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Editorial

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Professor Dr. Md. Sana Ullah
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Contents

Students' Engagement in Adopting Reading Strategies in Bangladeshi EFL Reading Classes at Tertiary Level

Md. Anisor Rahman[1], Amena Begum[2]

Abstract: Reading is 'a process of constructing meaning' and a relation builds between reader, the test and reading context.[1] As reading is one of four macro-skills of English language, it defines the EFL students' overall proficiency of English language. Without being proficient in reading skill, there is no other alternative way to have a good command of English language. This paper explores the Bangladeshi EFL students' engagement in strategies of English reading skill like scanning, skimming, browsing, search reading, previewing, predicting, inferencing, anticipation, and presupposition etc., the processes to adopt these strategies in developing reading skill, challenges and ways out of the challenges faced during adopting reading strategies in Bangladeshi EFL classroom activities at tertiary level. To conduct the current study, the researcher followed the mixed method approach, where 400 students from two public universities, three private universities, and one college under National University took participation along twenty ELT teachers from these universities as to get the primary data. The findings of this research show that the higher education of Bangladesh goes through a hazard because of learners' miserable condition of reading skills, lack of interest in proper materials and strategies in reading classroom, and students' negligence towards participating in reading lessons, and reading activities like pre-reading, while-reading and post-reading phases. The adoption of effective materials, techniques based on approaches, and the Bangladeshi EFL learners' active participation in reading classroom activities and real classroom practices would overcome this poor condition and accelerate the Bangladeshi EFL learners' English reading proficiency at tertiary level.

Key Words: Background knowledge, Cognitive strategies, Previewing, Predicting, Presupposition

Introduction

English language skill will influence English as a Foreign Language (EFL) learners' academic performance at tertiary stage.[2] To have a good command on English language, EFL students must develop English reading skills. In EFL/ESL context like Bangladesh, students face a huge difficulties to develop their skills on English reading skills. This happens because learners cannot connect the major concepts of the texts to learners' previous knowledge of the texts, learners' reading rate does not contain enough fluency, and the learners do not possess enough knowledge to adopt reading techniques in pre-reading stage, while-reading stage, and post-reading stage.

The study also investigates whether the updated approaches of teaching reading are adopted in reading process in Bangladesh through a mixed-method approach. The approaches for the empirical research incorporate teachers and learners' questionnaire surveys, learners' interview, and observation of reading classroom activities. The findings reveal that the university learners' Hence, this research

1. Md. Anisor Rahman, Assistant Professor, Department of English & Director, Centre for Excellence and Career Development, Dhaka International University, Dhaka, Bangladesh.

2. Amena Begum, Lecturer, Department of English, Dhaka International University, Dhaka, Bangladesh. Correspondence to : anis.cou@gmail.com

explores the effective strategies of reading skill, how these strategies can be adopted in EFL reading classroom, and the current challenges of adopting reading strategies in Bangladeshi EFL reading classes, and to improve extensive reading awareness, where reading a word would be embodied in reading the globe. ongoing reading proficiency is not up to the satisfaction; the English reading policy adopted in the country needs to be evaluated through the proper implementation of reading strategies into real classroom practices.

In spite of experiencing a huge time on studying English language in the academic setting of Bangladesh, most of the Bangladeshi EFL learners perform very poor proficiency of reading skills and it also highlights Bangladeshi EFL learners' needs of incorporating reading strategies along with students' engagement on reading classroom activities at tertiary level.[3] Reading strategy is as a precise, apprehensive, and intrinsic planning that makes the readers understand the reading text better.[4] In a few studies conducted in different contexts show that the integration of cognitive strategies ensures the spontaneous engagement in English reading comprehension than adopting metacognitive strategies.[5,6] However, there is no clear way out to ensure Bangladeshi EFL learners' engagement in adopting reading strategies in their reading classroom tasks and activities. Though a few researches have been conducted in different contexts, there is no significant studies based on students' engagement in adopting reading strategies in Bangladeshi EFL reading classes at tertiary level. Therefore, the current study highlighted to fill the gap on Bangladeshi students' engagement in adopting reading strategies in EFL reading classes at tertiary level. If the reading strategies along with students' active participation into the classroom activities are followed properly, Bangladeshi EFL learners' reading proficiency will be developed. This research study is conducted partially based on a research of a Master's thesis done at the Department of English, Comilla University in 2018 on the applicability of principles and classroom tasks in teaching EFL reading at tertiary level in Bangladesh.

Theoretical Discussion

Reading Skill

Reading relates the information of a text with the readers' previous background knowledge about the text to get a meaning in a fluent performance.[7] To him, getting the meaning or understanding the text can be the goal of reading. Reading reflects as a theoretical and thinking procedure through print, as well as an explicable process. In another terms, reading is a linguistic informative procedure through print.[8] Reading is termed as the process of "getting out of the text as nearly as possible the message the writer put into it."[9]

Purposes of Reading

Reading serves different kinds of purposes. Among all these purposes, a few purposes are mentioned here.

    a.   To acquire knowledge from texts
    b.   To get simple information.
    c.   To comprehend the texts
    d.   To skim quickly
    e.   To achieve pleasure
    f.   To compose and critique texts

To acquire knowledge from texts

The purpose of reading incorporates getting knowledge from the texts. It enhances readers' knowledge about the major thoughts and exploration of a text, which contains the main ideas along with the supporting ideas of the texts. It enables readers to build strong rhetorical frames by gathering the

information from the texts. Reading also links reader's background knowledge of the texts and the meanings of the texts together. Thus the readers develop knowledge from the texts.

To get simple information

Reading helps the readers locate the ordinary information. This is as 'efferent reading' as the readers choose reading to gather the contained information from the texts.[10] By going through any definite text, the reader can get the particular information about the text. In scanning, the reader is dedicated to find out the particular information, which will serve the purpose of the readers.

To comprehend the texts

Reading enables learners to understand the text minutely. It is the core objective of reading along with its fundamental and corroboratory objectives of reading. It requires spontaneous procedure of lexical resources, skills in developing the meanings containing major thoughts, and supporting ideas within the limited timeframe.

To skim quickly

Some readers read to skim the general information rapidly. It includes a combination of strategies for guessing to get the particular information in the texts, and then highlighting fundamental reading understanding abilities based on various parts till a common thought is developed.

To achieve pleasure

Reading satisfies the hunger of the readers, if they read to get the pleasure by reading a particular text. We only go through anything for pleasure to jollify it or hope to jollify it as pleasure envelopes the feelings and its shades, which is why one should read 'only what one likes' so that s/he can get expected range of pleasure.[11] People recite poetry, novels etc. as the readers get it as a source of pleasure, and it displays apt as far as the external language is concerned.[12] Readers intend to get enjoyment from the texts which would make the students read more which eventually move the way for a better realization of the texts along with the development of vocabulary, and it gradually helps the learners improve their reading skills.

To compose and critique texts

Reading makes the purpose of converting a reader into a writer. To write well, one should read first. Gradual development of reading, a readers has to develop the skills to form, choose, and collect information from the texts. Thus reading can get the purpose and spread one's own knowledge to the universe.

Kinds of Reading

Based on purpose and utility, reading can be categorized into two ways. These include Oral reading and Silent reading.

Oral Reading

When a reader has to read loudly, it is called oral reading. Oral reading is also a technique for developing word identification and reading skills, including enhancing fluency and understanding the meaning of the text. In oral reading, a few procedures can be adopted. An EFL teacher can read the texts aloud and model the fluent reading.

Silent Reading

When a reader has to read silently, it is called silent reading. Primarily, reading is a silent activity. In silent reading, the reader attempts to grasp the meaning of the texts silently in order to understand the

different characteristics of a text. Silent reading is often considered as recreational reading or independent reading. The most of the EFL learners follow silent reading. In the western culture, the primary strategy of reading was based on oral reading until the nineteenth century. There was a debate on the benefits of oral reading and silent reading in about 1880.[13] Silent reading can be subdivided into two categories: Intensive reading and Extensive reading.

Intensive Reading

Intensive reading highlights a technique for reading shorter texts in terms of getting the definite information through the adoption of reading strategies. Teachers emphasizes on intensive reading as a strategy and it is mostly based on classroom activities. It can be called Narrow Reading or Local reading. It is termed as an accurate activity involving the detailed reading activities. On the other hand, it does not incorporate the whole lessons but includes the parts of the lessons, which can be scrutinized to look for any particular word or information.[14] Intensive reading as to focus on discourse markers, grammatical forms, and syntactic structures in details for getting literal meaning, indications, and figurative relationship etc. He coined a conformity of intensive reading by calling it 'zoom lens' technique.[15]

Extensive Reading

Extensive reading deals with a large amount of text through which a reader is supposed to grasp the meaning, directly and fluently. It incorporates reading for pleasure or reading scientific, technological or vocational material. A reader tries to use different strategies to get meaning from the text. Extensive reading is as a quick reading of the extended amount of texts. Extensive reading is an individual action, and the reader prefers reading his individual chosen texts for getting pleasure.[16] In this type of reading, the readers go through the texts to relish their individual pleasure solely and they do not need to worry about to answer the questions on these texts in the examination. Besides, the readers choose their own texts and read a fair amount of texts at their individual rate. So as to make extensive reading really enjoyable and fecund to the students, teachers should encourage them to read easy and fascinating texts and to discontinue reading too difficult, too easy, or monotonous books.[17] In essence, extensive reading encourages the students to get the enough materials to practise language, lexical developments, and the development of English language skills like speaking, writing, and listening.

Global Reading

Global reading is a kind of extensive reading which refers to a reading strategies that involves free reading activities, planning, previewing, evaluating and assessing a text to get the meaning of the text. Global reading focuses on different linguistic segments and analyses of those segments to understand the meaning. It clarifies the intention of the writer, and contextual aspects of writing a text.

Reading as a Macro Skill

Reading is one of the major skills of English language. To be expert in reading, a reader has to be expert in a few sub-skills of reading. These sub-skills include:

Scanning

Scanning means a periphery reading process and it is based on 'reader-driven' process. The readers have a rapid view of a text highlighting the minute inspection in scanning. That means, scanning is a reading activity when readers can get the information from the texts without going through the whole texts. Scanning implies finding a 'match' between what the readers try to find and what the texts reflect.[18] Scanning as "any part of the text which does not contain the preselected symbol(s) is dismissed."[19] It analyzes specific lexical orientations, genres, times and duration of a particular event,

rhetoric, the capital of a country, looking through a telephone guide, and reading varieties of directories to get the information etc.

Skimming

Skimming is a technique by which a reader can run his eyes across the whole texts quickly and gets its essence. Skimming is the reading for gist.[20] Skimming can be as "too many books with a purpose to achieving too much information confront people".[21] It seems to be very explicit that the reader skims to satisfy the curiosity of learning about the texts, and not to get the response to any specific queries. It highlights what the text is about. It is a quick process to learn about the whole text.

Browsing

Browsing includes a few readers, who go through the texts and they do not have any specific "goals in mind", concerning the result of macrostructure, its outcome is adopted as indeterminate.[22] To get pleasure and enjoyment, we occasionally browse dailies, newspapers, and various types of magazines. In the classroom activities, the EFL learners do not find enough materials to exercise. So, the learners can enjoy advantages to browse different articles during their classroom activities.

Search Reading

Search reading gives the readers with the available information to response the set queries. It includes both top-down process and bottom-up process of reading. 'Closer attention' emphasizes on the reading techniques highly in terms of its value in search reading. That is why search reading is significant for the students in answering questions in the examination based on passages.

Careful Reading

In careful reading, the reader tries to develop the majority of information from the text, develop a macrostructure based on the acquired information. In this kind of reading, the reader play a submissive role and acknowledge the writers' opinion, views and contents. To many educationalists and psychologists, it is considered as the most efficient and benignant reading technique.

Prediction

The skilled readers rely on their potentiality to count what will be next. To find out the exact meaning of the text, they adopt the least hints from the texts. Hence, a fruitful reading does not require going through every single words in the texts. Rather, the readers hugely rely on the prediction that stems from the syntactic clues, semantic clues, and their background knowledge. Prediction means the guessing what will be the next with vocabulary hints, grammatical indications, and cultural backgrounds. Sometimes, prediction fails to guess the right way, but it gives the readers an opportunity to think about the texts in advance.

Inferencing

Inferencing is a technique to reconstruct the writer's hidden prolepsis in the texts. When the text highlights the meaning indirectly, the learners need to infer the meaning by following this technique. It helps students understand the texts and read the book quickly. By making the power of reasoning, applying common sense, adopting the knowledge of the world and related scientific schemata, the learners can infer the information of the texts.

Anticipation

Anticipation means the technique of making a knowledge regarding the content of the text and guess the meant agenda from it before beginning the reading of the text. Through the activities of pre-reading stage, the anticipation of a reader is oriented. In while-reading stage, these are reconstructed and

developed. And, finally, in post-reading stage, these anticipations are approved and regulated, and also reconstructed in this part. Anticipations are continued throughout the development of reading. It helps learners guess the contents of the texts, emphasize on the items, connect these with learners' background knowledge, analyze and make them ready for reading the specific text.

Previewing

Previewing is a very distinct skill of reading. This strategy identifies the specific information quickly. It includes the titles of the texts, the repertory, the contents, the appendices, the author's or publisher's preface, reflection in the fourth cover, blurbs, titles of sections and paragraphs, and acknowledgement etc. This macro skill is helpful for the learners in numerous ways. It guides the learners towards desired and expected information along with the reduction of wasting their precious time.

Presupposition

Presupposition can be defined as an estimating ability, which allows the learners to know the concerns between undisclosed facts in a text. The learners may likely to face trouble to approach the message of the author especially who are not aware of the unsaid facts. The accurate interpretation of a text largely relies on the reader's perception of writer's view. Presupposition aids the readers to link them adopting some tactics like inferencing and schemata etc.

Adoption of Reading Strategies in Bangladeshi EFL Classes

Bangladesh is facing many EFL learners who are not well-equipped with EFL reading skills to fulfill the required academic proficiency at tertiary level. The findings of the recent EFL literacy studies in Bangladesh reflect that many EFL university learners do not have any abilities to read and make out the resources and materials in English language which subsequently affect their academic performance. Many students in Bangladesh try to learn English language, but they do not highlight reading English. It gradually results in poor reading skill in EFL context, specially at tertiary level. The Bangladeshi EFL students do not find any motivation. In this context, the effective strategies should be incorporated in Bangladeshi EFL classroom activities. If reading strategies along with the active participation of L2 learners are adopted in Bangladeshi EFL reading classroom activities, the students' English reading skill will be accelerated.

Literature Review

The development of reading strategy use among students is one of the key issues of EFL reading skill development. The key differences in strategy use between weaker and stronger reader does not rely entirely on multi-levels of techniques or the amount of various techniques adopted, but are more likely to depend on total numbers of successful strategy uses. The study also shows that there is no magic small set of strategies that separates good readers from weaker readers.[23] The present study it highlights that normally learning what strategy to adopt is not enough and it should examine an inquiry into the orchestration of techniques. In a specific timed action in reading, students study a huge amount of texts that are monitored diligently for lexical development, duration, the reading speed rate for the given texts, and response queries based on understanding ability. The latest research displays that almost all the EFL learners make development and they make the development gradually not suddenly. The findings of the research reflect that learners' development from 73 wpm to 97 wpm to 132 wpm adopting varieties of scoring approaches.[24]

The cognitive procedure is incorporated in going through various texts on a heading, and the procedure of reading-to-develop. The study reveals that the students learn both a set of basic events and differing text interpretations of events following each reading.[25] It is obvious that reading from multiple text sources leads to more in-depth knowledge and aids reasoning about the topic. Besides, the students are

performed as guide of their own development by participating to the forms of grammar that are focused in activities and as threat-takers who try the aimed language by designing language creativities such as restating, paraphrasing, using paralinguistic items, etc. due to their shortage of monitor or wisdom of the ESL.[26] Task Based Instruction (TBI) lesson adopting text reformation as the interactional activity was done among the adults ESL students. The findings show that texts reformation activity or joining jumbled-up texts thoughts into the coherent texts guide the L2 students in interpreting texts meaning beyond sentences level.[27]

In an investigation, the students fail to achieve proficiency level in their comprehension test. It also showed students' lack of knowledge about reading skills, untrained teachers, inadequate reading materials, time constrained syllabus etc.[28] In a study, learners face challenges in almost all the sub-skills of reading, and it displayed that the methods to learning and teaching reading skills remained outworn and the materials, syllabus and assessments are sufficient, but these observe the lower order-skills only where the supreme order-skills are thoroughly supervised.[29] The students are not really prepared for the vast amount of reading and writing required at the tertiary level of education.[30] The fact for not reading much is not happened by students' being failed to go through only because of their unwillingness to do so. He also discovered that the reading habits of learners are constructed by the traditions of their families and the monetary aspect of their parents.[31] The instructors do not succeed to identify the advantages of reading, and they avoid it in the classroom activities. He also focuses that the liabilities of this failure go to first the mindset of the instructor and then of the learners.[32] The limitations of guessing new word meanings from context. She also added that the student who spent a little time worrying about inferring word meanings from context read the most and appeared to be the most successful ultimately in learning new words.[33]

However, being many positive aspects demonstrated in these researches, it is noted that they are constrained to a limited extent. The study showed the techniques to learn new vocabulary for L2 students only, but did not indicate what students in other contexts should do to learn vocabulary. Other studies showed that the role of teaching successful strategy use to readers is not sufficient and it needs further investigation.[34] Another study did not explore how students can overcome their reading incomprehension. Some other studies investigated teaching of reading but either some of them were not at the tertiary level or included very limited sampling area. The obvious limitation of the studies done in the context of Bangladesh is the researchers' narrow focus on the teaching of EFL reading at tertiary level. Thus, the current study is an attempt to cope up the gap in the EFL context of Bangladesh which aims to explore the ways to teach suitable reading techniques and tasks at the tertiary level to facilitate learners' reading comprehension.

Research Objectives

In conducting the current study, the researcher followed a few objectives. The major purposes of this paper are:

1. To find out the reading techniques in developing EFL learners' reading skill.
2. To find out Bangladeshi EFL students' engagement in adopting reading strategies in developing their reading skill.
3. To identify the problems of Bangladeshi EFL learners in adopting reading strategies in developing their English reading skills.
4. And to bring out the recommendations to overcome these problems and accelerate their English reading skill at tertiary level.

Research Questions

This paper is accomplished to find out the answer of the following research questions.

1. What are the reading strategies in developing EFL learners' English reading skill?
2. How do Bangladeshi EFL students participate in adopting the strategies of reading skill at classroom activities?
3. What problems do Bangladeshi EFL students face in adopting reading strategies in developing their English reading skills?
4. How can Bangladeshi EFL students overcome these challenges and accelerate their English reading skill at tertiary level?

Research Methodology

Research Design

The researcher adopted mixed method approach to conduct the current study. In this research study, both qualitative method and quantitative method were adopted to explore the research objectives. By using quantitative method, the researchers showed the questionnaire survey, while using qualitative method, the researchers described the survey findings, analyzed the interview questions, and described the findings of the observation. In this study, both primary data and secondary data were adopted.

Participants

To collect the data, the researchers selected participants randomly. For students' questionnaire survey, 400 students from two public universities, three private universities, and one college (Honours) under National University participated. They were the students of first and second year from English department. For teachers' questionnaire survey, twenty teachers from public, private and national universities took participation. They were from different designation in experience. For interview, the researcher selected thirty two EFL students from the same number of universities randomly. The researcher observed ten EFL reading classes in these public, private and national universities.

Instruments

To accomplish the research, the researcher collected both primary data and secondary data. Many books on ELT, research publications, journals, national dailies, and websites were read to collect the secondary data. To collect the primary data, a few instrumentations were conducted. These include:

a. A questionnaire
b. Interview
c. Observation

These are dealt gradually.

Questionnaire

Questionnaire is a well-known device to gather the data for a research study. The researcher conducted the survey through questionnaires for the EFL teachers and learners in terms of getting quantitative data, which highlighted deeper introspections into the relationship between the EFL learners' classroom activities in reading comprehension and the EFL teachers' understanding of teaching EFL reading techniques. The researcher set fifteen questions for students' questionnaire and fourteen questions for teachers' questionnaire. These questions were different from one another. These questionnaires were formed based on the research objectives. These highlight the reading strategies of developing EFL students' English reading proficiency. The questions for the students' questionnaire and the teachers' questionnaire are highlighted in Appendix A and Appendix B gradually.

Interview

To collect the data of a research work, interview method incorporates presentation of verbal stimuli and recording of verbal responses. This method is conducted through personal or telephone interviews.[35] To collect the primary data, the researcher adopted five questions for interview. Thirty-two students from six universities including two public universities, three private universities, and one college under National University of Bangladesh. The respondents answer these questions according to their own ways. These questions highlighted the adopted strategies of reading skill at tertiary level. The assent was obtained from all of the participants before the interview took place. The questions for the students' interview are highlighted in Appendix C.

Observation

Observation method refers to a scientific tool where a researcher systematically plans, records and collects data through their active or passive participation. The researcher followed fifteen questions during the classroom observation. The researchers observed ten EFL reading classes minutely. The researcher observed how EFL students engage themselves in the classroom activities, how EFL teachers incorporate students in adopting the strategies of developing English reading skill and how to overcome the challenges during the classroom. The checklist of classroom observation is reflected in Appendix D.

Findings and Discussions

In this research study, both qualitative and quantitative procedures were adopted to gather the data, interpret the data in details.

Findings of Students' Questionnaire

Findings of the students' questionnaire are displayed in the form of Mean and Standard Deviations (SD) in the following table 1:

Table 1: Findings of Students' Questionnaire

Q No.	Question	Results	
		Mean	SD
1	I adopt my past experience or background ideas to make out the texts.	2.89	0.49
2	I deduce the meaning of unknown vocabularies by adopting context during reading a text.	2.92	0.71
3	I derive the hidden thoughts and ideas of the author.	2.83	1.01
4	I engage in fluency building activities while reading.	2.77	0.97
5	I search the data by previewing the contents of a text.	3.09	1.10
6	I add the related experience while going through the texts.	2.85	0.98
7	I predict what would come next.	2.80	0.46
8	I go through a huge number of texts fluently to understand the main ideas about it.	2.67	1.02
9	I analyze long sentences of a text.	2.83	0.97
10	I survey text organization.	2.88	0.98
11	I chase the alteration of thoughts/ideas of the author.	2.44	0.97
12	I follow the specific data from the texts fast.	2.72	1.01
13	I evaluate your reading progress.	2.89	0.99
14	I look up words in the dictionary.	3.09	1.19
15	I answer questions in English.	2.50	0.88

N.B. N=400 in the students' questionnaire survey.

Analysis of the Students' Questionnaire

The findings of the learners' questionnaires have been categorized into 'High', 'Moderate' and 'Low' divisions by adopting the interpretation keys: from 1.50 to 2.49 = Low; from 2.50 to 3.49 = Moderate; and from 3.50 + = High. Table 1 shows that in the questionnaire, all the 15 items (question 1-15) have 'Moderate' mean scores (2.50 and above it) ; and no item falls into the division of 'Low' mean score (below 2.50) or high mean scores (above 3.50). According to the results of the learners' questionnaires survey, out of the 15 questionnaires have 'Moderate' level Mean scores. The findings exhibit a moderately good level of the learners' current reading ability and reading methodology at the tertiary level in the country. The EFL learners' achievement regarding the macro sub-skills of reading is comparatively good, and obviously they find no major challenges that can hinder their reading activity.

Findings of Teachers' Questionnaire

Table 2 reflects the findings of the teachers' questionnaires and interview in the form of Mean and SD:

Table 02: Findings of Teachers' Questionnaires

Q No.	Questions	Results	
		Mean	SD
1	My learners apply their past experience or previous knowledge to make out the texts.	3.15	0.93
2	My learners deduce the meaning of unknown vocabularies by adopting the reading contexts.	3.20	0.83
3	My learners presume the hidden message/ ideas of the author.	3.30	0.73
4	My learners engage in fluency building activities while reading.	3.20	0.69
5	My learners search the data by previewing the contents of a text.	3.95	0.76
6	My learners encore the related experiences while reading the texts.	3.85	0.67
7	My learners forecast what would become next.	3.55	0.53
8	My learners go through a huge number of texts to understand the overall ideas.	3.50	0.51
9	My learners analyze longer sentences of a text.	3.40	0.50
10	My learners survey text organization.	3.40	0.41
11	My learners chase the transitions of thoughts/ideas of the author.	3.40	0.50
12	My learners try to get the required data from the texts faster.	3.30	0.47
13	My learners evaluate their reading progress.	3.20	0.41
14	My learners look up words in the dictionary.	3.55	0.69

N.B. N=20 in the teachers' questionnaire survey.

Analysis of the Teachers' Questionnaires

The findings of the teachers' questionnaires have been categorized into 'High', 'Moderate' and 'Low' divisions by adopting the interpretation keys: from 1.50 to 2.49 = Low; from 2.50 to 3.49 = Moderate; and from 3.50 + = High. Table 2 shows that in the questionnaire, 5 items (questions 5, 6, 7, 8, 14) have 'High' mean scores which are above 3.50; then 9 items (questions 1, 2, 3, 4, 9, 10, 11, 12, 13) have

'Moderate' mean scores (2.50 and above it); and no item falls into the division of 'Low' mean score (below 2.50). These show that no item has 'Low' Mean score; the others have 'High' and 'Moderate' Mean score. These results specify that teachers are satisfied with their students' proficiency. The students have no great difficulties in classroom reading activities. In most of the cases their students' skills in reading are satisfactorily good. On the other hand, many of them are pleased with their own teaching techniques used in reading class. In a research on the reading strategies in the context of Bangladeshi EFL learners at tertiary level, it was reflected that the average mean score of reading strategies was 3.22 which displayed learners' moderate level of reading strategy use in reading academic texts.[36] However, the findings do not match with the findings of another research, which showed the EFL learners' poor reading proficiency on the entry to tertiary level. It displayed about 30% of EFL learners cannot even make out the meaning of a text.[37] Based on the teachers' incorporation of their own strategies into the classroom tasks, the varieties level of proficiency of EFL students can be found. In the current study, it showed the positive findings, which ensured the satisfactory performance of EFL learners on reading strategies.

