Use of Digital Content in Teaching and Learning English at the secondary Level (XI-XII) of Education

A thesis submitted to the Institute of Education and Research, University of Dhaka for the partial fulfilment of the requirement for the degree of Master of Philosophy in Language Education

Rahul Chandra Shaha

Registration No: 004

Academic Session: 2016-2017

Department of Language Education

Institute of Education and Research

University of Dhaka

February, 2022

Statement of Authorship

This is **Rahul Chandra Shaha**, hereby solemnly declare that this thesis entitled "Use of Digital Content in Teaching and Learning English at the secondary Level (XI-XII) of Education" represents my own effort which has been carried out under the supervision of **Dr. S M Hafizur Rahman**, Professor, Department of Science, Mathematics and Technology Education, Institute of Education and Research, University of Dhaka. The thesis contains no materials published elsewhere or extracted in whole or part from any other sources, except the references. No one's work has been used without due acknowledgement. Ethical issues have been firmly maintained. I also declare that it has not been previously or concurrently submitted for any other award, degree, diploma, associate ship or fellowship in any other institutions. The whole work is my brainchild.

The duration of this research study is October, 2019 to February, 2022.

…………………………..

Rahul Chandra Shaha

Registration No: 004

Academic Session: 2016-17

Department of Language Education

Institute of Education and Research

University of Dhaka.

Dedication

I would like to dedicate this thesis to my all esteemed teachers and elders who have helped me to be in the world of knowledge from chalk in hand.

Without whom none of my success would have been possible.

Acknowledgement

This study would not have been possible without the direction and assistance of various persons who contributed to the preparation and completion of this research.

At the outset, I would like to express my outmost heartfelt gratitude to my respected supervisor **Professor Dr. S M Hafizur Rahman,** for being my supervisor and keeping faith on me and giving opportunity to carry out this study with responsibility. His valuable guidance, helpful comments, constructive criticisms, inspirations, supports and advices paved the way to accomplishing this study.

Moreover, my most sincere and special gratitude goes to my respected teacher **Mr. Md. Fazlur Rahman**, my colleague Md. Asaduzzaman who, at the time of carrying out this study, generously helped me even in their dire business with their most valuable suggestions and advice whenever I needed. I cannot express in words how much their support helped and inspired me throughout this study. In addition to, my special thanks go to parents and my beloved wife Ankhi Rani for always being with me and inspiring me to get over anything in life.

Besides, I would like to acknowledge and thank to the supportive participants of this study- the teachers, students and digital content specialists who helped me and collaborated with me during the data collection procedure, without which I could not imagine to complete this study. I would also like to acknowledge IER library for allowing me to use library facilities and all the research papers to complete the study smoothly. I am also grateful to the researchers whose research and books have enriched this study. And thanks to all those seniors, juniors and friends specially Owaliur Rahman Akanda, Morshed Alam and Utpal Sarker who helped me profusely.

Last but not least, my sincere thanks to anyone who is reading this study. It might not be a perfect one and might include a few errors. As I am an embryonic researcher, be forgiving of the errors and pray for me so that I can improve in the forthcoming days.

Rahul Chandra Shaha
February, 2022

Abstract

Information and Communication Technology (ICT) has blessed education sector as like as other spheres of life. Education in this digital age also demands for the integration of ICT driven teaching-learning materials e.g., digital content (DC) for the better output. With the mandate of present education system, Bangladesh has already embraced digital content driven teaching-learning process in every tier of education as the government of Bangladesh has focused on achieving 'Digital Bangladesh' by her digitally capable citizen. However, the usage of DC in practicing English language skills for grade XI-XII is going on for more than a decade. But how effectively teachers use DC in teaching English, which pedagogy do they follow and what advantages as well as challenges face during using DC have not yet been researched in the context of Bangladesh particularly for English subject at grade XI-XII. Hence, this research has been undertaken by the researcher. The purpose of this research was to identify the use of digital content in teaching and learning English at the secondary level (XI-XII) of education in Bangladesh. Besides, the research determined four specific research questions i.e., What types of DC are being used for practising English Language skills (teaching and learning English) at grade XI-XII? Which types of pedagogy do teachers use in presenting or making DC for effective teaching and learning English at grade XI-XII? What advantages do teachers and students get from using DC in teaching and learning English at grade XI-XII? What are the challenges of using DC in teaching and learning English at grade XI-XII? to meet the purpose of this research.

A qualitative research method was adopted to get answer of the research questions and conduct the study. Data was collected from English teachers (08), digital content specialists (03), students and classroom observation by using semi-structured interview schedule, FGDs (04) and observation checklist (24) respectively for the accomplishment of the research. Collected and processed data was analysed through thematically and presented descriptively with figures and tables.

The comprehensive analysis of data and results brings into light that content related pictures, E-book or E-text, power-point slide, and, relevant audio and video clips are massively used types of DC for English where English teachers tend to follow TPACK model mainly, lecture, audio-visual and CLT method frequently as pedagogy while using DC. Moreover, the study has also revealed that students centred advantages (e.g., easier to make students understand), teachers centred advantages (e.g., teacher can study at any time in anywhere), by product advantages (e.g., automatically improve digital skills) and methodological advantages (e.g., shown digitally and lively) are prominently major advantages obtained by using DC in the teaching-learning process of English in the context of Bangladesh. On the contrary, infrastructural challenges (e.g., scarcity of equipment), technical and methodological challenges (e.g., digital divide), and teacher led challenges (e.g., deficiency of skilled and experienced teachers) are the pivotal challenges in using DC discovered by this research also.

Finally, some implications have been offered for the practice (e.g. use relevant DC) and policy level (e.g. provide proper training to teachers) for better utilization of DC in teaching and learning English.

Table of Content

List of Tables

List of Figures

List of Annexure

List of Acronyms

A2I	:	Access to Information
AVI	:	Audio Video Interleaved
BELTA	:	Bangladesh English Language Teacher Association
BMP	:	Bitmap Image
CGPA	:	Cumulative Grade Point Average
CCC	:	Close Circuit Camera
DC	:	Digital Content
DCSI	:	Digital Content Specialist Interview
ELL	:	English Language Learning
ESP	:	English for Special Purpose
Fg.	:	Figure
FGD	:	Focus Group Discussion
GIF	:	Graphic Interchange Format
HTML	:	Hyper Text Markup Language
ICT	:	Information and Communicative Technology
ICTE	:	Information and Communicative Technology in Education
JPEG	:	Joint Photographic Experts Group
LCD	:	Liquid Crystal Display
LED	:	Light Emitting Diode
LSRW	:	Listening, Speaking, Reading and Writing Skills
MMC	:	Multi Media based Classroom
NAEM	:	National Academy for Educational Management
MoE	:	Ministry of Education
PC	:	Personal Computer
PPT	:	Power Point Presentation
PDF	:	Portable Document Format
Ss	:	Students
Ts	:	Teachers
TI	:	Teacher Interview
TTC	:	Teachers Training College

TIB	: Transparency International Bangladesh
T-L Process	: Teaching-Learning Process
URL	: Uniform Resource Locator
VoIP	: Voice-over Internet Protocol
6FYP	: 6th Five Year Plan

1.1 Introduction

The emergence of new educational technologies e.g., digital content (DC) has added new wings in the advancement of the teaching-learning process of English around the world. English is the international language which is incorporated as a compulsory subject for the Bangladeshi's students from grade-I to grade-XII. The usage of DC in the teaching-learning process of English is changing day by day. Understanding about the incorporation of DC in English subject in terms of types of DC used for, pedagogy of using DC, advantages and challenges of using DC in English subject at grade XI-XII are the concern of this research study. In this chapter, the context, perspective of the research, purpose statement, research question (s), statement of research problem, concepts of key terms, sketch of the current research etcetera are presented.

1.2 Context and Perspective of the Research

The pattern of teaching and learning in the twenty-first century has shifted significantly in response to emerging and dominant technologies, including the transition from analogue to digital modes of instruction, traditional content to digital content and from books to monitor displays (Kress, 2010). It is critical, then, to broaden the definition of English teaching and learning beyond the obsolete modalities of listening, speaking, reading, and writing to include a variety of digital content (DC). Present era is widely known as the 'Era of science and technology' (Shaha & Rahman, 2015). With the blessing of new discoveries, a digital world of textual and audio-visual information, accessible through computer screen, mobile or internet in the readers' control, become available and could be adapted for a variety of uses: education, research, information, entertainment, business, communication and the exchange of information (Ramirrz & Alonso, 2003). At the same time, the education system is also enriching (Brent, 2005). As twenty-first century teaching and learning is no longer about the four walls of the classroom (Jhon, 2013). Brown and Duguid (2014) established that today's digital children view education technology in a

similar way to how they view oxygen: they anticipate it, it's what they breathe, and it's how they live. They utilize EdTech to socialize, play, date, and learn, and it plays a significant role in their social lives (John, 2013). Education has become more modern, effective, and current as a result of the marriage of education with technology (Kamal, 2006). Educational technology, as described by Richey (2012), is the effective use of technological instruments in the teaching and learning processes. It encompasses e-learning, instructional technology, ICT in education, learning technology, multimedia learning, digital content etc. (Kress, 2010).

The usage of digital content or e-learning technologies in classroom instruction in Bangladesh is gradually expanding (Didar, Abdullah, Abul & Jamal, 2011). This digital content technology has the potential to have a significant impact on education, particularly in the teaching and learning of English (Brent, 2005). As the usage of DC in English subject at grade XI-XII is increasing, so, it is the right time to explore what types of DC are being used for practising English language skills, what pedagogy is being followed for teaching and learning English, what advantages do teachers and students get by using DC in English subject and what challenges impede the usage of DC in English subject. For these why, the researcher was keenly interested to conduct this research study.

1.3 Purpose Statement of the Research

The purpose of the study was to identify the use of digital content in teaching and learning English at the secondary level (XI-XII) of education in Bangladesh. Particularly, in this research, 'use of DC in teaching and learning English' was mainly focused on the following perspectives-types of DC being used, types of pedagogy used by teachers in preparing DC, advantages and challenges found by teachers and students in using DC.

1.4 Research Question (s) of the study

This research study was conducted for seeking answers the following questions:

1. What types of DC are being used for practising English Language skills (teaching and learning English) at grade XI-XII?

2. Which types of pedagogy do teachers use in presenting or making DC for effective teaching and learning English at grade XI-XII?

3. What advantages do teachers and students get from using DC in teaching and learning English at grade XI-XII?

4. What are the challenges of using DC in teaching and learning English at grade XI-XII?

1.5 Definition of Key Term

It is believed to be mandatory to include definitions of terminology in each study in order to clarify crucial terms and eliminate misinterpretation. With this in mind, several key terms are briefly described as follows:

a. **Digital content**

Digital content (DC) refers to any type of content that exists as digital data stored on a digital storage system. Digital material can take the shape of information, audios, movies, photos, pictures, animations, streamed audios and videos, and files, among other things. Digital content encompasses any items and programs stored on an electronic or digital medium that may be communicated or accessed via computers, networks, and the Internet (Kelso & Halpin, 2010).

b. **Teaching**

Teaching encompasses all actions aimed at educating or instructing, as well as those aimed at imparting knowledge or skill. Teaching is neither an art nor a science; it is more akin to a design science - exploratory, imaginative, collaborative, iterative, and creative (Cobb et al., 2003).

c. **Learning**

Learning is the process of gaining or acquiring information about a subject or skill through study, experience, or instruction. Learning is the process by which a behaviour inclination undergoes a relatively permanent change as a result of reinforced practice (Kimble & Garmezy, 1963). According to Aparicio, Bacao, and Oliveira (2016), learning is a cognitive process for acquiring knowledge. From a sociocultural standpoint, all learning is fundamentally social (Vygotsky, 1978, 1986).

1.6 Statement of the Research Problem and Rational of the Study

Digital media has exploded in popularity during the last few decades. The current educational system does take into account the realities of the twenty-first century (Hasanuzzaman and Rokonuzzaman, 2015). Teaching and learning are active processes (Latif, 2009) that result in behavior modification through practice (Malleqe, Begum, Islam & Riadh, 2007 as cited in Latif, 2009). With this technological advancement, a significant schism has developed between the teaching and learning processes (Selina, 2010 as cited in Carl, 2012). The importance of digital content in boosting both teaching and learning cannot be overstated (Agariya, & Singh, 2013; Wang, Deng & Deng, 2011).

Because ICT is integrated into every element of teaching and learning, language teachers must understand its potential and use it to further their growth in order to adapt to the changing nature of the educational system (Vethamani, 2009). To facilitate ICT integration into education, the ICT policy recommends developing digital learning content (ICT policy of BD, 2009 as cited in Didar, Abdullah, Abul & Jamal, 2012). a2i introduced digital content in Bangladesh by initiating the use of ICT in education (Sha et al., 2012). Digital content can significantly contribute to the teaching and learning of English at the secondary level by enhancing students' self-expression, critical thinking abilities, imaginative capacity, speaking capacity, writing capacity, and ability to form narratives and analyses. Apart from that, digital content plays a role in engaging students in English language arts (Beach, Anson, Kastman-Breuch, & Swiss, 2009; Beach & O'Brien, 2012); in making anytime, anywhere learning more commonplace and accessible to all (Tinio, 2009); in acting as a springboard, in allowing teachers and students to easily slow down, speed up, reverse, and replay (Lund, 2004); in promoting critical thinking (Warschauer and Healey, 1998 as cited in Brown & Duguid, 2014, p. 145). Usage of DC in teaching and learning English offers manifold advantages, but, in the context of Bangladesh what sorts of advantages are getting by both teachers and students is still veiled and uncovered. Hence, this research was carried out to reveal the advantages of using DC and exact situation of using DC in English subject at grade XI-XII.

Presently, there are 20,849 secondary schools, 4,699 colleges (The Daily Prothom Alo, 2022), and 1105 higher secondary madrasas in Bangladesh (Alauddin et al, 2010). Access and use

of digital content in the colleges at grade XI-XII in teaching and learning English was examined by this study.

Numerous studies have been undertaken on English language and ICT. But there is a limited research on the use of DC in teaching and learning English particularly at grade XI-XII in the milieu of Bangladesh. Thenceforth, this research was carried out in the Bangladesh for the very first time.

Based on the identified research gaps and the problem statement, a need had felt to investigate the types of DC and types of pedagogy used for teaching and learning English while using DC, and examine its advantages on the English learners and teachers. The current research was also tried to identify the key challenges that hampers use of DC in English at grade XI-XII. Considering all of these, the researcher was wholeheartedly devoted himself to conduct this research.

Moreover, the previous study entitled 'Use of Digital Content in teaching and Learning English at the Secondary level (grade IX-X) of Education' of the researcher was conducted basically on secondary mainstream schools and grade IX-X. But it is also important to know the situation of using DC for English in the higher secondary level. Because higher secondary level of education is basement for the higher education. If students are trained and go through the digital environment from this level s/he will be better suited and adapted with the next level of education. By considering the recommendation of the previous research study conducted by the researcher, current study was conducted on covering the entire higher secondary level of education so that the present study will help to represent a complete picture of using DC in teaching and learning English at grade XI-XII in Bangladesh. Henceforth, the study was undertaken.

The findings of this study might help:
- ❖ to identify how digital content helps both teacher and student of English of colleges';
- ❖ to identify what types of DC using in the English classes of XI-XII;
- ❖ to identify the challenges of using DC in teaching and learning English at grade XI-XII;
- ❖ to identify the further opportunities and scopes of using DC in teaching and learning English at the higher secondary level of education;

❖ to minimize the obstacles and challenges of using DC in teaching and learning English at grade XI-XII.

Additionally, it will assist higher secondary teachers and teacher educators in comprehending the critical nature of generating high-quality digital content in order to increase students' overall pleasure and performance in the English subject.

1.7 Limitations of the Study

Despite the fact that this research was meticulously planned and executed, there are a number of factors that could have influenced the research conclusions and quality. The following are a few of the limitations that have been considered:

➲ **Representativeness:** The first constraint was the participants' representativeness. Only 8 college English teachers, 3 digital content specialists, 24 classroom observation and 4 FGD with student respondents were involved in this study. It does not give the complete picture of Bangladesh.

➲ **Coverage:** The data cannot be interpreted in terms of gender, age, or experience, as these factors were explicitly not used as selection criteria.

➲ **Time:** The primary weakness of this study is the study's short duration. A lengthy investigation could provide us with a more effective and viable image.

➲ COVID-19**:** The pandemic situation due to COVID-19 was a barrier for collecting data, face to face interaction and what not. Its hampered the spirit of research as well as the mentality of the researcher.

➲ **Diversity:** Finally, this study did not adequately represent the diversity of responders. The research concentrated primarily on mainstream educational institutions (college) of Bangladesh.

1.8 Sketch of this Research

This research study encompasses of five subsequent chapters which are specified below:
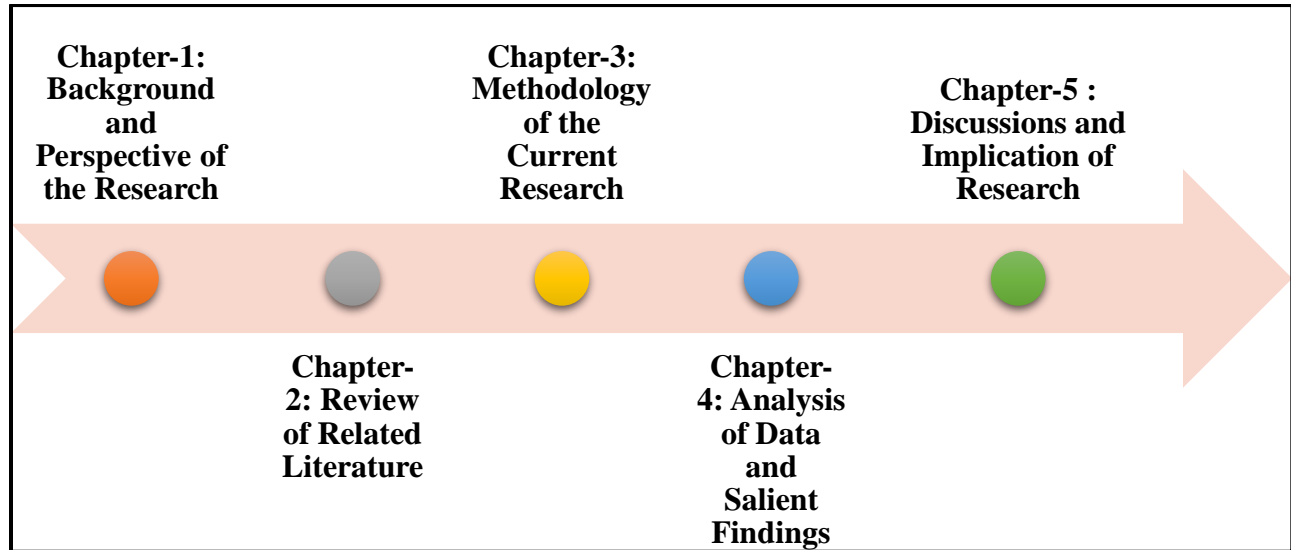
Fg-1.1: Sketch of the Research (Source: Author, 2022)

Chapter-1: Background and Perspective of the Research

This chapter discourses the context, perspective of the research, purpose statement, research question (s), statement of research problem, concepts of key terms. In addition, sketch of the current research also presented in this chapter.

