discriminated in the urban labor market. They often cannot take up the new jobs because of their children. Young girls are also vulnerable in the households. In many cases, they work hard for their families but they are often neglected. The overall situation of women and girls are more or less similar in most the slums visited. Women have to some extent better position in Rishipara slum where the Mayor of the City Corporation has taken special care of them. In this slum, committees are formed to take action against them who harass their wives. In this study, it is found that education of the slum women is the important factor. Women having a better educational background are less likely to be harassed by their male partners.

The study reveals that working women experience high levels of conflict within their marriages but they are less likely to actually experience beating. It reveals that the roles of household provider and authority figure remain firmly ascribed to the masculine identity. Working women may manage to escape physical abuse more often than their nonworking counterparts both because they are better able to negotiate conflict because their earnings status provides their husbands with a stronger reason for keeping the household intact. There is one point which is important that land is never given as dowry thus women is property less for she is unable to generate any wealth so-called property. Salma (21) a resident of Canmari slum since her birth. Salma stated that her husband abandoned her because of dowry. Her husband beat her regularly and suspicion for extra-marital affairs with her brother in laws. Her parents are not capable to fulfill this irrational demand. After her separation, she started working as a garment worker.

In the slum areas, most of the teenage girls are regularly harassed by eve teasing. Vagabonds stand by the roads of school or college and tease the girls. In roads, many men touch and push the women and girls from the backside. Girls cannot protest as the road is cultivated by masculine power. Sadia (13) lives in Rishipara slums said that she goes to school in a group. On the way to school, some vagabonds tease them. One boy proposed her for the affair. One day the boy wanted to kiss and touch her body. She rejected him and informed the matter to her mother. After that the boy threats her saying that he will spread porn picture taken in his mobile. Protima Rani (17) lives in the same area who attends a private tuition. She has to go out alone on foot on the road. She said ‘Some boys stop their cycles and said I love you.' She wants to protest it but she cannot because she is a girl. She goes out for shopping with her mother. Girls' mobility is strongly prohibited and controlled by mastans. It reveals that unwelcoming comments lead to feeling insecure, fear and depression, anxiety, powerless and maternal disorders; making indecent proposals felling low self-esteem, develop a sense of distrust; gestures with hands, legs or fingers making their guardians remained tensed; aimlessly laughing stopping their going outside; conduct that creates an intimidating, hostile or humiliating for the women causing their dropping from schools; vulgar comments leads to early marriage and comments about a woman's looks or body leads to forced suicide.

Rape and sexual assault were major concerns for women and girls in all selected slums. And attacks did not happen at night. Too often women and girls reported having to suffer silently when this happened to them. Even in those cases where rape was reported the police had little interest in pursuing these cases and holding perpetrators accountable. Ultimately rape in slums exposes girls to the risks of unwanted pregnancy and its related problems and often risked illegal and unsafe abortions. There are several instances that powerless poor families had left the place overnight when their daughter was raped or attempted to be rapped. In fact, there are numerous women who are passing their life under the threat of rape. The study revealed that rape not only displaced women but also restricted their movement and action. This rape disconnected the women from her own addressed, own people and placed her into an unknown locality. As a result, the victim withdraws from her own community forced her to join an isolated life, which disconnected her from local networks. The financial crisis had increased and introduced an additional tension in her life. Fear of threat to her life reinforced to cope with a new and more marginalized social space.

Young girls are more vulnerable in the slums and they are often harassed by the male members of the slum community. It needs to be mentioned here that in most of the cases women and girls used common toilets with male members. During night time they are often sexually harassed by male members. To protect them from social criticism they usually do not disclose their harassment to their families. They do not lodge complain to the slum committees because women and girls are usually blamed for their harassment. The culture of patriarchy is deeply entrenched making a strong foundation of gender bias. The fact is, women and girls cannot protect them as they live in a very insecure house. If their male members are away from them they are most likely to be harassed sexually by others. Women and girls often collect water where they also face verbal and physical harassment. One of the women living in Jimkhana slum mentioned about verbal and physical harassment which is very common in all urban slums. They are always thinking of protecting them from sexual harassment at nighttime. In Kumudini Bagan slum one of the women from Behari community mentioned that their young girls very vulnerable as they are often targeted by the young men from the mainstream Bengali community.