Findings of Students' Interview

Five questions were asked to the students to elicit data from students' interview. In response to Question 1 on students' difficulties in while reading, the participants reported that they faced some difficulties while reading an English text. Majority participants replied that they faced problems with understanding meaning of unfamiliar words, a few participants replied with understanding meaning of long sentences, a few replied difficulties in understanding main idea, and others replied problem with understanding text organisation while reading a text. In response to Question 2 about reading strategies, the students reported that they have moderate ability on effective reading strategies. Most of the participants perceived ability on guessing meaning from text, a few perceived ability on grammatical structure, another group of participants perceived ability on background knowledge, a few students have ability on making inference, and other students on dictionary/word references. In response to Question 3 on the tasks in reading classes, the learners signified that their reading activities involve cognitive and metacognitive requirement. Approximately most of EFL reading activities require cognitive step demand which involves focusing, retracting, analysing, information collection, incorporating, organising etc. Again according to the response of the students' others reading activities include metacognitive demand which includes self-reflection or evaluation. In a previous study, it showed that most of the EFL learners opined that they can make out the meaning of a long text and elaborate during activity.[38] In response to Question 4 about communicative activities in reading classes, the interviewees reported that communicative or task based activities facilitate their reading comprehension. Among 32 respondents, most of them stated about group work, pair work, problem solving, and jigsaw reading as communicative tasks that make their reading texts way more understandable. In response to Question 5 on amalgamating reading skill with other skills, the respondents stated that they sometimes prefer reading activities in combination with other language skills-writing, listening, speaking. These include note-taking, summary writing, finding data, discussions etc. Out of 32 participants, most of the respondents respond integrate reading with writing, others respondent integrate reading with listening, and integrate reading with speaking.

Findings of the Classroom Observation

Table 3 represents the findings of the classroom observation regarding Mean and SD:

Table 03: Findings of the Classroom Observation

SL No	Questions	Mean	SD
1.	The learners categorize reading lessons into pre-reading tasks, while-reading strategies and post-reading strategies.	2.30	0.95
2.	The learners use dictionary when they find any unknown words during reading texts.	2.40	1.17
3.	The learners know how to scan a text.	2.10	0.56
4.	The learners know how to skim through a text.	1.90	0.73
5.	The learners relate textual information to background knowledge.	2.40	0.51
6.	The learners know how to forecast the contents of a text.	2.50	0.52
7.	The learners know how to read extensively.	2.60	0.51
8.	The learners engage themselves into fluency building activities.	2.50	0.70
9.	The learners understand transition of ideas.	2.40	0.69
10.	The learners know how to analyse a long sentence.	2.40	0.69
11.	The learners know how to summarize a long text.	2.60	0.51
12.	The learners presume the meaning of unknown words by contexts of a text.	2.30	1.25
13.	The learners have inferencing, interpreting and analyzing skills.	2.60	0.96
14.	The learners practise how to transform strategies into skills.	1.90	0.73
15.	The learners evaluate reading text critically.	2.60	0.96

Analysis of the Classroom Observation

The findings of the classroom observation have been categorized into 'High', 'Moderate' and 'Low' divisions by adopting the interpretation keys: from 1.50 to 2.49 = Low; from 2.50 to 3.49 = Moderate; and from 3.50 + = High. Table 3 shows that in the classroom observation, no item falls into the 'High' category. On the other hand, 6 items (questions 6, 7, 8, 11, 13, 15) have 'Moderate' mean scores which are above 2.50 and 9 items (questions 1, 2, 3, 4, 5, 9, 10, 12, 14) have 'Low' mean scores (below 2.50). According to the classroom observation of students, out of 15 items 6 have 'Moderate' mean scores whereas rest 9 items have 'Low' Mean scores. No item falls into the category of 'High' level. The observation of the classes show the difference between the results of questionnaire survey and observation findings. It was so severely reflecting the negligence of EFL teachers and learners to hold the reading strategies in the classes. This problem goes with the findings of another research that the failure of EFL teachers in monitoring and guiding students' pre-reading and while-reading tasks grow EFL students' reluctance to go through the texts.[39] Students are not motivated to engage them in pre-reading, while-reading, and post-reading activities. Rather, they felt relieved, when classes were accomplished. It highlighted that the interesting presentation of the strategies would attract the students to be engaged in reading activities in Bangladeshi EFL reading classroom tasks.

Recommendations and Conclusion

Recommendations

Based on the of the results of the paper, a few constructive and influential recommendations are provided with a view to adopting reading strategies in Bangladeshi EFL reading classes and improve students' overall reading proficiency at tertiary level. These recommendations include:

1. In EFL reading classes, the reading strategies should designed incorporating the EFL students in the classroom activities like students' active participation in discussion, critical thinking and reason making etc. The lessons and the tasks should be presented as fun.

2. Smaller groups or pair work ought to be structured with a view to discussing the idea of the text, the unknown words and the extended sentences. Students need to be the pioneer to share their own opinions by guessing the vocabulary of the text with their group mates.

3. Jigsaw reading can be adopted to help learners find out how the text is formed.

4. Reading techniques like extensive reading, timed reading, repeated reading, paced reading, words recognition practices and read aloud activities should be adopted in reading classes.

5. Interesting texts like sports, culture, global issues, scenario, and history can be adopted for English reading classes.

6. Students need to be involved in sentence attack', 'word attack', 'and 'text attack' strategies.

7. They should engage in self-evaluation activities by keeping journal entry, recording, questioning, or self-monitoring etc. as a way of improving metacognitive strategy.

8. Students should be motivated and keep positive attitudes for extensive reading.

9. Students should strive for developing themselves as strategic readers. They should increase their background knowledge as well as other knowledge of different aspects of EFL skills by using reading tasks like pre-reading activities, while-reading tasks, and post-reading strategies.

10. Task-based materials should be adopted for English reading classroom activities.

11. Teachers have to supervise students' activities, help them and provide them feedback.

Conclusion

This study has described the Bangladeshi EFL learners' engagement in adopting the strategies of reading skill and their participation in EFL reading classroom activities to develop their English language proficiency. The students' reading problems are multidimensional. The study unveils that students' reading skills are poor. Their pace of reading proficiency is very slow, their knowledge of vocabulary, and their efficiency in understanding the meaning of a text are very poor. It also shows that the lack of suitable materials, effective strategies, and trained teachers are mostly accountable for the students' poor level of proficiency regarding reading skill. To overcome these challenges, the implications of the findings of this study ought to be adopted into in-depth considerations, and initiatives should be taken to apply the recommendations in Bangladeshi EFL classroom activities. By adopting these strategies into EFL reading classes, the reading proficiency of Bangladeshi EFL learners will be accelerated at tertiary level.

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Appendix

Appendix A: Students' Questionnaire

(The information provided by the respondents will be highly confidential and used solely for the purpose of this study.)

Sl. No.	Questions	Never	Rarely	Sometimes	Very often	Always
1	I adopt my past experience or background ideas to make out the texts.					

2	I deduce the meaning of unknown vocabularies by adopting context during reading a text.					
3	I derive the hidden thoughts and ideas of the author.					
4	I engage in fluency building activities while reading.					
5	I search the data by previewing the contents of a text.					
6	I add the related experience while going through the texts.					
7	I predict what would come next.					
8	I go through a huge number of texts fluently to understand the main ideas about it.					
9	I analyze long sentences of a text.					
10	I survey text organization.					
11	I chase the alteration of thoughts/ideas of the author.					
12	I follow the specific data from the texts fast.					
13	I evaluate your reading progress.					
14	I look up words in the dictionary.					
15	I answer questions in English.					

Appendix B: Teachers' Questionnaire

Sl. No.	Questions	Never	Rarely	Sometimes	Very often	Always
1	My learners apply their past experience or previous knowledge to make out the texts.					
2	My learners deduce the meaning of unknown vocabularies by adopting the reading contexts.					
3	My learners presume the hidden message/ ideas of the author.					
4	My learners engage in fluency building activities while reading.					
5	My learners search the data by previewing the contents of a text.					

6	My learners encore the related experiences while reading the texts.					
7	My learners forecast what would become next.					
8	My learners go through a huge number of texts to understand the overall ideas.					
9	My learners analyze longer sentences of a text.					
10	My learners survey text organization.					
11	My learners chase the transitions of thoughts/ideas of the author.					
12	My learners try to get the required data from the texts faster.					
13	My learners evaluate their reading progress.					
14	My learners look up words in the dictionary.					

Appendix C: Students' Interview Questions

1. What challenges do you find mainly while reading your English texts?
2. What perceptions do you have about effective reading strategies?
3. What kinds of activities are displayed in your EFL reading class?
4. What kinds of communicative activities facilitate your reading comprehension?
5. Do you prefer reading in combination with other language skills?

Appendix D: Classroom Observation

1. The learners categorize reading lessons into pre-reading tasks, while-reading strategies and post-reading strategies.
2. The learners use dictionary when they find any unknown words during reading texts.
3. The learners know how to scan a text.
4. The learners know how to skim through a text.
5. The learners relate textual information to background knowledge.
6. The learners know how to forecast the contents of a text.
7. The learners know how to read extensively.
8. The learners engage themselves into fluency building activities.
9. The learners understand transition of ideas.
10. The learners know how to analyse a long sentence.
11. The learners know how to summarize a long text.
12. The learners presume the meaning of unknown words by contexts of a text.
13. The learners have inferencing, interpreting and analyzing skills.
14. The learners practise how to transform strategies into skills.
15. The learners evaluate reading text critically.

Teachers' Role in Incorporating Principles and Classroom Tasks of EFL Reading at Tertiary Level in Bangladesh

Md. Anisor Rahman[1], Amena Begum[2]

Abstract: Teaching reading skill is treated as an inseparable part of language proficiency, as it accelerates academic literacy and advancement within the tertiary academic treatment. This study investigates on Bangladeshi ELT teachers' role in incorporating the principles and classroom tasks of EFL reading skill, challenges and their solutions. In conducting the research, the researcher adopted mixed method approach, where both primary and secondary data were adopted. The researcher selected 400 participants randomly from two public universities, three private universities, and one college under National University and twenty EFL teachers to collect the data. The findings of this study reflect that many Bangladeshi EFL teachers lack systematic knowledge on the principles and classroom tasks of teaching reading skill, have no training in adopting these principles and classroom tasks in reading classes, a huge negligence to count teaching reading as a notable macro-skill of English language, and fail to motivate their students to concentrate on English reading tasks. The teachers' training on the principles and classroom tasks of teaching reading skill and their implementation in EFL classroom activities, fun presentation of the lessons, restructuring and redesigning the adopted materials would enhance this poor context and encourage Bangladeshi EFL students to be proficient in English reading skill at tertiary level.

Key Words: Bottom-up models, ELT, EFL, ESL, Skimming, Scanning

Introduction

Reading is as an active cognitive process which incorporates decoding symbols to attain the meanings of words with the reader's understanding. It is one of the four macro-skills of a foreign or second language. Without being proficient in reading skill, it is very challenging to grasp the foreign or second language. But it is very unfortunate fact that most of Bangladeshi ELT teachers do not prioritize on English reading skill in conducting English classes. Even these ELT teachers are not aware about the effective principles and classroom tasks of teaching EFL reading skill and their application in conducting EFL reading classes. Even, these ELT teachers do not encourage their learners to incorporate these principles and classroom tasks in developing their reading skill. Consequently, these Bangladeshi EFL students fail to develop their English reading proficiency. Even many EFL students face difficulties to read everything in English, to decode the words, and to perceive the meanings from the texts, which gradually lead the students to the realm of anxiety.[1]

The findings of a research conducted on the primary school teachers of Malaysia reflect that the EFL teachers were of adopting the reading strategies in accelerating reading competencies, while they could not 'fully utilize' the teaching reading skill to their students. Even the findings also show that the EFL teachers failed to motivate the students' 'interaction with the texts'.[2] The findings of another research based on a public elementary schools in Haripur District show that many EFL teachers have lots of challenges in teaching reading strategies to their students.[3] However, there is no significant studies on the role of Bangladeshi EFL teachers in incorporating principles and classroom tasks of EFL reading

1. Md. Anisor Rahman, Assistant Professor, Department of English & Director, Centre for Excellence and Career Development, Dhaka International University, Dhaka, Bangladesh.

2. Amena Begum, Lecturer, Department of English, Dhaka International University, Dhaka, Bangladesh. Correspondence to: anis.cou@gmail.com

skill at tertiary level. As there is no recent study on the role of EFL teachers in adopting principles and classroom tasks of EFL reading at Bangladeshi tertiary level, it reduces the acceleration of EFL learners' reading skills. Therefore, in such context, this paper tries to fill the gap on the role of EFL teachers in incorporating EFL reading skill at tertiary level in Bangladesh. Hence, the Bangladeshi ELT teachers should take prompt action to adopt the effective principles and classroom tasks of teaching reading skill in EFL/ESL context. In this case, the EFL teachers need to redesign the approaches, appropriate the materials for reading texts, orient the processes and procedures of reading, engage in effective classroom activities, and motivate the learners mentioning the significance of reading skill in acquiring English language. This study also inspires to adopt the latest methods and approaches of teaching reading skill in conducting EFL reading classes. To find out the effective recommendations of the study, the researchers collected data from both teachers and students through separated questionnaire survey, and interviews and analyzed the finding elaborately. The researchers also adopted classroom observation in structured observation list and random selection of reading theories. This paper is accomplished partially based on a research of a Master's thesis conducted at the Department of English, Comilla University in 2018 on the applicability of principles and classroom tasks in teaching EFL reading at tertiary level in Bangladesh.

Theoretical Discussion

Definition of Reading

Reading as an interaction between a writer and a reader.[4] In another word, reading is the exchange of ideas, feelings, wisdom, and moods through which a reader receives 'from others, their thoughts and feelings'.[5] Reading can be defined as 'a process' through which a reader looks at and makes out a written text.[6] Reading is treated as a 'psychological guessing game'[7], and treated as an 'interactive process' where the readers can engage their background knowledge and previous experience to understand the text.[8] It can also be "the process of receiving and interpreting information encoded in language form via the medium of print".[9]

Teaching Reading Skills

Reading is regarded a macro skill of English language. It is a receptive skills to develop EFL learners' skills on English language. In EFL/ESL context, an EFL learner must develop reading skills to proficient over any foreign or second language. With the passage of time, teaching reading skill has been shaped into different ways. Many researchers and ELT practitioners adopted different kinds of methods and approaches in teaching English reading skills. Earlier, students rarely or poorly took participation to learn reading. But, with the latest development of methods and approaches, reading as a macro skills is moderately focused, though a massive ignorance can be seen. Being a part of EFL and ESL, reading pedagogy and reading approaches have also been desired to change– change in feeling, outlook, expression, and, overall teaching method.

Reading Processes

Many researchers have been trying to design the reading processes for many years. In different studies, these processes are decorated in different ways. Among these processes, the reading models can be categorized into three divisions. These include: bottom-up models, top-down models, and interactive models.

Bottom-up Models

In bottom-up approach, the reader identifies letters, words, lexical and grammatical structures of the text gradually. He must make out the meaning of the text along with the knowledge on every issues of the language. It starts from the lower-level reading to the meaning of the text. The reader develops every piece of facts from the text word by word. Students orient reading with the basics of letter, sound

recognition, and morpheme recognition along with word recognition, grammatical structures, syntactical development, and the longer texts.[10] Later on, the reader attains the meaning out of the text gradually. It may be presented in the following flowchart: "Print→ Every letter discriminated→ Phonemes and graphemes matched→ Blending→ Pronunciation→ Meaning."[11]

Top-down Models

In top-down models, reader's goals and expectations are focused during reading the texts. The reader absorbs in getting the comprehension is the basic requirement of the reader. So, understanding the text is vital fact of top-down models, which is proposed as a reading process.[12] The reader "comes to the text with a previously formed plan, and perhaps, omits chunks of the text which seem to be irrelevant to the reader's purpose."[13] The flowchart for this: Previous experience, language sense and experience→ Selective views of print→ Meaning→ Sound, pronunciation.[14]

Interactive Models

Reading is not just a one side approach. In an interactive process, a reader and a text both have their own parts. Interaction happens between the reader and the text. Both indications supplied by the text and schema of scientific reasoning of the reader help the reader make out the meaning of the text. At that time, a reader needs to relate facts from the text to the existing background knowledge' and it highlights the uses of background knowledge, context, and prospects etc.[15] Interactive process includes three issues, which are theoretical abilities, background knowledge, and procedures techniques. It is the mixture of both top- down and bottom- up approaches. Through this approach, the students can highly accelerate their skills.

Principles for Teaching EFL Reading

To accelerate reading strategies, the teachers should be well prepared to facilitate the learning of reading skills. The EFL teachers should concern regularly "to take stock of their perception or the nature of the reading process itself, relevant reading activities, and appropriate classroom management."[17] The principles for teaching reading skill can be dealt into the following eight tactics.[18] These principles include:

Utilizing the reader's previous knowledge

A reader's previous knowledge about the text prevails the reading comprehension.[19] The reader's previous knowledge about the text includes the reader's experience that connects to a reading text: educational experience, life experience, text's structures, one's first language experience, one's foreign language experience, and reader's cultural background related to any text. If background knowledge of a reader is actuated by asking questions, fixing goals, teaching the structure of the text, and putting predictions, EFL reading comprehension will be significantly developed. If the reader do not have enough previous knowledge about the text, he or she might face difficulties to comprehend it. So, background knowledge about the text develops reader's knowledge and reward him the comprehension on the text.

Building a strong vocabulary base

If any reader invests much time on reading any kind of text including extensive reading or intensive reading, it will surely develop the vocabulary base of the reader. To have a strong base on vocabulary in English language as an EFL learner, there is no way except reading much. The readers' academic texts are flexible with specific terminology than with common lexicon.[20] The fundamental lexicons should be educated bluntly and EFL readers should adopt context to guess the interpretations of less used lexicons.[21]

Teaching for comprehension

Reading comprehension is the outcome of a reader's processing on written documents or text. The reader amalgamates his background knowledge to reach into a meaning of a text and achieve the comprehension skill about the text. To be a fluent reader, the reader should enhance the balance and coordinating abilities on a complex and rapid set of routines, what makes the reader comprehend the texts. To educate apprehension, the EFL readers should exhort the apprehension procedures and to make the readers be able to discuss the tactics to understand the text. It will develop the cognitive and metacognitive skills of EFL readers.

Working on developing reading rate

In EFL context, the EFL learners highly face the difficulties to increase their reading rate. Most of the EFL learners are not fluent enough to read faster along getting the interpretations of the text. Even, the EFL instructors accentuate accuracy which thwarts fluency. The teacher should find out a balanced status between students in developing reading rate and apprehension ability by reducing their dependence on dictionary. It does not highlight to make speed readers, but it should emphasize on fluent readers.

Teaching reading strategies

Strategies are "the tools for active, self-directed involvement that is necessary for developing communicative ability. Strategies are not a single event but rather a creative sequence of events that learners actively use."[22] Reading strategies display how the readers can understand the activities of the text, how they can perceive the meaning of the text, and what they should do if the cannot make out the meaning of the text. These techniques are adopted to develop readers' comprehension about the text and remove the challenges of understanding the text. Usually, reading strategies mean the activities and processes adopted by the readers to accelerate their reading comprehension skill.[23] Reading strategies may be of different kinds, which include cognitive, metacognitive, memory strategies etc. By cognitive strategies, the reader can understand and produce new language in different contexts. By metacognitive strategies, the reader can control and develop learning by dint of planning, monitoring, assessments and learning tactics.

Inspiring readers to convert techniques into skills

A good reader adopts strategies in developing reading proficiency. An EFL learner will accelerate the language proficiency faster, if he knows to transform the reading techniques into skills. Strategies help the learners accelerate the expected objectives and desired goals, while a skill stands as an automatic strategy. As the EFL learners try to develop the specific reading techniques consciously, the techniques transform from technique to skill; from conscious to unconscious.

Building evaluation and assessment into teaching

In reading classroom, assessment should be settled. The students should be engaged in activities like choosing information from the text, forming flow charts taking necessary data from the text, and answering question. Students should enjoy reading extensive reading like journals, interesting surveys, and strategy checklists. By doing these, the teacher should conduct assessment and evaluation in teaching English reading skills in EFL context.

Working for continuous development as a reading educator

A reader will get success depending on the time and practice of the reader for a particular language. The reader has to do hard work to develop his or her reading proficiency on that particular language. The reading teacher must be dedicated to accelerate his or her students' reading proficiency. They involve in building linkages between research and teaching practices which is called 'action research',

a step of teacher-oriented approach where the teachers can work systematically in their classrooms to observe the procedures of teaching and learning reading skills.

Classroom Tasks for Instruction in Reading

To make the effective reading classroom, we can categorized the lessons into three gradual phases[24]. These gradual phases include pre-reading, while-reading, and post-reading phases.

Pre-reading

Pre-reading functions are included to motivate the learners reflecting the reason for reading, to arise the interest of the reader to read the text, and to offer a space to have preparation for the language. In this stage, the teachers organize the activities which help learners to understand what the students are going experience gradually. The a few effective pre-reading activities may include the followings[25]:

- ✓ Focusing the title
- ✓ Assessing the date of publication and edition
- ✓ Going through indices
- ✓ Getting appendices
- ✓ Going through abstract to get the background knowledge
- ✓ Focusing on the blurb, preface, and forward parts
- ✓ Finally, Doing brainstorming about the text carefully.

While-reading

Among these three phase, the most active phase is while-reading or during-reading activities, as the students have to be very active and energized during-reading phase. It enables the learners to get the purpose of the writer, to comprehend the structures of the text, and to analyze the content of the text. Students have to mark the necessary information during-reading stage. It might include analyzing sentences, guessing meaning from context, getting information, surveying text structures, developing vocabulary, and matching text with information etc. A few while-reading activities are[26]:

- ✓ Inferring meaning from context
- ✓ Answering the pre-questions on the text
- ✓ Interpreting sentences
- ✓ Guessing meaning of new words.
- ✓ Focusing the structure of the text
- ✓ Matching texts with picture, charts, diagrams etc.
- ✓ Finding out the specific information
- ✓ Analyzing the detailed information etc.

Post-reading

Post-reading includes recall task, modifying techniques, answering questions, evaluating, and paired re-reading etc. The theory of reading is integrated into classroom practice and organizes a teaching system for EFL reading 'around the word ACTIVE[27]:

- ✓ A: Activating background knowledge
- ✓ C: Cultivating lexical development
- ✓ T: Teaching for developing comprehension
- ✓ I: Increasing reading fluency
- ✓ V: Verifying the techniques of reading
- ✓ E: Evaluating reading progress etc.'

Teaching EFL Reading at Tertiary Level in Bangladesh

Within the setting of Bangladesh, enrollment in Bangladeshi universities for higher education has developed in the last two decades. Almost 60% to 70% university students here are from the villages where the learners cannot attain the minimum level of proficiency of English language. However, within tertiary academic contexts in Bangladesh, English is the medium of instruction and EFL reading influences the academic success and academic competence heavily. Reading skills enable the readers to get the desired information, and to attain the desired academic performance and success at tertiary level. It is the crying need of Bangladeshi EFL/ESL readers to accelerate the reading skills to attain the desired international standard in today's global context. To attain the desired success in adopting reading skill, it will take time for the graduates. If the reading teachers use recent pedagogical approaches and implement reading principles into classroom practices, the situation will improve significantly. Therefore, to ensure the expected success and advancement of Bangladeshi EFL/ ESL readers into the global competition, they must acquire the advanced level of reading skills. By ensuring the development of reading skills, the students will learn to adopt the highest level of resources in developing information and knowledge, which would reform the educational contexts of Bangladesh.

Literature Review

From time to time, researchers carried out a good number of researches on the principles and classroom tasks of teaching reading skill in different contexts. Here it shows how they represent the principles and classroom tasks in teaching reading skill and their implementation in EFL reading classes. In a research, it shows the poor development of EFL students' reading skills due to teachers' involvement on 'action research', which incorporates to set goals of the students' reading ability, to examine and interpret directions to fix the best plan, to monitor students' attitude on their reading development, to evaluate their outcomes, and to observe the capabilities of students during their progression in English reading skill.[28] The EFL learners' reading skill can be accelerated by dint of a few reading activities, which will be based on lower cognitive skills. Such instructional approach is highly discussed in its supposition that signifying the structural development of grammar in the interactional practice will make the way to acquire the language development.[29,30] Reading strategies incorporate the sentence structures along with drilling, which can be adopted as the primary way to follow new structures. These adopted drills remain skill-based and founded on a bottom-up procedure.[31]

Fluency training (i.e. combining story previews and rereading, extensive reading in class, paired readings, reading at home, questions and discussions around readings, etc.) can develop readers' abilities on reading[32]. Even the EFL teachers gradually develop a way to teach these activities for acceleration of the students' fluency and automaticity. Another study displayed a huge development in reading fluency in both English language and readers' native language after going through eight passages in given scheduled reading tasks over four weeks[33]. In another study which revealed that the reading fluency development tasks would incorporate paced reading and timed reading, and instruction in adopting reading techniques.[34] The amount of reading had an effective effect on reading comprehension after controlling for prior reading comprehension scores and prior knowledge of the topics[35]. It reflects that motivation was a major cause of amount of reading completed.

It is notable to assert that the extensive reading differentiates in the development of an EFL learners' reading rate with the passage of the time. The Reading and English Acquisition Program (REAP) curriculum focused an approach based on shared reading, an approach based on modified language experience, and libraries for extensive reading skills. The REAP learners would surely outperform the control classes in terms of lexical development, grammatical uses, developing reading proficiency and

listening skill, and writing skills.[36] Hence, the study revealed the benefits of extensive reading and suggested its usefulness for language development.

Based on L2 reading context, the reading activities encourage effective interaction and engage the students as solution makers in communicative approach.[37] In adopting communicative strategies in the development of reading skill during problem-solving procedure, the learners cooperate to find out the meaning of the text in order to construct a mental picture of the text according to author's intention. As Task Based Instruction (TBI) fosters authentic communication and meaning-centered learning, it has been suggested by several L2 investigators as a viable and realistic educational technique for EFL/ESL learning.[38,39,40] However, a few ESL experts assert that the significance on activities can play negative influence in the acceleration of linguistic competence during the preparation of their academic development, as TBI highlights the acceleration of interactional flow and the accomplishment of tasks or activities rather than language accuracy.[41, 42]

In L2 activities, the Oral Approach highlights 'bottom-up' procedure in developing the poorly graded reading abilities of the students, which would include word recognition abilities, phonological processing abilities, and word identification abilities.[43] In SLA theories, the information-processing theory includes textual information procedure, lexical information procedure, and the consistency of text information and background knowledge procedure.[44] Lexical information procedure means to cognitive procedure on analyzing forms and their activities like word procedure.[45] Textual information procedure means to understandable process incorporating the development of psychic orientation of succeeding issues to get the author's intention like discourse procedure.[46] The synthesis of text processing and background knowledge procedure involves cognitive procedure like reasoning, inferencing, and remembering.[47] In another research, a classroom based on task is really helpful; it could cause an environment that helps students to engage more inside in the classroom. It also emphasized that when students are given a certain amount of task, they will apprehend the task with innate curiosity and develop skills like critical thinking, reason making, brainstorming and produce valuable insights.[48] English native readers were very fast on all words and just about as fast on recognising non-words, demonstrating full automaticity of word recognition in English.[49]

The learners are highly encouraged in practisong, solving, and following the exam-oriented approaches regarding style and demo assessment questions. As reading is considered as a significant tool to affect the success and academic performance at tertiary level, the students must develop the required level of abilities to go through the academic texts and need to achieve mastery on reading skills.[50] But it is unfortunate fact that the performance of many EFL university students display poor abilities in going through the texts and understanding the materials and texts in English language.[51, 52, 53] It causes a negative outcome in their academic success. Evaluating the influence and in order to prepare university students for academic success, teaching EFL reading by implementing reading principles into reading activities deserves further exploration.