Chapter-2: Review of Related Literature

This chapter conducts a critical assessment of prior research in the domains of this study, including models, cities, conceptual patterns, theories, definitions, figures, and comparisons, in order to gain a clear understanding before proceeding to next phases, especially to build a conceptual framework, to work on methodology and primary data collection.

Chapter-3: Methodology of the Current Research

This chapter reflects the chosen research method i.e. nature of the research, research area, population of the study, sampling and sample size of the study, sample design of the study, data collection procedure, data collection tools of the study, development of data collection tools, the

development stages of data collection tools, triangulation of data, data processing and analysis technique, methodological matrix of the study and ethical considerations.

Chapter-4: Analysis of Data and Salient Findings

This chapter builds a data analytical framework, validates it using appropriate concepts and criticisms and then proceeds on to the analysis of primary data and illustrates multiple interpretations. Numbers of figures and tables have been used to draw out research result. In the meantime, salient findings have been found out.

Chapter-5: Discussions and Implication of the Research

This chapter elucidates about the findings with the support of literature review followed by research questions. Meanwhile, some implications have been described. Finally, recommendations have been given from the cross referencing the idealistic situation and the findings of the study.

1.9 Gist of the Chapter

This study purposes to explore the use of DC in teaching and learning English at grade XI-XII. This chapter familiarize about this. This chapter helps to understand what the researcher is going to do. Besides, this chapter gives basic idea about the study. The following chapter describes the related topics and provides detailed discussions to fully understand the study, its focus and its purpose.

CHAPTER-TWO

Review of Related Literature

2.1 Introduction

The literature review is referred to as the research study's foundation. This chapter discusses the theoretical framework for the current study. Additionally, it conducts a critical evaluation of prior research pertaining to the regions of this study, models pertinent to the study, citations, conceptual patterns, theories, definitions, figures, and comparisons, in order to gain a thorough understanding of this study. All reviewed material, including books, articles, and pertinent thesis papers, is discussed in the following sections under a variety of different topics. The purpose of this research is to elicit information about the fundamental concept, natures, places, types, principles, guidelines, and obstacles associated with DC in the English teaching-learning process. To emphasize some of the distinctive qualities of various components of DC, this section also includes some additional literature evaluations.

2.2 The Technological Advancement of English Teaching-Learning

The twenty-first century is the age of globalization, and it is critical to have a working knowledge of several foreign languages, the most significant of which being the English language. English Language Teaching-Learning has existed for a long period of time and its importance continues to rise, aided in part by the Internet. Graddol's (1997) study estimates that there were approximately a billion English learners in 2000, but that number more than doubled a decade later. The projection indicates a resurgence in English education, which peaked in 2010. According to the same report, almost 80% of material stored on the internet is in English. For the first time in history, there are more non-native speakers of the language than native speakers, and context diversity in terms of learners, age, nationality, and learning background has become a defining feature of English Language Teaching-Learning today.

With the rapid advancement of science and technology, the emergence and development of multimedia technology such as digital content, online learning, and e-learning, as well as its

application to teaching and learning, incorporating audio, visual, and animation effects (all types of DC), comes into full play in the English classroom teaching-learning process, providing an ideal platform for reform and exploration of the English teaching-learning model in the new era. It has been demonstrated that multimedia technology has a beneficial influence on student actions and initiatives, as well as on the teaching effect in English classes. Technological advancements have accompanied the expansion of English and are transforming the way we communicate. It is reasonable to declare that the advancement of digital technology and the internet has aided in the expansion of English Language Teaching-Learning.

As a result, there has been an explosion of writing on the use of technology in the teaching-learning process of the English language. Generally, these publications unambiguously acknowledge digital information as the most critical component of the English teaching-learning process. As a result, it is critical for language teachers and students to be aware of and knowledgeable about the usage of digital technologies such as digital content, which is the latest and greatest equipment. Teachers can include multimedia technology, i.e. digital content, into their lectures to create more vibrant, exciting presentations (new Horizons). Numerous approaches are applicable to language learning situations in varying degrees. The teaching philosophy should be to value new technologies in areas and functions where they provide something significantly new and valuable and to never allow machines to take over the role of the instructor or to restrict functions where more conventional methods are superior. There are numerous reasons why all language learners and teachers must be able to use new technology effectively. Additionally, we must underline those new technologies develop and spread at such a rapid pace that no one can resist attraction and influence in any form.

2.3 Shifts of Educational Paradigm

During the last three decades major paradigm of education has changed (Raihan, 2015). The major paradigm has shifted from teacher centred to learner centred. The shift of paradigm from teaching and learning creates more interactive and engaging environment for both teachers and students where the teacher's role is facilizing, navigating knowledge etc. The main catalyst of this change is ICT where DC is a major part. The learner's function and technology have shifted dramatically as conventional content has given way to digital content and traditional instruction

has given way to a virtual learning environment (Majumdar, 1997). The major shifts have been described in figure below:

From	To
Transmitter of Knowledge (Ts)	Guide & Facilitator of knowledge
Passive learner (Ss)	Active learner
Curriculum & Delivery- Rigid	Open & flexible (Anytime & anywhere
Single sense stimulation	Multi-sensory stimulation
Single media application	Multimedia application
Traditional content	Digital content
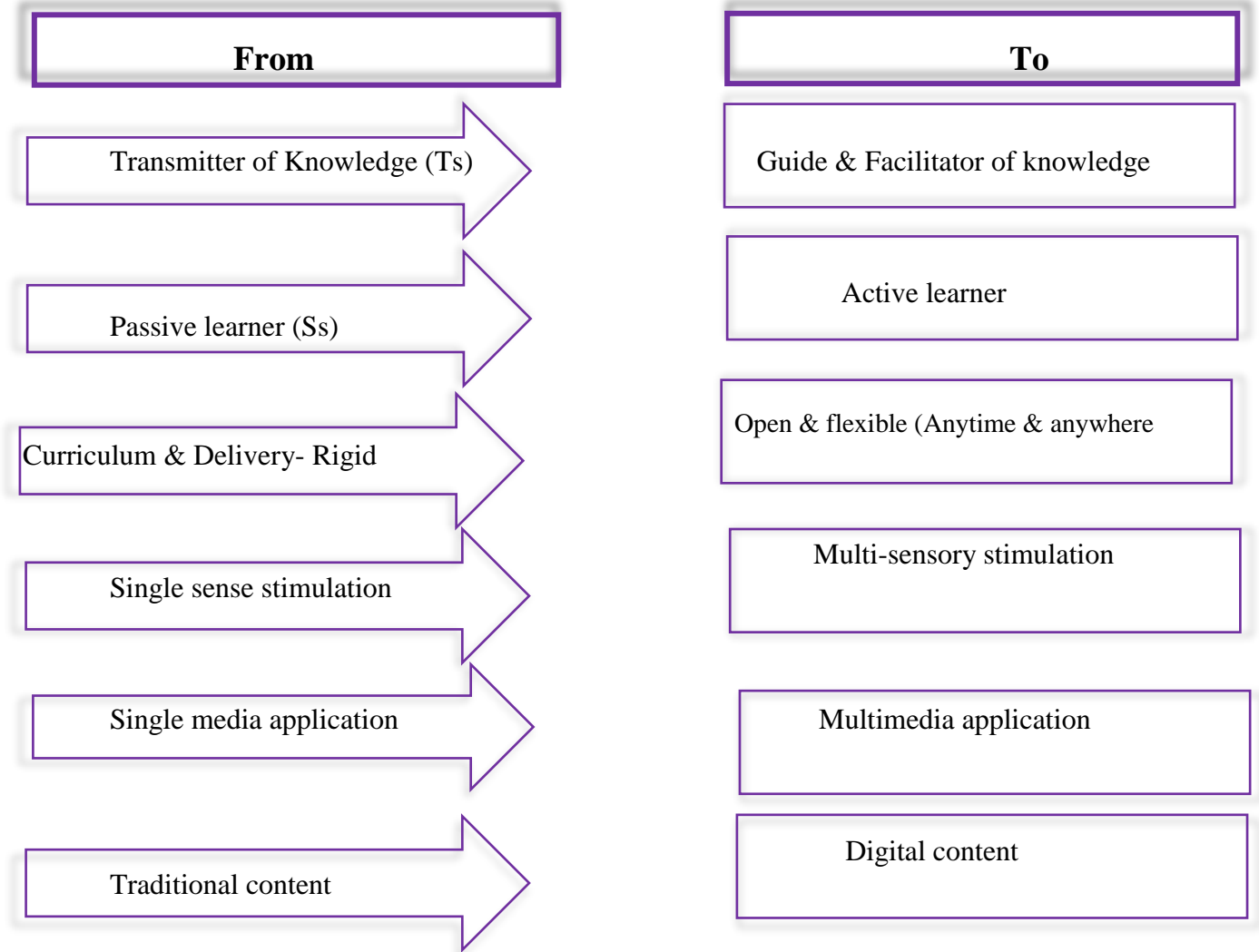
Fg-2.1: Major shifts in different areas (Shaha, 2019)

2.4 Digital content in education

In the field of education, we have long used tools, aids and media to help in our teaching-learning process. These have been many and varied, and have included things like pictures, movies, videos, slides, audio tapes, digital text, virtual aids along with various sorts of equipment such as cameras, recorders and television monitors, mobiles, PC, laptops etc. In recent times, however, the digital content has dominated the scene, and we are now at the point where this

remarkable thing can do just about anything that all the previous things were able to do. So, if you have not had to go through the "learning curve" of old-fashioned and out-of-date technology, then you have a real advantage. Examples of DC which incorporated multimedia include, but are not limited to, text in combination with graphics, audio, music, video, animation etc. with digital storage system in a supported digital device.

The use of digital information, including multimedia, in education has been widespread, since it has been demonstrated to increase productivity and retention rates, as people recall 20% of what they see, 40% of what they hear, and approximately 75% of what they see, hear, and do simultaneously (Lindstrom, 1994). This is especially true in the teaching-learning process of the English language. It is currently pervasive throughout the educational system as a means of facilitating successful teaching and learning. With DC, information can be communicated more effectively, and it can serve as an excellent educational medium or instrument for presenting information. Additionally, DC that incorporate multimedia have been demonstrated to increase information retention and result in a reduced learning time (Ng and Komiya, 2000; Hofstetter, 1995). DC sheds new light on the teaching-learning process and forces one to rethink how information and knowledge are represented (Agnew, Kellerman & Meyer, 1996).

The strength of DC is that it is multi-sensory, stimulating all of the learners' senses. Additionally, it is interactive, allowing the application's end users to manage the application's content and flow of information (Vaughan, 1998). This has resulted in significant changes to our educational system and the way we communicate with learners (Neo & Neo, 2000). This would transform individuals into active participants in their own learning processes, rather than passive consumers of instructional content (Neo & Neo, 2001).

2.5 Context of Language Education theory

Language education theory corroborates this assertion and adds that language learners require understandable information in order to make sense of newly acquired knowledge in the target language (Krashen, 1981). Additionally, linguistic and cognitive language theories emphasize the need of exposing learners to a variety of realistic, contextualized, and linguistically difficult activities and materials in communicative and academic contexts (Cummins, 1981; Krashen, 1982). By incorporating e-learning instructional components such as digital content, you

may expand those options while also providing students with more flexible access (Petty, Johnston, & Shafer, 2004).

2.6 Place of DC in the E-learning theory Framework

A framework that "classifies critical aspects in the development of information systems" may indicate that these factors are causally related to effective system development (Gregor, Martin, Fernandez, Stern & Vitale, 2006, p. 619). Present the major information systems dimensions adapted to e-learning systems in this framework (Figure-2.2). This framework is a theoretical generalization (Lee & Baskerville, 2003) based on a review of the literature on the dimensions and content of e-learning.

The theoretical framework for e-learning systems encapsulates the three primary components of information systems. Individuals, technologies, and services comprise these components. Individuals interact with electronic learning systems. E-learning technologies provide direct or indirect contact between various user groups. Technologies enable the integration of content, the facilitation of communication, and the provision of collaborative tools. All activities associated with pedagogical models and instructional strategies are integrated into e-learning services. The complex interaction combination is the engagement with e-learning systems, either directly or indirectly. Simultaneously, systems provide services in accordance with established activity strategies. In other words, service specifications are e-learning activities that adhere to the pedagogical models and instructional methodologies used in e-learning (Aparicio, Bacao & Oliveira, 2016).

Here, digital material is embedded in E-learning technologies that serve as a foundation for pedagogical models, instructional methodologies, and stakeholders in the E-learning system. The term "digital content" refers to a variety of different types of content, including papers, digital audio, and video.
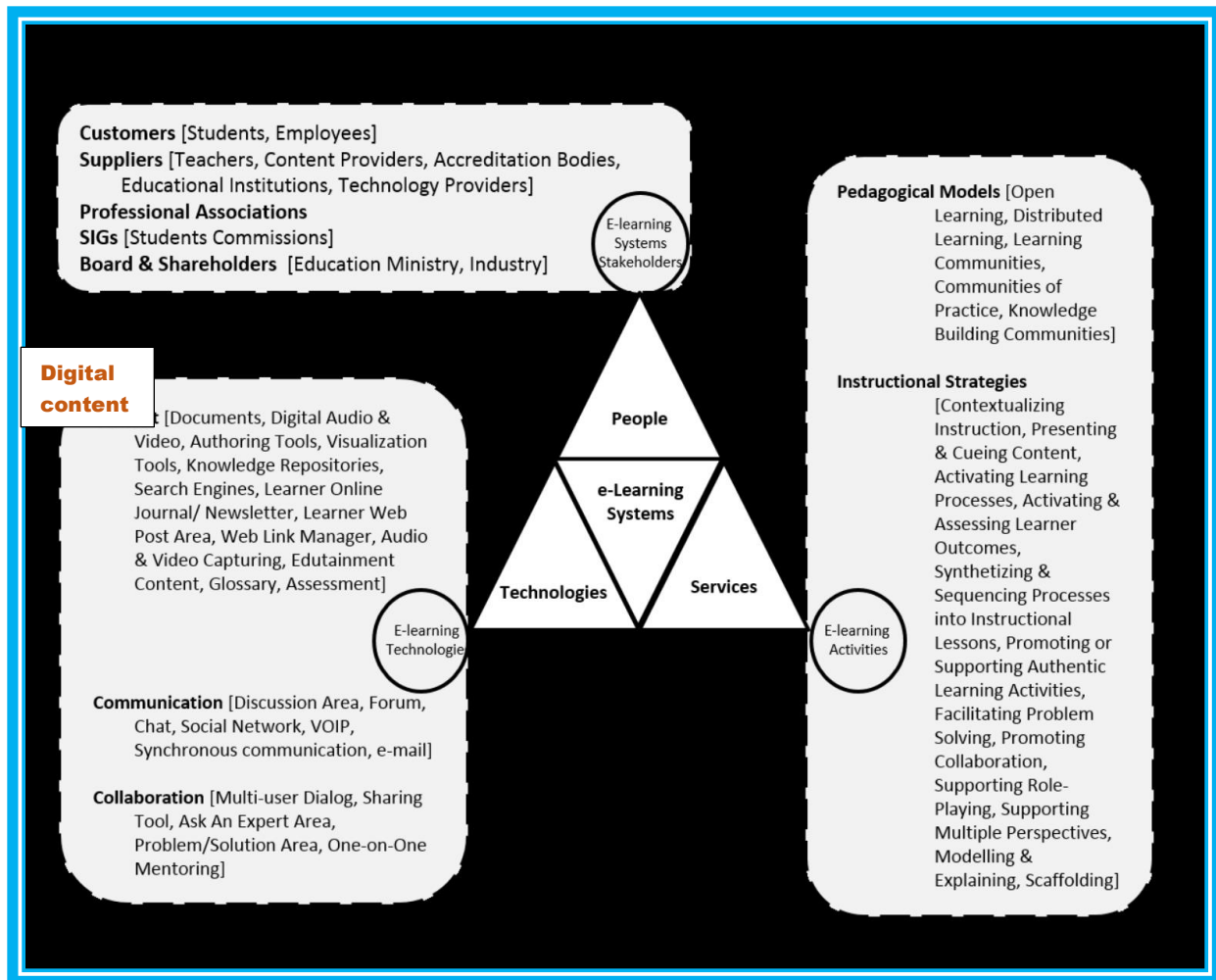
Figure-2.2: Holistic e-learning systems theoretical framework (adapted from Aparicio, Bacao & Oliveira, 2016).

2.7 Digital Content

It's difficult to define "digital content" in a way that is very useful. For instance, two years ago, digital content might have been characterized as content provided via the Internet. However, such description is overly limited in the modern era, as communications technologies and digital distribution platforms have exploded.

Rather than attempting a specific definition, a more effective method is to present instances of digital content and how it varies from traditional, print-based instructional materials. Digital content is unique in its storage, transmission, and copying capabilities, as well as its functionality. Traditionally, educational contents were preserved on paper in textbooks, graphs and charts, wall

maps, records and tapes, and videotape and film. In other words, traditional instructional materials are physically preserved on a variety of different physical media.

By contrast, digital content is stored electronically or digitally on any of the dozens of available digital memory systems, ranging from hard drives to flash drives (Kelso & Halpin, 2010). And, thanks to the network and Internet's capacity, digital content can be stored virtually everywhere in the virtual universe. Digital content solutions can be as straightforward as making existing textbook material available in PDF format for usage on more comfortable and less priced computers, netbooks, e-books, or e-pads (Kelso & Halpin, 2010). That is an excellent starting step toward utilizing digital content, but it is only the beginning.