The study shows that women's employment and masculine identity crisis are correlated: In the peripheral slum, most of the women work in a number of selected occupations, although their options are far more limited such as garment factory workers, domestic workers and vegetable vendors and sweepers and some run a petty business. A couple of husbands want to eat the earnings of their wife. They are mostly very lazy or have bad habits. All the women who are working are contributing to the family but men never try to accept this as they think it will lose their position in the family.

Women's employment sometimes leads violence when this challenges the masculine identity. Masuma (24) runs the household that time not only with hard work but also with money. It is a bit shame for the husband and he cannot take it easy. Her husband considers himself as the guardian of the family and she accepts the thing. Her husband wants the proper care from her and she tries to manage it, make meals, and look after children. She does all the things, which are known as feminine work. Her husband never shares any work and she cannot satisfy her husband. She does not complain against her husband for not doing household work. She just wants nice behavior and acceptance of her work for the family. Her husband is very dominating and though she is contributing to the family, her husband never accepts. He thinks he is the most powerful person in the family and says "Whatever you are earning or doing for family, still I am your husband and you are my wife, so you have to do everything that I say".

Whether her husband shows the power but he is ashamed of not contributing as the primary bread earner as it is against the masculine enterprise. Therefore, the employment status and contribution to the family is not a matter here. The identity is important here thus women's outside work is weakened and defused.

Figure- 6: Percentage of women who experienced violence by their husband by status of employment

Source: Field Work, 2017

Results regarding the prevalence of violence against married women committed by their husband comparatively by the criteria of employment status are presented in figure-6. It shows that there is no significant difference between working and not working women in experiencing violence by their husband. As many as 71.25 percents of currently married housewife women have ever experienced any type of violence by husband whereas 69.55 percent of working women have experienced any violence by their husband. In few cases, it was apparent that the opportunity to enter the workforce had given women option of escaping an unhappy marriage. Thus working for an income does not alter the fact that a woman's primary source of security is her family. This means that working women are forced to tolerate marriages which afford them very little in the way of economic security and may actually exacerbate their poverty. Despite the serious shortcomings of marriage for many slum women they nevertheless seek to preserve their marital bonds. The alternatives are even worse. The following statement clearly illustrates how some slum women accept very poor conditions within marriage despite being economically active. Mariom Akhter (33) has been experiencing the same. She has been working in a Non-Government Organization and providing economic support to her family from the beginning but never been recognized.

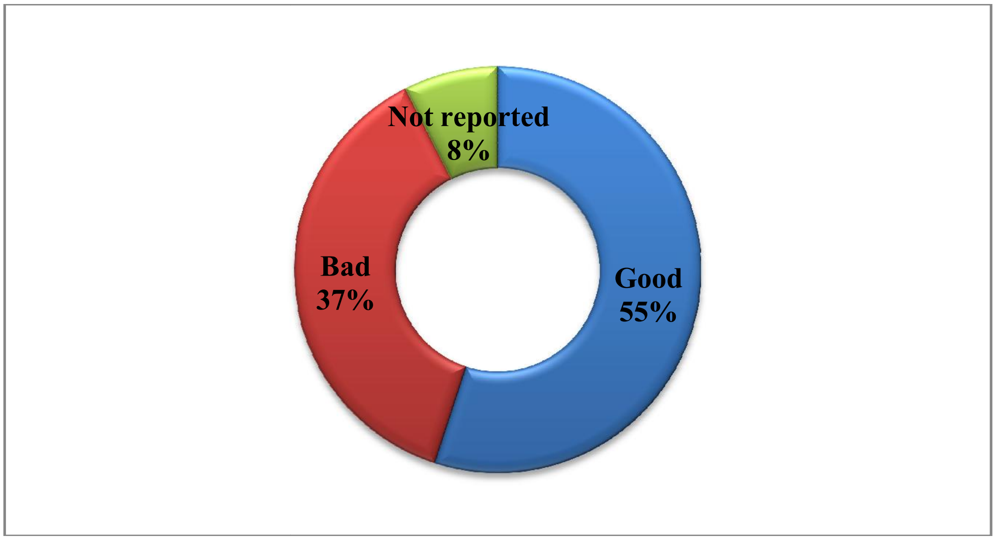

Figure- 7: Husband's attitude regarding wife's earning

Source: Field Work, 2017

It is evident from the figure-7 that a significant portion (37%) of the respondents reported that their husband's attitude is not positive about their earning. They are making bad comments about her time spending at the office. They treat her as a woman of bad character who loves to spend her time with her male colleagues. Finally, her husband makes physical violence to her. In spite of having these attitudes from her family members, she does not have any control over her income. Figure-8 reveals that as many as 44 percents of the working women have no control over their income. Thus she said, 'If I cannot control my income, so how I became the breadwinner?'