In a research based on the tertiary level students of Bangladesh showed that the learners are not used to read books. Because, the students 'learn to read by reading'; whereas, the Bangladeshi EFL learners do not find any alternative attractive and interesting reading materials. Even, the teachers do not create enough materials or encouragement to make the learners habituated 'extensive reader'. The research also reflects that students are prepared to face the exam. So, the exam-oriented syllabus and teachers' instructions make Bangladeshi EFL learners' reading skill poor.[54]

Research Objectives

To accomplish the study, the researchers adopted a few objectives. These objectives are:

1. To identify the adopted principles and classroom tasks in teaching reading skill in Bangladeshi EFL reading classes.
2. To identify the processes and procedures how Bangladeshi EFL teachers implement principles and classroom tasks of teaching reading skill in EFL reading classes.
3. To identify the challenges what Bangladeshi EFL teachers find in implementing principles and classroom tasks of teaching reading skill in EFL reading classes.
4. To find out the effective solutions to eradicate these challenges and apply principles and classroom tasks of teaching reading skill in Bangladeshi EFL reading classes at tertiary level.

Research Questions

The research tries to find out the answers of the following questions.

1. What principles and classroom tasks are adopted in teaching reading skill in Bangladeshi EFL reading classes?
2. How do Bangladeshi EFL teachers implement principles and classroom tasks of teaching reading skill in EFL reading classes?
3. What challenges do Bangladeshi EFL teachers find in implementing principles and classroom tasks of teaching reading skill in EFL reading classes?
4. How can Bangladeshi EFL teachers overcome these challenges and apply principles and classroom tasks of teaching reading skill in Bangladeshi EFL reading classes at tertiary level?

Research Methodology

Research Design

The research paper has been conducted following mixed methods (MM) approach for collecting and analyzing data since it "allows researchers to mix aspects of the qualitative and quantitative paradigms at all or many methodological steps in the design".[55] The researcher followed the scientific study in conducting the study and developed step-by-step combining both qualitative and quantitative methods. Both primary and secondary data were adopted during the accomplishment of the study.

Participants

To collect the data, the sampling areas were included from English Departments of two public universities, one college under national university, and three private universities of Bangladesh. To collect the data, 400 EFL students irrespective of gender, who were students of honors 1st and 2nd year, were selected randomly as the participants for students' questionnaire survey. Besides, twenty university teachers of public, national, and private universities willingly took part in questionnaire survey and interview session. For classroom observations, ten classes from those public and private universities had been observed. The students had several characteristics in common- possessing the same mother tongue, Bengali.

Instrumentations

Research instruments refer to the medium through which a researcher tries to collect or analyze the data. To collect the secondary data, the researcher studied many ELT books, journals, research papers, and conference proceedings etc. To collect the primary data, the researcher adopted questionnaire for both teachers and students, interview for teachers, and classroom observation.

Questionnaire for Students and Teachers

The questionnaire survey refers to a systematic, organized, and scientific tool for data collection. The pattern of questions in the questionnaire survey can be either closed or open-ended, and they are typed out and printed.[56] To collect the data, the researchers have adopted two types of questionnaires: questionnaire for students and questionnaire for teachers. Two sets of questionnaire were designed for students and teachers. In the questionnaire for students, 19 questions were set and in the questionnaire for teachers, 21 questions were set. The researcher designed the questionnaires based on the research questions and objectives. The closed format questions were chosen for this study.

Interview

The semi-structured interviews with eight English teachers from public and private universities of Bangladesh were adopted. In the interview, the researcher followed 05 questions, where the Bangladeshi EFL teachers could answer according to their experiences. The interviewees answered them in their own ways. These questions were based on the principles and classroom tasks of teaching reading skill in EFL classroom, how they adopt these techniques, how they face the problems and overcome those problem in the EFL classes. The researcher took interview of the English teachers individually and they were asked to answer based on their experience and beliefs.

Observation

The classroom observation makes the researcher understand teachers' activities and the pattern of interaction in the classroom clearly.[57] The scheme used for the 10 EFL reading classroom observation contains 15 questions, which would highlight teachers' individual teaching techniques, adoption of principles and classroom tasks in EFL classroom, their techniques and activities in conducting reading classes. The questions were to highlight the process, adopted materials and instruments in conducting English reading classes.

Findings and Discussions

The researcher adopted both qualitative and quantitative procedures to analyze and interpret data. In order to discuss the statistical findings, tables, graphs, charts, etc. were used as means of graphic description.

Findings of Students' Questionnaire

Findings of the students' questionnaire are displayed in the form of Mean and Standard Deviations (SD) in table 1:

Table 01: Findings of Students' Questionnaire

Q No.	Question	Results	
		Mean	SD
1	My English reading instructor categorizes reading lessons based on pre-reading activities, while-reading strategies, and post-reading tasks.	3.62	1.39
2	My English reading instructor highlights text's contexts in the beginning.	3.54	1.31
3	My English reading instructor instructs me the process to go through the texts in reading classroom discussions.	3.07	0.85
4	My English reading instructor divides the learners in a few pairs/groups to get the meaning from the interaction of the texts.	2.66	0.94
5	My English reading instructor provides enough clues to understand the meaning of new words.	3.33	0.91
6	My English reading instructor inspires me to guess the meaning of unfamiliar words by using context.	3.43	0.95
7	My English reading instructor suggests me to look for the meaning of unknown words into dictionary in reading classes?	3.39	0.88
8	My English reading instructor encourages me to connect previous knowledge and experience with the meaning of texts.	3.45	0.80
9	My English reading instructor highlights the approaches to read a text faster and get the information easily like scanning.	3.43	0.78
10	My English reading instructor shows how to get the central idea or synopsis of the text faster like skimming.	3.41	0.77
11	My English reading instructor inspires me to practice extensive reading.	3.54	0.76
12	My English reading instructor teaches me to predict the content of the text.	3.42	0.67
13	My English reading instructor elaborates inferencing, interpreting, and analysing of reading skills?	3.59	0.66
14	My English reading instructor helps me analyze long sentences.	3.51	0.75
15	My English reading instructor encourages me to go through the texts in the classroom activities.	3.27	0.93
16	My English reading instructor emphasizes on rate building activities.	3.22	0.89
17	My English reading instructor shows how to make critical evaluation of the texts.	3.50	0.85

| 18 | My English reading instructor helps me to integrate other language skills. | 3.39 | 0.96 |
| 19 | My English reading instructor motivates me to read a lot. | 3.43 | 0.88 |

N.B. N=400 in the students' questionnaire survey.

Findings of Students' Questionnaire

The findings of students' questionnaire are categorized as 'High', 'Moderate' and 'Low' based on the interpretation key: from 1.50 to 2.49 = 'Low'; from 2.50 to 3.49 = 'Moderate'; and from 3.50 to above = 'High'. Table 1 shows that in the questionnaire, 6 items (questions 1, 2, 11, 13, 14, 17) have 'High' mean scores which are above 3.50; then 13 items (questions 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 18, 19) have 'Moderate' mean scores (2.50 and above it); and no item reflects 'Low' mean scores (less than 2.50). According to the findings of students' questionnaire, from 19 items 6 items show 'high' mean scores whereas rest 13 items reflect 'Moderate' level mean scores. The outcomes indicate a moderate state of current skills of EFL students' English reading methodology at tertiary level in Bangladesh. It highlights a good state of EFL learners' English reading skills, and obviously the learners experience no major hindrances in reading activities. The students opine positive notions regarding their teachers' techniques, tasks, and activities adopted in reading classes.

Findings of Teachers' Questionnaire

Table 2 highlights the findings of teachers' questionnaire through Mean scores and SD:

Table 02: Findings of Teachers' Questionnaire

Q No.	Question	Results	
		Mean	SD
1	I categorize the reading lessons based on pre-reading activities, while-reading strategies, and post-reading tasks.	3.85	0.81
2	I analyse the background of texts in the beginning of reading classes.	4.05	0.82
3	I encourage EFL learners to go through the texts in reading classes.	3.80	0.61
4	I divide the learners in a few pairs/groups to get the meaning from the interaction on the text.	3.40	0.68
5	I provide enough clues to understand the meaning of new words.	3.75	1.01
6	I inspire the learners to guess the meaning of unfamiliar words by using context.	3.65	0.93
7	I suggest the learners to look for the meaning of unknown words into dictionary in reading classes.	3.50	0.76
8	I encourage the learners to connect previous knowledge and experience with the meaning of texts.	3.55	0.51
9	I highlight the approaches to read a text faster and get the information easily like scanning.	3.75	0.64
10	I guide the learners how to get the central idea or synopsis of the text	3.85	0.67

	faster like skimming.		
11	I inspire the students to practice extensive reading.	3.95	0.60
12	I teach the learners to predict the content of the text.	3.65	0.49
13	? I elaborate inferencing, interpreting, and analysing of reading skills	3.80	0.41
14	I help the learners analyze long sentences.	3.40	0.50
15	I encourage the learners to go through the texts in the classroom activities.	3.45	0.51
16	I emphasize on rate building activities.	3.55	0.51
17	I guide learners how to make critical evaluation of the texts.	3.75	0.44
18	I cordially help the learners to integrate other language skills.	4.05	0.51
19	I motivate the learners to read a lot.	4.00	0.45
20	I play the role as an active task-solver of the learners in reading strategies.	3.90	0.30
21	I include assessment activities in teaching reading classroom.	3.95	0.22

N.B. N=20 in the teachers' questionnaire survey.

Findings of the Teachers' Questionnaire

Table 2 shows that in the questionnaire survey, 18 items (questions1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 16, 17, 18, 19, 20, 21) have 'High' mean scores which are above 3.50; then 3 items (questions 4, 14, 15) have 'Moderate' mean scores (2.50 and above it); and no item has 'Low' mean score (below 2.50). The results show that no item has 'Low' mean score; while others display 'High' and 'Moderate' mean scores. It means, many of them are pleased with their own teaching techniques used in reading class.

Findings of Teachers' Interview

Five questions were asked to the teachers to elicit data from teachers' interview. In response to Question 1 on teachers' preferred method in teaching EFL reading, out of eight university teachers six teachers viewed CLT in conducting English reading classes while two teachers adopted Grammar Translation Method (GTM) in teaching English reading skills to the EFL students. These two teachers show negative attitude to involve the learners in interactional activities, as it wastages time during the classes. They assert that if they follow students' engagement in 40-50 minutes classroom, it would hinder him to adopt the valuable topics to be discussed. An EFL teacher responds as "the reading classes contain a huge number of students along with a limited time of 45 minutes, it is a quite impossible to ensure the tasks-accomplishment of every students along with ensuring their tasks-feedback". Teachers' response to the second question on whether teachers have any training on conducting ELT classes revealed that most of the university teachers do not get any training on CLT. Among eight teachers only two teachers were well-trained in adopting CLT in EFL classroom. These two teachers shared that they had developed management strategies in conducting English reading skills in large classroom, decorate interactive classroom with different reading activities, and engage the learners with lots of fun and enjoyment in teaching and learning English reading skills etc. In response to Question 3 on teachers' preferred communicative activities, almost all the teachers acknowledge that engaging students in different reading activities would ensure the effective outcome students' reading proficiency. An EFL teacher says, "To enrich the reading skills of an EFL student, he

must engage in communicative activities in EFL classroom". They suggested communicative activities like- group work, pair work, problem solving and jigsaw reading, which would be conducive to develop their authentic reading practices. In response to the fourth question on teachers' preferred resources for reading classes, the teachers reported that supplementary readings can motivate learners to read more and keep them focused on the task. According to the students' interest, the teachers adopted varieties of resources from real textbooks, magazines, dailies, novels, storybooks, journals, reports, proposals, internet materials, articles, and dialogues or conversations. Question 5 is related to teachers' action research project by which teachers can expect to understand students' attitudes about reading and their self-image as readers. In response to the question, almost a half of the respondents reported that at the beginning of the reading course the teacher should talk about him/herself as a reader with students. He/she can engage in an interactive introduction as sharing information that reveals what/when/where the teacher liked to read, encouraging students to share their preferences and habits. Then by reviewing students' written assignments, portfolios, grade book annotations a teacher can discover insights into students' evolving views about themselves as readers.

Findings of Classroom Observation

Table 3 highlights the findings of classroom observation through Mean and SD:

Table 3: Findings of classroom observation

SL No	Questions	Mean	SD
1.	The reading teacher categorizes reading lessons based on pre-reading activities, while-reading strategies, and post-reading tasks.	2.60	0.51
2.	The EFL instructor analyses the texts' background knowledge in the beginning of reading classes.	2.40	0.84
3.	The reading teacher divides the learners in a few pairs/groups to get the meaning from the interaction of the texts.	2.70	0.48
4.	The reading teacher encourages the students to go through the texts a lot.	2.60	0.51
5.	The EFL instructor encourages the learners to make critical comment on syntactic development of the texts?	2.30	0.94
6.	The teacher helps students to integrate other language skills.	2.50	1.08
7.	The teacher makes the students work on the comprehension questions during reading activities.	2.30	1.15
8.	The teacher shows how to make critical evaluation of the texts.	3.20	0.91
9.	The reading teacher guide the learners to become strategic readers.	2.30	1.25
10.	The reading teachers identifies the challenges in reading activities in the class.	2.40	1.17
11.	The teacher involve the learners into action research project.	2.60	0.96

12.	The reading teacher inspires the learners to practice extensive reading.	2.40	1.17
13.	The reading instructor plays the role as an active task-solver of the learners in reading strategies.	2.50	1.08
14.	The EFL instructor provides enough contextual clues to understand the meaning of unknown words.	2.60	0.96
15.	The reading instructor guides the learners to follow scanning or skimming through the texts.	2.40	1.17

Findings Summary: Classroom Observation

The findings of classroom observation are categorized as 'High', 'Moderate', and 'Low' based on the interpretation key: from1.50 to 2.49 = Low; from 2.50 to 3.49 = Moderate; and from 3.50 to above = 'High'. Table 3 shows that in the classroom observation, no item falls into the 'High' category. On the other hand, 8 items (questions 1, 3, 4, 6, 8, 11, 13, 14) have 'Moderate' mean scores which are above 2.50 and 7 items (questions 2, 5, 7, 9, 10, 12, 15) have 'Low' mean scores (below 2.50). According to the classroom observation of teachers, out of 15 items 8 have 'Moderate' mean scores whereas rest 7 items have 'Low' Mean scores. No item falls into the category of 'High' level. The overall outcomes in classroom observation mark frustrating results. It reflects that students' poor participation in reading activities and poor performance in adopting reading techniques following the required methodological tools and guidance. It shows that teachers are not up to the mark in holding the reading classroom activities based on different types of reading methods and approaches.

Recommendations and Conclusion

Recommendations

Based on the findings of the research, the researcher instructed a few recommendations. These recommendations should be adopted to develop the Bangladeshi EFL learners' English reading skill at tertiary level. These recommendations include:

1. The EFL teachers should involve themselves in 'action research' project for the purposes of improving their own teaching and enhancing the quality of learning.
2. The teachers should assist the learners with various hints and clues, and encourage them to develop their cognitive and metacognitive techniques in reading skills.
3. The teachers should engage the learners in searching different meanings of the texts, supervise learners' strategies, and guide them with constant feedback. Even the teachers should motivate the students to read a lot.
4. The EFL teachers should be passionate about their students' activities and work hard to help students find the fire and passion to learn. Teachers should set students with reading activities.
5. The EFL teachers should encourage the learners to be engaged in enjoying and valuing extensive reading.
6. The EFL teachers should record the performance checklist of his/ her students. He should compose his work out and plan for every particular students.
7. The EFL teachers should make sure that every students works productively, promote text-focused analysis, provide 'scaffolding' to help the learners analyze the texts individually, and lessen their dependency on the teacher.

8. The EFL teachers should perform their responsibilities as a teacher like adopting actual materials, forming effective tasks and activities, preparing learners to undertake the activities, and make work out or plan based on students' ability and progression on English reading skill.[58]

9. The reading teachers should incorporate different uses of technology and laboratories in conducting English reading classes. It will encourage the learners to be engaged in varieties of activities related to other skills before or after reading exercises.

Conclusion

The current study is dealt to raise Bangladeshi EFL teachers' awareness about the effective principles and classroom tasks of teaching reading skill and implementing these principles and classroom tasks of teaching reading skill in EFL/ESL classes to develop Bangladeshi EFL learners' English reading proficiency. The study has previewed the real picture of implementing principles and classroom tasks of teaching English reading skill and also highlighted the challenges in adopting these techniques in EFL classrooms. The findings of the study lead to raise a few recommendations, which should be imposed by Bangladeshi EFL teachers to accelerate the proficiency of EFL learners' reading proficiency. If these recommendations are adopted in Bangladeshi EFL reading classroom activities, the scenario of EFL students' English language proficiency will be reshaped.

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Appendix

Appendix A: Students' Questionnaire

(The information provided by the respondents will highly be private and adopted for the accomplishment of this research only.)

Q No	Questions	Never	Rarely	Sometimes	Very Often	Always
1	My English reading instructor categorizes reading lessons based on pre-reading activities, while-reading strategies, and post-reading tasks.					
2	My English reading instructor highlights text's contexts in the beginning.					
3	My English reading instructor instructs me the process to go through the texts in reading classroom discussions.					
4	My English reading instructor divides the learners in a few pairs/groups to get the meaning from the interaction of the texts.					
5	My English reading instructor provides enough clues to understand the meaning of new words.					
6	My English reading instructor inspires me to guess the meaning of unfamiliar words by using context.					
7	My English reading instructor suggests me to look for the meaning of unknown words into dictionary in reading classes.					
8	My English reading instructor encourages me to connect previous knowledge and experience with the meaning of texts.					

9	My English reading instructor highlights the approaches to read a text faster and get the information easily like scanning.					
10	My English reading instructor shows how to get the central idea or synopsis of the text faster like skimming.					
11	My English reading instructor inspires me to practice extensive reading.					
12	My English reading instructor teaches me to predict the content of the text.					
13	My English reading instructor elaborates inferencing, interpreting, and analysing of reading skills.					
14	My English reading instructor helps me analyze long sentences.					
15	My English reading instructor encourages me to go through the texts in the classroom activities.					
16	My English reading instructor emphasizes on rate building activities.					
17	My English reading instructor shows how to make critical evaluation of the texts.					
18	My English reading instructor helps me to integrate other language skills.					
19	My English reading instructor motivates me to read a lot.					

Appendix B: Teachers' Questionnaire

Q No.	Questions	Never	Rarely	Sometimes	Very often	Always
1	I categorize the reading lessons based on pre-reading activities, while-reading strategies, and post-reading tasks.					
2	I analyse the background of texts in the beginning of reading classes.					
3	I encourage EFL learners to go through the texts in reading classes.					
4	I divide the learners in a few pairs/groups to get the meaning from the interaction on the text.					
5	I provide enough clues to understand the meaning of new words.					
6	I inspire the learners to guess the meaning of unfamiliar words by using context.					
7	I suggest the learners to look for the meaning of unknown words into dictionary in reading classes.					
8	I encourage the learners to connect previous knowledge and experience with the meaning of texts.					
9	I highlight the approaches to read a text faster and get the information easily like scanning.					
10	I guide the learners how to get the central idea or synopsis of the text faster like skimming.					
11	I inspire the students to practice extensive reading.					

12	I teach the learners to predict the content of the text.					
13	? I elaborate inferencing, interpreting, and analysing of reading skills					
14	I help the learners analyze long sentences.					
15	I encourage the learners to go through the texts in the classroom activities.					
16	I emphasize on rate building activities.					
17	I guide learners how to make critical evaluation of the texts.					
18	I cordially help the learners to integrate other language skills.					
19	I motivate the learners to read a lot.					
20	I play the role as an active task-solver of the learners in reading strategies.					
21	I include assessment activities in teaching reading classroom.					

Appendix C: Teachers' Interview Questions

1. Which method or approach do you adopt in teaching EFL reading?
2. Have you got trained on adopting CLT in EFL reading classroom?
3. What types of communicative activities do you prefer to engage students in reading class?
4. What resources do you adopt in conducting English reading classes?
5. How do you build students' images of themselves as readers?

Appendix D: Classroom Observation

SL No	Questions
1.	The reading teacher categorizes reading lessons based on pre-reading activities, while-reading strategies, and post-reading tasks.
2.	The EFL instructor analyses the texts' background knowledge in the beginning of reading classes.
3.	The reading teacher divides the learners in a few pairs/groups to get the meaning from the interaction of the texts.
4.	The reading teacher encourages the students to go through the texts a lot.
5.	The EFL instructor encourages the learners to make critical comment on syntactic development of the texts?
6.	The teacher helps students to integrate other language skills.
7.	The teacher makes the students work on the comprehension questions during reading activities.
8.	The teacher shows how to make critical evaluation of the texts.
9.	The reading teacher guide the learners to become strategic readers.
10.	The reading teachers identifies the challenges in reading activities in the class.
11.	The teacher involve the learners into action research project.
12.	The reading teacher inspires the learners to practice extensive reading.
13.	The reading instructor plays the role as an active task-solver of the learners in reading strategies.
14.	The EFL instructor provides enough contextual clues to understand the meaning of unknown words.
15.	The reading instructor guides the learners to follow scanning or skimming through the texts.

Opportunities and Challenges of Conducting Online Classes during and Post Covid-19 Pandemic

Mili Rahman[1], Ayesha Khatun[2]

Abstract: The outbreak of COVID-19 has paralyzed every sectors of human life. Every sector like business, commerce, education, aviation, navigation, health, agriculture becomes the easy victim of this catastrophe. It has brought to us a new normal, new life, new opportunities, and new challenges to survive. The tiny virus gifted many big lessons for us online education is one of them which is conducted over internet. The present paper is an endeavor to explore the opportunities resulted by the covid-19 for the continuation of teaching learning system during and post covid. The paper will also point out the challenges that come across in the way of effective online classes.

Keywords: Online Education, Lockdown, Opportunities, Challenges, Post Covid.

Introduction

The entire world has been combating with Covid-19 pandemic which has spreaded to almost every corner of the world over the first quarter of 2020.To control the rapid spreading; many countries resorted to lockdown that resulted in an adverse impact on all aspects of our daily life. In Bangladesh, the first three Covid-19 patients were identified on March 8, in the capital of Dhaka and as an aftermath, the country went into general shut down from March 26. Since then, people are largely prefer to stay at home except for emergencies while the educational institutions, aviation, navigation, park, mosques, shopping malls, most of the industries and businesses are kept shut down. Like the economy and business one of the worst affected victim of Covid-19 is the education sector not only in Bangladesh but all over the world. In such circumstances, the disruption in study is inevitable. Thus, it creates legitimate worries about session jams and the future of our students. Considering the fact to deal with the new normal situation the Ministry of Education of Bangladesh shifted the whole teaching-learning system from traditional way of learning into online mode. Online learning is a mode or way of instructions that takes place through internet. Students do not need to be present physically in lecture halls or classrooms, and they can learn and complete their courses on time keeping social distance from their comfort zone. This paper will show the advantages and disadvantages of online classes.

Additionally, the method of online delivery varies from the traditional face-to-face education in that student interactions are between student and faculty, student and peers, and student and technology. This does not necessarily mean that a facilitator with less ability or trust in managing emerging technology would not be able to provide sufficient and suitable learning experience for an external review. (Anderson et al., 2011; Fein & Logan, 2003; Juan et al., 2011)

1. Mili Rahman, Associate Professor, Department of English, Dhaka International University, Dhaka, Bangladesh

2. Ayesha Khatun, M. Phil. Fellow (JU) & Deputy Director, BCRP, Dhaka, Bangladesh
   Correspondence to: anhara.chowdhury@gmail.com

Research Questions

- What is the present state of online class?
- What are the challenges of online classes:
- In what extend the teachers and students are facing the challenges in conducting online classes?
- How online class will be a proper gateway for our students and teachers specially in this present pandemic situations?

Methodology

The study is a secondary sources data based content analysis**.** The Keen Observation Method was applied successfully for this research work. The researchers has conducted online classes in school and University of Dhaka City and practically observed the scenario. Therefore they have a direct connectivity with this teaching-learning process. For completing the research, researchers also gone through a good number of journals, articles, web content and Research reports. Both inclusion and exclusion criteria was applied for this research. The study appeared as qualitative in nature followed by a content analysis approach. Repeated reading and re-reading texts made by selecting themes for each discourse connected with technology based distance English learning programs substantially improved the qualitative data analysis to achieve specific research objectives.

Literature Review

Distance learning in the United States has developed over the last three decades into what is commonly known as "online learning, "via key delivery systems that reflect the tools available at the time: the postal system; radio and television; and interactive technologies (Anderson & Dron, 2011; Kentnor, 2015).

Caleb Phillipps, proposing to teach shorthand to students via exchanging letters all throughout the country (Gensler, 2014). Not unlike today's educators, he asserted that the level of instruction would be just as good as traditional face-to-face instructions. Radio and television course delivery systems followed parcel post with a federally licensed radio station launched in 1919. Even in the 1950s a University of Wisconsin offer college courses for credit with the help of the professors of universities and television stations. Phoenix University, is well known for its fully online programs, started using online technology with CompuServe (the first online service provider) in 1989, and then the World Wide Web in 1991. **1** The year 1998 marked the beginning of a rise in online programs, when New York University unveiled NYU Online, which along with many of the other online programs that followed but did not survive. This initial inability of online programs to meet standards also led to the idea of "blended" or "hybrid" programs that surfaced in 1999/2000 and merged face-to-face with online classes hoping to synergize the advantages of both.[2]

The range of synchronous and asynchronous modes of communication that can be used in the online learning environment present additional opportunities for interaction and participation for externally enrolled students particularly in relation to group work activities (Jaques& Salmon, 2007). This is the ways that students interact with one another, interact with the teaching staff, and interact with the content/subject matter through multiple formats (Anderson,2004; Jaques Salmon, 2007; Little-Wiles & Naimi, 2011; Schmidt et al, 2016: Zapalska & Brozik, 2006)

Online environment can be a challenge for both facilitators and students alike (Jaques & Salmon, 2007; Kirkwood & Price, 2014).