Digital content is a broad word that encompasses a variety of electronic and internet-based media types, including multimedia, audio, video, digitized pictures and text, and graphic files (Aronowitz & Scott, 2010; Baker, 2010).

According to the PC Magazine Encyclopaedia (2015), "digital content" is defined as "a product that is offered digitally." It is most frequently used to refer to music, data, and images that are available for download or distribution via electronic media. Social media, e-journals, e-books, and online sites are all instances."

In a nutshell, Zimmerman (2011) said that the agreement among current instructional and technology leaders in schools, as well as industry professionals, is that 'digital content' refers to all electronic content that supports or acts as the curriculum and aids students in their learning. This may include delivering traditional classroom information using a technology-based approach. However, it is much more than that.

In the context of education, digital content refers to any and all resources or programs stored on an electronic or digital medium and capable of being communicated or used via computers, networks, or the Internet (Kelso & Halpin, 2010).

After all, it can be summarized that digital content is such a content which is in digital form, supported by binary format, storage in the electronic devises or virtual spaces and use for teaching-learning process.

From above all discussion, it can be figured out some core characteristics of the digital content in the perspective of education.
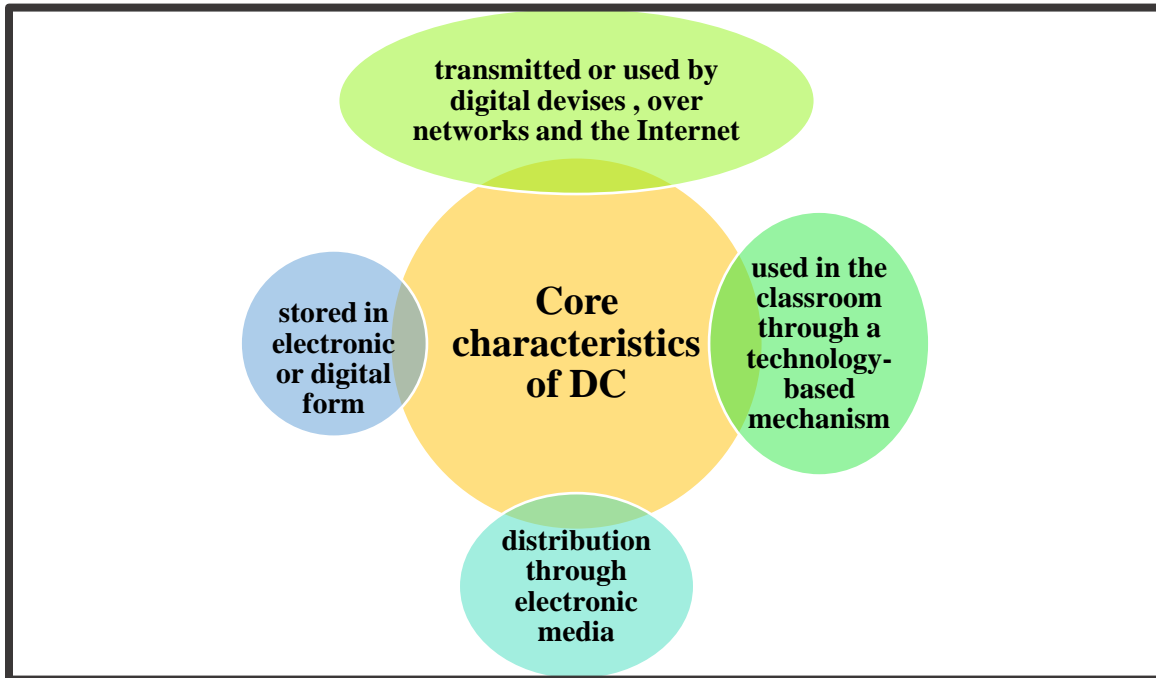
2.8 Types of Digital content

Zimmerman (2011) and Aronowitz & Scott (2010) mentioned that digital content included various types of elements in its vast horizon which are given below:
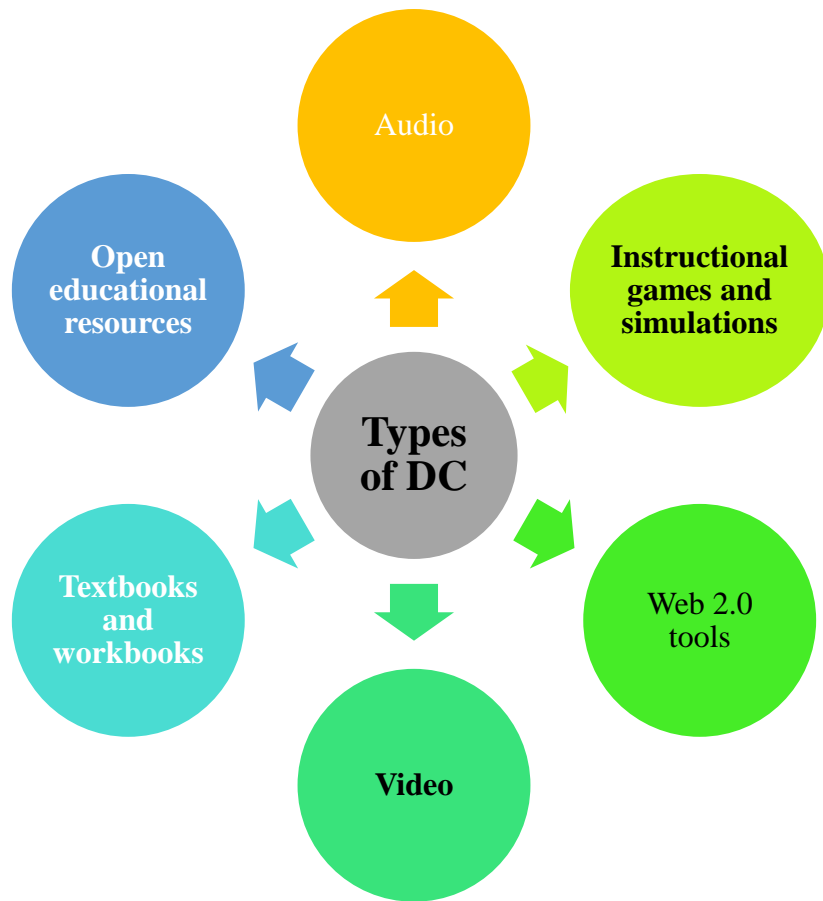
Fg-2.4: Types of DC

Besides, The ASCD–OverDrive (2014) survey further underscores about the types of digital content which are: -

- E-books;
- Audio books;
- Digital versions of textbooks, pdf, novels, or nonfiction titles etc.

One thing to note here is that a digital content approach encompasses a far broader scope than online courses, although the latter may be included in the plan. While online education is dependent on digital content, digital content alone does not constitute online learning.

The following figure depicts the nature of the various types of DC by showing the previous and present status of pattern:
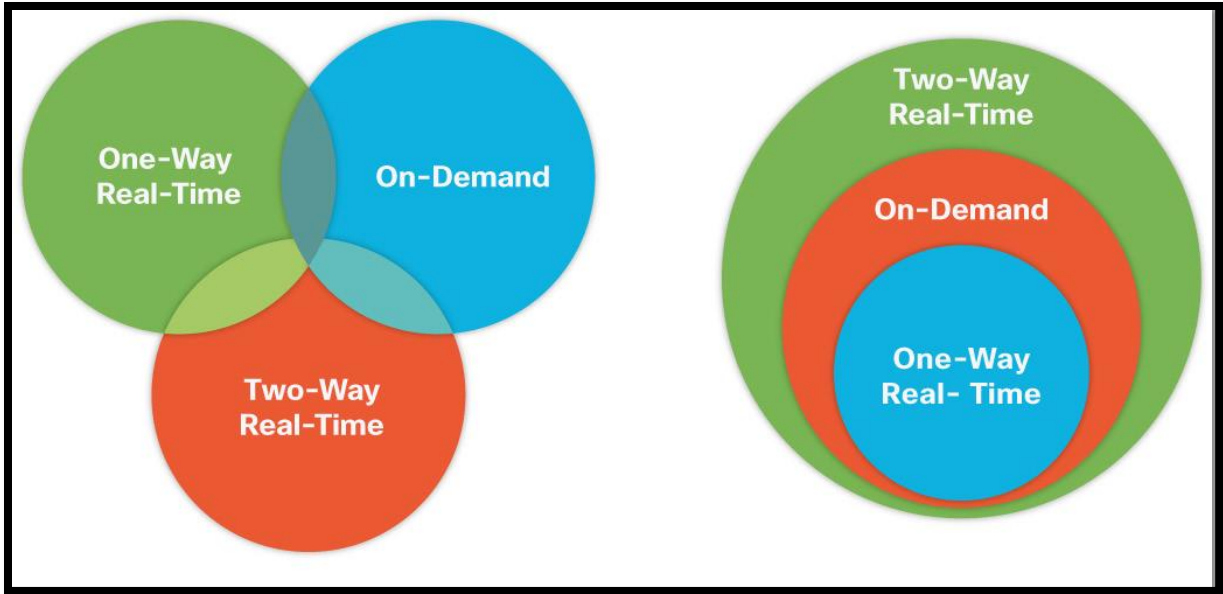
Digital content Yesterday   **Digital content Today**

Fg-2.5: Digital content Yesterday and Today (Source: Greenberg & Zanetis, 2012

2.9 Uniqueness of Digital Content than Print Materials

In comparison to traditional textbooks and other printed materials, digital resources such as DC may be quickly adjusted and polished, allowing for adaptations to meet local needs and to maintain relevance and correctness over time. Additionally, digital resources enable meaningful evaluation of content's performance in the classroom (e.g., through educator feedback loops), as well as timely enhancement, adjustment, and review prior to students encountering the new materials. Finally, the specific qualities of DC intellectual property necessitate slightly different quality assurance procedures, including a stronger emphasis on educators' and school leaders' capacity to adapt, develop, and evaluate the quality of digital materials. These intellectual property features enable numerous users, such as teachers and students, to modify and refine DCs throughout the periods between routine approvals by state or district officials (Sung, Chang, Lin, Lee, & Chen, 2009).

All of these factors distinguish DC from traditional content. Thus, the employment of DC in the English teaching-learning process is facilitating the transition from traditional to digital content.

2.10 Altering the media elements to digital

Neo & Neo (2001) claimed that once all materials have been collected and assembled in their raw analogue state, they must be converted to a standard digital format that can be processed by devices such as PCs, smartphones, and so on. This would require scanning photos and graphics and converting any analogue video material to digital movie clips utilizing scanners. These files were then saved in the proper media formats and saved to the hard disk of the computer. For instance, photos were scanned and saved as JPEG (Joint Photography Experts Group), GIF (Graphic Interchange Format), or BMP (Windows Bitmap) files, while digital video clips were saved as AVI (Audio Video Interleave) or MOV (QuickTime Movie) files. Following then, they were turned to digital content.

2.11 Rules and Policies for using DC

There are some rules and policies of using digital content. Digital content lifecycle is the first considerations in this regard. Understanding that "the digital content lifecycle consists of six primary phases which is given in the below:
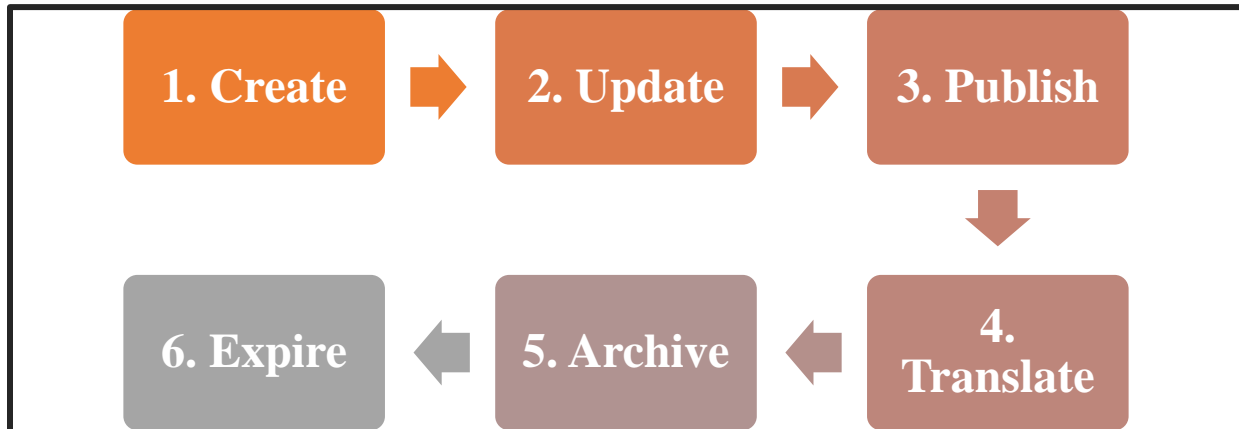
It is important to follow these criteria (Excellence in Action National Summit on Education Reform, 2010) while making DC or using DC:

◎ Unify and instruct certain processes

◎ State quality

◎ Follow DC strategy

◎ Need professional learning

◎ Establish and follow accountable behaviour

◎ Follow anti-plagiarism behaviour

2.12 Mechanism of Digital Content accreditation

The certification process for digital material should contain a number of standards to guarantee that instructional designs meet applicable requirements. Additionally, the process should be rigorous, resulting in objective, equitable, and consistent conclusions (Berta & Raymond, 2013). This accrediting procedure should accomplish the following objectives:

- ⮩ Recognize exceptional and superior-quality digital material.
- ⮩ Establish evaluation criteria for instructional designs and principles in order to advise instructors and curriculum development. These criteria will assist instructors who are unsure how to improve their online instruction in adapting their teaching methods and developing acceptable digital content (Jung, 2011).
- ⮩ Format digital content in a systematic manner. Because digital content is frequently created in a variety of formats, it is difficult to exchange. However, the certification process has the potential to standardize digital information, making it accessible to other schools and even the general public. Additionally, this practice can help avoid schools from developing identical and overlapping content.
- ⮩ Promote the creation of e-learning courses that are easily deployed in rural areas in order to overcome geographical and space constraints (Ehlers, 2012). Promote the creation of e-learning courses that are easily deployed in rural areas in order to overcome geographical and space constraints (Ehlers, 2012).

2.13 Digital Content preparation Principle

The preparation of digital content follows some basic principles. The design of digital material is critical in determining whether the content can be presented effectively and whether learners can be aided in their comprehension and acquisition of knowledge. Digital content accreditation includes four aspects (Kuo, Chen, Hwang & Chen, 2015):

- ⬤ Teach contents as well as architecture;
- ⬤ Design instructional things;
- ⬤ Design facility; and
- ⬤ Design media as well as interface.

Quality Accreditation for Digital Content places a premium on digital content, with the goal of providing learners with relevant learning materials. Kuo, Chen, Hwang & Chen (2015) prescribe some guideline to prepare a digital content from considering three different perspective.

- ⭕ **Learner's perspective:** Instruction, interface design, content, interaction, methods, and outcomes should all be considered while creating digital content.

❍ **Instructor's perspective**: The primary purpose is to provide a coherent instructional design in terms of objective, content, activities, guidance, and evaluation that is used throughout the learning process.

❍ **Material developer's perspective:** The design should incorporate robust functions, an easy-to-use communication channel, an intuitive user interface, and high-quality media.

In terms of management, it should incorporate tracking and management activities, as well as progress reports for monitoring both the overall and individual learning processes.

According to these perspectives, digital content accrediting standards should encompass four dimensions: (Sung, Chang, Lin, Lee, & Chen, 2009).
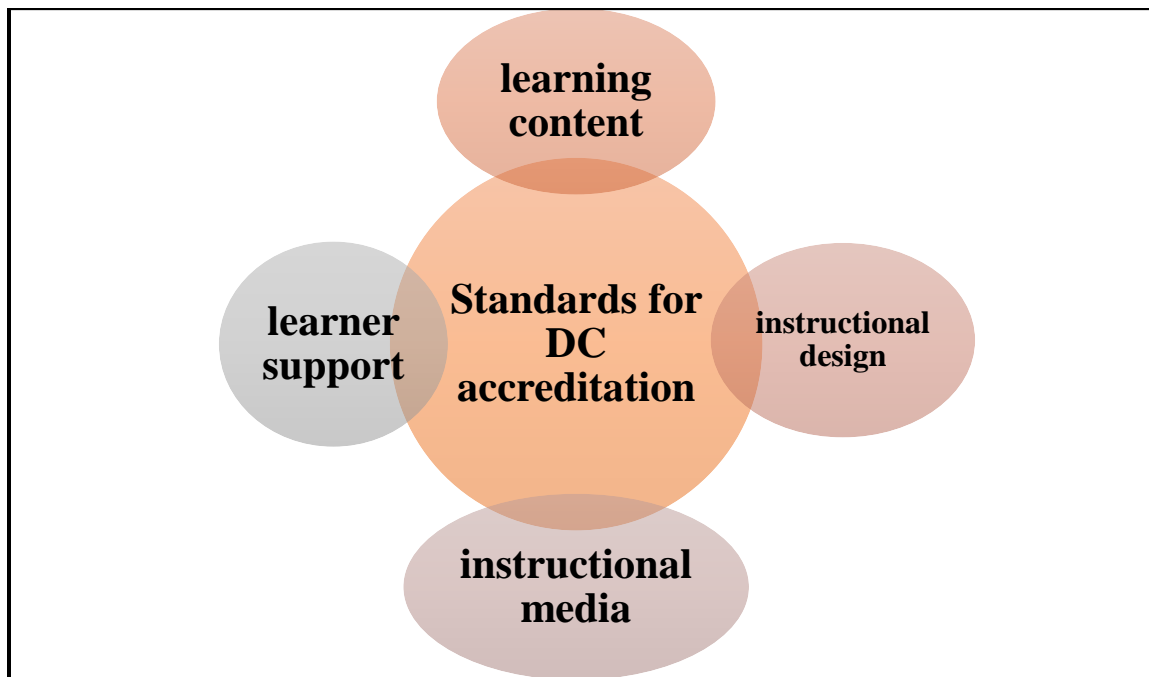
Fg-2.7: Standards for DC accreditation **(Source: Shaha & Rahman, 2015)**

The digital content must include explicit information on the topic themes, unit names, study hours, and eligible students. In terms of precise navigation and descriptions of instructional materials, provided digital content must properly explain layout, buttons, and site maps.