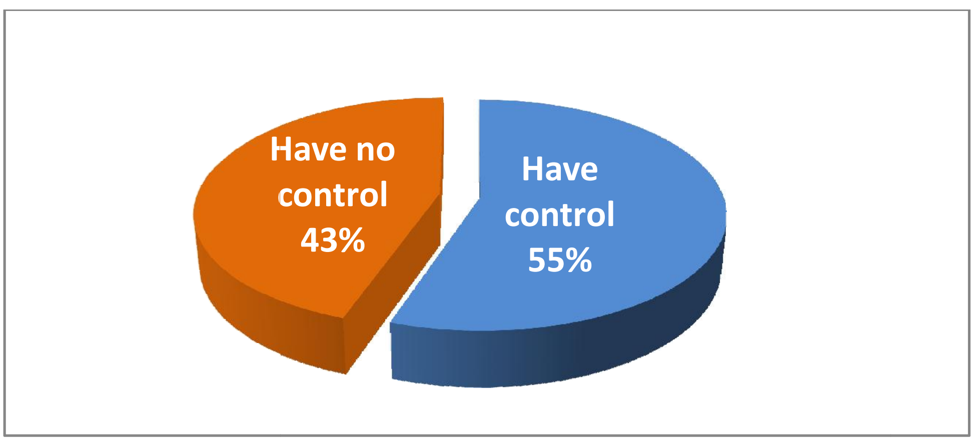

Figure- 8: Working women's control over their income

Source: Field Work, 2017

In urban slums, mastanocracy has a strong impact on the lives and livelihood of urban poor women enhancing vulnerability and insecurity in life. The coexisting phenomenon of hegemonic masculinity and their inbuilt tensions is noticeable. It is visible that the inward-turned wave of violence is commencing from the blocked paths to masculine performance. Even women and girls living in slums and street are often harassed by the police. Government and City Corporation often ask the police to eradicate slums and street people, then this police behaved with poor people barbarously, they slapped, kicked wearing boot shoes, and persecute with sticks badly. In fact, no one is willing to live in slums where they are harassed by both mastans and police.

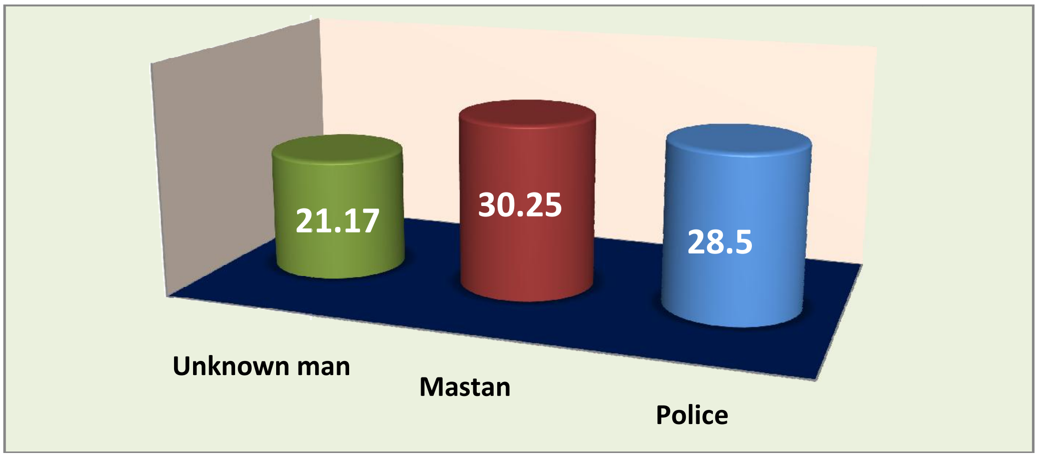

Figure- 9: Percentage of women who experienced violence in street according to the perpetrator
Source: Field Work, 2017

Figure-9 presents that about one-fourth (30.25%) of the respondents reported their violence experience occurred by local Mastan and 28.5 percent experienced harassment by police. During the group discussion, respondents express their frustration as they have no any other choice they are living in such a desperate situation. Banu lives in Chasara Railway slum explained her experience of harassment. She says, ‘I don’t want to continue living in such a place where I am always harassed by mastans and police. I hope that our government will take some initiatives to improve our living condition by rehabilitating and facilitating with basic human needs.’