Often online educators must go through the daunting task of sifting through the increasingly expanding literature to identify these issues for themselves. Furthermore, because of continued reports of high dropout rates and achievement problems in online courses, conducting such an investigation and providing the result increasingly become critical to inform educators about considerations and changes necessary for improving about considerations and changes. (Mayes, Luebeck, Yu Ku, Akarasriworn, & Korkmaz, 2011).

Learners' nature of participation and engagement in online settings is another major issue discussed by researchers. Some researchers considered participation through interacting with peers and instructors by writing, while others suggested that learners who observed the interaction and spent time on reading more than writing was still engaged in learning (Hrastinski, 2008, 2009; Wise, Speer, Marbouti, & Hsiao, 2013).

Online Education

E-Learning is an improved electronic form of teaching. Efficient use of technology that is available 24/7, anywhere, anytime by anyone (3A+) wants it. It is often referred to as 'Online Education' or 'Distance Learning" and varies from conventional teaching in the classroom. As an instructor, trainer and researcher, the variations the difference between face-to-face and virtual classroom pedagogy can be easily found. **3** There is a lack of physical meeting in the online classes, no direct contact, and flexible schedule. It needs planning for content design, presentation from part of teachers. Students receive delayed feedback in the online class setting and teachers fail to recognize the weakness, power and comprehension.

Online education, on the other hand, encourages self-learning. It is a learner-centric education led by a teacher. In their own personal speed and space, students will learn. As there is no fixed schedule for online class, students can attend class from anywhere and at anytime they like. Online learning can be categorized   into Synchronous, asynchronous learning. 4

Synchronous learning

It happens in real time with live class, video lecture, TV channels, live streaming, video conferencing with direct interaction & communication like face to face learning where students get immediate feedback. Example of synchronous e- learning are chat and video conferencing. In this process of learning the students enables to avoid feelings of isolation.

Asynchronous learning

It does not occur in the real time. Students can learn autonomously and have the opportunity to study in self-paced. Through E-mail exchanging, discussion forum, chat board, recorded audio and YouTube asynchronous learning can be conducted. Course work and communication delivered via web, email, and messages posted on community forums are perfect example of asynchronous e-learning. In this process a student is able to follow the curriculum at their own place without having to worry about scheduling conflicts

Opportunities

The tiny virus changed the way of our living. Now it is the matter of surviving and a journey towards an unpredictable future. As every coin has two sides so this diverse situation also brought several opportunities and some lessons for us. The whole teaching learning system transferred into a virtual world for its continuation. The opportunities that have brought to us in response to Covid-19 pandemic are:

Enhance Digital Literacy

Online learning enables teachers to deliver lessons to students in an efficient way. Online learning has a variety of resources, such as videos, PDFs, podcasts, and teachers can use any of these tools as part of their lesson plans. By extending the lesson plan beyond traditional textbooks to include online resources, teachers are able to become more skillful educators.[5]

Accessibility of Time and Place

Online education offers both the teacher and the student to set their own learning pace from their own space having the flexibility of setting a schedule that fits everyone's agenda. As a result, using online educational platform, allows a better balance of work and studies. There is no need to travel from one place to another or to follow a rigid schedule.[6] In this way not only time, but money is also saved which can be spent on other priorities. The virtual classroom can be avail anyplace where there is an internet connection, and a good way to take advantage of this is not to travel. For example, if someone studies abroad and wants to get a job, online education is a great choice. There is no reason to give up job or studying while exploring new and exotic places. It is time consuming also. At any time and at any situation students can join the classes.

Opportunity of Recording the Class

This is one of the best opportunities of online classes. This is because if a student misses the class, he or she can go through the recorded video or audio as many times as they want for a better understanding.

Affordability

Another benefit of online learning is it is comparatively cheaper than oncampus learning. There are no travel costs and no need to rent a physical classroom for online learning. This is because online learning reduces student lodging, student meals, and, most significantly, real estate costs. In addition, all courses or study materials are accessible online, so creating a paperless learning system that is more accessible.[7]

That's what a great Benjamin Franklin once said, and we agree with him on that one. Knowledge is not a pair of shoes that you will buy and wear for a couple of seasons and then throw them away because they are worn out or outgrown. Knowledge stays forever, and you can build it up, rather than "buy a new one." More importantly, knowledge opens new doors and opportunities for you. It enables you to have a better life in every sense of that word and creates a brighter future for the next generations. That is why it is so important.

Challenges

Addressing challenges to conduct online classes effectively is very important in developing countries like Bangladesh, because by studying online these barriers may help the authority, administrations, teachers and educators to overcome those limitations and become successful to continue online education. The researchers observed the following challenges that hinder the way of online classes.

No Physical Presence

Eye contact is a very important non-verbal teaching technique, which not only enhance students' attention in the classroom but also helps teachers in the attainment of desired student results. In the classroom, eye contact plays a very important role as non-verbal communication. Eye contact makes too much of a difference: whether students believe that the instructor is really communicating, and engaging with them, they are more likely to engage with teacher and listen what they are saying.

Poor Internet Connection

The UGC has already conducted a university survey and found that 87% of students have smart phones, but most do not have an internet connection or cannot afford to purchase mobile data. In its study, the Dhaka University Institute of Education Research (IER) found that students want to take part in online classes.[8] But costly data, bad connections, slow coverage, regular power cuts and lack of equipment obstacle their path towards online classes.

Inability to Focus on Screens

For many students, one of the main difficulties of online learning is the inability to concentrate on the computer over a long period of time. With online learning, students are often more likely to be easily distracted by social media or other pages or sites.

Create Stress on Brain

For young children online classes creates stress, pressure which hamper to develop their growing brains. In the actual classroom settings, they get breaks; get the opportunity to interact with peers and the surrounding environment would be conducive to the learning process. "It's not advisable to sit for long hours watching a mobile screen or a laptop," says P. Venugopal, Head of Department of Pediatrics, and Andhra Medical College.

Technology Issues

Internet access is another primary obstacle for online classes. While internet penetration has grown in leaps and bounds over the past few years, in smaller cities and towns, a consistent connection with decent speed is a problem. Without a consistent internet connection for students or teachers, there can be a lack of continuity in learning for the students. This is detrimental to the education process.

Sense of Isolation

Students will learn a lot about being in the company of their peers. However, there are limited physical interactions between students and teachers in an online class. This also leads to a feeling of isolation and loneliness for students.

Lack of ICT Skills

Online learning requires both teachers and students to have a basic understanding of using digital forms of learning. However, this is not the case always. Very often, teachers or students have a very basic understanding of technology. Sometimes, they do not even have the necessary resources and tools to conduct online classes.

Manage Screen Time

Many parents are worried about the health risks of their children as they spend too many hours watching the computer screen. This increase screen time is one of the biggest concerns and disadvantages of online learning. Sometimes students also develop bad posture and other physical problems due to staying hunched in front of a screen. A better solution would be to give students plenty of breaks from the computer to refresh their mind and body.

Gadgets shortage & crashing systems

Not every student & teacher has a personal gadget to use for online learning. Many of them are supposed to share the laptops and computers with their parents, sisters/ brothers to stay on track. Another problem everyone's faced is a computer crash that usually happens at the most unexpected moment.

Connectivity

Millions of people around the world are experiencing technical difficulties because of the high usage rate of online learning systems, video streaming software, & other digital tools. The platforms are overloaded: poor quality video and audio, internet problems. <u>Internet</u> connection is either unstable or the current data plan is not enough to cover the progressive e-learning needs. Students in both urban and rural areas are struggling with the "<u>homework gap</u>". Teachers are trying to manage the bad internet connection during the online lessons.

Adjusting of online courses to deaf or hard of hearing students

The deaf and hard of hearing students were taken from their offline classes with interpreters and put home with poor ability to adjust the remote learning to their needs as well as amplify these adjustments. Provided that online learning is already a kind of challenge for the students, those deaf or hard of hearing facing a double problem multiplying the chances of falling behind.

Data privacy

From the very beginning of school shutdown, teachers and students have been connected using multiple digital tools without paying due attention to the amount and nature of the personal data they collect. Reaching the main objective of a quick transition to online learning, we had to neglect our privacy, especially when large e-learning software suppliers offer temporary free subscription plans.

Security

The covid-19 outbreak, as well as any other crisis, is a fertile ground for cyber criminals, unleashing the wave of cyber attacks. Keeping the sensitive data from being stolen is a number one priority for digital tools that help deliver e-learning.

LMS imperfections

Not understanding the psychology of teaching and learning and not understanding how teachers and students really work during LMS creation is one of the cornerstone problems of the industry.

Conclusion

We should take advantage of virtual learning in good light and eliminate the drawbacks that are driving many of our students and institutions from achieving excellence in education as a result of the COVID–19 pandemic. At this stage, it is high time for the government of Bangladesh to introduce more technologically-equipped education sectors, organize workshops and training sessions to learn more about e-learning tools and their usage. And also ensure strong net connectivity in remote locations so that students would not be affected by this type of educational disruption again. **9** This is the way we will be able to encounter trying times caused by epidemics, pandemics, war and many more in the future too. Along with digital Bangladesh the nation demands now a high level of digital literacy. For an effective on class we should set a major goal, treat study like a job, make a study plan, manage time carefully, find a quiet space, eliminate distraction, limit social media, use online resources, be mentally engage, take notes, make study enjoyable, take breaks and many more.

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Psychoanalytical Analysis of Marlowe's *Doctor Faustus*

Mili Rahman[1], Md. Musfiqur Rahman [2]

Abstract: Theory of Psychoanalytical Criticism is founded by Sigmund Freud and described theory in his famous book *"The Interpretation of Dreams"*. This most influential interpretative theory emerged in the 1960s which is considered as a method of 'reading' to interpret texts. **1** Moreover it validates the importance of literature and treats it as a literary key for decoding. Still, it seeks evidence of unresolved emotions, psychological conflicts, guilt, and ambivalences. According to Freud, the human mind consists of three parts Id, Ego, Superego, and the reflection of these three states of human mind is very prominent in Marlowe's Doctor Faustus. Additionally, there are three levels of awareness in the human mind like first conscious, second subconscious or preconscious and the third one is unconscious. These levels of awareness also find their way through the character of Doctor Faustus. Psychoanalytic theory is the theory of personality and in Doctor Faustus the change of Faustus's personality in the light of this theory will be focused in this study. This study attempts to show the reflection of psychoanalytical theory in Doctor Faustus' Character. This study also extensively emphasizes on Structural Theory of Personality on Faustus.

Key Words: Psychoanalytical theory, reflection, the human mind.

Introduction

Psychoanalytic criticism is the most influential interpretative theory in the post-war period. It is based on the specific premises of the workings of the mind, the instincts, and sexuality which are developed by the 19th-century intellect, Austrian Sigmund Freud. In reality, it has moved through three main emphases in its search of the "literary unconscious" firstly on the author (and its corollary character), secondly on the reader, and lastly on the text. Here the relationship between the author and the text is analogous to dreamers and their dreams. Besides, it is the reflection of the author's childhood traumas, family life, sexual conflict, and fixation. The theory creates an opportunity to psychoanalyze a particular charter of literature. It expresses the things indirectly, disguised, or encoded. Here the unconscious material has been distorted by the censoring conscious mind. Christopher Marlowe's Doctor Faustus is a perfect reflection of psychological theory. Faustus' mental state, the gradual development of his mental thinking, his fascination for worldly success, thirst for knowledge, the struggle between the good and evil instinct of life which all are the perfect image of psychological theory.

As a renaissance man, Dr. Faustus was not satisfied with his knowledge and refused Christianity and the concept of God. He ignored the eternity and the consequence of being good, rather he leads his efforts to sin and death. He has discarded Christianity because of its hurdle in his boundless desires, but in reality, he could not escape from Christianity.

1. Associate Professor, Department of English, Dhaka International University, Dhaka, Bangladesh.
2. Md. Musfiqur Rahman, Lecturer, Department of English, Dhaka International University, Dhaka, Bangladesh.
   Correspondence to: anhara.chowdhury@gmail.com

As per the law of psychology, the sense of sin and guilt guides a man to despair
"Genius to madness is near allied"
The relative psychological theory of Jung: conscious and unconscious mind is connected with the character of Faustus. This character has a lacking of confidence on human nature simultaneously in another situation he comes out as a hero and fights back. In one scene he is depicted as "a demi-God", and in another, a self-pitying slave lacking in self-confidence.

Objectives of the Study

The major objective of the study focuses on identifying the psychoanalytical view in Faustus' character. The present study also stresses on measuring the relationship between the Structural Theory of Personality and Faustus' mental changes. Furthermore, this study extensively emphasizes on Structural Theory of Personality on Faustus.

Methodology

The current study consults secondary sources of data based on content analysis. To analyze the role of psychoanalytical theory in Faustus' character, the researchers consulted contemporary treatises, books, pamphlets, magazines, research articles, research reports, and so on. This piece of research mostly adopts a qualitative approach. Both exclusion and inclusion criteria were followed to adjust with the overall objective of the study. The study appeared as qualitative in nature followed by a content analysis approach. Repeated reading and re-reading texts made by selecting themes for each discourse connected with technology based distance English learning programs substantially improved the qualitative data analysis to achieve specific research objectives.

Literature Review

In the drama Dr.Faustus, Christopher showed a struggle between the superego and identity. Faustus' conflict within himself at the time of signing the script, his introduction with the seven deadly sins everything is the application of psychoanalytical theory. It is told by the critic

"There are several ways to analyze literary works using psychoanalytic methods. From Freud's point of view, it focuses on the application of Sigmund Freud's theory; psychoanalytic criticism of literary works may use text as the window to the author's mind. This form of psychoanalytic criticism imagines that sentence as an emergence of the author's psychology and is the window of his or her particular neuropathy. Therefore, the legend is a challenge in finding direct or indirect evidence of the author's childhood trauma, psychological instability and / or inconsistency."[2]

The most noticeable situation of the drama is the introduction of the Seven Deadly Sins. They stand for the continuous struggle between the id and the superego. They add to the seduction of Dr. Faustus and the invariable struggle in a chaotic Hell. The id represents the sins like Pride, Covetousness, Envy, Wrath, Gluttony, and Lechery. All six of these sins show characteristics that are strong and powerful. They tried to prove their good characteristics but in reality they exceptionally arrogant. At the time of their introduction, they did not give any chance of an argument. They just explain their identity, and they take what they want. For example, Pride illustrates what he can do with a woman: "I can creep into every corner of a wench: sometimes, like periwig I sit upon her brow; next, like a necklace I hang about her neck; then, like a fan of feathers I kiss her..." Clearly, Pride feels influential enough to take any woman he wants and execute with her any way he wants. With a clever and mischievous voice Pride boasts about his works and declares proudly no one can change it. Another great image of the id is Lechery or lust. Lechery just walks out and shows her stuff in front of Faustus. It is easily understood that her power is not in her words but in her presence. Even Lucifer notices her strength because he sends her away almost as fast as she comes in. "Away, to hell, away! On, piper!" (Marlowe,

II.ii.177) Lechery closes the deal on Faustus. Her presence is so powerful that Faustus returns to the hands of Lucifer.[3]

Eloise Hendy says "In Doctor Faustus, Marlowe presents a divided and mentally fascinating central individual, whose struggling decisions and motivations are crucial to understandings of the play. Arguably the psychological layers to Faustus render the entire drama in fact a psychology: it is often viewed as "primarily a study of the mind of Faustus himself"." (Brad brook 143)[4]

The dissolution and uncertainty of Faustus' psychology is depicted in his behavior. His major failure is fall into perpetual damnation and parallel drops in his earthly existence help him to stand as "learned" scholar transforms into that of a trickster. Marlowe has always a search for absolute control and knowledge for maturity and self-realization which makes Faustus "boor, buffoon and sensualist". (Brown 82)[5]

A. N. Okerlund points out; Faustus "Profanes the intellectual process after selecting only those data which substantiate a conclusion predetermined by desires. He hears "only the evidence that confirms his pre-established vision"

Reflection of Psychoanalytical theory in Dr. Faustus

At the very outset of the drama, Dr. Faustus has been portrayed as a strong character with power, sense, and knowledge of the whole world, but steadily he loses his dignity and behaves as an inconsiderate, immature, and nonsense person. He started losing his knowledge when his fake power of necromancy rises and when he realizes his sin, he was on the verge of his fall and he lost everything, even his soul. It is an integral part of human psychology that as power arrives, all senses used to disappear.

Faustus can be considered as a victim of "Split-personality" as he behaves and thinks in two different ways. His blending of the conscious and unconscious mind and has been reflected as a "Double thinking".[6] As a truly modern man he has trust in both logical aspects and miracles. As Jung and Freud said, the "conscious mind is not separated with unconscious mind and awareness; it exists side by side and operates together." As Faustus asks Mephistopheles,

"Where is the place that men call hell?"
And Mephistopheles answers that,
"Hell to be, as it were, a psychic shadow, that goes with the damned soul wherever it goes."
This very brief definition of hell can be considered as a modern thought
 "The mind is its own place, and itself, can make a heaven of hell, a hell of heaven."
This is a warning for Faustus to stop his superior complexity, but he becomes addicted on his thirst for power. That's why he replied,
"I think hell's a fable"[7]

Structural Theory of Personality and its Reflection on Doctor Faustus

For describing the psychoanalytic theory of personality Sigmund Freud' argues that human behavior is the outcome of the interactions among three parts of the mind. This theory places great emphasis on the role of unconscious psychological conflicts in determining human behavior and personality.

The human mind consists of three parts
   i)   Id
   ii) Ego
   iii) Superego

i) Clarity of Id:

Id is the most primitive part of the human mind which deals with basic physical needs or urges. It represents the negative instincts of human beings. This kind of feelings is unwilling to compromise immediate gratification. According to Freud, the Id is the source of all psychic energy, making it the primary component of personality. The Id is the only component of personality that is present from birth. It is driven by the pleasure principle, which strives for immediate gratification of all desires, wants, and needs.

Reflection of id in *Doctor Faustus*

Reflection of the Id in the character of Doctor Faustus is genuinely mentionable. At the very opening of the play, Faustus sells his soul to Lucifer for getting the utmost power and to quench his thirst for knowledge. Even the presence of Bad Angel in Doctor Faustus is another important incident that also supports the same theory. Even it is noticeable that pride, arrogance, vanity, and lack of self-knowledge are the root cause of Faustus' downfall.

Moreover, Faustus possesses a great fascination for worldly success and carnal pleasure. Displaying the seven deadly sins; "Pride, Covetousness (Greed), Envy, Wrath, Gluttony, Sloth and Lechery in the play shows the negative instinct of human being."[8]

ii) Clarity of Ego

Freud used the word ego to mean a sense of self, but later revised it to mean a set of psychic functions such as judgment, tolerance, reality testing, control, planning, and defense, synthesis of information, intellectual functioning, and memory. According to Freud, "The ego develops from the id and ensures that the impulses of the id can be expressed in a manner acceptable in the real world. It functions in the conscious, preconscious, and unconscious mind."[9]

Moreover, it is the component of personality that is responsible for dealing with reality**.** The ego operates based on the reality principle, which strives to satisfy the id's desires in realistic and socially appropriate ways. The reality principle weighs the costs and benefits of an action before deciding to act upon or abandon impulses. It is the rational, pragmatic part of our personality and balance id and superego.

Reflection of ego in *Doctor Faustus*

Doctor Faustus is the perfect reflection of human limitation. Neglecting his worldly and spiritual limitation Faustus has fixed a sky kissing ambition. Sometimes he drags himself down to the real world realizing the human limitation. At that time his mind occupies with the thought of repentance. In this drama, there is a constant conflict between flesh and spirit.

iii) Clarity of Superego

The last component of personality to develop is the superego. According to Freud's concept of the human mind, each stage is processed as a three-tier system consisting of the superego, the ego, and the id. The superego functions at a conscious level. It serves as a type of screening center for what is going on. At this level that society and parental guidance are weighed against personal pleasure and gain as directed by one's id. This puts in motion situations ripe for conflict. Freud states that the superego begins to emerge at around age five. The superego provides guidelines for making judgments. The superego tries to perfect and civilize human behavior. It works to suppress all unacceptable urges of the id and struggles to make the ego act upon idealistic standards rather than upon realistic principles.

Reflection of the superego in *Doctor Faustus*

The presence of Good Angel in Doctor Faustus reflects the part of superego of Fustus's mind. Good Angel tries to bring perfection into the protagonist's character by indicating what is right and wrong. Faustus's thirst for knowledge also shows the connectivity of the ego in his nature. Moreover, human aspiration and potential are reflected all over the drama.

Structure of Hunan Mind

There are three levels of awareness in the human mind alienated into three parts

Conscious

The conscious mind **is** the current content or active thinking of man. It is the rational part of the mind.

Reflection of conscious in *Doctor Faustus*

Faustus' playing practical jokes, performing conjuring tricks, and indulging his sensual appetites are the essential part of the conscious mind. Even he values Knowledge over Wisdom.

Subconscious/Preconscious

This is the unaware state of the human mind. It contains some unrepressed memories or recollections that can be extracted for a specific purpose at a specific time.

Reflection of the subconscious in *Doctor Faustus*

Faustus' realization of his sin at the end of the drama, his thirst for hidden Knowledge and power demonstrate the subconscious attitude of Doctor Faustus.

Unconscious

The unconscious mind is the thought, memories, knowledge, wishes, feelings buried in the human mind which is not accessible to all. It influences the conscious. In this stage, the suppressed or unpleasant feelings like pain, anxiety, or conflict may outburst.

Reflection of the Unconscious in *Doctor Faustus*

Doctor Faustus's sense of repentance and his last appeal for getting God's mercy expose the unconscious feeling of him. Faustus, being a scholar, was unaware of his darker aspects of psyche. He had inordinate ambition for power and knowledge which led him to transgression. As a result, he was finally driven by his unconscious and latent desires. When these were materialized, they caused ultimate downfall. So, when finally the doomsday arrives, he realizes his sins but there is no looking back from where he reached. Besides enormous evil residing in Faustus' soul, there were some essential human qualities which aroused repentance in his mind. He decides to seek for God's forgiveness which is indicative of Faustus' unconscious.

Conclusion:

Doctor Faustus can essentially be read as a portrayal of the conflicts between body and soul, mind and matter, and rationality and faith. Through a series of formal and stylistic oppositions, Marlowe creates a simultaneously grand and intimate drama, concerning both the power struggle of the cosmos and the inner turmoil of a human mind. In the blurring of traditions, Faustus can be hero and fool, sinner and victim. Human folly and vice are exposed but equally so are man's high ideals and aspirations. Despite supernatural characters and magical occurrences, Marlowe's piece is resolutely human, showing as it does man's attempt at self-assertion and the mental turmoil this endeavor can generate. The warring over Faustus' soul by higher powers "provides a frame for the inner drama" within his psychology.

(Peter Donaldson qtd McAdam) Marlowe's protagonist is far from two-dimensional; he is deep, damaged, and divided.[10]

Marlowe has very well presented psychological elements of the mind which works very strongly in human nature though lies deep inside in the unconscious mind of the human. The elements of psychological nature have presented with modern men's perspective and new theories of that time. Thus psychology becomes the soul of the play. It resurfaced the inner unconscious scars and beauty of Faustus' psyche. A psychoanalytic reading provides complete understanding of *Doctor Faustus* which demystifies the inner labyrinthine knots of the protagonist's psyche.

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Spectrum of Crises in Modern Human Relationships in *The Waste Land:* An Evaluation

Md. Musfiqur Rahman[1]

Abstract: *The Waste Land,* a signature poem of modernism by T.S Eliot, provides profound knowledge and perception of the representative era. Like other literary ages, modernism has its shiny and cloudy surfaces. The poem reflects on the shaded ground of human relationships while it ends up with an optimistic note. It guides modern citizens to mold life in the proper direction by the blessings of sublime spirituality. The poem rotates around the imminent crises modern human beings are encountering in their relationships. The rat race behind the pursuit of material success is deteriorating relationships:- they lose purpose and become dry, dull, dusty, and lifeless. Eliot chooses representative characters from London city dwellers. They might be common passersby, a typist, a clerk, an ordinary housewife, or an extraordinary lady of aristocratic birth. By containing people from all classes and spheres of life and society, the poet substantiates the intensity of the crises. Modern people are greatly alienated from each other while their expressions of different emotions are artificial. While conjugal and sensual relationships are failing, there are sexual perversions evident in their lifestyle. The theme of patriarchy, molestation, rape, and trauma are also present on crises-ridden modern people's life. This paper travels through these darker destinations of relationships by conducting a qualitative research by extensive study and scrutiny of the topic.

Keywords: alienation, human relationship, sensual relationship, sexual perversion, artificiality, trauma.

Introduction

The Waste Land is an epoch-making and defining poem of modern era which is written by eminent poet, T.S Eliot. It was published in 1922. This poem redefined English poetry as well as world poetry by its lofty style, unique presentation, and expression. It is burdened with allusions of other literary works, mythology, religious references, and so on. It also experimented on the stanza pattern and vocabulary coinage. The poem is not only discussed for its structural uniqueness and obscurity but also for creating value by the precise portrayal of several strange shades of human relationships. It creates characters from all layers of society and presents their crises with graphic representation.

There are characters like Albert-Lil, the typist girl and the clerk, the fashionable lady, the river girls who surface the crises and uglier tendencies in modern-day relationships like alienation, failure in sensual relationship, patriarchy, sexual perversions, and artificiality. The second and third parts of the poem, 'A Game of Chess' and 'The Fire Sermon' show these characters who are plunged into the labyrinth of crises. They can neither tolerate their predicaments nor can they come out from the mazes. These situations get a lively touch by the magical ink of T.S Eliot.

1. Md. Musfiqur Rahman, Lecturer, Department of English, Dhaka International University, Dhaka, Bangladesh
   Correspondence to : mdsajib888@gmail.com

Objectives

- To illustrate T.S Eliot's overall depiction of human relationships in modern era in *The Waste Land.*
- To highlight the barrenness, void, and aberration in human interactions
- To discover the root and fault lines of the crises in the light of Eliot's subtle observations.

Research Methodology

Stimulations were received from the frequent readings and analyses of the text, *The Waste Land* for completing the research. Several literary criticisms were analyzed to extract deeper insight from the text. The research was formulated by Keen Observation method. For this purpose, the researcher has gone through various literary criticisms, articles, and websites for gathering relevant materials. These contents were studied minutely for comprehending the background and development of the poetry on multiple crises in human relationships. The research has been carried out applying qualitative method. Significant amount of secondary data have been studied for conducting the research.