For preparing the DC Kuo, Chen, Hwang & Chen (2015) mentioned five types of e-learning knowledge which are needed for better preparation —
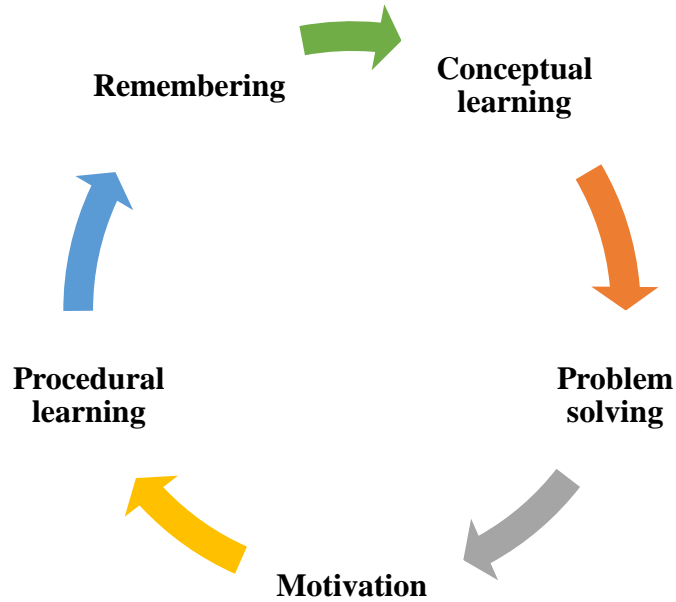
Fg-2.8: E-learning for preparing DC **(Source: Kuo, Chen, Hwang & Chen, 2015)**

Whereas, Rong, Lee and Liao (2006) and Chen, Chen, Chen and Wu (2011) presented a reciprocal representation instructional approach model to help designers create more effective digital content that incorporates learning content into multimedia and learning activities that include interactive or hands-on activities.

For preparing DC in a power-point based presentation Raihan (2015) has given a format which is presented below:

Table-2.1: Format of the power-point based DC (adapted from Raihan, 2015, p.8)

Slide No.	Content
Slide-1	Greetings
Slide-2	Introduction about teacher, subject and the class/grade
Slide-3	Title of lesson and learning outcomes
Slide-4, 5, 6….	Presentation (Using images, audios, videos, animations etc.) (Individual, Peer and Group Work)
Slide- (n-1)	Feedback and Evaluation
Slide-n	Home work

2.14 Usage Digital content for preparing a learning event

In terms of management, it should incorporate tracking and management activities, as well as progress reports for monitoring both the overall and individual learning processes.
According to these perspectives, digital content accrediting standards should encompass four dimensions: (Sung, Chang, Lin, Lee, & Chen, 2009). In terms of management, it should incorporate tracking and management activities, as well as progress reports for monitoring both the overall and individual learning processes.

According to these perspectives, digital content accrediting standards should encompass four dimensions (Kuo, Chen, Hwang & Chen, 2015).
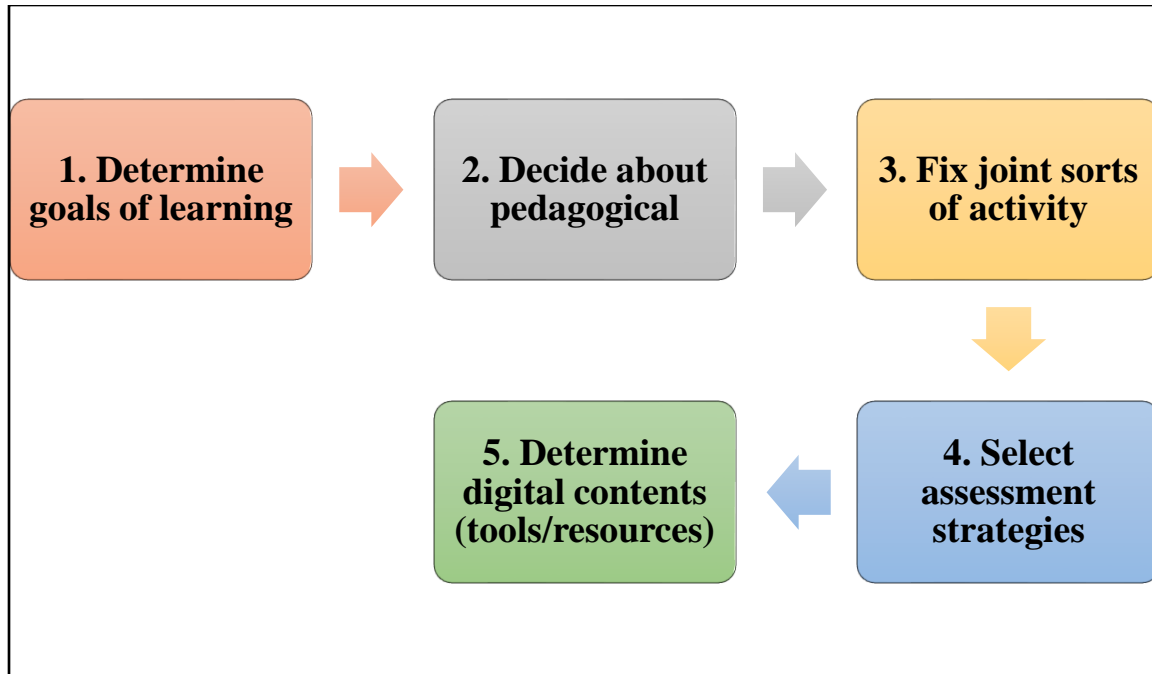
Fg-2.9: Planning a learning event using DC (**Source: Shaha & Rahman, 2015**)

2.15 Framework of Reconciling of DC for different level

Felix & Paloma (2003) asserted that educational digital content management is performed at three different levels that are shown in the below figure:
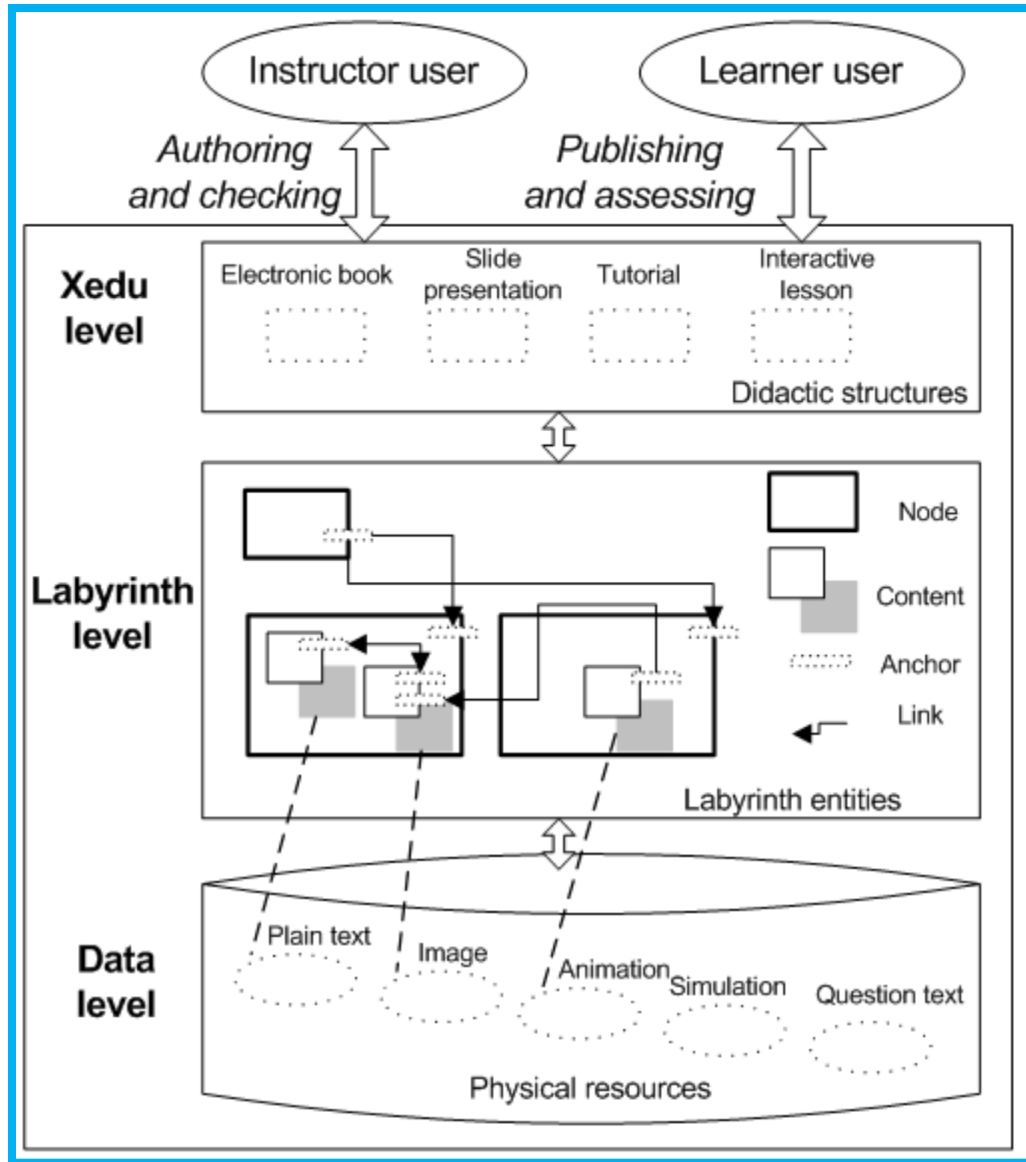
Fg-2.10: Digital Content management framework

• The Xedu abstraction level is the highest level of abstraction and is based on Xedu elements such as Didactic Structures. The figure illustrates several instances of Didactic Structures, such as a "Electronic Book" or a "Tutorial" (see boxes with a dashed line), which denote distinct organizational strategies for educational content. These entities are situated in close proximity to the user, and their deployment enables teachers and students to engage with them.

26

- Using the Labyrinth nomenclature, the Labyrinth level specifies the hypermedia entities that model the Didactic Structures. It takes a software design viewpoint that is not bound by any particular computer-based technology, but is nevertheless useful for developing the implementation of e-learning products that handle Didactic Structures.
- The Data level refers to the physical resources used to store educational materials such as text, graphics, animations, and simulation tools.

2.16 Digital content in the Language

Now a days, digital content is broadly used in the different areas of the language and its skills. In the same way, digital content is also used in the different areas of English teaching-learning process.

Grammar

In recent years, teachers have developed sentence-based, grammar-focused exercises for their own students utilizing digital content. Teachers have improved error analysis, diagnosis, and feedback through the use of digital content. This enrichment of the environment in which feedback is offered may be extended further by a multimodal concorded and corpus that enables the learner to retrieve parts of video and audio from previously utilized digital multimedia (Ackerley & Coccetta, 2007).

Vocabulary learning

Along with grammar, vocabulary has been a primary focus of digital content. Multimedia annotations that incorporate audio and video are becoming more prevalent in the vocabulary world (Yeh & Wang, 2003). Vocabulary acquisition is critical for language development because it serves as the foundation for reading comprehension in a second language (Abraham, 2008; Tozcu & Coady, 2004). According to Neri, Mich, Gerosa, and Giuliani (2008), providing pupils with proper pronunciation of vocabulary enhances their foreign language learning. Similarly, Silverman and Hines (2009) suggested that multimedia-enhanced education had a beneficial effect on non-English learners' vocabulary acquisition.

Reading

According to Chun (2006), the digital technologies in use for L2 reading are:

"electronic dictionaries, software that provides textual, contextual, and/or multimedia annotations, computer-based training programs aimed at accelerating and automating word recognition, Web-based activities aimed at teaching a variety of components (ranging from text structures and discourse organization to reading strategies), and the Internet as a source of materials for extensive reading."

In general, these digital technologies are used to provide additional information or exemplification to the reader, as well as to provide practice and exposure to lengthy texts. When it comes to electronic dictionaries, research has shown that even when a range of information sources are accessible, the majority of students opt for simple definitions, translations, or a combination of the two (Laufer & Hill, 2000). Chun (2006) stated that "the educational problem therefore becomes whether and how to encourage readers to use the multimedia glosses that are available to them, especially when vocabulary acquisition is a simultaneous objective of reading" (p. 78). To summarize, digital contents are quite beneficial in the area of reading.

Writing

Since the early 1980s, when the microcomputer became widely available, the word processor has surely become one of the most generally recognized writing technologies. Its primary function—facilitating flexible text manipulation—allows for easy drafting and redrafting, and the final product can be presented to a professional quality (Pennington, 2004; Pennington & Brock, 1992).

Apart from word processing tools, learner corpora, and email for collaborative writing and peer review, English writing has included a variety of other technology tools. This includes "websites created by students, photo editing, PowerPoint presentations, weblogs, and wikis" (Murray & Hourigan, 2006, p. 149). As such, it can be utilized to help build reading skills as well.

Listening

To extract meaning from listening, learners must first detect and master the English sounds—the language's prosody, which includes intonation, rhythm, and stress. They must sample and comprehend actual, natural speech in a variety of circumstances to the point that they can

28

recognize patterns and forecast what will happen next without having to hear it (Frommer, 2006). To satisfy these learning objectives, digital content for listening has been used to assist segmentation, repetition, speed regulation, interactivity, and linkages to other information (Jones, 2003; Zhao, 1997).

Speaking

Of all the language domains and talents, it is possible that attending to the oral skill has attracted the widest range of digital content technologies and techniques. These programs enable the computer to mediate voice communication, transmit audio or video via audio and video conferencing, or to facilitate user involvement and interaction via text chat, voice chat, audio blogs, or voiced bulletin boards, among others. Additionally, students can share or post audio files via spoken emails or just have a conversation via a VoIP (Voice-over-Internet Protocol) application such as Skype, which enables the computer to function as a telephone. These are all examples of digital stuff that can be stored digitally (Levy, 2009).

2.17 Digital content for Teachers

As a teacher, you are the driving force behind the incorporation of digital content into the teaching-learning process in English classes. As a result, s/he must adhere to certain principles and norms in order to develop the necessary abilities for effective usage of DC. Schilling (2009) recommended the following guidelines for effectively integrating relevant digital content (multimedia technologies) and resources:

➲ Enhance the instructor's capacity to communicate successfully with students who have a variety of learning styles,

➲ Provide several channels of communication and interaction for participants who are geographically distant, and

➲ Enhance students' opportunity for meaningful interaction with content offered in a variety of ways.

The redesign process DC made no changes to the course's content, organization, or assignments. To lessen the amount of reading required and to accommodate a variety of learning styles, digital material is occasionally generated in non-text formats. Existing online learning

products, such as selected YouTube presentations, were leveraged to demonstrate essential concepts when they were accessible. The PowerPoint plug-in for Adobe Presenter was used to narrate presentations of introductory information, including the expectations and curriculum, as well as each of the assignments and several weekly topical mini-lectures. To use these many types of digital content effectively, teachers should adhere to certain principles on the use of DC, the preparation of DC, and so forth.

McCrmix and Scrimshaw (2001) identified three distinct stages of change in practice as a result of digital technologies and their impact on DC-based knowledge. These levels are:

◊   Improving efficiency of conventional teaching;

◊   Extending the reach of teaching and learning; and

◊   Transforming teachers and learners' conceptions of this subject itself.

2.18 e5 Instructional Model for the Teachers

Recent Australian research indicates the importance of developing pedagogical frameworks that include ICT for curriculum and evaluation, as well as classroom organization and professional growth (Baker, 2009). A comprehensive school vision and plan must be implemented in the classroom through the development of pedagogies that reimagine the relationship between teacher and student (Becta, 2008). School administrators and instructors have an obligation to use the possibilities of digital technology and to employ appropriate pedagogies to facilitate skill development. The five domains of the Victorian e5 Instructional Model define pedagogical approaches that facilitate and scaffold learning, such as facilitating and scaffolding learning; developing active learner engagement; utilizing new, more open-ended questioning techniques; and conducting assessment for learning (Department of Education and Early Childhood Development, 2009). Teachers' ICT expertise should underpin their teaching practices and pedagogy in accordance with the e5 Instructional Model.

.

Fg-2.11: Victorian e5 Instructional Model's five domains **(adopted from EECD, 2009)**

2.19 ICT competency framework for teachers in using digital content

Numerous Australian and international ICT competency frameworks provide advise on how to use digital content or resources effectively. The UNESCO ICT Competency Standards for Teachers (2008A, B, and C) define the use of digital content at the Technology literacy and knowledge creation levels of competency, with a special emphasis on the Pedagogy and Teacher Professional Development components. The guidelines outline how teachers might 'Use presentation software and digital resources to assist instruction' at the foundational level of technology literacy (UNESCO 2008C, pp. 9, 13, 16). Higher levels of proficiency place an emphasis on the design of online materials (i.e., learning activity design) and their use to facilitate student cooperation within an online learning activity. The Strategy's consultative paper (Butler et al., 2013) advises that schools use the UNESCO ICT Competency Framework for Teachers (ICT CFT) (2008, 2008a, and 2011) to support their implementation and revision of the Strategy.

The framework is comprised of six aspects of a learning system, and it "provides a lens to conceptualize what being digital in learning can look like" (Ibid; p.2), as depicted in below.

Table-2.2: The UNESCO ICT competency framework for teachers

ASPECTS	TECHNOLOGY LITERACY	KNOWLEDGE DEEPENING	KNOWLEDGE CREATION
UNDERSTANDING ICT IN EDUCATION	Policy awareness	Policy understanding	Policy innovation
CURRICULUM AND ASSESSMENT	Basic knowledge	Knowledge application	Knowledge society skills
PEDAGOGY	Integrate technology	Complex problem solving	Self-Management
ICT	Basic tools	Complex tools	Pervasive tools
ORGANISATION AND ADMINISTRATION	Standard classroom	Collaborative groups	Learning organisations
TEACHER PROFESSIONAL LEARNING	Digital literacy	Manage and guide	Teacher as model learner

The UNESCO ICT Competency Framework serves as a prism through which to view how ICT may help schools transform. The framework outlines three complementary and overlapping ways for integrating education policy with economic and social growth via ICT use. These are referred to as technological literacy, knowledge enrichment, and knowledge creation. The three approaches are described as follows:

- By introducing digital skills into the educational curriculum, we can increase the amount to which students, citizens, and the workforce employ modern technologies. — **the Technology Literacy approach.**

- Enhancing students', citizens', and workforce's ability to apply knowledge to solve difficult, real-world problems in order to provide value to society and the economy— **the Knowledge Deepening approach.**

- Enhancing students', residents', and workforce's ability to innovate, create new knowledge, and benefit from this new knowledge— **the Knowledge Creation approach.** (UNESCO, 2011; p.7).