Violence and insecurity of poor women at workplace

The term ‘safe workplace’ is defined here from the perspective of women garments and textiles workers at their workplaces. Their safety at workplaces is experienced in two vulnerable ways. First, women workers are vulnerable to the adverse working conditions in the factories. They are prepared to work in these poor conditions because they need their jobs. If they quit their jobs in the textiles and garments sector, it is very difficult to secure other employment as the job market for women is very limited. The only "solution" is for these employees to continue with their jobs whatever the existing working conditions may be, and these workers are vulnerable in this sense. Second, the vulnerability of workers is not only limited to working conditions but also to the insecurity of the job. The safety at workplaces from the vulnerable perspective of workers is

The Magnitude Spectrum of a Resultant Signal

Md. Serajul Islam Prodhan*

Abstract:

In this article, the magnitude spectrum of a resultant signal has been simulated in the frequency domain. The resultant signal of amplitude, 5.0 unit was formed from two sinusoidal signals, each of them with the same frequency (f = 5 unit) but with different amplitudes (3.0 unit and 5.0 unit) over the data range from 0 to 1024. The magnitude spectrum of this resultant signal was estimated which has the amplitude of 521.04 unit.

Key words: FFT, Frequency domain, Magnitude spectrum, Resultant signal.

Introduction

It is very prevalent for information to be encoded in the sinusoids that form a signal[1-5]. This is true of naturally occurring signals, as well as those that have been created by humans. Many things oscillate in the our universe as for example, speech is a result of vibration of the human vocal cords; stars and planets change their brightness as they rotate on their axes and revolve around each other; ship's propellers generate periodic displacement of water, and so on. The shape of the time domain waveform is not important in these above signals; the key information is in the frequency, phase and amplitude of the component sinusoids.

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Waves have rather remarkable property that if there are two or more waves propagating in the same region of space, there are simple rules on how to compose them, and the resultant is a single wave with properties derived from the constituent waves. There is no analogous property of particles, since if two or more particles are propagating in a space, they continue to maintain their identities. Consider the case of two transverse waves, both propagating in the same medium. For instantly, one can create two different waves on an ocean; when the propagating waves reach a region where they overlap, there will have the phenomenon of the superimposition, or, in short, the superposition of waves. Basically, complex signals can often be represented as a superposition of several sinusoidal components with different frequencies. If two or more waves interact, then a new wave temporally formed, this wave is called resultant wave. The resultant wave is a vector sum of the aforesaid waves. In this process, the waves are superposed which can only be applied to waves of the same kind as light and sound waves cannot superpose but light and X-rays can. More succinctly the frequency-domain representation of a physical signal is a complex mathematical quantity with both a magnitude and a phase. This complex quantity, the Fourier transform[6-13], has dimensional units that are different from those of the time domain representation of the physical signal. The amplitude spectrum specifies the amplitude of signal components as a function of component frequency and is a useful engineering quantity because it appears in this form in many useful algebraic relationships.

Simulation Method

To measure the shape of a waveform, the method of Fourier analysis is used. Fourier showed that it is possible to build any wave shape by adding together with periodic waveforms of the appropriate frequency, amplitude, and phase. Thus the shape of a waveform can be quantified by listing the component sine waves needed to make it. For complex periodic waveforms, Fourier analysis gives particularly simple result. In this case, it is found that the only component sine waves needed occur at frequencies that are whole number multiples of the repetition frequency of the complex. This is because each component sine waves must complete a whole number of cycle per time period of the complex. Suppose there are two waves with the same frequency and wavelength but having the individual amplitudes of A and B which are traveling in the same medium. Their displacement are given by

$$y_1 = A\times\cos(wt) \text{ ------------------------- (i)}$$

$$y_2 = B\times\sin(wt) \text{ ---------------------------(ii)}$$

Obviously, the resultant wave, y_R can be written by

$$\begin{aligned} y_R &= y_1 + y_2 \\ &= A\cos(\omega t) + B\sin(\omega t) \\ &= C\sin(\omega t + \phi) \quad ---(iii) \end{aligned}$$