Review of Literature

The Waste Land is an invaluable addition to world literature. Ample researches have been carried out on the poem. As a result, significant amount of books, articles, and reviews are available in the poem. Some prominent works among those are T.*S Eliot and the Art of Collaboration*. (2004). Cambridge University Press by Richard Badenhausen, *Bloom's Modern Critical Interpretations: The Waste Land* (2007) Infobase Publishing. Newyork, USA by Harold Bloom, *The Waste Land: A Norton Critical Edition* (2001). W.W Norton & Company by Michael North, *Revisiting The Waste Land*. Duke and Company. Devon, Pennsylvania by Lawrence Rainey, *T.S Eliot in Context* (2011) Cambridge University Press. Cambridge, UK. Etc. All of the mentioned travelled the diversified and convoluted lanes of human relationships where they very often expressed utter disappointments and shocks. They echoed the lamentation evoked by Eliot. Despite all these studies, there are very few works available where the modern-day crises in relationships are analyzed in such emphasis and depth. So it can be expected that this study will open a few new windows of thought.

Alienation

Alienation pervades the canvas of human relationships in *The Waste Land*. Alienation significantly influences the psychological aspects and living quality of Eliot's characters like other modern literary works. Alienation suggests a disconnection of human beings who are living in proximity but fail to form meaningful human interactions. Their endeavors of communications are thwarted by inner inaction, apathy, and nausea. Alienation hinders human beings from socializing with fellow beings. Alienated human beings find it tempting to confine themselves in their own cocoon. J.A Cuddon defines,

'Alienation is a specific historical condition in which man experiences a separation from nature, other human beings, and especially the products of his labor. Since man creates himself through labor, all of these forms of alienation imply an alienation of man from himself. Alienation has also been a central concept in sociology, a centrality deriving in part from Max Weber's recognition of the individual's feeling of helplessness in a 'disenchanted' world governed by rational, bureaucratic and impersonal institutions.'[1]

The lives of modern human beings are greatly alienated from each other for specific aspects of their lifestyle. Most people lack the divine blessing of spirituality. They are driven by the glaring influences of Science and communism. According to Eliot, too much materialism is contaminating the souls of modern men. Both body and soul are two inseparable components of a person. So, modern human

beings can be considered half dead. On the contrary, people are very busy with material prospects. They hardly find any time to maintain normal social communication. They are too obsessed and engrossed with their professional life to entertain other societal aspects and values. This kind of tendency contradicts, rejects, and undermines basic human norms that have been carried out from the beginning of civilization. In the first section of *The Waste Land* (The Burial of the Dead), T.S Eliot says,

'Unreal City,
Under the brown fog of a winter dawn,
A crowd flowed over London Bridge, so many,
I had not thought death had undone so many.
Sighs, short and infrequent, were exhaled,
And each man fixed his eyes before his feet.'[2]

Here Eliot refers to the degenerated condition of modern beings and their alienation from normal life. London Bridge is a hub of communication for city dwellers. People of almost all races pass the bridge on a regular basis. So it reflects an overall scenario. T.S Eliot is minutely observing the life flow of the mass of the 1920s. It offers him a grim and shocking picture of modern citizens. Office goers are heading to their respective workstations but they are being chased by an unusual and sickening hurry. They are too bemused in reaching their destination that they are missing out on the opportunity of enjoying the beauty of the morning. Their vision is fixed at their feet and on the pavement. At the same time, they do not bother to make friendly greetings and gestures to fellow passersby. This sort of blind pursuit of professional excellence and material gain is corrupting their souls. They are none but a bunch of spiritually dead people who are walking miserably on the streets of London. This is how; modern people are alienated from other human beings, alienated from the true essence of life. London seems an 'Unreal city' for being burdened with these unreal flocks of people who are ignorant of their true destination. London, being a cosmopolitan and progressive city of the world, represents other prominent cities of Europe. So this phenomenon has plagued human civilization. T.S Eliot is expressing his utter dejection and disillusionment with this modern predicament.

Alienation also dominates the second part, 'A Game of Chess' of *The Waste Land*. The second part portrays the tale of two representative couples of the modern era who reflect the upper class and lower class of the society. The beginning of this part deals with the alienation and disturbed mental condition of a lady who belongs to the aristocratic society of London. This part reveals the sophisticated interior decoration, luxurious furniture, and precious ornaments of the lady placed in her drawing-room. She exudes the fragrance of exotic perfume with her dazzling aura. Her external beauty and flamboyance, to whatever extent, appealing it might be, fails to suppress the inner decay and helplessness she is going through. She is seen to wait for her lover. When he arrives, she vulnerably admits her poor mental condition and requests him to stay for that night. Her conversation with the lover suggests the breakdown of their communication. She says,

'My nerves are bad tonight. Yes, bad. Stay with me.
"Speak to me. Why do you never speak? Speak.
"What are you thinking of? What thinking? What?
"I never know what you are thinking. Think.'[2]

They have miserable communication with each other. So, in this very moment of crisis, the lady is seeking some comfort from her partner by requesting to accompany her. The lady very often tries to interpret the thoughts of him but she utterly fails frequently to do so. It clearly indicates the way they are alienated from each other. Their relationship has lost its purpose. A meaningful relationship

supports and complements each other through the thick and thin of life. In this case, the scenario is the complete opposite of expectation.

Failure of Sensual relationship

Physical relationship complements the mental and emotional aspects of fulfilling a human relationship. Due to hundreds of challenges posed by modernism, modern human beings are very often failing to gratify these aspects in the fullest sense. Human relationship, especially, lovemaking has become mechanical. It is more mechanical than it is passionate and intimate. The absence of passion makes lovemaking dry and futile, its quality degenerates. This phenomenon of modern human relationship is clearly evident in the third part, 'The Fire Sermon' of *The Waste Land.* Eliot here highlights the relationship of a typical couple. The male protagonist is a clerk by profession while the female is a typist. The intimacy of these two characters is portrayed with subtle observation. Being employed, the typist girl returns home after completing a whole day's work. She is definitely exhausted and prepares her meal. Her lover reaches just after she finishes her meal. The clerk lover, after accomplishing professional calls, finds the post-dinner time suitable for copulating with his beloved. This kind of intimacy requires a certain level of comfort, relaxation, energy, will, attention, and participation. But here the girl does not have a minimum amount of these aspects. Though she is not prepared for having sex, she neither shows any sign nor tries to resist it. The lover is not at all concerned about the consent or active participation of the partner. This is how a passionless intimate act takes place. The girl is so apathetic of the act that she leaves a breath of relief and respite when her lover leaves. This instance draws the readers' attention to one of the deepest scars modern relationships bear inherently. Also, sexual encounters have lost their noble purpose of giving birth to offspring by encouraging casual copulations. Their union is of this sort. Robert Langbaum writes,

'Again we are enabled to understand the contrast between the passionate auspicious fornications of the past and this modern perfunctory performance. Again we are reminded that this scene is nevertheless a reenactment. The sexual union was used in fertility ceremonies to promote by sympathetic magic the fertility of the soil. But modern sexuality is sterile.'[3]

Patriarchy

The modern era was dominated by patriarchal notions which have been carried out for a thousand years. Women were just beginning to get their voting rights in some of today's progressive countries like New Zealand, the USA, etc while this poem was being composed in the 1920s. Women folks are found in their stereotypical role in households in contemporary literature which was nothing but a reflection of the society. Women race were hardly employed beyond their domestic duties as mothers, wives, or in-laws. They had no free will to choose professions; rather they used to be answerable to their male counterparts or guardian bodies. *The Waste Land* shows signs of patriarchy in the second part, 'A Game of Chess' by the couple Albert-Lil. Albert, being a military officer, stays away from his wife, Lil. So, Lil has to live a solitary life for most of the time. In this part of the poem, Albert is coming home after four years. So, Lil's friend is advising to polish her beauty for the occasion and entertain Albert properly so that she appears to be attractive to him. She also requests Lil to ensure some quality time for Albert. Otherwise, Albert might lose his interest in Lil. Here, the issue of patriarchy can be addressed. Despite living a life of solitude, Lil has to make extra efforts for satisfying Albert. Moreover, Lil is being cautioned of being deserted by Albert. While Albert can explore multiple options in the absence or presence of Lil, Lil has to function as a typical woman who cannot think of any person apart from her husband. Patriarchal boundaries are being implanted by an ideal representative of a patriarchal society (Lil's friend). Ironically, she, herself is a woman.

Sexual perversion

Sexual perversion is another crisis highlighted in modern human relationship in *The Waste Land*. In the Albert-Lil relationship, there is an indication of dishonesty. If Lil fails to satiate the urges by looking desirable to Albert, he might shift his attention to other ladies. According to the narrative of Lil's friend, Albert will readily get attention of other ladies. It may be suggestive of an extramarital affair or it may suggest their divorce. Possibility of going to prostitutes cannot be ignored. Both of these are perversions from an honest relationship. This aspect is reflected here in Richard Badenhausen's view,

'Written at a time when Europe was trying to assimilate millions of physically and psychologically scarred soldiers back into altered domestic and professional spaces, *The Waste Land* offers a series of interactions between men and women that suggests this reintegration was doomed. It's not that men and women don't interact in this environment, it's more that those interactions are marked by a complete lack of intimacy, as evidenced in the rape of Philomel, the mechanical sexual encounter between the ''young man carbuncular'' and the typist, and the abortion brought off by Lil, who's afraid of losing her husband (just returned from combat) because sexual freedom is running rampant in the post-war society.'[4]

On the other hand, London was full of perverts who were treading over the city boastfully. They were molesting and raping city dwellers. These are frequent incidents as referred on the third part, 'The Fire Sermon' of *The Waste Land.* Here, experiences of three girls are mentioned. First girl was from Highbury who was sexually violated on the floor of a boat while she was passing through Richmond and Kew. Second girl was from Moorgate who was harassed by a man. He was apologetic for his behavior and committed to rectifying evil tendencies. After the assault, the third girl had nervous breakdown as she could not remember anything. Her life seemed meaningless and trifle like 'broken fingernails'. She found it very hard to overcome the trauma of the incident.

From these three examples, it is evident that London is full of perverts who are openly violating the dignity of women. They burn with intense desire and lust and they are unable to suppress it under the carpet. As a result, it lurks very often and creates obscene experiences. In this circumstance, Eliot refers to the message of Buddha,

'Burning burning burning burning
O Lord Thou pluckest me out
O Lord Thou pluckest
Burning'[2]

Buddha told that the world is burning with the fire of lust, desire, hatred, sorrow and despair. He advised practicing self-control and moral discipline which will prevent human beings from indulging in sinful activities like harassing women in this case. Buddha's advice seemed very relevant in this regard.

Artificiality

The relationships and lifestyles are marked by glaring touch of artificiality and pretentious gestures. The initial part of 'The game of chess' of *The Waste Land* presents a lady of aristocratic class of London. The detailed depiction of the drawing room suggests the conspicuous life she leads. Her room is abundant with all modern luxurious amenities with shining pieces of art reflecting love, passion, and romance. She leads an aimless, lethargic life who does not know what she would do now, today, or let alone tomorrow. She is only aware of bathing with hot water in the morning and going to play chess in the afternoon. She decorates herself with precious perfume, powder, jewellery and other precious cosmetic items which is indicative of her tendency of exaggerating aura by applying artificial

additional doses of beauty enhancer. Being a representative of modern women, she is presented as a lady who is not involved in productive and economic activities. Her only concern is to pass time where she finds some respite in employing herself in pseudo beautification. This character has a resemblance with Belinda of *The Rape of the Lock.*

Similarly, Albert-Lil relationship shows some signs of artificiality. Lil has to maintain her pulchritude and comeliness. She cannot afford age despite passing her thirties and giving birth to five children. This might displease Albert who is coming home after four years. Lil is advised to take a new pair of teeth and use anti-aging cosmetics for being appealing to Albert. In this regard, Harold Bloom says,

'Albert, however, presents little immediate peril compared with the narrator's recollected conversation, in which she had the knives out for Lil. She calls Lil dowdy, telling her to replace her decaying teeth with a store-bought set (anticipating the "carious teeth" in "What the Thunder Said"). She hints at Lil's dishonesty (spending teeth money to purchase pills for an abortion) and calls her selfish, foolish, and immature.'[5]

Now, Lil's primary duty is to entertain Albert in the best possible way. Albert will not love her inner beauty. He loves her physical beauty and glamour which is vanishing with the flow of time. She has to prepare herself artificially by going to doctor for some quality time with Albert. The beauty of Lil is decaying because of giving birth to children frequently. Also, her physical condition is deteriorating due to taking birth control pills. All the sacrifices she is making for her successful conjugal life. Despite all these facts, Albert will not accept Lil for her natural beauty.

The lovemaking of the typist girl and clerk is also artificial as none of them is emotionally involved there. The typist girl does not stop her lover despite being exhausted after dinner in lovemaking. She shows complete indifference to this intimate moment while it should be participatory and responsive. They are undermining the actual spirit and significance of the act. The clerk is not at all bothered about her consent and response. The girl is so emotionally dead in the process that she is hardly aware of the departure of the lover. Eliot refers,

'She turns and looks a moment in the glass,
Hardly aware of her departed lover;
Her brain allows one half-formed thought to pass:
"Well now that's done: and I'm glad it's over."[2]

It is a reflection of a typical modern relationship where the characters are hardly honest and real to lovemaking, rather involved in a mechanical and animal-like process devoid of emotional fervor. Thomas Dilworth writes,

'The young man acts merely as an agent of lust, not as an emotionally and morally complete person. This may account for the absence of a subject in sentences in which he acts: "Endeavors to engage her in caresses" (237) and "Bestows one final patronizing kiss" (247). Owing to the nature of his motivation, he does not even merit a pronoun. And "she is bored and tired" (236), not even an agent of lust. The word "indifference" (242) sums up her feelings.'[6]

These phenomena of modern people are undoubtedly thought-provoking and throw light on the erosion they bear in their relationships.

Conclusion

The Waste Land shines brightly in literary landscape not only for its technical excellence but also for insightful replication of its contemporary England as well as Europe. It shed light on the darker, unexplored, and veiled scars of human relationships and decayed civilization. It brilliantly touched multi faceted layers of human bondage. While it peeps through pervading aspect like alienation, it does not leave issues like sexual perversion, artificiality, and patriarchy uncovered. Eliot is not at all satiated after discovering all these factors. He tries to provide the proper solution to these issues after expressing utter disappointment with the citizens of modern civilization. The way Eliot brings the crises in human relationships of modern era with an inquisitive mind is quite unparallel in literature, especially in poetry. T.S Eliot used the privilege of a broader canvas for writing poetry and drew a meaningful landscape of modern-day relationships in a delicate but engaging manner which not only instructs but also enlightens.

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A brief review on contemporary human gene therapy

Surid Mohammad Chowdhury[1], Sharmistha Das[2], Rifat Ara[3]

Abstract: Advances in biotechnology have brought gene therapy to the forefront of medical research. Now, widely this therapy will be applied, depending on the simplification of procedure. Safe method has been devised to do this, using several viral and non-viral vectors. Two main approaches emerged: in-vivo and ex-vivo modification. Retrovirus, Adenovirus, Adeno-associated virus and some other methods are suitable for gene therapeutic approaches which are based on permanent expression of the therapeutic gene. Non-viral vectors are far less efficient then viral vectors, but they have advantages due to their low immunogenicity and their large capacity for therapeutic DNA. To improve the function of non-viral vectors, the addition of viral functions such as receptor mediated uptake and nuclear translocation of DNA may finally lead to development of an artificial virus. Gene transfer protocols have been approved for human use in inherited diseases, cancer and acquired disorders. In 1990, the first success clinical trial of Gene Therapy was initiated for Adenosine Deaminase Deficiency. Since then, the number of clinical protocols initiated worldwide has increased exponentially. Research is focused on each gene and role of the faulty genes in disease. Although preliminary results of these trials are somewhat disappointing, but human gene therapy dreams of treating diseases by replacing or supplementing the product of defective gene or introducing novel therapeutic gene. In a nutshell, human gene therapy is an effective addition to the arsenal of approaches to many human therapies in the 21th century.

Key words: Gene Therapy, Therapeutic gene, Vector, Protocol, Clinical trials.

Introduction

James Watson quoted as saying "we used to think that our fate was in our stars, but now we know in large measures, our fate is in our genes". Genes, the functional unit of heredity, are specific base sequences that encode instructions to make proteins. Although, genes get a lot of attentions, it is the proteins that perform most life functions. When, genes are altered, encoded proteins are unable to carry out their normal functions resulting in genetic disorders. Of the over 6000 inherited human diseases catalogued to date, only a few are currently treatable. Gene therapy is very helpful to treat complex diseases. Gene therapy (use of genes as medicine) is basically to correct defective genes responsible for genetic disorder by one of the following approaches[1]-[2]

> ➢ A normal gene could be inserted into a non specific location within the genome to replace the non functional gene.
> ➢ An abnormal gene could be corrected by a normal gene homologous recombination.
> ➢ An abnormal gene could be repaired through selective reserve mutation.
> ➢ Regulation (degree to which a gene is turned on or off) of a particular gene could be altered.

1. Lecturer, Department of Pharmacy, Southeast University, Dhaka, Bangladesh
2. Lecturer, Department of Pharmacy, Dhaka International University, Dhaka, Bangladesh
3. Research student, Department of Pharmacy, Dhaka International University, Dhaka, Bangladesh
   Correspondence to: surid.stranger@gmail.com

Scope of this approach is broad with potential in treatment of diseases caused by single gene recessive disorder (like cystic fibrosis, hemophilia, muscular dystrophy etc) acquire genetic diseases such as cancer and certain viral infections like AIDS.[3]-[4]

Historical perspectives

Since the earliest days of plants and animals domestication, about 10,000 years ago, human have understood that characteristics traits of parents could be transmitted to their offspring. The first to speculate about how this process worked were ancient Greek Scholars and some of their theories remained in favor of several countries. The scientific study of genetics began in 1850s, Austrian monk Gregor Mendel, in a series of experiments with green peas, described the patter of inheritance, observing that traits were inherited as separate units we know as genes.

Mendel's work formed the foundation for later scientific achievements that heralded the era of modern genetics. But little was known about the physical nature of genes until 1950s, when American biochemist James Watson and British biochemist Francis Crick developed their revolutionary model of double stranded DNA helix, Another key breakthrough came in the early 1970s, when researchers discovered a series of enzymes that made it possible to snip apart genes at predetermined site along a molecule of DNA & glue them back together in a reproducible manner. Those genetic advances set the stage for the emergence of genetic engineering, which has produced new drugs and antibodies and enabled scientists to contemplate gene therapy. A few years after the isolation of genes from DNA, gene therapy was discovered in 1980s.[5]

Types of gene therapy

Depending upon the target cell type gene therapy is two types:

I. Germ-line gene therapy
II. Somatic gene therapy.

Somatic gene therapy

Somatic gene therapy involves therapeutic genes are transferred into the somatic cells of a patient. Any modifications and effects will be restricted to the individual patients only and will not be inherited by the patient's offspring or any later generation.[6]

Human gene therapy is performed under strict guidelines developed by the NIH (National Institution of Health). Each proposed gene-therapy procedure is scrutinized by review committees at both the local (institution or medical center) and National (NIH) levels several requirements must be fulfilled before a gene-therapy procedure is commenced.

❖ Gene must be cloned and well characterized, that is, it must be available in pure form.
❖ An effective method must be available for delivering the gene into the tissue(s) or cells.
❖ The risk of gene-therapy to the patients must have been carefully evaluated and shown to be minimal.
❖ The disease must not be treatable by other strategies.
❖ Data must be available from preliminary experiments with animal models or human cells and must indicate that the proposed gene therapy should be effective.

A gene-therapy proposal will not be approved by the local and National review committees until they are convinced that all of the above conditions have been fulfilled.

Germal-line gene therapy[7]

Where germ cells (sperm or egg) are modified by the introduction of functional genes, which are integrated into their genome. Therefore, changes due to therapy would be heritable and would be passed on to later generation. Theoretically, this approach should be highly effective in counteracting genetic disease and hereditary disorders. But at present many jurisdictions, a variety of technical difficulties and ethical reasons make it unlikely that germ line gene therapy would be tried in human beings in near future.

Depending upon the type of administration gene therapy is two types:
    I. Ex-vivo gene therapy
    II. In-vivo gene therapy.

Ex-vivo gene therapy

Suppose a patient is afflicted with a genetic disorder that affected only certain cells in her or his brain. How can he or she be treated by using gene therapy so that the therapeutic gene targets only those cells affected by disorder? One solution is through the use of vector.

A vector is simply a "transporter" for genetic material that allows it to enter the target cell and depending on the vector type, can cause new genes to be integrated into the host cell genome. Vectors must be administered to target specific cell types.

There are three principal ways in which vectors can be administered to carry new genes into target cells. The first is called ex-vivo somatic gene-therapy, where the target cells are removed from the body. Cultured in the laboratory with a vector and re-inserted into the body. This process usually carried out using blood cells because they are the easiest to remove & return.

In-vivo gene therapy

The second option is in-vivo somatic gene therapy, where the vector is injected into the bloodstream and is able to find and insert new gene only into the cells for which it was specifically designed. Although there are presently no in-vivo treatments available, a breakthrough in this area will make gene therapy a very attractive option for treatment. In this case the vector designed to treat our hypothetical patient could be injected into a blood vessel in her or his arm and would find its way to the affected brain cells.
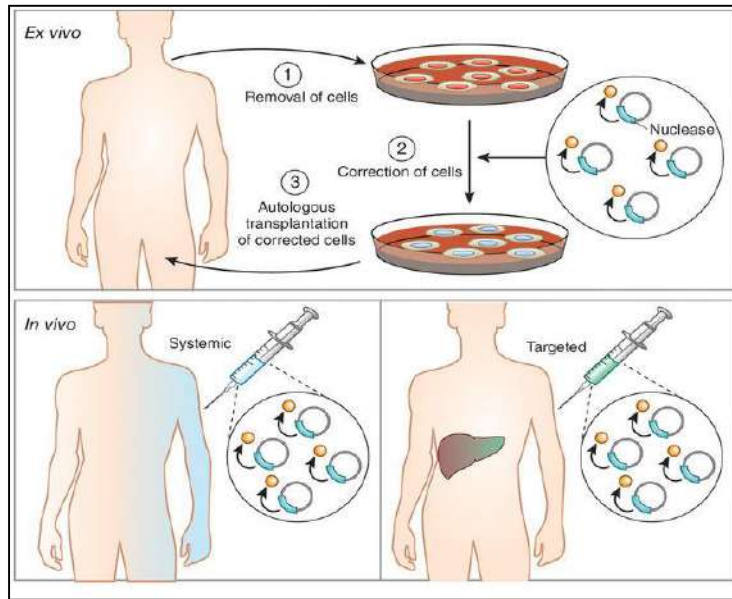
Figure 1: Ex-vivo & In-vivo gene therapy. Ex-vivo procedure involves removal of diseased cell, culturing them with gene product and re-insertion into patient's body. In-vivo method utilizes direct injection of gene product either non-specifically or specifically.

Vectors used in gene therapy

Some of the different types of virus used as genetherapy vectors. There are two types of vector that use in gene therapy.

    I. Viral vectors
    II. Non-viral vectors.

Three common viral vectors used in gene therapy. These are:

    I. Retrovirus
    II. Adenovirus
   III. Adeno-associated virus.

Retrovirus

Retrovirusesare a class of viruses that can create double-stranded DNA copies of their RNA genomes. The copies of its genome can be integrated into chromosomes of host cells. The integrated retroviral DNA is called the provirus or proviral DNA. The provirus carries three genes gag, pol& env. The gag protein is responsible for the encapsulation of viral genomic RNA and the assembly of virion. The pol gene encodes for reverse transcriptase that directs the synthesis of DNA from RNA. The env protein interacts with specific cell surface receptors on the target cell membrane. Both proviral termini consists of a non-coding sequence, called long terminal repeats (LTRs).

Human immunodeficiency (HIV) is a retrovirus e.g. One of the problems of gene therapy using retrovirus is that the integrase enzyme can insert the genetic material into a chromosome. If genetic material happens to be inserted in the middle of one of the original genes of the host cell, this gene will be disrupted (insertional mutagenesis). If the gene happens to be one regulating cell division,

uncontrolled cell division (i.e. cancer) can occur. This problem has recently begun to be addressed by utilizing zinc finger nucleases[8] or by including certain sequence such as the beta-globin locus control region to direct the site of integration to specific chromosomal sites. Gene therapy trial using retroviral vector to treat X-linked severe combined immune deficiency represent the most successful application till date.[9]

Also it has been tried to treat Severe Combined Immune Deficiency (SCID)due to ADAdeficiency with relativesuccess.

As researchers have grown more confident, they have begun injecting altered retroviruses directly into the tissues where the corrected genes are needed.

Adenovirus

Adenovirus is a class of viruses with double-stranded DNA genomes that causes respiratory, intestinal & eye infections in human. The virus that causes the common cold is an adenovirus. This vector system has been promoted for treating cancer of liver and ovaries and indeed the first gene therapy product to be licensed to treat head and neck cancer is Gendicine, P^{53} based adenoviral product.[10] Concern about the safety of the above vectors was raised after the 1999 death of Jesse Gelsinger while participating in a gene therapy trial.[11] Since then, work using adenovirus vector has focused on genetically crippled version of the virus.

Adenoviruses are non-enveloped DNA viruses, the genome of which is a linear, double stranded DNA of about 36 kilo bases. Unlike retrovirus replication, adenovirus replication causes lysis of the cells. The adenovirus contains fiber protein which binds with the receptor present on the cell surface, the first step in infection process. The adenovirus DNA, is not integrated into the host cell's chromosomal DNA, but remains episomal. Depending on the serotype, approximately, 10,000 progeny virus particles can be generated in a single cell. It is use to treat heredity blood disease hemophilia, muscle and eye disease.

Adeno-associated virus (AAV)

Adeno-associated virusesare a class of small single-stranded DNA viruses from parvovirus family that can insert their genetic materials at a specific site on chromosome 19 with near 100% certainity. It is use to treat heredity blood disease hemophilia, muscle and eye disease.

In an AAV vector, the entire protein-coding sequence (REP & CAP) genes can be replaced by the gene of interest. Only ITRs are important. Since the AAVs can't replicate without helper virus they are produced along with adenovirus in the same packaging cells. Heating the culture medium at 56° C cleans the adenovirus while leaving of the AAVs. Since the entire protein-coding sequence canbe deleted and replaced, there is almost no chance of immunity problems associated with virus particles.

Non-viral method

Injection of naked DNA[12]

This is the simplest method of non-viral transfection. Clinical trials carried out of intramuscular injection of a naked DNA plasmid have occurred with some success; however the expression has been very low in comparison to other methods of transfection.