When viewed in this light, ICT has the potential to alter all facets of education, especially at the primary and post-primary levels. It must be emphasized, however, that each component of the framework is only one component of a larger, interconnected, and interdependent system. To effect change inside schools to facilitate ICT integration, there must be mobility across and between all of the framework's components. By adhering to this framework, teachers can enhance their digital skills and apply them to building, utilizing, and integrating DC into the English teaching-learning process. When used in this manner, the ICT Competency Framework can aid the educational system, including teachers and administrators, in reflecting on current practice, informing decision-making, and facilitating continuous improvement and system change.

2.19. 1 Technological Pedagogic Content Knowledge (TPACK) for the teachers for using DC

Teachers should adhere to pedagogy when utilizing digital content. The TPACK paradigm serves as a foundation for incorporating DC into the English teaching-learning process. Cox et al. (2003) recognized the increased complexity of educational reasoning when ICT resources are used as a resource, a tutor, an environment, or a tool. The TPACK approach has benefitted the knowledge, abilities, and understanding required of teachers.

Koehler (2006) provide a paradigm that incorporates content, pedagogy, and technology in order to capture the interactive, relational nature of teacher knowledge. They describe their approach as 'Technological Educational Content Knowledge' (TPCK), building on Shulman's early framework, and 'argue that effective pedagogical applications of technology necessitate the

formation of a sophisticated, contextual kind of knowledge.' (Koehler, 2006, p.741)
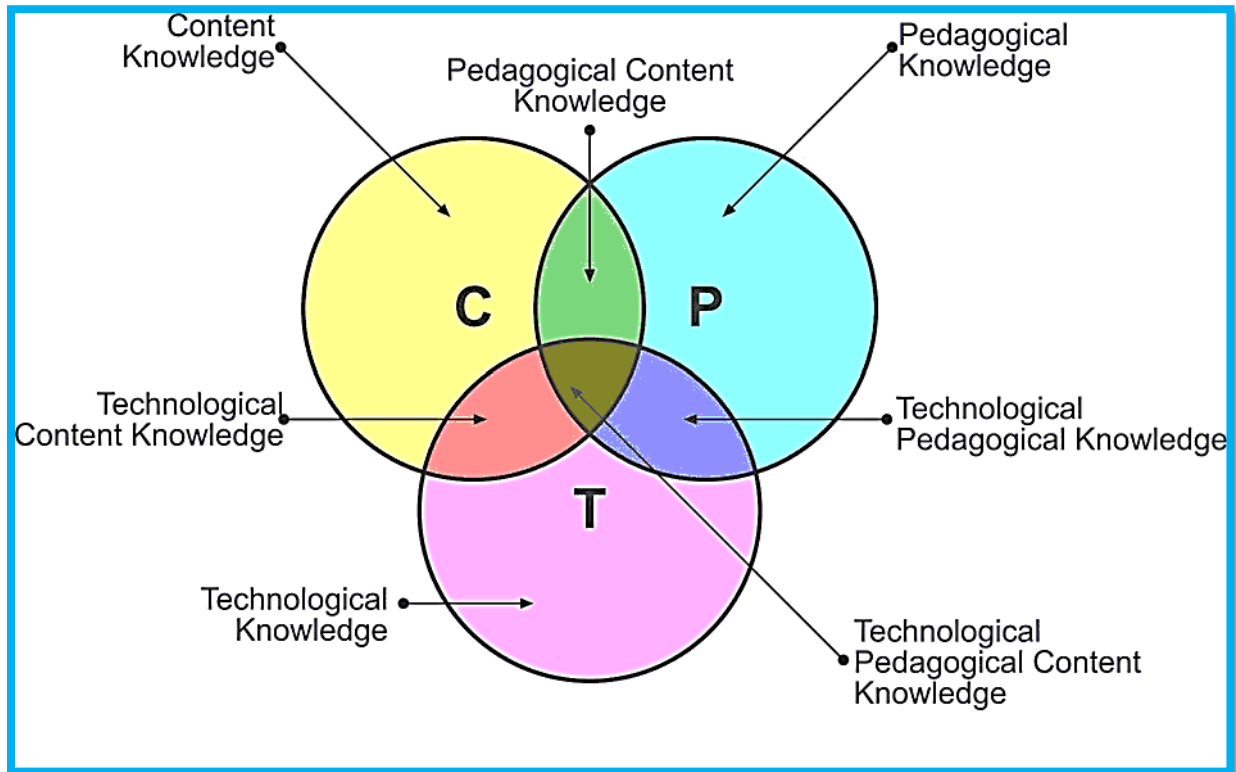
Fg. 2.12: The interaction of Technological Pedagogical Content Knowledge (TPCK) from Koehler,2006,p.742.

This concept is unique in its emphasis on various linkages and design, recognizing that technology knowledge cannot be divorced from other types of information, teaching activities, and settings. The combination of Pedagogy and Content knowledge produces Pedagogical Content Knowledge, which is analogous to Shulman's definition of conceptual representation, pedagogical approaches, knowledge of learners' conceptual understandings and challenges, and epistemological theories. Technology and content combine to provide Technological Content Knowledge, a grasp of the subject matter being taught and how technology may be used to express and shape the subject domain's notions. Technology and pedagogy both contribute to Technological Pedagogical Knowledge, which encompasses an awareness of not just the variety of ICT tools (e.g. DC) that may be utilized to accomplish a task, but also how to employ teaching methodologies to maximize their effectiveness.

The interaction of all three elements gives rise to *Technological Pedagogical Content Knowledge* TPCK. Koehler *et al*. contend that

"... effective technology-enhanced instruction for a given subject topic is complicated and multi-dimensional. It entails an understanding of the representation and formulation of concepts through technology; pedagogical techniques that make use of technology constructively to teach content; an understanding of what makes concepts difficult or easy to learn and how technology might address these issues; an understanding of students' prior knowledge and epistemological theories; and an understanding of how technologies can be used to build on existing knowledge and develop new or stronger skills. Clearly, this knowledge is distinct from and superior to that of a disciplinary expert (for example, a mathematician or historian), a technological expert (for example, a computer scientist), and a pedagogical expert (for example, an experienced educator)." (2006) (Koehler, p.743)

Ferdig (2006) also emphasizes the necessity of building a concept of TPCK, discussing how innovations with technologies can be recognized and measured as 'good,' that is, how successful they are at facilitating learning in certain subject tasks. Innovative technologies must be coupled with education that fosters authenticity, ownership, active engagement, connections and roles within communities, artifact creation, and reflection and feedback.

In this respect, Ng (2005) pointed out some basic principles of TPCK is to make teaching and learning:
- Engaging and inspiring;
- Interactive;
- Circumstantial;
- Cognitive load reduction;
- Scaffolding; and, lastly,
- Collaborative.

2.20 Advantages of Digital Content

Digital content offered numerous benefits in the sphere of education, particularly during the English teaching-learning process. Zimmerman (2011) and Aronowitz & Scott (2010) outline ten particular benefits of employing DC, which include the following:

- **Efficiency and update information**

Textbooks and other trade books often take more than a year to be updated and usually longer to be created whether DC is updating constantly.

- **Create own instructional resource repositories**

Teachers and students can develop, repurpose, and remix content in order to establish their own resources and libraries. Differentiated versions for different courses and pupils can be readily created by teachers.

- **Learn at any time in anywhere**

Students get 24/7 access to their materials. Late-night learners might be just as readily fulfilled as those who wake up early. Digital content transcends the confines of the classroom.

- **Personalised learning experiences**

Students' learning is centred on their needs when data banks have precise student information. Additionally, teachers will have an easier time delivering curriculum to kids with disabilities.

- **Engages students in learning**

Today's youth are lost without their smart devices. They are the 'digital generation,' and schooling that fails to recognize this fact causes children to 'power down.' Students can access digital content on their preferred devices, which keeps them engaged throughout the learning process.

- **Instant feedback**

Students and teachers use technology-based evaluation to recalibrate teaching and learning correctly and "just in time." This can assist in driving lessons and motivating students to achieve greater achievements. Summative evaluation is also freely available, and teachers can determine the extent to which pupils are learning a subject in order to make educated instructional decisions.

- **Match with choice able learning modalities**

Students take ownership of their learning by utilizing a variety of digital assets and explorations to guide them in a personalized, effective manner. Students create resources to demonstrate their knowledge and proficiency in achieving learning objectives. These creations may serve as educational tools for other pupils. Notably, students must have sufficient digital literacy abilities in order to assess the reliability of diverse internet sources.

- **Release load**

Students are no longer need to lug around cumbersome backpacks from school to playground to home. Digital material alleviates some of this burden.

- **Easy management of resources**

Anyone with access to the "storeroom" can see what is available and what is required, as well as who is utilizing what. School administrators can simply identify and close gaps.

- **Use anyone**

Similarly, to how kids log on outside of school, community members may access such resources with proper planning and coordination with schools.

Additionally, because digital content is changeable, it enables teachers and students to absorb, manipulate, and exploit knowledge more easily in order to target specific learning objectives and better fit unique learning modalities (Kelso & Halpin, 2010; ELNORD 2006). It is said that DC fosters the development of corporate capabilities (Bennett, Sandore, & Miller, 2001), increases motivation and general interest, and fosters the development of thinking abilities (Miyata & Ishigami, 2007). According to Japanese researchers, this format is ideal for lower comprehensive school classes (Murai, Nakagawa, Kobayashi, Iwasaki, Matsuno, & Iijima, 2009), and in general, integrating digital content into the teaching-learning process along with other technologies strengthens and deepens learners' understanding (Dani & Koenig, 2008).

Rather than relying on print dictionaries or seeking assistance from the teacher, students can learn to use online/offline dictionaries and thesauri, which are both types of DC. When students have access to on-demand, point-of-need word assistance, both monolingual (Reinking & Rickman, 1990) and bilingual (Yoshii, 2006) students tend to use it more frequently than print references and so increase their comprehension. A strength of digital text is its ability to communicate in many modalities, which facilitates comprehension by providing two input channels: visual/spatial and verbal (Mayer, 2001).

Teachers can significantly increase students' text selections by incorporating Internet and other digital texts. Students already use the Internet for homework; we can extend their learning and exploration of words in context by having them read and watch a variety of text genres online or by having them read texts downloaded to a class computer, an e-book reader, or a smartphone (Dalton & Grisham, 2011).

Additionally, the other researchers observe that digital technologies and their application foster user creativity, resulting in novel modes of communication and community building that contribute to "social constructivism" (Chelliah & Clarke, 2011). In England, Harrison et al. (2004) and Tamim et al. (2011) met analyses confirmed that technology-assisted learning can have beneficial benefits. DC is beneficial from this perspective since they appear to be excellent for

encouraging so-called pupil-centred teaching and learning by providing access to sources of knowledge and opportunities for engagement.

Furthermore, plethora of advantages of using DC are given below:

⊙ Active learning and inquiry-based education are educational approaches in which students examine issues or solve problems with variable degrees of human and computer support. (Norman, 1997)

⊙ Collaborative and cooperative learning are modes of instruction in which short- or long-term teamwork contributes to the social creation of knowledge (Davidson & Worsham, 1992; Edelson, Pea, & Gomez, 1996; Sebrechts, Silverman, Boehm- Davis, & Norman, 1995; Shneiderman, 1993b; Slavin, 1990 as cited in Shneiderman, Borkowski, Alavi & Norman,1998).

⊙ Individualized, or self-paced education (The Project Tomorrow report, 2014), in which pupils work independently while guided and prompted by computer software. The names computer-assisted instruction and intelligent tutoring systems have been phased out in favour of learner-cantered interactive learning environments (Soloway et al., 1996).

⊙ Providing kids with opportunities to practice independently (Report on Project Tomorrow, 2014).

⊙ Attract and engage more students (Report on Project Tomorrow, 2014).

⊙ Contributes to the development of cognitive capacities and critical thinking skills necessary for success in the disciplines (Butler-Pascoe, 2009).

⊙ Collaborative learning is incorporated (Butler-Pascoe, 2009).

⊙ Facilitates concentrated reading, writing, listening, and speaking practice throughout the curriculum and disciplines (Butler-Pascoe, 2009).

⊙ Multiple modalities are used to accommodate a variety of learning styles (Butler-Pascoe, 2009).

⊙ Meets pupils' affective needs: motivation, self-esteem, and autonomy (Butler-Pascoe, 2009).

- Assesses and provides suitable comments on content understanding and English abilities (Butler-Pascoe, 2009).

- Enhances the effectiveness of the lesson, regardless of the subject: it makes it more fascinating, diverse, and appealing (ELNORD, 2006).

- Has a significant effect on the pupils: it engages them, simplifies the lesson's comprehension, and aids in concentrating the pupils' attention (ELNORD, 2006).

- Mobility is critical: Students can use a smart phone to access digital content on the fly. Through the use of an interactive whiteboard, DC promotes classroom cooperation. DC can be viewed via the typical desktop computer that each school has (ELNORD, 2006).

- Enhances learners' cognitive and psychosocial capacities, increases teacher motivation, and engages students in the teaching-learning process (ELNORD, 2006).
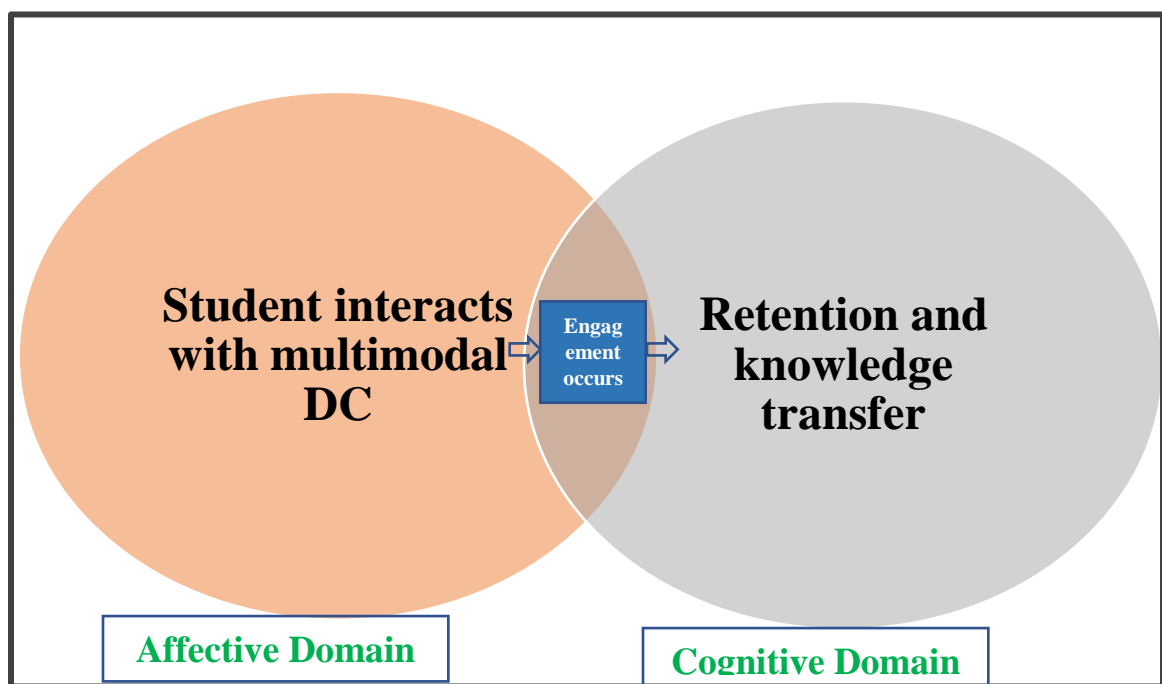
Figure-2.13: The DC based Teaching-Learning Continuum (followed by Greenberg and Zanetis, 2012).

On the other hand, a group of scholars led by Lamanauskas, Slekiene, Raguliene, and Bilbokaite (2011) discussed some of the specific benefits of utilizing DC from the perspective of instructors. DC simplifies the teacher's job by presenting information in a straightforward and

explicit manner with interactive visual examples that are easy to utilize - both text and image in one presentation. The critical factor is the effectiveness of classroom activities. This assistance assists in maintaining control of lesson activities, closely observing learners' reasoning processes, and correcting them when they do not grasp anything.

Additionally, he says that structured lesson scenarios for the creation of digital teaching/learning content are important and beneficial, with the goal of achieving lesson objectives effectively and without deviating from the purpose. They assist teachers in becoming more focused on educational activities. By utilizing DC, the time given for class preparation is slashed. Positive effect on pupils' cognitive processes; pupils' attention is more concentrated and sustained for a longer period of time during activities; pupils' reflection is encouraged.

2.21 Challenges of Digital Content

Dalton & Grisham (2011) explained about the challenges of using DC that it's difficult to find the resources and time required to give current materials, to respond to students' interests, and to satisfy readers with varying reading abilities. In this regard, (Kelso & Halpin, 2010) further underscores some challenges of DC which are:

- ICT Infrastructure and Delivery channels.
- Lack of Electricity.
- Huge financial involvement.
- Lack of Internet Connectivity.
- Big number of schools and teachers.
- Digital divide between rural and urban areas schools.