Where, ω is angular velocity, and ϕ is phase shift of the resultant wave as well as the amplitude

$$C = \sqrt{\left(A^2 + B^2\right)} ------(iv)$$

of the resultant wave, C is given by

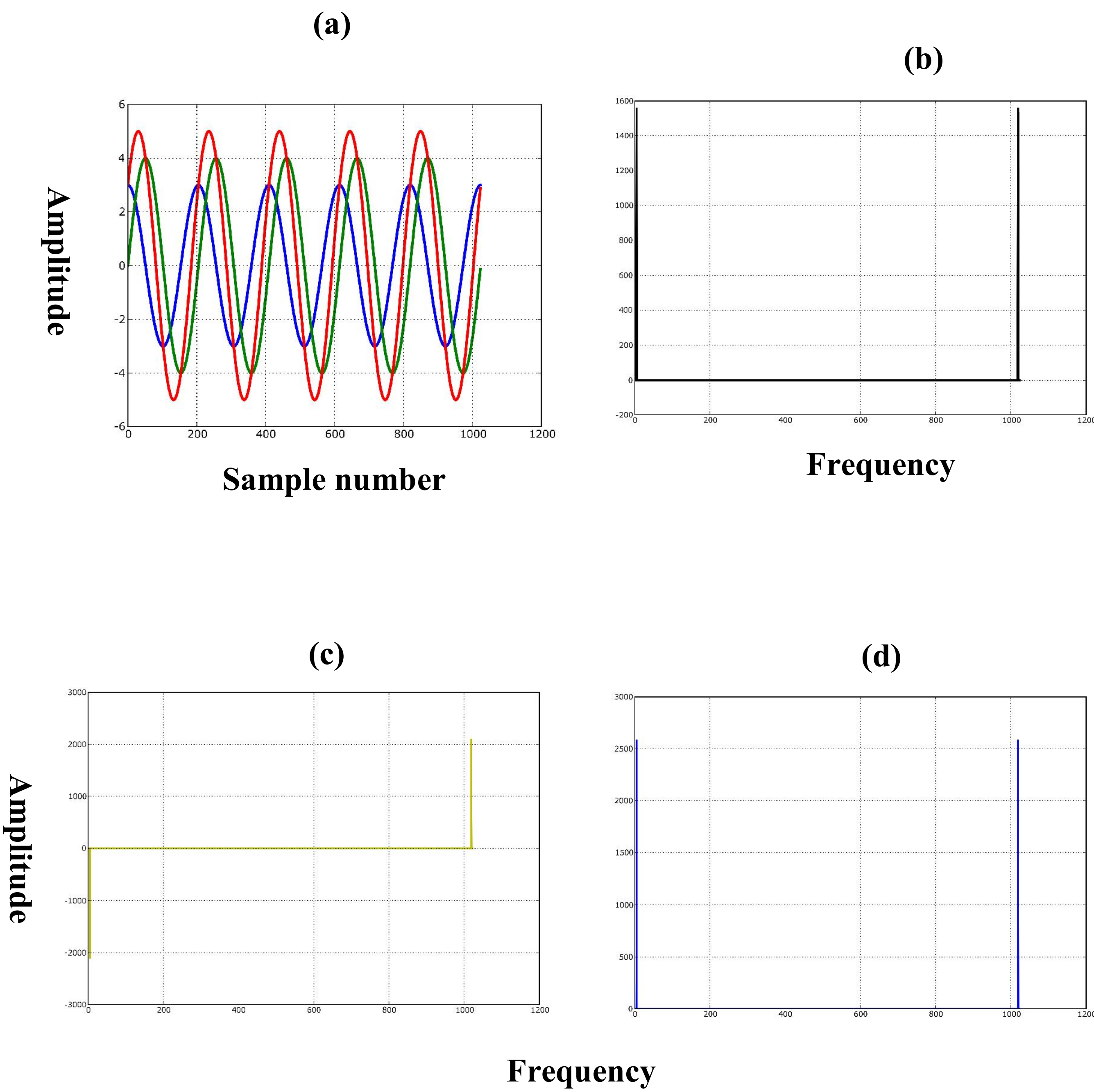
The superposition principle states that the resultant wave, y_R is said to be the result of the interference of the above two waves. This resultant wave gives a phase-shifted sine wave of the same frequency.