Electroporation[13]

Electroporation is a method that uses short pulses of high voltage to carry DNA across the cell membrane. This shock is thought to cause temporary formation of pores in the cell membrane, allowing DNA molecules to pass through. Electroporation is generally efficient and works across a broad range of cell types. However, a high rate of cell death following electroporation has limited its use, including clinical applications.

Gene Gun

The use of particle bombardment, or the gene gun, is another physical method of DNA transfection. In this technique, DNA is coated with gold particles and loaded into a device which generates a force to achieve penetration of DNA/gold into the cells.eg:- If the DNA is integrated in the wrong place in the genome, for example in a tumor suppressor gene, it could induce a tumor. This has occurred in clinical trials for X-linked severe combined immunodeficiency (X-SCID) patients, in which hematopoietic stem cells were transduced with a corrective transgene using a retrovirus, and this led to the development of T cell leukemia in 3 of 20 patients.[14]

Oligonucleotide[15]

The use of synthetic oligonucleotides in gene therapy is to inactivate the genes involved in the disease process.There are several methods by which this is achieved. One strategy uses antisense specific to the target gene to disrupt the transcription of the faulty gene. Another uses small molecules of RNA called siRNA to signal the cell to cleave specific unique sequences in the mRNA transcript of the faulty gene, disrupting translation of the faulty mRNA, and therefore expression of the gene.

Beside these methods there are also some methods (such as Magnetofection, Sonoporation, Lipoplexes and Polyplexes, Dendrimers) for non-viral gene therapy. But these are not use widely. Naked DNA, Electroporation, Gene Gun, Oligonucleotides are mostly used for non-viral gene therapy.

Potential target diseases for gene therapy

Cancer

The most commonly employed approaches for cancer gene therapy include:

Introduction of cytokine gene (immunotherapy)

Cytokines directly stimulate immune effector cells and stromal cells at the tumor site and enhance tumor cell recognition by cytotoxic effector cells. Numerous animal tumor model studies have demonstrated that cytokines have broad anti-tumor activity and this has been translated into a number of cytokine-based approaches for cancer therapy. Recent years have seen a number of cytokines, including GM-CSF, IL-7, IL-12, IL-15, IL-18 and IL-21; enter clinical trials for patients with advanced cancer. There is ongoing pre-clinical work supporting the neutralization of suppressive cytokines, such as IL-10 and TGF-β in promoting anti-tumor immunity. In addition, advances in adoptive cell therapy have relied on the use of cytokines to create an *in vitro,* highly controlled environment for the optimal development of anti-tumor T cells.[16]

Introduction of "Suicide Gene"

Suicide gene therapy is a type of gene therapy using the insertion of genes intotumor cells from a viral or a bacterial gene, resulting in cancer cell death.This therapy works on the basis of the cell's self destruction by a vector transferring the suicide gene that stimulates the apoptotic pathway with its product, thus allowing the conversion of a non-toxic prodrug in a lethal drug. This cancer therapy still remains as an integrated multimodality approach along with chemotherapy, radiotherapy and surgery. Suicide gene therapy has been deemed safe and effective.[17]

Introduction of tumor suppressor gene

Tumor-suppressor genes, or anti-oncogenes, normally suppress cell division. Consequently, it is necessary to inactivate both copies to initiate cancerous growth. A mutation in one copy of a tumor-suppressor gene has no effect; that is, these are recessive mutations. When both copies of a gene have been inactivated by null mutations, this is known as the **nullizygous** state. The two most common anti-oncogenes are Rb and p53. Almost all human tumors inactivate either Rb or p53 and often both. Many of the proteins encoded by anti-oncogenes are DNA-binding proteins, often with zinc fingers.[18]

Insertion of drug resistance gene in the hematopoietic stem cells

Gene transfer into hematopoietic stem cells (HSCs) has promise as a novel treatment for some inherited and acquired disorders. HSCs are highly desirable for gene therapy, because of their self-renewal and multilineage differentiation capacities, and so stable engraftment of genetically modified HSCs leads to adequate expression of transgene in stem and progenitor cells. Additionally, HSCs are easy to access for harvest and delivery. The ability to achieve efficient gene transfer to repopulating human HSCs and to maintain appropriate levels of expression *in vivo* in these cells and their progeny has been poor and the resultant clinical benefits negligible.

New vectors and improvements in vector design, that is, lentivirus, foamy virus, and *in vitro*-packaged *SV40* vectors, and envelope proteins, use of the CH-296 domain of fibronectin in transduction, improved cytokine combinations, and changes in transduction methodology, that is, spinoculation and vector preloading, have improved gene transfer efficiency. Improvement in gene transfer technology and the survival advantage of transduced HSCs resulted in the success of HSC gene therapy in patients with X-linked severe combined immune deficiency (X-SCID). However, retrovirus integration in three X-SCID patients was associated with the development of T-cell acute lymphoblastic leukemia (T-ALL). Integrational mutagenesis-related safety concerns caused the FDA to put a hold on gene therapy clinical trials for almost a year, and after extensive re-evaluation of accessible data, new safety guidelines were defined. Nevertheless, safety issues continue to be a concern and in a recent consensus workshop of American Society of Gene Therapy.

The potential benefits are clear: in those malignancies in which dose intensity increases response, protection of hematopoietic progenitors by gene transfer may allow higher and more effective doses of drug(s) to be administered, and more cures. Drug or drug combinations that are proposed for post-transplant chemotherapy, as they are non-cross-resistant to the previously applied treatments, should have minimal nonhematopoietic drug toxicity and a steep dose–response curve.[19]

Cardio-vascular diseases

Patients who are suffering from high blood pressure can be treated with genes that are responsible for dilation of blood vessels (e.g. endothelialnitric oxide synthase gene). Genes that can lower the cholesterol can be used to treat familial homozygotic hypercholesterolemia (e.g. Apoa-1 gene).

The transduction and expression of genes in appropriate cell types represent important steps in the development of gene therapy. Therefore, investigations have focused on the development of methods to deliver and express genes in vascular cells and cardiac myocytes. Viral vectors (retroviruses and adenoviruses), viral conjugate vectors (adenovirus-augmented receptor-mediated vectors and hemagglutinating virus of Japan [HVJ] liposome's), and nonviral vectors (cationic liposome's, polymers, and injection of plasmid DNA) have been used.

To optimize gene delivery to target cells, characteristics of the cell must be considered, such as proliferative capacity and location within the target tissue. Vascular cells (endothelial and smooth muscle cells) and cardiac myocytes differ particularly in proliferation features, and therefore different strategies have been used to transduce these cells.[20]

Inherited disorder

The ultimate therapeutic goal of gene therapy for monogenetic disorders is to permanently replace a gene with its functioning counterpart in stem cells to restore normal function.

Somatic gene therapy aims at cells or organs where the disease is manifest, because in inherited disorders not all organs are involved or equally involved.

For inherited disorders, stable expression of the introduction gene is essential. This may be achieved either by the integration of the therapeutic gene into the host cell's genome or by using episomal expression vectors.Ex. Fragile X Syndrome, Gaucher Disease, Batten Disease, Cystic fibrosis, Sickle cell anemia, Marfan syndrome, Huntington's diseases, Alzheimer diseases, Arthritis etc.

Now-a-days Gene Therapy also use for heals severe bone brakes[21], steam cell prompt bone to regrow itself[22], infectious diseases such as HIV, treatment for malaria[23], anti-aging[24], hair growth process[25], Wilson's disease (a rare pathology caused by the lack or malfunction of a gene), Inner ear gene therapy holds promise for treating patients with hearing loss and dizziness.

Shortcomings of gene therapy[26]

i. Short-lived nature of gene therapy which makes the patients to undergo multiple rounds of gene therapy.

ii. Immune response is of stimulated that reduces gene therapy effectiveness which is always a potential risk.

iii. Problems with viral-vectors, viruses –which are used as vehicles in most gene therapy, present a variety of potential problems to the patients–toxicity, immune and inflammatory responses and gene control and targeting issue. In addition, there is always the fear that theviral vector, once inside the patient may recover its ability to cause diseases.

iv. Multi-gene disorders, such as heart disease, high blood pressure, Alzheimer diseases, arthritis and diabetes are caused by the combined effects of variations in many genes. Multigame disorder such as these would be especially difficult to treat effectively using gene therapy.

v. Occurrence of few side effects. These include nausea and temporary drowsiness.

vi. For the diagnosis of diseases in a fetus or embryo before it is born prenatal testing is performed. If an unborn carries any defective gene then their parents definitely want to abort this child this may increase number of abortions. This is major disadvantage of gene therapy. This creates many ethical problems.

vii. Possibility of causing a tumor. If the new genes get inserted in the wrong spot in our DNA, there is a chance that the insertion might lead to tumor formation.

viii. Religious concerns.

Clinical trials
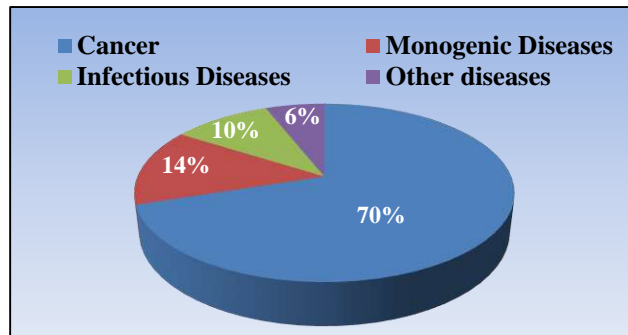
Figure 2: Proportion of protocol for human gene therapy trials relating to various types of diseases. Most gene therapies targeted cancer as the disease of choice which constituted more than two-third of all gene therapy protocols undertaken.
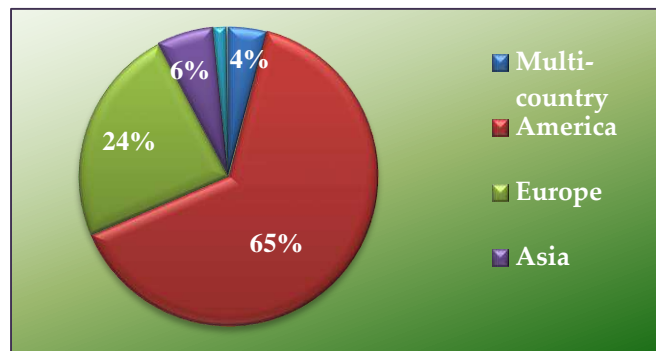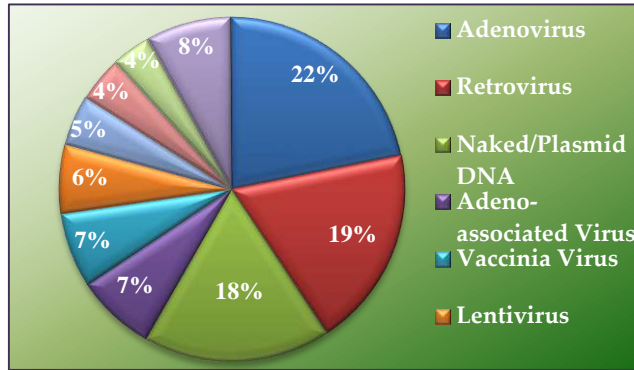

Figure 3: Geographical distribution of gene therapy (continent wise). America seems to be the pioneer in the field of gene therapy research with 65% of gene therapy protocols undertaken.
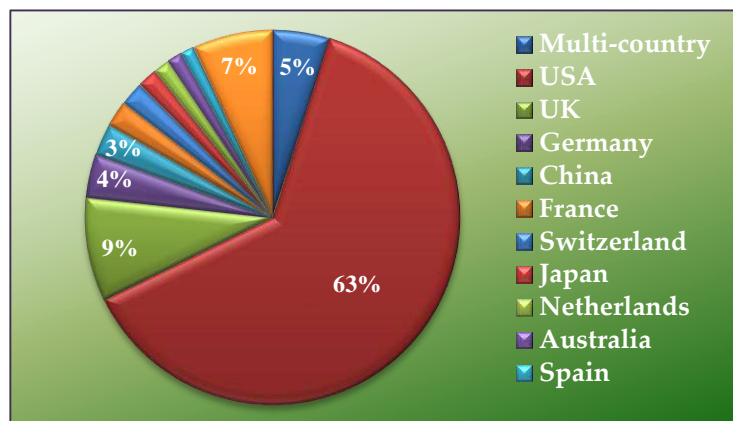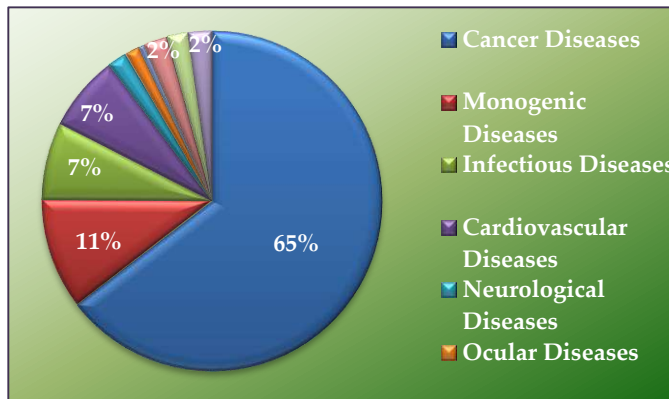

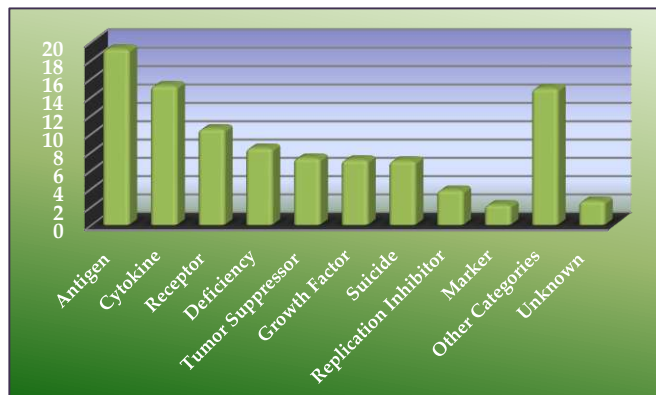**Figure 3:** Geographical distribution of gene therapy (Country wise).

Figure 4: Vectors used in gene therapy. Adenovirus, retrovirus and plasmid DNA continues to be the leading vectors for gene delivery while other delivery systems are getting pace.


Figure 5: Indication addressed by gene therapy trials.

Figure 6: Gene type transferred in gene therapy. The most prominent gene types are antigens, and cytokines indicating host immune system targeting.
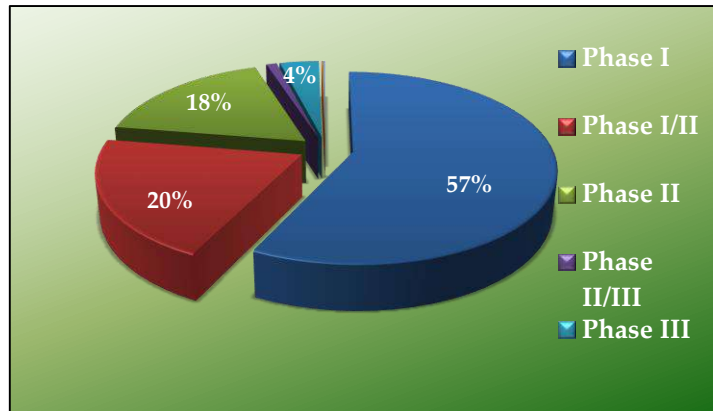
Figure 7: Phases of gene therapy. Most gene therapy approaches are still in Phase I clinical trials while very few are currently going through Phase II clinical trials. Only 4% has reached Phase III clinical trials.
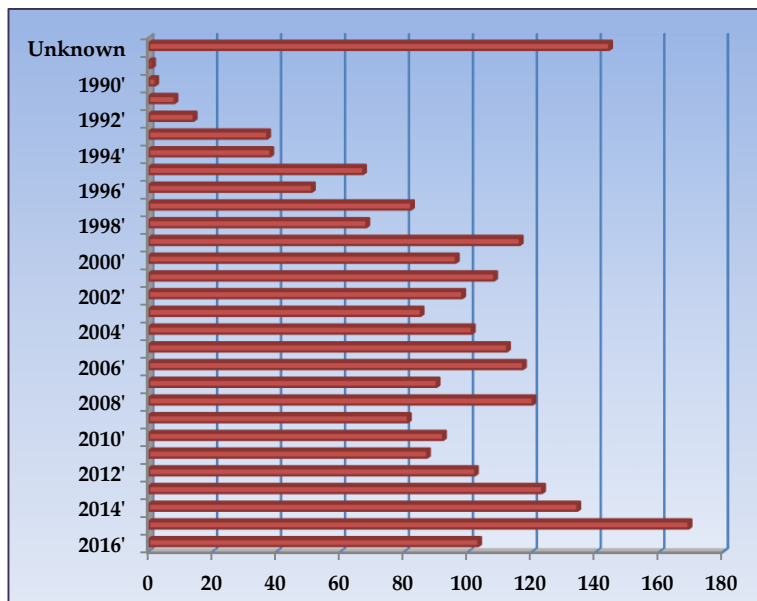
Figure 8: Approved world wide data of gene therapy. It is of no surprise that the number of new gene therapy research is expanding at a rapid pace since it holds great promise.

Discussion

In 1999, gene therapy suffered a major setback with the death of 18 years old Jess Gelsinger who participated in a gene therapy trail for ornithin trans-caboxylase deficiency.[11] He died from multiple organ failure 4 days after starting to treatment.

In 2002, Franch researcher Alain Fischer tried to cure children suffering from X-linked SCID (also known as bubble boy) by inserting retrovirus carrying normal gene into children's blood stem cell. The clinical trial was questioned when 2 of the developed a leukemia like condition.[27] However, another major blow came in Jan 2003, when the FOOD and DRUG ADMINISTRATION (FDA) placed a temporary halt on all gene therapy trials using retrovirus vector in blood stem cells. Then in April 2003, FDA eased the ban after regulatory review of the protocol in USA,UK, France, Italy and Germany.[28] Since the treatment had benefitted a large number of children.

In 2007, a team of British doctors from Moorefield's Eye Hospital & University College of London, announced the world's first gene therapy trail to test a revolutionary gene therapy treatment for a type of inherited retinal disease i.e. leber's congenital amaurosis, which is caused by mutation in the RPE65 gene. Sub-retinal delivery of recombinant AAV carrying RPE65 yielded positive result, with patient having modest increase in vision and more importantly, no apparent side-effect.[29]

In 2010, a paper by Komaromy et al. published in April 2010, deals with gene therapy for a form of achromatopsia (complete color blindness) in dogs. It is presented as idle model to develop gene therapy directed to cone photo receptor. Cone function and day vision have been restored for at least 33 months in two young dogs with achromatopsia. However, the therapy was less efficient for older dogs.[30]

On 19 July 2012, a gene therapy drug known as Glybera was approved by European Medicine Agency. Glybera is an adeno-associated viral (AAV) vector, used to treat sever lipoproteinlipase deficiency by expressing the lipoprotein lipase in the muscle tissue.In October 2015, Talimogene Laherparepvac (T-vec, trade-name ImIygic and formerly known as Onco Vex GM-CSF) was approved but the US FDA to treat melanoma, before also being approved by the EMA in December 2015; an event that marked the first approval of an oncolytic virus in West. T-vec is a biopharmaceutical drug which is injected directly into melanoma lesions that cannot be surgically removed.

Strimvelis (Glaxo Smith Klin, London, UK) was approved by the European Medicine Agency (EMA) on 27 May 2016, based on clinical trials which showed 100% survival rate and median follow-up time of seven Years for ADA-SCID patients. As of 2016, there has been no evidence that T-vec extends the life of people with melanoma or that it prevents metastasis.[31] However there has been huge success in clinical trials with genetically-modified T cells expressing Chimeric antigen receptors (CAR-T).[32]

Unit 2016, 2356 approved gene therapy clinical trials had been conducted worldwide or are still ongoing. Adenovirus, retrovirus and naked plasmid have been the most common gene transfer Vectors in clinical trials. A total of 1517 clinical trials have been Conducted, aimed at treating various cancers, marking cancer as the most common condition currently targeted with gene therapy. The trails that are still ongoing in the continents of America & Europe have been as a result of the approval of the FDA and/or EMA to restart gene therapy.

In February 2017, Kite pharma announced result from a clinical trial of CAR-T in around a hundred people with advanced Non-Hodgkin Lymphoma.[33] In March, French Scientist reported on clinical research of gene therapy to treat sickle-cell disease.[34]

Future direction

Gene therapy has been developed over the past 26 years, and the clinical experts have achieved a lot of experience during the clinical trials. However, there are still some problems that need to be addressed and additional areas that can be explored. First, cancer cells are known to usurp complicated networks of cell signaling; therefore, inhibition of one pathway may lead to the compensatory activation of a

different pathway, which may result in treatment resistance. This could explain why the outcomes of gene therapy have not been as optimal as we have desired. So, new reagents carrying multiple genes should be developed, and should be based on the gene analysis of the target cells. Secondly, with the development of precision medicine, gene microarrays are becoming cheaper and easier to manipulate, which provides conveniences for personalized medicine. For example, the genetic mutation of p53 is a biomarker in head and neck cancer and exists in 60%–70% patients, but there are still more than 20% patients without the mutation, thus the p53 gene therapy will not be effective for this population.

A pretreatment gene chip is therefore necessary for gene therapy. Furthermore, we could customize a more precise reagent of gene therapy for a single patient, based on the results of microarrays, to increase the therapeutic effect. Thirdly, by using vaccines which target tumor-associated antigens (TAA), immunotherapy may be a novel treatment strategy for cancer patients, which could be combined with gene therapy, such as p53 mutation in cancer cells.

Conclusion

The necessity of gene therapy is inevitable in treating genetic disorders for which there is no permanent cure. Scientists are more focused on treating cancer by means of gene therapy although other disorders demand attention USA is now the leader in researches related to gene therapy. There is no unique vector of choice. This choice is dependent on many different factors. Inflammatory gene insertion is becoming increasingly popular. Despite the tedious efforts of over 50 years still most gene therapy trials didn't produce successful fruit. No. of clinical trials associated with gene therapy is rising up. To our knowledge, no papers have been published in Bangladesh regarding gene therapy. Bangladesh, with it's immense potential, has the potential to ride on the vehicle of gene therapy research.

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Assessing the Performance of Factors Affecting the Profitability of Denationalized Banks : A study from Bangladesh

Md. Monzur Hossain[1], Mohammad Mahedi Hasan[2]

Abstract: The intimation of making this write up is to ascertain the relationship between bank-specific characteristics and profitability in the banking sector of Bangladesh for identifying the role of internal factors in achieving the maximum profit. This paper is an attempt to examine the financial performance of Denationalized commercial banks in Bangladesh in terms of profitability. The study is based on cross-section data of annual financial statements of two listed Denationalized commercial banks in Bangladesh for the period 2015-2019. This study focuses on widely used measures of banks' profitability which are Return on Equity (ROE) by using five ways of DuPont decomposition, Return on Asset (ROA) and profit after tax and these are also commonly suggested tools by Bangladesh Bank to evaluate banks' performance. In addition, this study tries to find out the relationship of ROA with Operational Efficiency (OE) and Return on Deposit (ROD), Return on Investment (ROI). The assessment identified that Pubali Bank Limited is performing good in terms of all profitability measures like ROE, the cost to income ratio, profit after tax. Besides, in the case of ROA the Uttara Bank Limited has a better position. The result of regression analysis found that the ROD and OE are significantly related to ROA but found less remarkable in building rapport with ROI for the denationalized banks of Bangladesh.

Keywords: Profitability, Determinants, Denationalized, Bank, DuPont Analysis.

Introduction

All types of economic activities of any country or any economy mainly depends on the banking sector. For this reason, the banking industry is known as a dominating industry in the financial sector of any economy. The banking industry is known as the life blood of any economy, because every occurrence where the money is related to the bank is the primary sources of funding. Specifically, the bank attracts money of surplus unit. That is, the banking system works as an assistant in the flow of funds from surplus unit to deficit unit. In Bangladesh, banking institutions are playing substantial character to build up, extend and maintain the growth of financial system and so as to the economy of the nation. Its pertinent to say that the banking sector of developing countries is a smaller amount reliable than that of developed countries (Beck & Rahman, 2006; Sufian & Habibullah, 2009; Uddin & Suzuki, 2011). The economic development and prosperity comes from the well-rounded developed and perfect banking system. Robust banking system plays a vital role in efficient allocation and utilization of loan (Haque and Tariq, 2012). Banking industry in Bangladesh is leading the national economy. This sector is going under a very crucial time. Some banks are trying to keep everything stable and keep their operations in proper ways as a guideline. In the early 1980, because of the failure of National

1. Lecturer, Department of Finance and Banking, Comilla University, Cumilla, Bangladesh.
2. Research Assistant, BBA, Department of Finance and Banking, Comilla University, Cumilla, Bangladesh.
   Correspondence to: mmhrabbi@cou.ac.bd

Commercial Banks (NCB's) and increasing activities of the growing private sector, the need for allowing local private banks was keenly felt.

which namely Uttara Bank Limited & Pubali Bank Limited in 1982. Economies that have a profitable banking sector are better able to with stand adverse tremors i.e. shock waves & push cushion to fetch steadiness of the financial composition (Athanasoglou et al, 2005). The fundamental role of any financial system or a bank does not evovlve only by generating profit or building bridge between savers groups and ultimate investors but also conferring that investments are made to the most thriving and promising sectors which must have cluster of contribution to strengethen the economy. Banks insolvencies can result in a systemic crisis. Therefore, it is crucial to understand the factors which affect the banking sector's profitability. That the determinants affecting bank profitability need special attention to be analysed. Profitability of banks is sometimes expressed as a function of internal and external determinants (Athanasoglou et al, 2005). Yeh (1996) thought that variety of economic ratios are generally required to be calculated and combined to create a meaningful picture of the firm's financial structure.

The main objective of this paper to evaluate the profitability of two Denationalized banks based on common profitability factors. Furthermore, this paper also shows the relationship of one of the profitability factors, i.e. Return on Asset (ROA) with operational efficiency (OE), Return on Deposit (ROD) and Return on Investment (ROI).

Denationalized banks of Bangladesh

Denationalized banks are one of the major parts of the banking sector in terms of market share and profitability in Bangladesh. Pubali Bank Limited & Uttara Bank Limited are very familiar to us as Denationalized bank. At the very inception, the Bank launched its operationin the name of Eastern Mercantile Bank Limited and incorporated in the Banking industry of the then East Pakistan in the midst of the year 1959 under Bank Companies Act 1913. The bank was aimed to provide adequate credit facilities to the Bengali business starters and industrialists who were deprived of and had poor access to the facilities due to oppression, state confliction and also be gets with other difficulties. In 1972, this Bank was nationalized by the Bangladesh Government and renamed as Pubali Bank. In the year 1983, due to changed circumstances, this Bank was denationalized as a private bank and renamed as Pubali Bank Limited. Pubali Bank Limited has been occupying itself as a pivotal role player in reconstructing overall development as well as furnishing economic restructuring of the country at large through fund mobilization and promising optimum utilization of hoarded funds from the very commencement of their journey. Presently, Pubali Bank is the largest private commercial bank with 482 branches.