Additionally, the digital divide is a significant issue in this regard, as it refers to the growing split between computer users and non-users (Becker, 2000). It is the world's separation between those who have access to new information and communication technologies and those who do not (Asian Development Bank, 2002). This is a common difficulty associated with the use of DC. This disconnect occurs between professors and students. Teachers are divided by age, Internet access, computer access, and performance. The digital divide in the teachers are referenced by following figure.
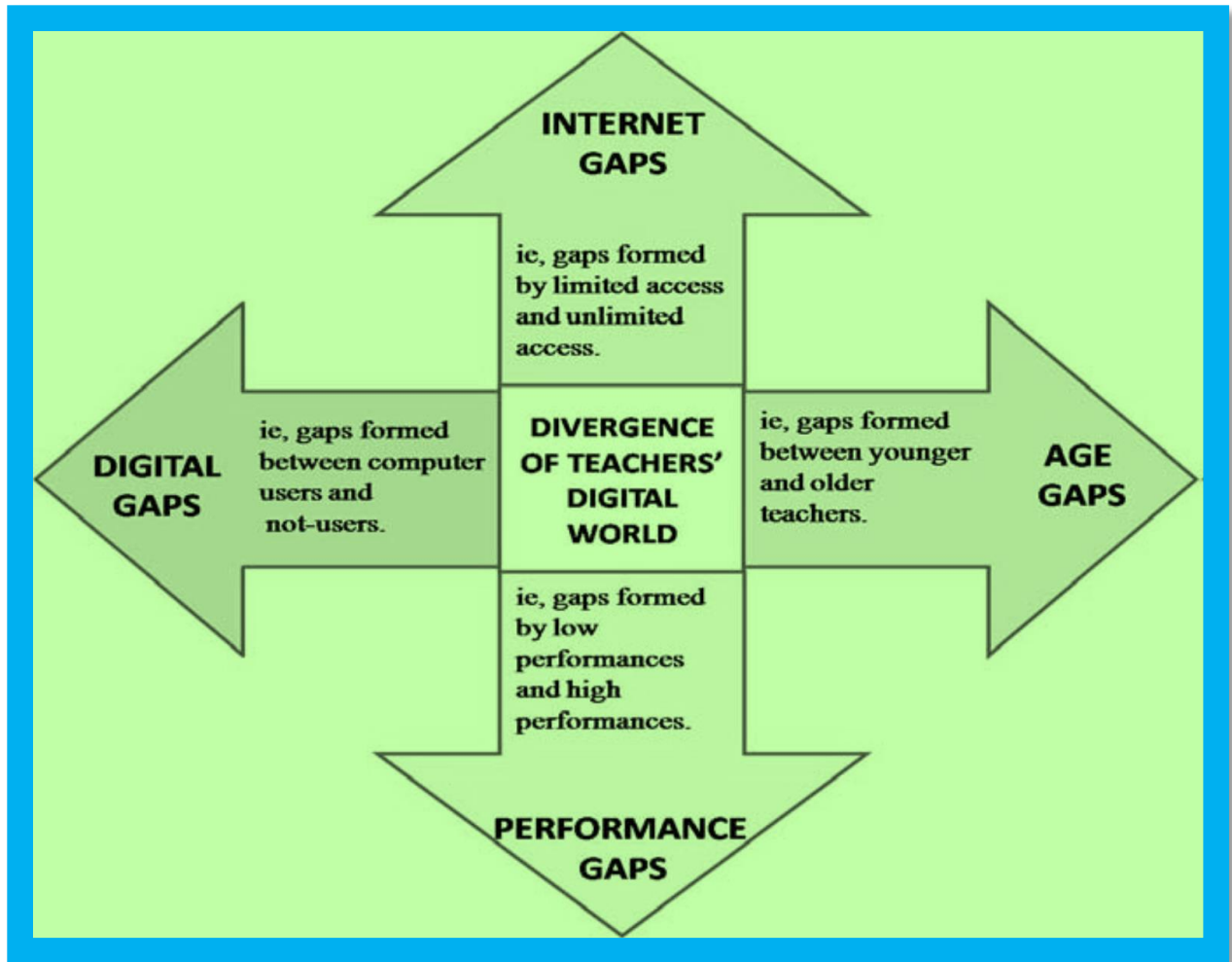
Figure-2.14: Divergence of teachers' digital world **(adopted from Uzunboylu & Tuncay, 2010.)**

On the other hand, Shyu and Liao (2004) points out that these digital contents oftentimes fail to motivate learners. They also mentioned that DC makes learning rather unengaging and ineffective.

Besides, these following common weaknesses were identified by Kuo, Chen, Hwang & Chen (2015) in their thoughtful analysis of subject areas:

Appropriate feedback provision

Numerous examples of digital content were created directly from videotaped lectures in physical classrooms. The majority were delivered unilaterally, which made it difficult to incorporate interactive learning activities or meaningful feedback while a video clip was playing.

Appropriate evaluation

Because digital information is largely utilized for online self-learning, it is critical to include tools for measuring learning outcomes throughout the learning process. The majority of digital content failed to fulfil this requirement because teachers lacked the knowledge necessary to include exercises and quizzes into a learning unit.

Provision of sufficient digital content

The majority of applicants were unsure of the amount of digital content that needed be developed for a whole learning unit. Calculating the elapsed time of video-based learning content, for example, is straightforward; however, it is not straightforward for other forms of digital content, such as HTML/PDF format, PowerPoint presentations, or interactive animations. Typically, accreditation reviews of e-learning courses focus on instructional materials that are clearly insufficient; for example, materials with three credits and an applicant providing only 10-20 minutes of instructional materials per week would receive a B grade from experts and scholars who request additional digital instructional materials. Another significant evaluation difficulty is constructing a semester's worth of digital content.

Apart from that, (Felix, 2005; Krajka, 2003; White, 2007) noted a number of additional issues that teachers and institutions may face when integrating digital technology, such as digital material, into their English courses (ESP), including the following:

- Problems of availability, accessibility and dependability of DC.
- Repeated training of teacher.
- Difference between teachers and students in terms of Digital skills.
- Shortage of time and money for DC.
- Lack of pedagogical knowledge etc.

These issues must be thoroughly considered in order to ensure a seamless and successful integration of digital technology (e.g. DC) and to ensure that both teachers and students view its use as a valuable addition to their teaching-learning process rather than as a distraction from the primary objective.

2.22 Situation of Digital Content in Education of Bangladesh

As multimedia-based teaching-learning processes are commonly recognized as the sole source of digital content in Bangladesh, their status exposes the entire state of digital content utilization in the country. One of the goals and objectives of education policy is to develop a knowledge-based and information-technology-based society (Digital Bangladesh), with a strong emphasis on ICT and other disciplines (Goal no.-12, National Education Policy, 2010). At all levels of education, the use of ICT as a teaching-learning tool must be expanded (Goal no.-21, NEP, 2010). Bangladesh has made some success in this area; the Secondary and Higher Secondary ICT-based Education initiative has constructed 20,000 MMCs (13,700 schools, 5,200 madrasas, and 1,600 colleges) — each with internet connectivity, a laptop, and a multimedia (Zaman & Rokonuzzaman, 2013). 192 educational institutions now have computer labs thanks to the Basic ICT Skills Transfer up to Upazila level. It has trained 7,890 master trainers and 112,189 students. Additionally, 12,500 teachers have received training in the creation of multimedia content (digital content). These teachers are developing and distributing multimedia content (digital content) via a Teacher's Portal, also known as Shikkhok Batayan (https://www.teachers.gov.bd/), which serves as a central repository for e-learning content (essentially digital content) for teacher training and all students. To promote instructors' participation, incentives are being provided through public acknowledgement of the finest content. The International Digital World, the District and Sub-District Digital Innovation Fairs, the International Education Leaders' Conference, and the National Teachers' Conference are being organized.

Additionally, the 6FYP envisioned revamping the educational system to make it more responsive to the rapidly changing global scene (GED, 2010: 271). "The importance of ICT in improving educational quality will be stressed, and initiatives will be done to close the gap in ICT capabilities between urban and rural residents" (Zaman & Rokonuzzaman, 2013). On the other hand, the Perspective Plan calls for mandating ICT education at the secondary level by 2013 and for the creation of primary-level computer laboratories by 2021 (GED, 2012: 57). Additionally,

revised ICT policies from 2009 and 2010, a national education policy from 2010, and a master plan for ICT in education from 2012 to 2021 are used to elevate the teaching-learning process based on digital content.

To facilitate ICT integration into education, both the ICT policy and the national education policy recommend developing digital learning content. Numerous NGOs and international organizations such as the EiA, the British Council, Save The Children, BRAC, Dnet, ARBAN, and the JAAGO Foundation also contributed to this effort. According to Save The Children Bangladesh (2015, as reported in Raihan. 2015), the following measures have been launched by various groups to implement ICTE, which includes DC:
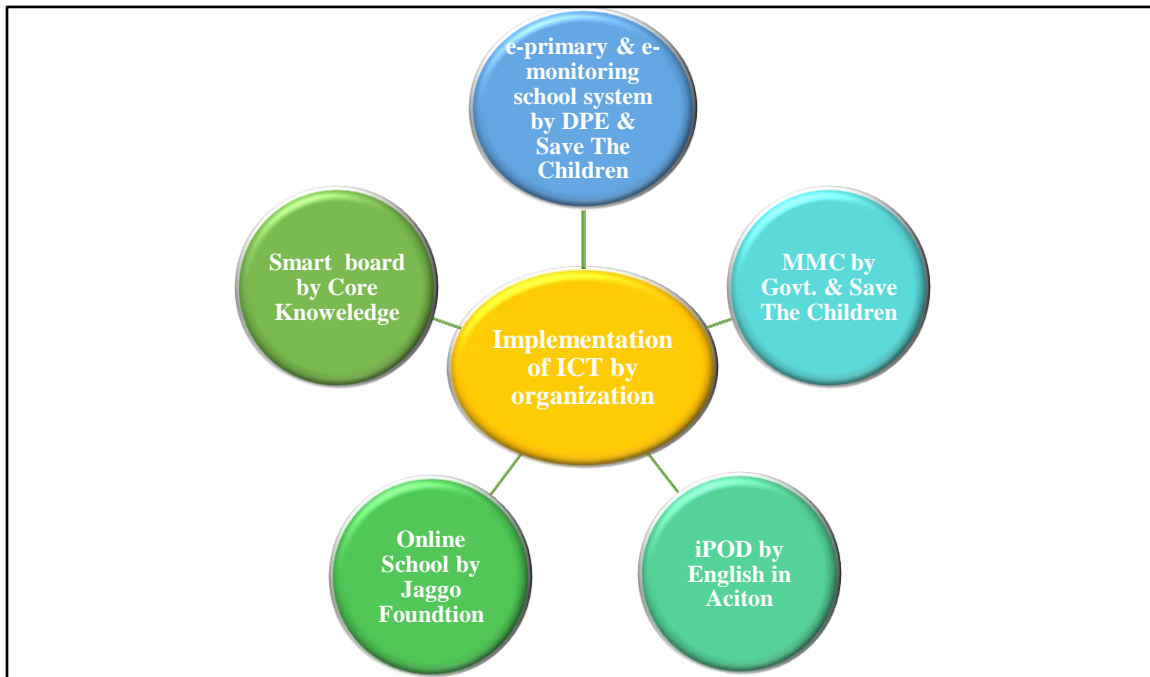
Fg-2.15: ICT implementation in Bangladesh **(adapted from Raihan, 2015)**

2.23 Theoretical Direction of this Research

The study is based on constructivist learning theory (Novak, 1998; Vygotsky, 1978), which is widely regarded as one of the most prominent theories of human behaviour (Venkatesh, Morris, Davis & Davis, 2003). Pupils and teachers' activities in English classrooms that incorporate DC show a pedagogical orientation or direction. By employing this theory of learning as theoretical lampposts, it is feasible to shed light on the pedagogical characteristics inherent in the use of DCs by English teachers (Dede, 2008).

Constructivist theories of learning examine how meaning is formed and imposed on the world by the individual. "People generate new knowledge and understandings based on their existing knowledge and beliefs, which are impacted by their developmental stage, prior experiences, and sociocultural background and context" (Dede, 2008:5053). Instruction's purpose is to promote learning through the organization of rich, loosely organized experiences and guidance that promote meaning making. According to this school of thought, instructional objectives include the following:

- Instruction is a procedure that assists in the formation of knowledge.
- The teacher's function is that of a guide, not of an expert 'transferring' knowledge.
- Authentic learning activities focus on learners' perplexity as their defective or insufficient knowledge and skills fail to predict what they are experiencing.
- Teachers urge students to reflect on their experiences, seek different points of view, and evaluate the validity of proposed ideas (Dede, 2008).

Many believe that ICTs are particularly favourable to constructivist learning activities because they make authentic material and applications accessible for learners' exploratory usage in problem solving activities readily available (Lund, 2004). (Salomon, 2000). Digital content, as a component of ICTs, is also considered as favourable to constructivist learning activities. "Digital content is viewed as a cognitive tool with significant potential to promote constructivist teaching and learning in the literature" (Mueller et al., 2008:1533). It is primarily via the use of common tools and exploratory Internet usage that clear connections to constructivist notions about learning and teaching may be made. The interactivity of digital content technologies opens up new teaching and learning opportunities that are more conducive to a constructivist approach, in which

technology serves as a tool for information and direction, but the structure of the teaching-learning process is determined by the teacher and learner (Peters, 2005).

2.24 Conceptual frame of the Research

A conceptual frame is an illustrative device (Rahman, 2011) that "explains, graphically or narratively, the primary subjects to be studied—the critical components, constructions, or variables and their hypothesized relationship" (Miles & Huberman, 1994, p. 18 as cited in Rahman, 2011). It is an effective method of gathering and summarizing acquired facts (Bell, 2005). Finally, based on the assessment of the literature, a conceptual framework was constructed to guide the conceptualisation of this study. The conceptual framework was unintentionally derived by mapping the concerns that impacted and influenced the conceptualisation of this research. The conceptual framework for this study is explored, since it describes the study's general perspective. The conceptual framework for the investigation is depicted here (figure: 2.16)

```
                    ┌─────────────────────────────┐
                    │      Digital content (DC)    │
                    └─────────────────────────────┘
```

Digital content (DC)

Usage of DC	**Challenges of Using DC**
Types	**Infrastructural & Institutional Challenges**
Audio	
Video	Necessary equipment
Power-point	Electricity supply
PDF books etc.	Funding etc.
The areas DC being used	**Methodological Challenges**
Language skills	▪ Suitability of content
Grammatical item	▪ Issue regarding support of DC to devices etc.
Feedback	
Assigned (Group/pair) work etc.	**Teacher led Challenges**
Model/Standard of using DC	● Skills and trainings
	● Attitude
• TPACK model	● Preference of traditional content etc.
• Technical Standard	
• Contextualizatio n etc.	
Advantages of using DC in T-L process	
Greater attention & engagement	
Anywhere, anytime learning	
High degree of interactivity etc.	

English Teaching and Learning

47

2.25 Gist of the Chapter

The ideas and concepts associated to this study have been discoursed in this chapter. The nature of the DC, its advantages, challenges, principles, adoption for the teachers, preparation of DC, situation of using DC in the perspective of Bangladesh etc. are critically analysing in harmony with the help of related reviewing literature. As well, a conceptual frame has been developed to guide the further activities of the study. In the next chapter, the whole methodology followed for the study is described.

3.1 Introduction

Individual research has to adopt a methodology to accomplish the research accurately. According to Kothari (2006) research methodology follows a systematic way to solve the research problem. Adopting the appropriate methodology is the heart of research (Yin, 2009). It bears the details of what the researcher wants to do to complete the study (Best & Khan, 2005). The researcher selects the method or design according to the demand of inquiry by that research. The researcher has described the processes utilized to collect the data necessary to answer the study questions and to conduct an evaluation of the overall quality of the approach taken. The chapter begins with an explanation of the study's purpose, followed by a discussion of the participants' characteristics, including a population description and sampling methodology. Following that, a summary of the data collection procedure is presented. The chapter terminates with the overall summarization of this chapter.

3.2 Nature of the Study

According to Gay and Airasian (1996), 'the nature of the research question or problem defines whether the study is qualitative or quantitative.' To be more precise, the study will utilize a qualitative approach. Because the study's research questions are designed to elicit responses from teachers and students from their own perspectives. There is no one-size-fits-all answer to any of the preceding questions. The majority of the research questions demand qualitative responses, such as how teachers employ DC during the English teaching-learning process. This is also an interview question for this study. Interviewees were free to share their own stories. As a result, this research employs a qualitative methodology. However, quantitative data will be gathered in order to supplement the qualitative data.

3.3 Sites of the Research

Dhaka and Chandpur district were the respected areas of the study. Areas have been selected with considering the easy access of the researcher.

3.4 Population of the Research

The population of this research includes the following:

- Each and every government and non-government higher secondary schools and college of Bangladesh;
- Each and every student at grade XI-XII of Bangladesh;
- All the higher secondary schools' and colleges' teachers of Bangladesh, specially who teach English at grade XI-XII;
- All digital content specialists of Bangladesh.

3.5 Sample and Sampling Technique of the Research

The college was chosen conveniently for this study. Teacher, digital content specialist and class were selected purposively. Ten students from each college were selected through purposive sampling process. In total four colleges, two from Dhaka division and two from Chattogram division were selected.

In the sampling frame, there were three categories of sample. These are-

English Teachers: Eight teachers of the college (4 x 2=8) from selected four colleges were selected as sample in purposive sampling process for collecting data to fulfil research questions-1, 2, 3, & 4.

Students: A sample of 40 (4 x 10=40) students of class XI-XII were selected equally from Dhaka and Chattogram division through purposive sampling process to collect data and to fulfil research questions-1, 3 & 4.

Digital Content Specialists: Three digital content specialists were selected purposively for collecting data to fulfil research questions-1, 2, 3 & 4.