Let x[i] be a time domain N point signal whose frequency domain signals are ReX[k] (real part of the signal) and ImX[k] (imaginary part of the signal) respectively. The magnitude of this signal can easily be estimated by using the following expression.

$$M = \sqrt{\left(\operatorname{Re} X[k]^2 + \operatorname{Im} X[k]^2\right)} -----(v)$$

Results and Discussion

In this observation, two sinusoidal signals with having the same frequency (f = 5 unit) but different amplitudes of 3.0 unit (blue curve) and 4.0 unit (green curve) were generated over the 1024 data range. After superposition of these sinusoidal waves, the resultant signal (red curve) was found whose frequency is the same as original signals (f = 5 unit) but with having different amplitude 5.0 unit. The phase difference between the sinusoidal signals is $\frac{\pi}{2}$ radian, where as the phase difference between the summed signal and each of the sinusoidal signals is $\frac{\pi}{4}$ radian. It is obvious that a frequency domain data consists of a real part and an imaginary part which can clearly contribute for estimating the magnitude spectrums. On this notion, the researcher has performed FFT on the resultant signal of panel **(a)** and found the frequency domain signals which are depicted in panels **(b)** and **(c)** respectively. The magnitude spectrum of the summed signal has been extracted by following equation (v) which is shown in panel **(d)**.



In the insets, panel **(a)** indicates two sinusoidals (blue and green curves) signals and the summed signal (red curve). Panels **(b)** and **(c)** are the real and imaginary parts of the summed signal. The estimated magnitude spectrum of the resultant signal is depicted in panel (d).

Conclusion:

It is obvious that a signal can be analyzed from two different ways as the frequency domain and the time domain. The researcher has performed FFT of all basis functions for k = 5 over 1024 samples to observe the magnitude spectrums. The magnitude spectrum is found as 521.04 unit.

4.2 References

1. *The Scientist and Engineer's Guide to Digital Signal Processing* By Steven W. Smith, Ph. D.

2. *A Course in Digital Signal Processing*, Wiley, ISBN 0471149616

3. Sen M. Kuo, Woon-Seng Gan: *Digital Signal Processors: Architectures, Implementations, and Applications*, Prentice Hall, ISBN 0-13-035214-4

4. Jonathan Yaakov Stein, *Digital Signal Processing, a Computer Science Perspective*, Wiley, ISBN 0-471-29546-9

5. Richard G. Lyons: *Understanding Digital Signal Processing*, Prentice Hall, ISBN 0-13-108989-7

6. H. Guo, G. A. Sitton, C. S. Burrus, 1994, *The Quick Discrete Fourier Transform*, Proc. IEEE Conf. Acoust. Speech and Sig. Processing (ICASSP) 3: 445–448.

7. James C. Schatzman, 1996, *Accuracy of the discrete Fourier transform and the fast Fourier transform*, SIAM J. Sci. Comput. 17: 1150–1166.

8. Brenner, N.; Rader, C. (1976). "*A New Principle for Fast Fourier Transformation*". IEEE Acoustics, Speech & Signal Processing 24 (3): 264–266. doi:10.1109/TASSP.1976.1162805.

9. Brigham, E. O. (2002). *The Fast Fourier Transform*. New York: Prentice-Hall

10. P. Duhamel and M. Vetterli, 1990, *Fast Fourier transforms: a tutorial review and a state of the art, Signal Processing* 19: 259–299.

11. D. F. Elliott, & K. R. Rao, 1982, *Fast transforms: Algorithms, analyses, applications*. New York: Academic Press. Carl Friedrich Gauss, 1866.

"Nachlass: Theoria interpolationis methodo nova tractata," Werke band 3, 265–327. Göttingen: Königliche Gesellschaft der Wissenschaften.

12. H. Guo and C. S. Burrus, 1996, *Fast approximate Fourier transform via wavelets transform*, Proc. SPIE Intl. Soc. Opt. Eng. 2825: 250–259.

13. Sorensen, H. V.; Jones, D. L.; Heideman, M. T.; Burrus, C. S. (1987). "*Real-valued fast Fourier transform algorithms*". IEEE Trans. Acoust. Speech Sig. Processing 35 (35): 849–863.