Uttara Bank Limited is one of the ancient banks of Bangladesh. This bank is founded in 28th January of 1965 with the initiation of some renown Bengali businessmen to facilitate the disadvantaged people of the then East Pakistan and started its banking operation officially in the name of "Eastern Banking Corporation." In 26th March 1972, Eastern Banking Corporation was nationalized and renamed as "Uttara Bank" and resumed its banking operation in Bangladesh. It changed its name on the verge of privatization and titled "Uttara Bank Ltd." since June 1983 and wrote down its name as one of the largest private commercial banks of Bangladesh. From far ahead years, Uttara Bank adapted to receive bulk portion of inward foreign remittances and captured significant share in myriad loan products offered by it at every nook and corner of large to small industries the country.

At present, the bank has 239 branches. Besides, its effective and diversified approach to seize the market opportunities as its an incessantprocedure to increase customer base by offering more improved

& quality services and propose the extended service arraysin Corporate, SME financing & Agricultural strings as well.

Importance of the Study

Banking industry of Bangladesh is going through a phase of consumers market. Apparently, customers have more choices in their bank. The competition is getting unhealthy day by day. With enormous competition and advanced technology, the services provided by the banks have become convenient. This study will provide a further base involved during this field and to help us knowing about performance of factors which affecting the profitability of Denationalized Banks.

Review of Related Studies

There is a large literature dealing with factors that affect and influence the profitability of banks. There are few initial investigations on bank profitability (Short, 1979; Bourke, 1989). Some previous empirical analysis on the bank profitability are country specific, while others have focused on a panel of countries. Every bank or any financial institutions believe that Profitability is an important measure of financial performance. Profitability analysis provides an insight into the efficient utilization of assets. A great deal of consideration has given to find the significant determinants of bank profitability in the entire world. Bank profitability can be notified as an element of both internal and external elements. Internal elements can allude as explicit bank elements or micro components, and external variables can allude as macroeconomic elements that affect the profitability of banks.

Park and Weber (2006) explore the most significant determinants of the banking sector's success between the time from 1992 to 2002 by analysing the useful structure theory against the market structure speculation. The outcomes show there is a strong relationship between bank profitability and bank efficiency, which uphold the efficient structure theory.

Micco et al, (2007) reevaluate the relationship between bank performance and ownership by utilizing another data set. They attempt to give ends for both developed and developing nations independently. They find that for developing nations, state-owned banks have a low degree of profitability and a significant level of costs contrasting with private-owned banks. The outcomes are only inverse for foreign owned banks. Then again, they find that there is no strong relationship between performance and ownership in developed nations. It is additionally discovered that political thought assumes an important function for the differential exhibition among private and public banks.

Besides, profitability is considered as an operational proficiency of banks (Shrivastava, 1979). The efficiency ratio is a main stream used by bank financial analyst to assess the capacity of bank to deal with its expenses. The operational effectiveness of a bank is determined by the proportion of the non-premium cost to add up to working salary. It quantifies the degree of the non-intrigue cost expected to help one dollar of working salary, comprising of both interest expense and non-interest expense pay (Feeds et al., 2009).

Despite having a number of measurement tools of earnings, the best and the widely used indicator is ROA. The relationship between capital and profitability is briefly discussed by signalling theory (Berger, 1995; Trujillo-Ponce, 2012), expected bankruptcy expense hypothesis and risk-return hypothesis (Athanasoglou, Brissimis and Delis, 2005; Olweny and Shipho, 2011).

The investment part of any bank comprised of Loans and advances which are usually capitalized further to generate the spread between interest income and interest expenses. The ROA is a generally accepted financial measurement tool taken into consideration to quantify the relationship of profit to total assets. It is a ratio which comes from net earnings divided by total assets. As per DuPont

Analysis, ROA shows both asset utilization ratio and net profit margin ratio. Asset utilization ratio comes from total operating revenue to total assets, and net profit margin ratio is comes from by net earnings to total operating revenue. Therefore, ROA tries to find out how efficiently bank is managing its revenues and expenses and how they reflect the bank managements' ability to generate profits by using financial and real assets (Clark et al. 2007 and Lopez 1999). A number of write-ups have been published and accorded to use ROA as an vital indicaitor for reckoning profitability (Peters et al. 2004 and Tarawneh, 2006).

To stretch out credit or loan and to invest in securities, a bank must have cash, which comes essentially from the bank's owners as capital, from investors or depositors, and the money that it gets from different banks or by selling debt securities. Credits and investments are significant sources of both interest income and non-interest pay of the firm. Subsequently, this investigation utilizes ROE as a ratio of benefit, which is a ratio of net profit to investors' value. This ratio demonstrates how much bank is utilizing a value store to create profit. The development in ROE relies upon how effectively and proficiently the bank is dealing with its value capital. Peters et al. (2004) and Tarawneh (2006) have utilized the ratio as a pointer of productivity. According to DuPont Analysis, ROE equals to ROA multiplied by Equity Multiplier (EM), which shows the utilization of influence and impact of influence on ROE of a bank (Clark et al. 2007 and Lopez 1999).

Doliente (2005) analyzes the determinants of NIM of banks in four Southeast Asian nations utilizing the seller model created by Ho & Saunders (1981) and by running two-step regression. Results from the first regression displays that the district's NIM is partially clarified by capital, working costs, security and fluid resources, and advance quality. Reviews from next step regression exposes that NIM is elucidatedusually by the lessserious structure of the district's financial frameworks. Besides, the outcomes additionally reveal that in the outcome of the banking and Asian cash emergencies, the profit grasp experienced by the district's banks. As Berger (1995) and Trujillo-Ponce (2012) saw that, under the signalling hypothesis, bank management signalled private data that the future possibilities are acceptable by increasing capital. Consequently, lower leverage demonstrates that banks perform better than their competitors who can not raise their value without further weakening the profitability (Ommeren, 2011). Then again, bankruptcy theory or hypothesis demonstrates that in a case where bankruptcy costs were high, a bank holds more equity to avoid distress (Berger, 1995).

A arbitrary overview was conducted on six banks of Bangladesh by Jahan (2012). The determinants of banks profitabilies were utilized broadly, specifically ROA, ROE, and ROD and these moreover are commonly utilized a measure of Bangladesh Bank to judge banks performance.The results obtained from the multivariate analysis are the explanatory variables – operational efficiency, asset size, and ROD to be positively related and asset utilization to be negatively associated with ROA, but these associations are statistically insignificant.

Khediri and Ben-Khedhiri (2011) have worked a long with the factors of net interest margins (NIM) in Tunisia taking into consideration the heterogeneity of individual banks through the use of fixed-effect as well as random-effect models. According to the theoretical model signifying positive connotation, they terminated that bank capital and operating costs are certainly related with NIM. It is also discovered from the study that NIM is negatively correlated to the eminence of management and positively interrelated to implied interest payments and opportunity costs of bank reserves.

Albertazzi and Gambacorta (2009) evaluate the impression of corporate income tax on the operation of banks taken from the leading industrialized countries from 1981 to 2003. They come out with conclusion that the taxation of profit of banks is equivalent to the taxation on loans and it has an unavoidable impact on the structure of revenues in banking sector. Here is the ability for financial

housues to transfer a part of their tax burden, and consequently, differences in the level of taxation can not elucidate the spreading detected profitability of banks.

Guru et al. (2002) discovered proficient costs as one of the critical factors in clarifying banks' productivity. Bashir (2003) discovered bank's profitability measures react decidedly to the increments in the capital and contrarily to credit ratios. Haron and Azmi (2004) revealed in their study that liquidity, store things and resource structure, swelling and cash flexibly has a factually remarkable effect on the benefit of banks. Tarawneh (2006) found that the budgetary presentation of the banks was emphatically and decidedly impacted by the operational productivity and resource the executives, not with standing the bank size. Naceur and Goaied (2008) inspect the effect of bank qualities, money related structure, and macroeconomic conditions on banks' net-premium edge and productivity during the time of 1980 to 2000.The examination proposes that banks that hold a moderately high measure of capital and higher overhead costs will in general display higher net interest edge and benefit levels, while the size is contrarily identified with bank benefit.

Kosmidou (2008) inspected the determinants of execution of Greek business banks during the period 1990-2002. This investigation found that gainfulness is decidedly connected with very much promoted banks and lower cost to salary proportions. This investigation additionally recommends that the development of Gross Domestic Item (GDP) is emphatically identified with bank productivity, while the expansion rate is adversely identified with bank gainfulness during the period under investigation. More as of late, Sufian and Habibullah (2009) revealed in their examination that explicit bank qualities specifically advance power credit danger and cost have positive and critical effects on gainfulness of Bangladeshi banks, while non-premium pay shows a negative relationship with bank benefit. This study found that size negatively affects Return on Average Equity (ROAE) while it has a positive effect on Return on Average Assets (ROAA) what's more, Net Interest Margin (NIM).

Heffernan and Fu (2010) intended to expose the detailed performance of Chinese banks between 1999 and 2006 and amassed the covanents that influences the performance. The output finally revealed that NIM and Economic Value Added outperforms than Return on Average Assets and Return on Average Equity. Their study has also disclosed that the type of bank is a dominant determinant in bank profitability rather than size of the bank. Iti is not found nowhere about any effect from the lisitng of bank and the percentage of foreign ownership.

Abdullah and Tan (2017) investigate the determinants of economic bank using data from 11 countries over the amount 2004-2014. The profitability is measured by return on the average assets, while there are a series of bank-specific, industry-specific and macroeconomic determinants considered including bank size, bank capitalization, credit risk, bank liquidity, bank efficiency, bank diversification, bank ownership, bank nationality, inflation, GDP growth and financial crisis.

Hosain & Ahamed (2015) led an examination during which the fixed impact model was utilized and two-factor income, asset value, management efficiency impacts of the industry and resource structure were found to be significant for Return on Asset (ROA)

There are so many gaps within the literature review in determining the variables that are key to the competitiveness of Bangladesh. Profitability considerations in Bangladesh's banking sector remain less exploratory. The quantity of studies during this field isn't sufficient to checkthe necessity. This paper aims to contribute practical research to detect and fill the research gaps during this sector, which might affect profitability. Its relevant to mention that no research workouts have been reported so far on the profitability of denationalized banks. As competition has increased substantially within thebanking

system, Bangladesh needs some academic and higher level studies to search outout the influential drivers of profitability for Denationalized Banks.

Objectives of the Study
General Objective :
The main objective of this study is to assess the performance factors affecting the profitability of Denationalized Banks of Bangladesh.

Specific Objectives:
i. To evaluate and compare the profitability position of denationalized banks with profitability measures- ROA, Cost to Income ratio and profit after tax;
ii. To evaluate ROE of selected banks through five-step DuPont Analysis;
iii. To examine the relationship of one of the profitability measures, i.e., ROA with operational efficiency (OE), Return on Deposit (ROD) and Return on Investment (ROI).

Methodology
Research design
In this study, a sort of explanatory research design is used to evaluate and compare the profitability position of denationalized banks with ROA, Cost to Income ratio and profit after tax, to evaluate ROE of selected banks through five-step DuPont Analysis & to examine the relationship of one of the profitability measures, i.e., ROA with operational efficiency (OE), Return on Deposit (ROD) and Return on Investment by deriving quantitative data from the annual report of banks.

Sample Design& Data Sources
The study is based on secondary data obtained from published annual reports of sample banks, monthly review of Dhaka stock exchange and website of DSE and Bangladesh Bank. It has taken two Denationalized commercial banks from banking sectors as sample which are Pubali Bank Limited and Uttara Bank Limited. The sample period is five years from 2015 to 2019 for study.

Research Variables
Referring to the prior studies, this research has employed two categories of variables in order to examine the performance of the two denationalized commercial banks of Bangladesh which are classified as dependent variables which is Return on Asset (ROA) and independent variables which are Operational Efficiency, Return on Deposit (ROD) and Return on Investment (ROI).

Method of data analysis
The technical tools used for the assessment of profitability are ROA, Cost to Income ratio and profit after tax and ROE. In addition, ROE is also decomposed with the help of five steps DuPont Analysis. Five years average is considered for all the determined profitability measures for examining profitability and evaluating the statistical relationship between dependent and independent variables. To examine the statistical relationship between ROA and three independent variables, Pearson's correlation coefficient and multiple regression analysis have been used. Moreover, to find out the significance of a correlation coefficient, a t-test is run, which hypothesizes that linear relationship between two variables is zero. The findings of correlation and t-test are reported with a correlation matrix table. Multiple regression analysis is used to see how far the independent variables are related to dependent variable, ROA. Here t-test is applied to test the significance of beta coefficients. In addition to this, analysis of variance (ANOVA) is used to evaluate the significance of the coefficient of

determination that is R-square and to report the fitting of regression equation with the help of 'F' value. SPSS 25 software has been used to calculate andanalyze the results.

Findings and Analysis

Comparison of the Bank's Profitability Measures

ROA – Return on Asset

ROA is a pointer to measure how profitable a company's assets are in generating income. In Table 1, ROA is calculated by average Net Income to average Assets amount of last 5 years financial data (2015-2019) from both denationalized banks.

Table 1: Return on Asset

Banks	ROA (%)
Pubali Bank Ltd.	0.64
Uttara Bank Ltd.	0.96

Source: Author's Calculation from the annual report of banks

Here ROA reported for Uttara Bank Limited is 0.96%, which indicates the proportionately better ability of this bank in engendering profit by capitalizing its existing investments and gearing up bank's efficiency achieving cost leadership and raising income. Another bank, Pubali Bank Limited, reported ROA of 0.64%, which is lower than Uttara Bank Limited. But the important thing is ROA from both denationalized banks are poor that indicates a lack of efficiency of bank's management.

Cost to Income Ratio

Cost to income ratio, measures operating expense as a percentage of operating income, is used to examine efficiency and productivity for banks. In Table 2, Cost to income ratio calculated by the average operating expenses to average operating income of last 5 years financial data (2015-2019) from both denationalized banks.

Table 2: Cost to Income Ratio

Banks	Cost to income ratio (%)
Pubali Bank Ltd.	49.34
Uttara Bank Ltd.	61.97

Source: Author's Calculation from the annual report of banks

Pubali Bank Limited has a cost to income ratio of 49.34%, where Uttara Bank Limited has a ratio of 61.97%. As the lower cost to income ratio generally indicates higher efficiency. It can be concluded that Pubali Bank Limited is more efficient than Uttara Bank Limited, to generate more income with less expenses.

Profit After Tax

Profit After Tax (PAT) can be considered as the net profit available for the shareholders after paying all the expenses, provisions and taxes by banks. In Table 3, PAT is calculated as the average profit after tax of last 5 years financial data (2015-2019) from both denationalized banks.

Table 3: Profit After Tax

Banks	Profit after tax (in million)
Pubali Bank Ltd.	BDT 2,251.28
Uttara Bank Ltd.	BDT 1,635.86

Source: Author's calculation from the annual report of banks

From the above Table 3, it is clear that Pubali Bank Limited has a greater profit after tax of BDT 2251.28 million where it is BDT 1635.86 million for Uttara Bank Limited. So, Pubali Bank Limited is a more profitable bank between two denationalized banks of Bangladesh.

ROE – Return on Equity (DuPont Analysis)

According to three-step DuPont Analysis, ROE is calculated through improved profitability, asset turnover or financial leverage. But its expanded version, five-step DuPont Analysis, created to break down net profit margin even further. This advanced version also shows how interest payments on debt affect net profit margin. For a better result, the five-step DuPont Analysis model has been applied here with an average amount of last 5 years financial data (2015-2019) from both denationalized banks.

Table 4: ROE: Five-Step DuPont Analysis (ROE= EBIT Margin × Interest Burden × Tax Burden × Asset Turnover × Financial Leverage)

Bank	EBIT Margin	Interest Burden	Tax Burden	Asset Turnover	Financial Leverage	ROE (%)
Pubali Bank Ltd.	0.28	0.61	0.45	0.08	14.07	8.52
Uttara Bank Ltd.	0.23	0.76	0.59	0.09	1.09	1.02

Source: Author's calculation from annual report of banks

As it is visible from the Table 4, Pubali Bank Limited has a tax burden of 0.45 and interest burden of 0.61. At the same time, it has EBIT margin of 0.28. The asset turnover ratio of this company is 0.08, and it has financial leverage of 14.07. The average ROE of this company is 8.52%. Another bank, Uttara Bank Limited, has a tax burden of 0.59 and interest burden of 0.76. In contrast, it has an EBIT margin of 0.23. The asset turnover ratio of this company is 0.09, and it has financial leverage of 1.09. The average ROE of this company is 0.07.

Although tax burden, interest burden and asset turnover of Pubali Bank Limited are comparatively lower than Uttara Bank Limited, its EBIT margin, Financial leverage are comparatively good enough to produce higher ROE. Furthermore, finally, it can be evolved that Pubali Bank Limited has the best performance than Uttara Bank Limited.

Relationship of profitability measures (ROA with Operational Efficiency, ROD & ROI)

Table 5: Descriptive statistics of Variables –ROA, OE, ROD & ROI (2015-2019)

Banks	Year	ROA (Y)	OE (X1)	ROD (X2)	ROI (X3)
Pubali Bank	2019	0.48	5.94	0.60	2.13
	2018	0.88	10.63	1.11	5.94
	2017	0.42	5.34	0.54	2.73
	2016	0.44	5.47	0.54	2.73
	2015	1.08	11.29	1.29	5.00
Average		0.64%	7.73%	0.80%	3.53%
Uttara Bank	2019	0.98	10.86	1.19	6.25
	2018	0.93	10.06	1.12	6.00
	2017	0.91	10.43	1.05	4.77
	2016	0.98	10.40	1.13	4.84
	2015	1.03	9.53	1.23	3.51
Average		0.96%	10.26%	1.14%	4.94%

Source: Author's calculation from the annual report of banks

Table-5 provides the descriptive statistics of dependent variable ROA and independent variables-OE, ROD and ROI oftwo denationalized banks of Bangladesh for the year 2015-2019. Here all the average profitability measures of Uttara Bank Limited is greater than that of Pubali Bank Limited. Greater average OE from Uttara Bank Limited of 10.26% indicates that they are more efficient to generate more revenue with less operating expenses.

In the case of Return on Deposit (ROD), Uttara Bank Limited has a greater average rate of return on bank deposit of 1.14% than that of Pubali Bank Limited (0.80%).

When it's Return on Investment (ROI), the higher average rate of 4.94% obtained by Uttara Bank Limited where it is 3.53% for Pubali Bank Limited.

From table 6, it can be concluded that the performance of Uttara Bank Limited is at the peak in terms of profitability measures ROA, OE, ROD and ROI on the basis of average.

Table 6: Correlation Matrix of All Dependent and Independent Variables

		ROA	OE	ROD	ROI
ROA	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	10			
OE	Pearson Correlation	.965**	1		
	Sig. (2-tailed)	.000			
	N	10	10		
ROD	Pearson Correlation	.996**	.967**	1	
	Sig. (2-tailed)	.000	.000		
	N	10	10	10	
ROI	Pearson Correlation	.768**	.876**	.790**	1
	Sig. (2-tailed)	.010	.001	.007	
	N	10	10	10	10

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

Source: Author's calculation from the annual report of banks

The profitability measures values reported in Table-5 are used to calculate correlation with Pearson Correlation model. The correlation results and results of the t-test are shown in Table-6. The correlation matrix table indicates that there exist a significant positive relationship between Return on Asset and other profitability measures like; Operational Efficiency, Return on Deposit, Return on Investment. However, the significant relationship lies between ROA and ROD with 0.996.

Table 7: Multiple Regression Analysis Result

Particular	Coefficient	Standard Deviation	T-statistic
Constant	-.063	.035	-1.777
OE (X1)	.026	.019	1.369
ROD (X2)	.747	.121	6.165
ROI (X3)	-.021	.013	-1.662
Standard Error	0.02437		
R^2	0.994		
R^2 (Adjusted)	0.991		

Dependent Variable: ROA

Source: Author's calculation from annual report of banks

Multiple regression analysis is conducted to examine what effect the independent variables OE, ROD, ROI have on the dependent variable ROA. The multiple regression results are shown in Table-7, and the critical value of 't' found at 0.10 level of significance is 1.78. This table displays that beta coefficients of ROD and operational efficiency (OE) both are positive and the relationship of ROA with ROD is a statistically significant that might impact on increasing ROA, although the coefficient of ROI is weakly negative. To evaluate whether the regression model as a whole is significant, coefficient of determination, R-square is calculated where it reports 99.1% of the variation in ROA is explained by the regression line.

Table 8: Analysis of Variance (ANOVA)

Source	Degree of Freedom	Sum of Squares	Mean of Squares	F-statistic	Sig.
Regression	3	0.603	0.201	201.00	.000
Residual	6	0.004	0.001		
Total	9	0.606			

Dependent Variable: ROA

Source: Author's calculation from annual report of banks

The calculated value of F-ratio is 201.00, as reported in Table-8 is higher than the critical value of F-ratio 4.76 at 0.05 level of significance, which suggests that the whole regression model has been found to be statistically significant.

Conclusion & Recommendation

This study focuses widely used determinants of Banks profitability, which are Return on Asset (ROA), Cost to Income Ratio, Profit after Tax, Return on Equity (ROE) with five steps DuPont analysis. These are also commonly suggested financial tools by Bangladesh Bank to evaluate banks' performance. Besides, this study evaluates the Operational efficiency (OE), Return on Deposit (ROD) and Return on Investment (ROI) as a measure of selected banks' profitability measured by ROA. The result reveals

that the performance of Pubali Bank Limited is excellent, in terms of profitability measures like ROE, Cost to Income ratio, profit after tax. Besides, in the case of ROA the Uttara Bank Limited has a better position. The correlation result indicates that ROA has a significant linear relationship with all measures OE, ROD and ROI. The result of regression analysis found that the independent variables ROD and OE are significantly related to ROA but failed to establish any significant association with ROI. The size of the sample is chosen for this write-up is not too outsized, only two denationalized banks, and this is considered as the major shortcoming of the present study. Furthermore, the data obtained from the annual reports of last five years (2015-2019) of selected two Denationalized banks and the five-year average for all profitability measures are calculated, which are also considered as significant components of this study. Therefore, future researches can be extended by covering both internal and external measures of bank's profitability. The significance of this study may be viewed as the addition to the existing body of literature on finance and banking industries. Besides, it may function a start line supported which future related studies may be drained the context of Bangladesh.

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Speech Recognition System for Speech to Text and Text to Speech for Autistic Person

Md. Zahidul Islam[1], Md. Abdul Based[2]

Abstract: Speech recognition enables a device to recognize human words by converting the words into machine readable code. The conversion is usually done by digitizing the sound and matching the pattern against some stored patterns. Now-a-days, it has many applications, for example, among others healthcare, telephone, military, and security systems. In our paper, we present a system on Speech to Text conversion and Text to Speech conversion. Our system will enable the physically disable people (who cannot type text or click mouse) by recognizing their speech to operate their computer. In addition, our system will also help the blind people to recognize a text by converting the text into speech. Thus our system will play an important role especially for the physically disable people to continue their work or activities. We develop the system in .NET Framework (C#) with desktop computers. Hence, no additional devices are needed to operate our system.

Keywords: Speech Recognition, Speech to Text, and Text to Speech.

Introduction

Automatic Speech Recognition (ASR) is a translation process of Speech Recognition (SR) that converts spoken words into text or text to spoken words. The ASR process plays an important role in Artificial Intelligence (AI) to allow interaction between a computer and a human being. Though SR makes a computer intelligent to interact with a human being by converting the human words into machine-readable code, it has a limited collection of words and phrases. So, it can only identify a limited number of words very clearly. Another limitation is that the human words are needed to be pronounced correctly for improving the high detection rate.

In AI system, SR is a faster and popular technology. It does not require much time in the conversion process and can work using voice command instead of typing or clicking mouse in computer. The familiarity of SR is increasing day by day as we have modern devices which are user-friendly as well. Thus SR is becoming more convenient to use. In addition, for physically disabled people, SR is extending helping hand so that those people can continue their activities with the help of SR technology.

One of the major drawbacks of SR is the dependency of language. However, development of SR in local language will help people to overcome this problem.

In Section II, we discuss the related works. We briefly introduce our proposed system in Section III. In Section IV, the methodology of our system is described, and the system architecture is discussed in Section V. We discuss the limitations of our work in Section VI. The paper presents the conclusion in Section VII.

1. Md. Zahidul Islam, Lecturer, Dept. of Computer Science & Engineering, Dhaka International University, Dhaka, Bangladesh.
2. Md. Abdul Based, Associate Professor, Dept. of Computer Science & Engineering, Dhaka International University, Dhaka, Bangladesh.
Correspondence to: zahidcse.bd@gmail.com

Related Work

All speech-to-text systems rely on at least two models: Acoustic Model and Language Model. A more technical definition is given by Jurafsky, where the author defines ASR as the building of system for mapping acoustic signals to a string of words[1]. The author continues by defining automatic speech understanding (ASU) as extending the goal to producing some sort of understanding of the sentence.

Some of the popular speech recognition systems that can be used in voice dealing, sending SMS by saying out the message and the captured message is sent to the recipient in particular language are published in[2].

The speech recognition system published in[3] enables a device to recognize and understand spoken words by digitizing the sound and matching its patterns against the stored patterns. Such kind of systems focuses on co-articulation fact, word and sentence correction rate and reduction of mixture component for desired result.

Another type of front-end for automatic speech recognition system is found in [4]. It can directly be used for speech enhancement purpose in a low resource system.

A visual-speech recognition system is published in[5] that are applicable to telephone communication for deaf people.

Our Proposed System

In this paper, we develop a speech recognition system that recognizes speech, captures it, and then translates the speech into text. In addition, it also recognizes text and translates this into speech.

The objective of our work is to recognize who is speaking. Our work aims at understanding and comprehending what was spoken by the human being without depending on mouse or keyboard to operate the computer or to work with computer. The SR system we have developed works faster and is cheap. Thus it saves time and money.