The whole sample design of the study is depicted below:
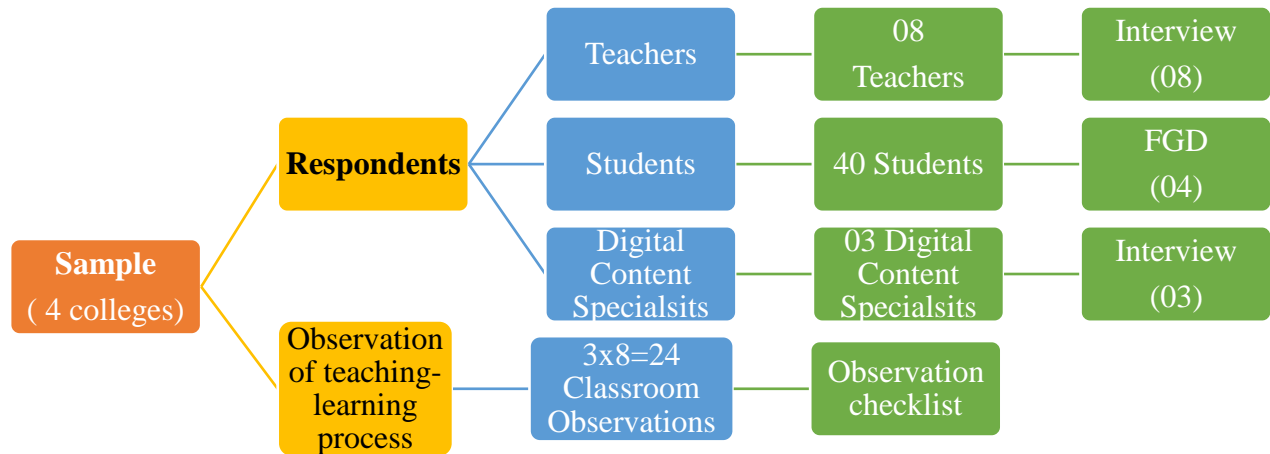
Fg-3.1: Sample design of the study **(Source: Author, 2022)**

3.6 Tools used for data collection

Selection of appropriate tool for data collection is very important for any kinds of research. Three distinct data collection tools were used for this research. The data collection tools of this research are described in following:

- **Classroom Observation Schedule:** This tool was used for observing English class of grade XI-XII by the researcher. Classroom observation were limited within 24 English classes equally from Dhaka and Chattogram division. From selected colleges English classes were observed for once. From every selected college six English classes- three from grade XI and another three from grade XII were observed by the researcher by this tool. It is worth mentioning that three classes of each interviewed teacher were observed in every college. Therefore, in total twenty-four (24) English classes were observed for this study.

51

- **Interview Schedule:** The semi-structured interview schedule was developed for eight English teachers and three digital content specialists. The interview schedule was mainly used for the clarifications from teachers after observing their classes and to understand teacher's and digital content specialist perceptions, opinions and suggestions about the use of digital content in teaching and learning English.
- **Focus Group Discussion:** FGD was conducted for students for collecting more valid, rich and reliable data. One FGD for each college was conducted by the researcher.

3.7 Development of data collection tools

Following steps were followed by the researcher for preparing data collection tools finally-

01.
Reviewing the literature

02.
Consulting with the Supervisor

03.
Preparing draft tools

04.
Editing the tools as per supervisor's instruction

05.
Piloting tools in Chandpur

06.
Try out consulting with the supervisor

07.
Finalising data collection tools
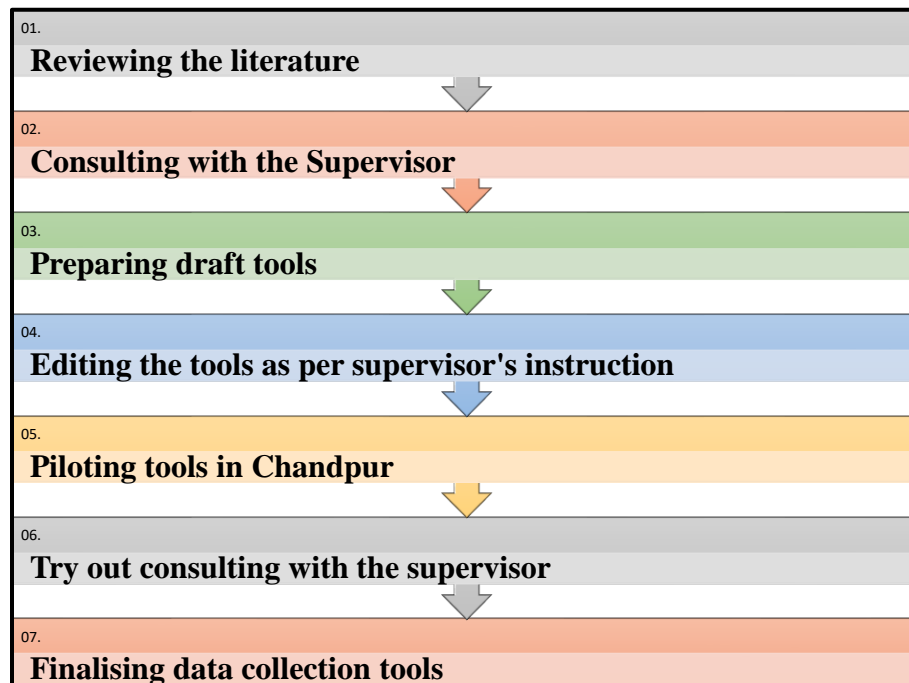
Figure-3.2: Development stages of data collection tools **(Shadowed by: Shaha & Rahman, 2015)**

3.8 Triangulation of Data

Triangulation is a term used in research to refer to the placement of similar data from diverse people via various data collection procedures (Akter, 2014). The researcher attempted to increase the internal validity of this study using data triangulation. In this triangulation process, data were verified by the agreement with other data collected from other sources. For instance,

teachers provided interview data were verified with classroom observation and students' FGD data. It was also strengthened by the data gathered from students and digital content specialists. Data triangulation process of this research are presented in the follow with a figure:
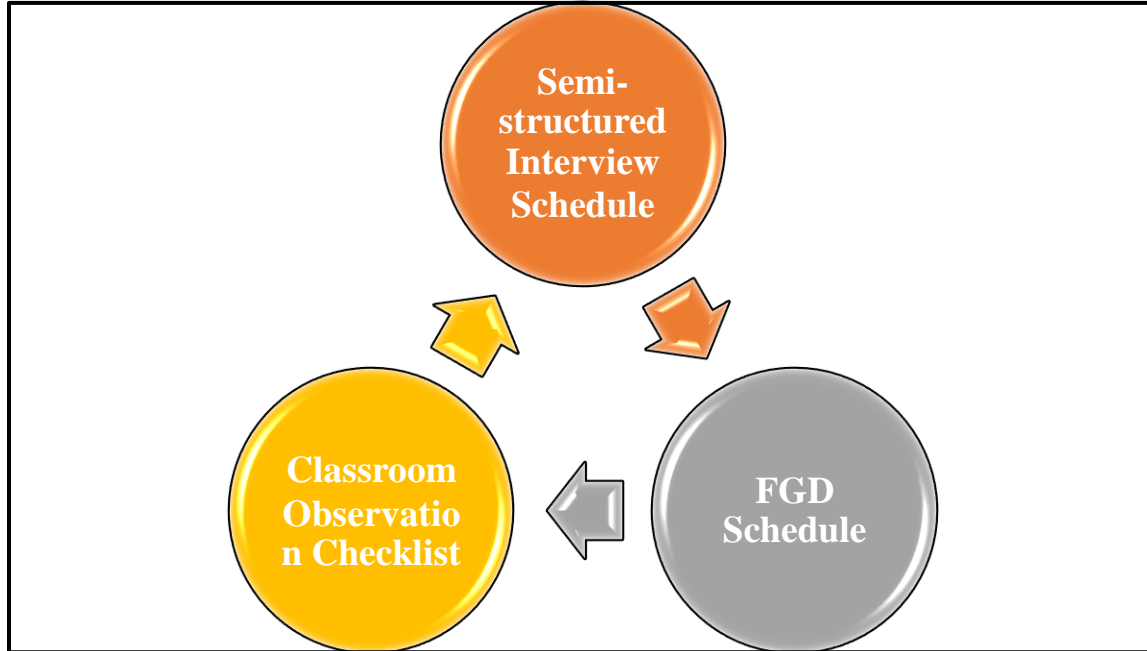
Fg-3.3: Process of Data Triangulation (**Source: Author, 2022**)

3.9 Data Processing and Analysis Technique

According to Merriam (1998) and Marshall and Rossman (1999), as quoted in Creswell (2009, p. 203), *"data collection and data analysis must be a simultaneous process in qualitative research."* During the data collection and data analysis stages, the data were organized into categories and reviewed repeatedly. As the nature of the study was qualitative in nature so the collected raw data was analysed by thematic analysing process.

To analyse the data, researcher used qualitative method since it was easier to sum up a result when numbers of the respondent participants are limited. Data was analysed in terms of main themes as emerged from the data. To analyse data researcher followed the steps of organizing data, developing theme and then interpretation of data (Marshall & Rossman, 1999 as cited in Creswell, 2009). Required statistical treatments were applied for supporting the analysis. Thematic analysis is a categorizing strategy for qualitative data and identifies the patterns of meaning or themes in

qualitative data (Clarke & Braun, 2014). Qualitative data was organized according to the emerged themes and concepts.

In this research, the Focus group discussion, the semi-structure interview and classroom observation schedule were provided qualitative data. The qualitative data was analysed thematically in this study. Firstly, different themes related to 'digital content' were identified under the research question and data were analysed under each theme. Then a general interpretation has been drawn. Teachers, digital content specialists and Students' FGD were first transcribed carefully. The eight teacher participants were given labels or codes as $TI_1, TI_2, \ldots TI_8$. Three digital content specialist participants were given code as $DCSI_1, CSI_2$ and $DCSI_3$. Finally, four FGD with students were given code as FGD_1, FGD_2, FGD_3 and FGD_4. Alpha numeric codes of the entire body of respondents are given below:

Table 3.1: Coding of the Respondents

No	Respondent	Data collection tool	Alpha Numeric Code
01.	Teacher	Semi-structured Interview Schedule	TI_1
02.	Teacher	Semi-structured Interview Schedule	TI_2
03.	Teacher	Semi-structured Interview Schedule	TI_3
04.	Teacher	Semi-structured Interview Schedule	TI_4
05.	Teacher	Semi-structured Interview Schedule	TI_5
06.	Teacher	Semi-structured Interview Schedule	TI_6
07.	Teacher	Semi-structured Interview Schedule	TI_7
08.	Teacher	Semi-structured Interview Schedule	TI_8
09.	Digital Content specialist	Semi-structured Interview Schedule	$DCSI_1$
10.	Digital Content specialist	Semi-structured Interview Schedule	$DCSI_2$
11.	Digital Content specialist	Semi-structured Interview Schedule	$DCSI_3$
12.	Students	FGD Schedule	FGD_1

13.	Students	FGD Schedule	FGD_2
14.	Students	FGD Schedule	FGD_3
15.	Students	FGD Schedule	FGD_4

3.10 Methodological Matrix of the Research

The intended research questions of the research, respondents, technique of sampling, tools of data collection and data analysis technique are presented in the following table-

Table-3.2: Methodological Matrix

Research Questions	Data Source	Sampling Technique	Data Collection Tools	Analysis Technique
What types of DC are being used for practising English Language skills (teaching and learning English) at grade XI-XII?	Teachers, Digital Content Specialists and Students	Purposive	Semi-structured interview Schedule, Classroom Observation Checklist, FGD	Statistical and Thematic
Which types of pedagogy do teachers use in presenting or making DC for effective teaching and learning English at grade XI-XII?	Teachers and Digital Content Specialists	Purposive	Semi-structured interview Schedule, Classroom Observation Checklist	Statistical and Thematic
What advantages do teachers and students get from using DC in teaching and learning English at grade XI-XII?	Teachers, Digital Content Specialists and Students	Purposive	Semi-structured interview Schedule, Classroom Observation Checklist, FGD	Thematic

55

| What are the challenges of using DC in teaching and learning English at grade XI-XII? | Teachers, Digital Content Specialists and Students | Purposive | Semi-structured interview Schedule, Classroom Observation Checklist, FGD | Thematic |

3.11 Ethical Consideration

Ethical consideration is the indispensable norms for the researchers (Creswell, 2009). Keeping pace with the ethical benchmark is always a tough task for the researchers. Ethical considerations by the researcher is very much significant to conduct a satisfactory and fruitful research. The following ethical standards were taken under consideration through the research:

- Literature review of this study strictly avoided from plagiarism.
- The researcher used consent letter (see appendix) for collecting data which contained the main purpose of the study.
- Data were acquired with the authority's authorization, and the researcher was responsible for maintaining the confidentiality of the data.
- The researcher was physically present during the data collection process.
- During data collection, the researcher made no attempt to impose pressure or create an uncomfortable situation on the institution, individuals, or groups.
- The report was written using data gathered from a real-world incident.
- During the classroom observation, natural activities in the classroom were not interrupted and observed silently.
- In the time of interviewing and FGD discussion, the researcher ensured that respondents' identity and obtained data would not be disclosed at any means.
- Time and place were selected according to respondents' choices for interview and FGD.
- Proper permission was taken for recording the interview.
- The researcher guarantees that the data and evidence acquired will be utilized solely for the purpose of the research.

- ⊙ The researcher did not express his or her personal viewpoint or pass judgment on respondents, which meant that no reflection on respondents could be made.
- ⊙ The researcher was straightforward about the nature of the research process from start to finish, including any personal biases or conflicts of interest.

3.12 Gist of the Chapter

In the conclusion of the chapter, it can be mentioned that the methodology is a concentrated guideline by which all the preparations of the study were calculated to complete research work accurately. Research had been determined and data had been collected in the procedures stated above. In the next chapter, the gathered data for this research has been offered and investigated.

4.1 Introduction

Current chapter illuminates all the information and evidence congregated for the study. All these information and evidence were gathered from interviews, FGD guidelines, classroom observations, teachers, students, and content specialists. As the study deals with qualitative method, so the analysis follows qualitative approach only. Qualitative data is analysed and presented thematically. Data is presented graphically in cases where felt needed.

The chapter is divided into several segments. First of all, there is demographic information on the subject of the participants- teachers, students, content specialists, and classroom observation. In the following segments data is presented and interpreted accordingly research questions. The segments include both qualitative and quantitative data where needed. All the segments are comprised of data collected through several tools.

Along with that, findings of this study are being presented in this chapter. These findings are convenient to country-wide generalization, but it is presented according to the sample area of the study.

4.2 Analysis of the Demographic Information

Demographic information is very much important to understand the context of the study (Jahan, 2015). In this segment, all demographic information is presented under four different titles.

4.2.1 Demographics of the Teachers

Eight teachers participated in this study. The essential demographic information of teachers such as age, gender, designation, years of teaching experience, training received on teaching, and

DC related training is described in this section. All mentioned information of teachers is given below:

The teacher's age ranges from 35 to 60, and teaching experience ranges from 07 to 30 years. Inequality between male and female ratio can be observed from the data, but in this study, gender is not considered a variable. Third of fourth (3/4) of the teachers (75%) are designated as Assistant teacher and rest of the teacher (25%) designated as Lecturer. Six teachers out of eight received training on teaching and rest of the teachers have no training. 50% teachers (4 out of 8) attended DC related training programs such as multimedia in teaching English, technology in education, digital content developing, multimedia presentation, etc. (Surprisingly, most of the teachers were unable to recall the official names of the trainings) from different organization like BELTA, NAEM, MoE, British Council, Arizona State University of USA etc. On the other hand, rest of two teachers do not get any kind of DC related training. All mentioned information of teachers is given below:

Table-4.1: Demographic Information of the Teachers

Demographics	Variables	Frequency	Maximum	Minimum	Average
Age	31-40	2			
	41-50	4	60	35	40
	51-60	2			
Gender	Male	7	-		
	Female	1			
Designation	Asst. Prof	6	-	-	-
	Lecturer	2			
Teaching experience	2 to 10 yrs.	5			
			18	2	11.5

	11 to 20 yrs.				
			3		
Received training on Teaching	-	6	-	-	75
Digital content related training	-	4	-	-	50

4.2.2 Demographics of the Students

As the study inquires to explore the use of digital content in teaching and learning English at grade XI-XII, the students were consequently selected from higher secondary level. The students were from grades 11 and 12. The study includes 40 students from 4 colleges. Of the included colleges there are two colleges were selected from Chandpur district and two from Dhaka district. Equally 50% students from grade XI and XII are selected for the study. This study also maintain inequality in male-female ratio although students' gender is not considered a variable in this study. The entire information regarding students is presented below-

Table-4.2: Demographic information of the Students

Demographics	Variables	Frequency
Gender	Male	22
	Female	18
Grade	XI	40
	XII	40

4.2.3 Demographics of the Content Specialists

The essential demographic information of Content Specialists such as age, gender and DC related training is elucidated in this section.

Table-4.3: Demographic information of the Content Specialists

Demographics	Variables	Frequency	Maximum	Minimum	Average
Age	25-40	2			
	41-55	1	53	28	35
Gender	Male	2			
	Female	1	-	-	-
Digital content related	**-**	**3**	-	-	**100**
Training					
Training Institution	ICT Ministry	3			100
	PMO	2			
	BUET	1			

Data collected from table implies that Content Specialists age ranges from 28 to 53 years. Equality in male and female ratio can be noticed from the data tools. All the Content Specialists have DC related training from both country and abroad.

4.2.4 Demographics of the Observed Classes

From every selected college six English classes- three from grade XI and another three from grade XII were observed by the researcher. It is worth mentioning that three classes of each interviewed teacher were observed in every college. Therefore, in total twenty-four (24) English

classes were observed for this study. The class duration varies and so does the number of students in the classroom from college to college.

Here, demographic information of observed classes only includes number of students, of presented students, and time duration. Data concerning the physical characteristics of classroom such as size of room, number of benches, doors is irrelevant to the study, and hence not included.

Data collected from the observation expressed that in grade XI, the total number of students is pretty higher than the grade XII. And, the number of students' present is also satisfactory. Time duration of classes ranges from 40 to 50 minutes. Twelve classes were observed through online via software either 'Zoom' or 'Google Meet'. On the other hand, twelve classes were observed through offline by adopting direct observation method by the researcher.

4.3 Types of Digital content being used for teaching-learning English at grade XI-XII

This study's one of the main research questions is - What types of DC are being used for practicing English Language skills (teaching and learning English) at grade XI-XII? In this section, different aspects of the types of DC in teaching and learning English at grade IX-X are described according to evidence collected via different tools.

There are four kinds of findings in this regard: what teachers said and their perspectives, what students said and their perspectives, what content specialists said, and what was observed in the actual classroom.