Methodology

In our work, we run C# programs on the .NET Framework. This framework includes a virtual execution system called the common language runtime (CLR) and a unified set of class libraries. We write our source code in C# which is compiled into an Intermediate Language (IL) that conforms to the Common Language Infrastructure (CLI) specification. We also use Speech Application Programming Interface (SAPI) middleware that provides an Application Programming Interface (API) and a Device Driver Interface (DDI) for speech engines to implement. We use speech recognizers for recognizing the human words and speech synthesizers to respond user's input text as speech. The working architecture of SAPI is shown in Figure 1.
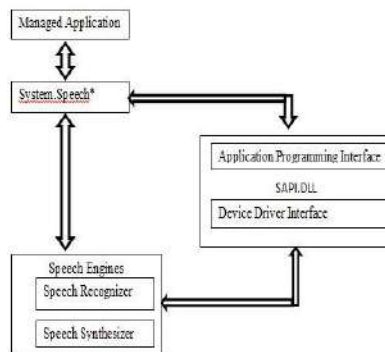
In our system, we take the speech of a user through a microphone, analyze the speech for recognizing the language by a decoder, and then process it in the learning environment to pass an output. We do not use any real database in the system. However, we use some text format for matching with the input (human speech).

System architecture of speech recognition system

We consider speaker independent ASR in our work as our system has not been adapted to a single speaker. The following four blocks are the main blocks in our work. That is, we consider the systems that have not been adapted to a single speaker, but in some sense all speakers of a particular language. Our system contains four blocks. They are:

1. Text to Speech: If the user writes any text as input in textbox then our system produces voice speech as like human being.
2. Voice to text: If the user input visual speech to the system then it can translate the inputted speech into its equivalent text as output.
3. Save by voice command: If the user wants to save the desired text from section (i) and (ii) then the user can save that text by voice command automatically.
4. Exit by voice command: If the user wants to exit the program then user can exit the system by voice command.

The data flow diagram for speech to text conversion is shown in Figure 2.
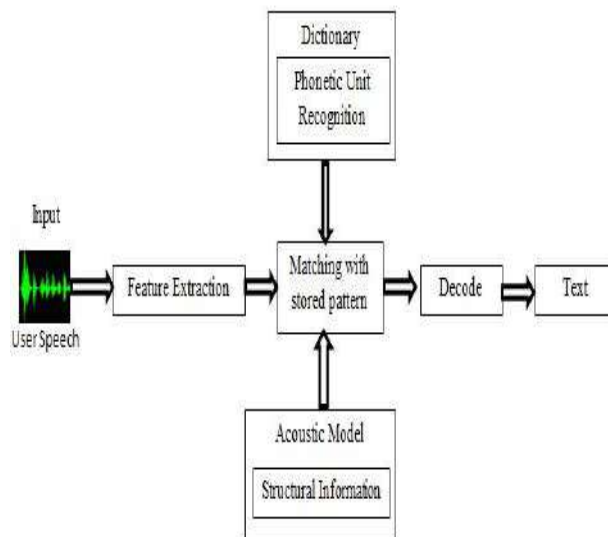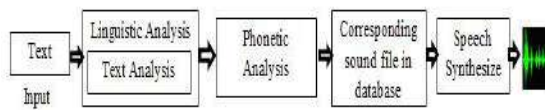

Figure 2: Data Flow Diagram for Converting Speech to Text

The whole procedure for speech to text conversion is shown in Figure 3.
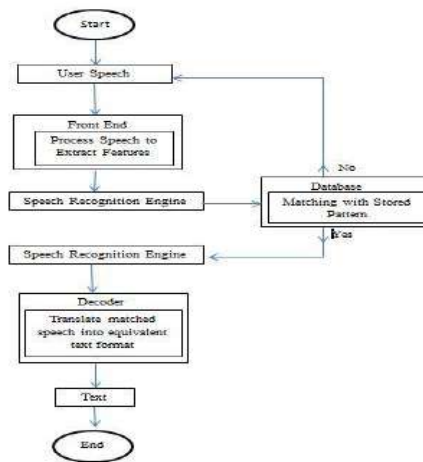
Figure 3: Working Procedure for Speech to Text Conversion

The data flow diagram for text to speech conversion is shown in Figure 4.

Figure 4: Data Flow Diagram for Text to Speech Conversion

In the following Figure we show speech to text and text to speech conversion options in our system.
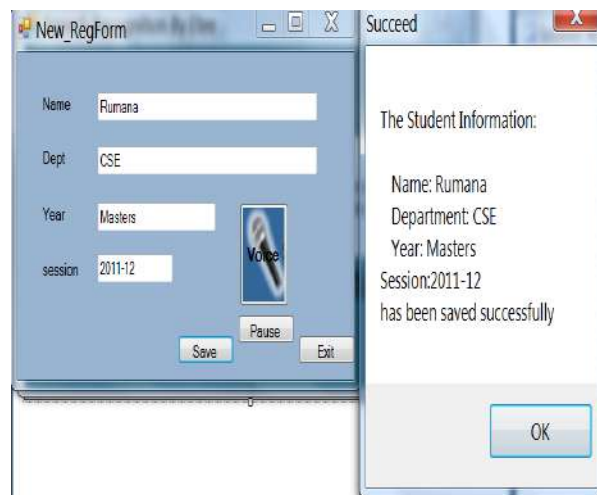

Figure 5: Speech to Text and Text to Speech Conversion Options

The speech to text conversion and saved by voice command option is shown in Figure 6.

Figure 6: Speech to Text and saved by voiced command

Speech to Text (Fill up as like registration form) and saved by voice command is shown in Figure 7.

Figure 7: Speech to Text (Fill up as like registration form) and saved by voice command

Conclusion

In this paper, we develop a system that can be used to recognize speech and translate that into equivalent text and also to recognize text contents and translate into equivalent speech. The system does not require additional devices and enables particularly the physically disabled (who cannot type or use mouse or who are blind) people to work with their computer. This system will assist those people to continue their personal activities or office works. Thus the system will contribute to the society.

We have just developed the system and it works fine. However, performance analysis will be a good future work to enhance this system.

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Adarshalipi: A Smart Mobile-Based Interactive Learning Package for Child Education

Md. Zahidul Islam[1]

Abstract: In the modern age, huge numbers of babies are born in our country every day and due to complexity of the modern age, the guardians are so much busy with their official and personal activities. Also they might not have enough time to intervene their children's education. Some children might get bored or easily lose their concentration in learning education due to traditional teaching strategy[1, 5]. This paper arose from a research project conducted to develop and implement "Adarshalipi: a smart mobile-based interactive learning package for child education" so that the guardians can participate easily to intervene their children in teaching[4]. A variety of educational tools have been designed attractively to focus fundamental learning contents of primary education such as BynjonBorno, ShorBorno, English Alphabet (Capital), Shongkha (Bangla), Shongkha (English) and Calculator.

Keyword: Child Education, Interactive learning, Adarshalipi, BynjonBorno, ShorBorno, English Alphabet (Capital letter), Shongkha (Bangla), Shongkha (English) and Calculator.

Introduction

Elementary knowledge is the fundamental requirement of any specific language and language is the core in human communication which involves reading and writing. Now-a-days, huge numbers of babies are born in our country every day. Homey knowledge is so much important to bloom mentally and physically for each child. When considering children education, it has a close relationship with their home and family. In social life, every aspects of a family have a grandiose and practical impact on children's growth. Among all types of aspects, educational model for a family is one of the most important aspects in the modern age but unfortunately the guardians are so much busy with their personal and official activities. Also they might not have enough time to intervene their children's education. Some children might get bored or easily lose their concentration in learning education due to traditional teaching strategy. As a solution for such kind of problems, some harmful decisions have been taken by guardians. They are more interested in sending their children to day care centers or pre-school educational centers. The large numbers of teacher in such educational centers mostly follow traditional strategy which may be cause of feeling bored and losing concentration in education[5].

To solve and overcome these critical situations, Adarshalipi is the suitable platform to intervene in teaching children. This platform is characterized by three significant features: (i) it has been prepared for six attractive functions. (ii) It contains button that have been selected for the purpose of fulfilling those functions; and (iii) its internal structures shows multilevel functions so that it can meet the needs of users and fulfill the functions of the Adarshalipi. The main purpose of this platform is to make an offline platform for such guardians who are so much busy with their personal and official activities so that they can participate to intervene their children (generally up to 2+ ages) in attractive teaching environment.

1. Md. Zahidul Islam, Lecturer, Dept. of Computer Science & Engineering, Dhaka International University, Dhaka, Bangladesh.
Correspondence to: zahidcse.bd@gmail.com

Related Work

A research based application has been carried out to develop a voice and gesture based gamification approach which focuses primary educational activities in mathematical and grammatical sections. This application tool has been developed in limited categories such as basic mathematics, spelling and pronunciation[5]. Kinect device such as Openkinect and Microsoft SDK has been used for gesture recognition and voice command detection. In this application, only mathematical gaming section, spelling and pronunciation has been focused but those features are not appropriate for blooming mind of children about the basic primary educational categories.

Another research based application has been carried out to represent moral learning environment for children[4]. The main focusing of this application is to improve good moral values and evaluate the children. This application has been developed based on the primary curriculum for primary school (KBSR) moral education. To develop this research based application, an observational ethnographic and quasi-experimental methods has been used. However this research based application has been focused only on morality section of children.

Proposed Application

In this paper, I develop a smart mobile based application that provides an opportunity to the guardians to intervene their children in teaching. Also provides an attractive environment by using smart mobile to learn the basic academic contents of Adarshalipi such as BynjonBorno, ShorBorno, English Alphabet (Capital letter), Shongkha (Bangla), Shongkha (English) and Calculator. The main objectives of this proposed application are: (i) to serve as an attractive learning tool for children generally up to 2+ ages (ii) to save time of guardians specially who are so busy with their official and personal activities (iii) to overcome monotony about the traditional academic strategy.

Design and Implementation with Testing Result

The proposed application is designed on six major components namely BynjonBorno, ShorBorno, English Alphabet (Capital letter), Shongkha (Bangla), Shongkha (English) and Calculator. This section presents the concepts of each component comprehensively.

The sample main User Interface (UI) of proposed application is shown in Figure 1.

Figure 1: The main User Interface (UI) of proposed application

The interface of first component BynjonBorno with testing result is shown in Figure 2(a) and 2(b).

Figure 2(a): Interface of BynjonBorno

Figure 2(b): Testing Result of BynjonBorno

The interface of second component ShorBorno with testing result is shown in Figure 3(a) and 3(b).
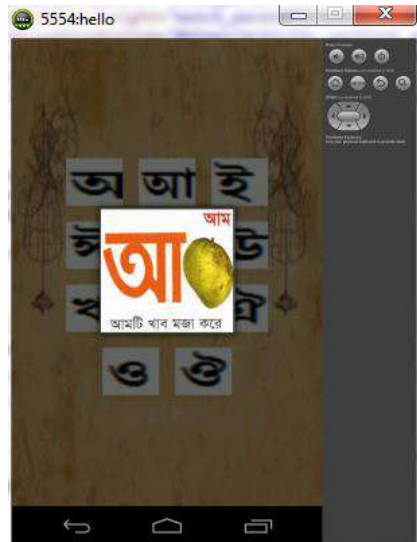

Figure 3(a): Interface of ShorBorno

Figure 3(b): Testing Result of ShorBorno

The interface of fourth component Alphabet (Capital letter) with testing result is shown in Figure 4(a) and 4(b).

Figure 4(a): Interface of Alphabet (Capital letter)

Figure 4(b): Testing Result of Alphabet (Capital letter)

The interface of third component Shongkha (English) with testing result is shown in Figure 5

Figure 5: Interface of Shongkha (Bangla)

The interface of third component Shongkha (English) with testing result is shown in Figure 6(a) and 6(b).

Figure 6(a): Interface of Shongkha (English)

Figure 6(b): Testing Result of Shongkha (English)

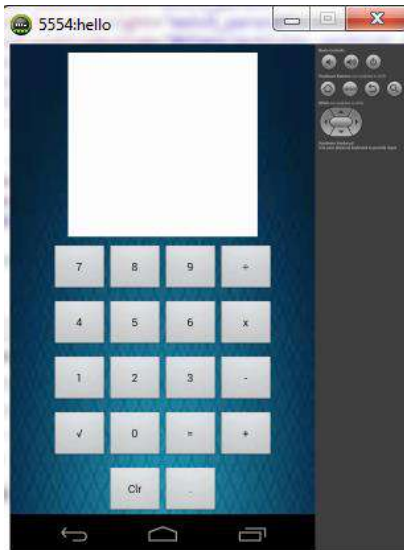The interface of third component Calculator with testing result is shown in Figure 7
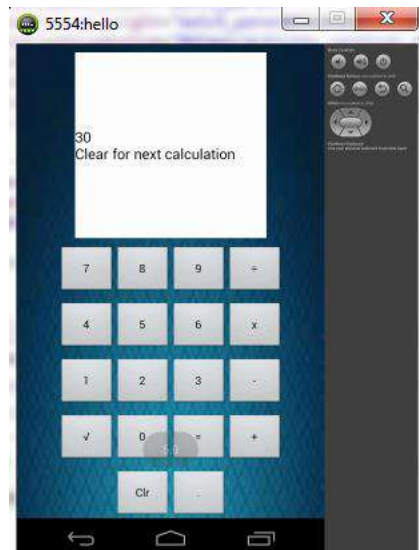

Figure 7(a): Interface of Calculator

Figure 7(b): Testing Result of Calculator

Conclusion

In this paper, some remarkable problems of children and their guardians in child education have been identified. Also endure that as a solution for that identified problems, "Adarshalipi, a smart mobile based interactive learning package for child education" application will be helpful and more reliable for both of them. Even though in modern age, there exist some different types educational applications for child but these are not appropriate to overcome monotony of children from traditional strategy and to save time of those guardians who are so busy with their official and personal activities. For the case of usability and performance, this proposed application deserves highest degree of popularity. In consideration all of above cases, "Adarshalipi, a smart mobile based interactive learning package for child education" application was proposed and implemented.

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Radio Frequency (RF) Technology and Global Management System (GSM) Based Smartphone Controlled Fire Extinguisher Robot Car (FERC)

Md. Zahidul Islam[1]

Abstract: In our day-to-day life, fire accidents have become common and sometimes may lead to hazards that make it hard for the firemen to protect human life. In the worst of cases & scenarios, fire causes heavy losses both financially and by taking lives. For instance, in garments go downs, cotton mills, and fuel storage tanks, electric leakages may result in immense fire & harm. In such cases, a firefighting robot is used to guard human lives, wealth, and surroundings from the fire accidents. With the development in the field of robotics, human intrusion has become less and robots are being widely used for safety purposes. This robot is designed in such a way that it searches a fire, & douses it before the fire could spread out of range & control. This type of firefighting robot will sooner or later work with firefighters, thus greatly reducing the danger of injury to victims. This paper proposed the design and implementation of a robot car that is able to sense and extinguishes fire. This robot car has been implemented as the following concepts: environmental sensing and proportional motor control. In the proposed system, an android application is used to send commands from the transmitter end to the receiver end for controlling the movement of the robot in forward, backward, left or right directions. The main intent of this project is to design and bring about a robot prototype by using Arduino/Genuino Uno based on ATmega328P, 8051 Microcontroller, Bluetooth module HC-06, USB2 Serial Board, DC Motors, Castor Wheel, Fire Sensor, IR Sensors, Flame Sensors, Fire Extinguisher, Water Pump, Sprinkler, Gear Motor, Motor Shelter, Battery UB645 on 6V. This proposed system incorporates RF (Radio Frequency) technology for remote operation and GSM to control everything automatically through an embedded system.

Keywords: Android OS, Robotics, Sensor, Fire Extinguisher, Wireless Communication, RF and GSM.

Introduction

Robot is defined as a mechanical design that is capable of performing human tasks or behaving in a human- like manner. With the development in the field of robotics, human intrusion has become less and robots are being widely used for safety purposes. In our day-to-day life, fire accidents have become common and sometimes may lead to hazards that make it hard for the firemen to protect human life. In the worst of cases & scenarios, fire causes heavy losses both financially and by taking lives. Firefighters face risky situations when extinguishing fires and rescuing victims, it is an inevitable part of being a firefighter. In contrast, a robot can function by itself or be controlled from a distance, which means that firefighting and rescue activities could be executed without putting firefighters at risk by using robot technology instead.

This robot provides fire protection when there is a fire in a tunnel or in an industry by using automatic control of the robot by the use of a microcontroller in order to reduce loss of life and property damage.

1. Md. Zahidul Islam, Lecturer, Dept. of CSE, Dhaka International University, Dhaka, Bangladesh
   Correspondence to: zahidcse.bd@gmail.com

The main intention of this project is to design a firefighting robot using Android application for remote operation and to generate interests as well as innovations in the fields of robotics while working towards a practical and obtainable solution to save lives and mitigate the risk of property damage.

Robotic Car

Artificial intelligence (AI) is a theory and the core object is the agent who is the "actor". It is realized in software. Robots are manufactured as hardware. The connection between those two is that the control of the robot is a software agent that reads data from the sensors, decides what to do next and then directs the effectors to act in the physical world. Actually they are equipped with sensors to perceive their environment and effectors to assert physical forces on it. Robotic car are known as a driverless car, auto, self-driving car and these are also physical agents that perform tasks by manipulating the physical world.

Related Work

A remote controlled car is developed for surveillance purposes which is controlled from anyplace from the world by smartphone accelerometer[1]. The AndroRC known as remote control car (RC) unit is developed to autonomously avoid obstacles that are not visible to the user driver in search missions in the occurrence of natural disasters[2]. Another proposed application is designing a robot consisting of a toy car, can help the military by transmitting video by using skype video conferencing application in close quarter combats[3].

Methodology

The main intent of this project is to design and bring about a robot prototype by using

- i.   Arduino/Genuino Uno based on ATmega328P
- ii.   8051 Microcontroller
- iii.   USB2 Serial Board
- iv.   Bluetooth Module HC-06
- v.   Fire Extinguisher
- vi.   Fire Sensor
- vii.   IR Sensors
- viii. Flame Sensors
- ix.   Battery UB645 on 6V
- x.   DC Motors
- xi.   Gear Motor
- xii.   Motor Shelter
- xiii. Sprinkler
- xiv.   Castor Wheel
- xv.   Water Pump
- xvi.   Male-Male Jumper Wires
- xvii. Male-Female Jumper Wires and
- xviii. Android OS

Design and Implementation

Arduino/Genuino Uno is a microcontroller board based on the ATmega328P. It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz quartz crystal, a USB connection, a power jack, an ICSP header and a reset button. Arduino/Genuino Uno is shown in Figure 1.

Figure 1: Arduino/Genuino Uno board based on the ATmega328P

The HC-06 is a class 2 slave Bluetooth module designed for transparent wireless serial communication. The figure of Bluetooth Module HC-06 is shown in Figure 2.

Figure 2: Bluetooth Module HC-06

A Motor Controller is a device that acts as an intermediary between our robot's microcontroller, batteries and motors. The figure of Motor Shelter is shown in Figure 3.

Figure 3: Motor Shelter

A gear motor is a specific type of electrical motor that is designed to produce high torque while maintaining a low horsepower, or low speed, motor output. The figure of Gear Motor is shown in Figure 4.

Figure 4: Gear Motor

Chassis is the main part of the robotic car that can carry heavy materials during operations. The figure of Chassis of the robotic car is shown in Figure 5.

Figure 5: Chassis of Robotic Car

The design and implementation of a firefighting robot car using Android application for remote operation have been accomplished. The figure of implemented robot car is shown in Figure 6.
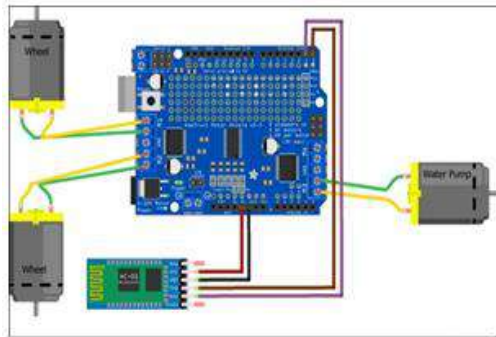

Figure 6 (a): Movement controlling of Robot Car   **Figure 6(b):** Robot Car

Working Procedure

Proposed Robot Car is designed in such a way that it searches a fire, & douses it before the fire could spread out of range & control. The working procedure of a fire fighting Robot Car is shown in Figure 7.

Figure 7: The working procedure of a fire fighting Robot Car

The name of android apps for the proposed system is "Fire Fighter Car". It has few controlling options named:

- ➢ Movement along Left side
- ➢ Movement along Right side
- ➢ Movement along Front side
- ➢ Movement along Rear side
- ➢ Water pump
- ➢ Water off
- ➢ Water on
- ➢ System turn on/off.

The figure of an android app of this proposed system is shown in Figure 8.

Figure 8: Fire Fighter Car Apps

During the running time of apps, the robot car can moves here and there around the conflagration to spread the water to stop fire as soon as possible.
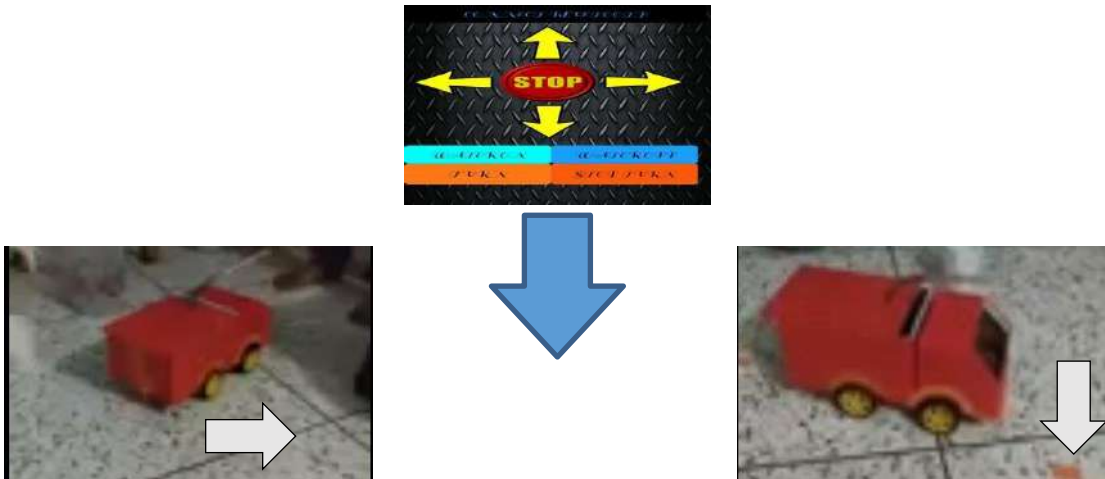
Figure 9: Performance of The Robot Car by android apps.

Working functions of proposed system are written in below:

In the proposed system, 8051 microcontroller is used to control Robot Car through wireless communication and an android application is used to send commands from the transmitter end to the receiver end for controlling the movement of the robot in left, right, forward or backward directions. At the receiver side, two motors are interfaced to the 8051 microcontroller where in two of them are used for the movement of the vehicle and the remaining one to place the arm of the robot.

The Android device transmitter acts as a remote control with the advantage of being having adequate range, while the receiver has a Bluetooth device fed to the microcontroller to drive DC motors through the motor driver IC for particular operation.

This robot car implements the following concepts: environmental sensing and proportional motor control. In contrast, a robot can function by itself or be controlled from a distance, which means that

firefighting and rescue activities could be executed without putting firefighters at risk by using robot technology instead.

This robot car is capable of sensing fire using IR sensors and then putting it off even in the absence of anyone. It then immediately sends the message to a concerned person. This project is made efficient by incorporating SIMs so that an SMS can be sent to a number of devices and boards in the locality by using techniques of time division multiple accesses. These robots can be used at different areas like factories, houses, offices, etc.

A fire fighter robot is one that has a small fire extinguisher added to it. By attaching a small fire extinguisher to the robot, the automation put out the fire by human control. It uses thermistors or ultraviolet or visible sensors to detect the fire accident.

Ultraviolet sensors/thermistors/flame sensors will be used for initial detection of the flame. Once the flame is detected, the robot sounds the alarm with the help of buzzer provided to it; the robot actuates an electronic valve releasing sprinkles of water on the flame. The fire sensor senses the fire, it sends the signal to microcontroller; since the signal of the sensor is very weak the amplifier is used so that it can amplify the signal and sends it to microcontroller. As soon as microcontroller receives the signal a buzzer sounds, the buzzer sound is to intimate the occurrence of fire accident. After the sounding of the buzzer microcontroller actuates the driver circuit and it drives the robot towards the fireplace, as the robot reaches near the fire microcontroller actuates the relay and pump switch is made ON and water is sprinkled on the fire through the sprinkler.

In this proposed system, RF technology is used for remote operation. This robot car is loaded with a water tanker and a pump controlled through wireless communication to sprinkle water. For the desired operation, an 8051 microcontroller is used. At the transmitter end, push buttons are used to send commands to the receiver end to control the robotic movement, either in left, right, forward or backward direction. A water tank with pump is placed on the robot body and its operation is carried out from the microcontroller o/p through the proper signal from the transmitting end. By using GSM in firefighting robots, it is possible to control everything automatically through embedded systems. The use of embedded systems in communication has given rise to many interesting applications that ensure safety and comfort platforms.

Future Enhancement

Since this initial work cannot address everything within the proposed framework and vision, more research and development efforts are needed to fully implement the proposed framework through a joint effort of various entities.

With a common digitized platform, these latest instruments will enable increased flexibility in control, operation, and expansion; allow for embedded intelligence, essentially foster the resilience of the instruments; and eventually benefit the customers with improved services, reliability and increased convenience.

In future, this project can be developed by interfacing it with a wireless camera so that the person can view the controlling operation of the robot remotely on a display. Movements and features of robot car can be increased, by rotating it, and providing it diagonal movements. Range of connectivity can be increased by using Wi-Fi. As of now Bluetooth module is used which can be replaced by Wi-Fi

module. Additional features can be added like to control robot car by voice commands that can be achieved by speech recognition module.

With few additions and modifications, this robot car can be used for surveillance. In future we can interface sensors to this robot so that it can monitor some parameters like face recognition and we can improve the efficiency using Internet of Things (IoT) technology.

Conclusion

In the Robotics field, the concept of robot is defined as a mechanical design that is capable of performing human tasks or behaving in a human- like manner. With the development in the field of robotics, human intrusion has become less and robots are being widely used for safety purposes. Robotics is the best possible way to guard human lives, wealth and surroundings. This paper has presented a unique vision of the concepts which are used in this particular field. It aims to promote technology innovation to achieve a reliable and efficient outcome from the various instruments. Apart from this, the proposed system helps to generate interests as well as innovations in the fields of robotics while working towards a practical and obtainable solution to save lives and mitigate the risk of property damage. In our day-to-day life, fire accidents have become common and sometimes may lead to hazards that make it hard for the firemen to protect human life. In such cases, this firefighting robot car is an advanced concept for fire service organization to guard human lives, wealth, and surroundings from the fire accidents.

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