The blueprint of analysing this objective is shown in the following figure-
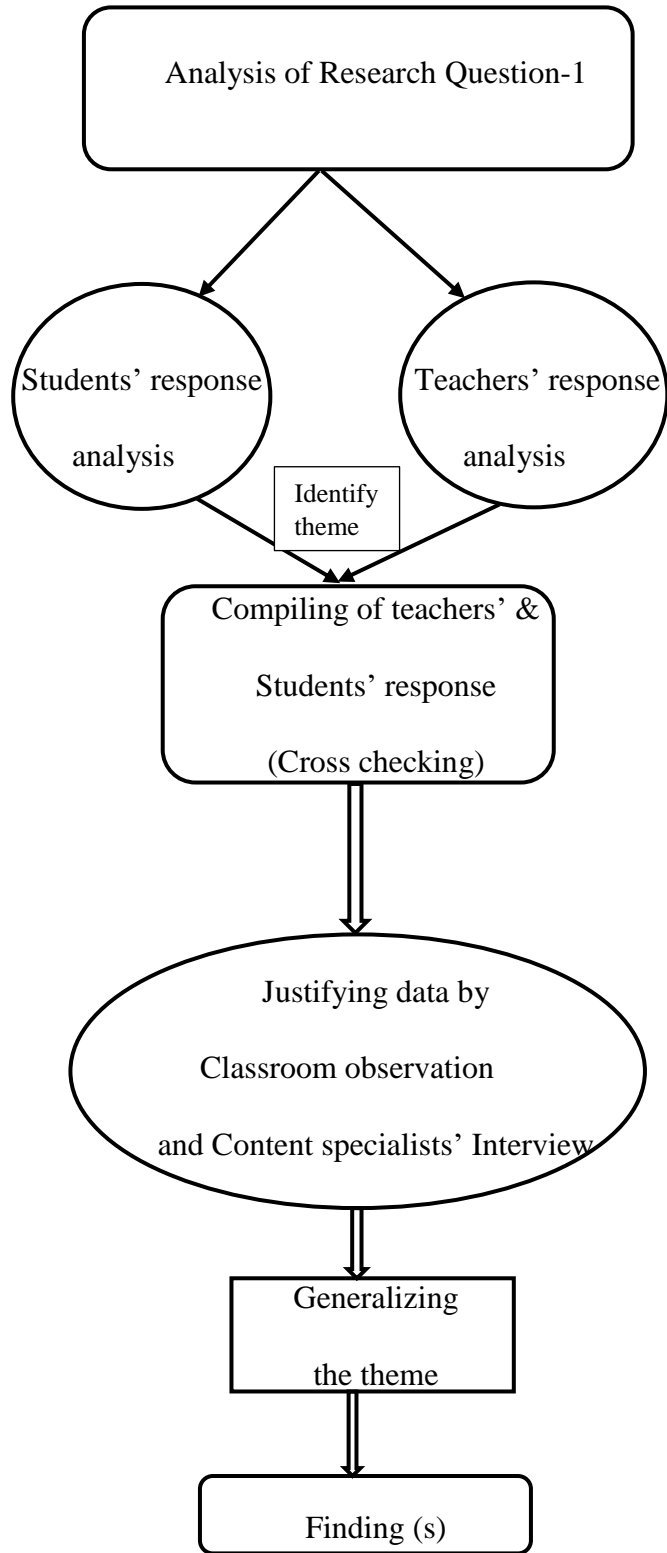
Fg-4.1: Blueprint of analysis **(Adapted from: Shaha & Rahman, 2015)**

4.3.1 Basic Concepts and Perception about Digital Content

In this portion, basic concepts and perceptions about digital content are described from teachers', Content specialists' and students' views.

4.3.1.1 Teacher's Concepts and Perception about Digital Content

Data collected from the semi-structured interview revealed that all of the teachers have the basic Ideas and Perception about digital content. They all are well informed about DC. When teachers are inquired about their ideas and perception about of DC, the half of the teacher (4 out of 8) received first response is *"Any sorts of content which are developed electronically or digitally using different electronic devices via computer, mobile technology or using internet or software are called Digital Content."*

Then again, some teachers (3 out of 8) emphasised on DC by uttering *"DC refers multimedia based any content such as power-point presentation slide"*.

Above and beyond, one teacher outstandingly mentioned that,

"Digital content means the content that exist in the form of digital data and media. In education it refers to the use of interactive multimedia in the classroom setting. It involves using digital software, devices and platforms or networks as a tool for learning. It is also known as Technology Enhanced Learning (TEL) (TI$_1$)."

4.3.1.2 Student's Concepts and Perception about Digital Content

Focus group discussion with the students of different college expressed that all of the students have the moderate concepts and perception about DC. When the researcher asks the students, "What do you comprehend by Digital Content?" they give swift responses. Most of the student's response "Digital Content found in online, prepared using technology e.g. computer or Android phone and it also used for the teaching and learning English."

One more group of students say, "DC basically refers E-content like E-book, education software, offline dictionary etc. **(FGD₄)**"

Most noteworthy thought about DC is expressed by some students which is as follows:

DC is the supplementary of the traditional teaching aids. It would be the offline or online. The example of the audio, video, pictures or something like that which is basically used for our teaching and learning English particularly listening and speaking skills. (FGD₁, FGD₂ & FGD₃)

The discussion of the FGD seems that students perceived good concepts about DC. As they are known as the digital kids of this digital age, has found many more scopes to interact with enormous DC within their educational environment.

4.3.1.3 Digital Content Specialists' Concepts and Perception about Digital Content

Digital Content specialists' concepts and perception about DC is much more standard. They have the perfect knowledge about DC. They had given higher level of discerning about the DC. One notable concept about DC given by a content specialist is as follows:

"Digital content refers to any content that has the appearance of digital data. Digital content can be found on platforms such as media, blogs, computer-oriented media, and the internet **(DCSI₃)***."*

She also augments that-

"Digital content usually refers to information available online for download or distribution on electronic media." (DCSI₃)

Another content specialist confirms that-

"Any content that is developed and disseminated using electronic devices is usually known as DC." (DCSI₂)

Therefore, it can be abridged that all the content specialists (3 out of 3) are well known about the DC and its actual landscapes, categories and whatnot.

In this segment, the researcher analyses and presents the actual circumstances of using DC from the milieu of teachers, students and his own observation during the stage of data collection. At first, the researcher analyses data about the use of DC in classroom teaching-learning process of English from the evidence of teachers' side and students' side. After that data is analysed and interpreted through cross-checking and his in-person classroom observation.

All of the teachers acknowledge that they sometimes use DC in classroom teaching-learning process of English. Their responses are tabulated in the below-

Table-4.4: Teacher's Responses about the Use of DC in Classroom Teaching-Learning Process of English

Responses	Frequency of Responses
Yes	8
No	0

The table shows that all of the teachers **8 out of 8** use DC in English classroom.

The authenticity of the usage of DC by the teacher in English classroom has found during the class observation but their frequency is not up to mark. There are much more gaps between the rural and urban colleges.

In contrast, FGD with the students exposed the opposite pictures that found in the teachers' interview. Using DC in English classroom does not always happen, say most of the students. They also say that their teachers use DC in English classroom very scarcely.

One remark from the students FGD$_4$ is mentioned in this regard-

> *Our English teacher do not usually use DC for English subject. In our whole first year life, our teacher use DC in English subject only for once. He doesn't prefer DC. Our Teachers use DC particularly for Biology subject and ICT subject. (FGD$_4$)*

This segment deals with the frequency of using DC in classroom teaching-learning process of English.

Data collected from semi-structured interviews reveals that teachers are using DC in classroom teaching-learning process of English. The frequency of using DC in the English classes are tabulated below:

Table-4.5: Teacher's responses about the frequency of using DC in the English class

Responses	Frequency of Responses
Very often	1
Often	4
Rarely	3
Never	0

Data from the table tells that 4 out of 8 teachers often use DC whether 3 out of 8 teachers rarely use DC. On the contrary, 1 out of 8 teachers very often use DC. This is the true picture of using DC in classroom teaching-learning process of English from the teacher side.

On the contrary, when students are asked in the FGD about how frequently their teachers used DC throughout the English class. The surprising matter shown by the students' in the FGD that more than half of the students claim that their teacher rarely use DC and one thirds of the students also assert that their English teachers never use DC in the teaching-learning process of English. In this regard, one remark from students FGD is presented-

"Our teacher merely uses DC for English subject rather they use test paper for securing good CGPA in English." **(FGD₂)**

This scenario is also found in the times of classroom observations. Although English teacher use DC but not every so often.

After all, it can be said that although most of the teachers used DC for teaching and learning English but the frequency of using DC is very occasional.

4.3.4 Types of used Digital content in classroom teaching-learning process of English

Types of used DC in classroom teaching-learning process of English are analysed and presented here under the subsequent portions.

When teachers are questioned what types of DC they usually use for teaching-learning process of English, their responses about this are given in the following table.

Table-4.6: Teacher's response about the types of used DC in classroom teaching-learning process of English

(Multiple answer was accepted from the respondents)

Responses	Frequency of Responses
E-book/ E-text	6
Content related Picture	5
Power-point Slide	5
Audio Clip	4
Video Clip	4
Online/Offline Dictionary	4
Internet based websites	2

From the table it is clear that most of the time teachers use E-book or E-text and then content related pictures as well as power-point slide as types of DC. At a time, teachers use different content related audio and video clips as well as online/offline dictionary in the digital content based English class. The table also shows that teachers merely use topic related different

internet-based websites as the types of DC in teaching-learning process of English at grade XI-XII.

In contrast, significant number of students during the FGD session explicates that their English teachers use power-point slide as a type of DC. Besides, some of the students claim that audio is used by their teachers as a type of DC in English class. Rest of the students opine that their teachers only used video as a type of DC in the teaching-learning process of English. One remark from the students FGD certainly clarify the circumstance-

> "Our English class teacher usually use PowerPoint presentation in our English classes as a type of digital content wherein they include audio and video and sometimes pictures also." *(FGD₁)*

The same scenario also found during the direct classroom observation by the researcher. Teachers have eagerly tended to use power point slide as the types of DC and amidst this they include pictures mainly.

In a similar fashion, digital content specialist opined that multimedia-based power point presentation slide is widely used in teaching-learning process of classroom in the context of Bangladesh. There is no exception to English subject. Noteworthy remarks of digital content specialist₁ has echoed the exact situation in this regard-

> "In the perspective of Bangladesh, most of the teachers and students are used to power point slide in their day to day teaching-learning process. English teachers usually used power point by incorporating content related pictures and virtual text prominently." *(DCSI₂)*

Hence, it can be generalized that power-point slide (equally underscored by digital content specialists & Students), content related pictures and E-book or E-text (similarly supported by digital content specialists, Teachers & Students) are massively used types of DC in teaching and learning English for grade XI-XII.

This part analyses the types of the used DC in practicing of listening skill in the English classroom. Here, the total analysing was carried out under the separate sub-sections.

The teachers' responses gathered from the interview, students' responses collected from the FGD and digital content specialist's responses from the interview about the types of the used DC in practicing of listening skill and the frequency of responses are tabulated in the following table.

Table-4.7: Respondent's responses about the types of the used DC in practicing of listening skill

(Multiple answer was accepted from the respondents)

Responses	Frequency of Responses		
	Response from Teachers' Interview	Response from Students' FGD	Response from Digital Content Specialist Interview
Content related Picture	6	2	2
Audio Clip	6	3	3
E-book/ E-text	4	2	1
Power-point slide	3	1	2
On-net Audio-video	1	0	1

Here, data in the table-4.13 signifies that, content related different pictures and content relevant various audio clips are vastly used as a type of DC in practicing of English listening skill which are correspondingly marked by all of the respondents. Mr. Bhuiyan, an Assistant Professor of a rural college particularly indicated by mentioning the above types of DC-

> "I normally provide content related audio to the students to listen the audio carefully and based on the audio they will try to write something on the basis of instruction and also encourage to students to speak out on the topic." *(TI₁)*

In this connection digital content specialist asserted that-

"Speech, Commentary of the renowned person like speech of the USA former president Barak Obama, commentary of the Harsha Bogley etc. help the English learner to practice Listening skill fruitfully with enthusiasm." (DCSI₂)

A student namely Rizwan (pseudonym) expressed almost similar tone in the FGD₁ that-

"Our English teacher once used IELTS listening practice audio for our class and give the audio to class captain to send to everyone via e-mail. We enjoyed that class a lot. It is still evergreening in my memory." (FGD₁)

Above and beyond, E-book or E-text and power-point slide are next used types of DC after pictures and audio in practicing of listening skill ensured by the all three respondents. A remarkable comment of a teacher is presented here to portray the exact scenario-

> "I used soft copy that means PDF of English textbook or sometimes a PDF of novel, rhymes to show students using power-point presentation via laptop and used pronounced software to listen students. It is very helpful for students, I think. Students are enjoying this very much." *(TI₇)*

Similarly, a digital content specialist also focused on the same types of DC for listening skill by saying-

"Today all of the softcopy of NCTB textbook are available in the websites. If teachers wish to used it in the classroom then they can use it and also instruct students to use it. Besides any sorts of novel, rhymes or drama are also available in the online. So, anyone can use these as their needs. Thus, E-text are commonly used for practising listening skill of English." (DCSI₃)

The use of topic-related pictures and relevant audio clips via power-point or mobile technology   is purely seen in the actual class during the classroom observations by the researcher.

Virtual text which commonly known as E-text or e-book is subsequent immensely used as types of DC in the English classroom also found by the researcher.

Astonishingly, on-net audio-video are the least used types of DC for practicing English listening skill marked by the respondents. Classroom observation also get this proof that there were no teachers who used on-net audio-video as a type of DC for practicing of English listening skill.

Finally, it can be assumed that in most of cases content related different pictures and relevant various audio clips (almost equally digital content specialists, teachers and students say) is vastly used types of DC for practicing of English listening skill. After then, E-book or E-text and power-point slide (similarly said by digital content specialists, Teachers & Students) are usually used as types of DC for practicing of English listening skill at grade XI-XII.

4.3.6 Types of the used Digital content in Practicing of English-Speaking skill

In this section, the researcher is presented the analysed data about types of the used DC in practicing of speaking skill under several sub-sections. By table below responses and frequency of responses of the teachers', students and digital content specialist's responses about types of the used DC in practicing of English-speaking skill are presented.

Table-4.8: Respondents' responses about types of the used DC in practicing of speaking skill

(Multiple answer was accepted from the respondents)

Responses	Frequency of Responses		
	Response from Teachers' Interview	Response from Students' FGD	Response from Digital Content Specialist's Interview
Content related Picture	7	2	2
E-book/ E-text	4	1	1
Power-point slide	4	2	3
Video Clip	4	3	1

From the above-mentioned table, it can be noticed that four types of DC are majorly used for the practicing of speaking skill. Here it is clearly shown that all of the respondents say that content related pictures (said by 7 teachers, 2 digital content specialists & students from 2 FGD sessions) and then E-book/ E-text, power-point slide as well as video clips (almost simultaneously said by teachers, students and digital content specialists) are thoroughgoingly used DC in practicing of English-speaking skill.

Moreover, when teachers were inquired what types of DC, they usually used for practicing English speaking skill, they replied in the affirmative that pictures, virtual text, ppt and video clips are commonly used types of DC. In this regard teacher from interview posited that-

> "Sometimes I use pictures on any relevant content for the intermediate level students to speak out themselves on that picture for practicing speaking skills and sometimes I used some pictures from outside the curriculum for the students to say something about that." *(TI₃)*

But when researcher asked to teacher why they use pictures or power-point as type of DC for practicing speaking skill, one of the teachers clarify by answering the following statement-

"A picture can tell more thing than a word tells. I usually use power-point slide by adding content related pictures and sometimes virtual text by the help of which students may practice speaking skill of English. It is interesting way for the students." **(TI₈)**

Although two of the teachers replied in the negative that they make pair of students or give a topic towards the students to speak out instead of using any sorts of DC for practicing listening skill. In this regard a teacher stated that-

> "As our college situated in the rural areas. So, there is some problems like students are not eager to attend class regularly, they prefer suggestions etc. so I practising speaking skill by introducing group work, pair work, dialoguing or debating with each other on a particular topic which work well." *(TI₇)*

On the other side, students' responses from the FGD session also going parallel to teachers and digital content specialists. Students pointed out that teachers use pictures, power-point all together, and sometimes use video clips as types of DC for practicing of English-speaking skill. One remark from the students' FGD is specified below in this connection-

"Our English Teacher basically use pictures of different objects as digital content in our speaking skills practicing session and they command us to speak out according to the content and pictures." **(FGD₁)**

In this context, Content specialists opine that for the practicing of speaking skill video, picture and power-point are the best types of DC, and in Bangladesh for developing the speaking skill of students these types of DC are mostly appropriate and important. One of the remarks of a digital content specialist's is worth mentioning here-

"Picture is active DC to show and point out some features of content and vocabulary learning. English teacher of our country may use it to practice speaking skill. They can engage students in speaking skill by showing pictures and video clips of cartoons and Short films. It is more enjoying process of practicing speaking skill. Firstly, students can observe the pictures and video clips and then speak out the morals and message of that." **(DCSI₃)**

When the researcher observes the English classroom, he finds that for the practicing of speaking skill teachers vastly use power-point. By using power-point they also show video or pictures and sometimes use e-book by the help of mobile phone or their personal laptop.

Henceforth, it can be presumed that for the practicing of English-speaking skill content related various pictures is largely used type of DC. Whether e-book, power-point slide and then video (simultaneously marked by teachers, students and digital content specialists) are next hugely used DC in the practicing of English-speaking skill.

4.3.7 Types of the used Digital content in Practicing of English Reading skill

This portion deals with the analysis of types of the DC which are used in the practicing of reading skill. In this portion the whole analysis also is given under some sub-portions.

Teachers', students and digital content specialist's responses of the question regarding what types of DC they use or suggest to use in the practicing of reading skill are presented in this table.

Table-4.9: Respondents' responses about types of the used DC in the practising of reading skill

(Multiple answer was accepted from the respondents)

Responses	Frequency of Responses		
	Response from Teachers' Interview	Response from Students' FGD	Response from Digital Content Specialist Interview
E-book/ E-text	7	1	3
Content related Picture	5	2	3
Power-point slide	4	2	1

Data in the table explicates that teachers majorly use e-book or e-text which is also known as virtual text as a type of DC for practicing English reading skill. After then, they use content related pictures and power-point slide as types of DC for the practicing of English reading skill. Interview with the teachers also reveal same picture. Mr. Abdul Matin, an assistant professor of Dhaka based college specified that-

75

"As NCTB textbook is available in the online so we can easily use the PDF of English textbook for the practicing of reading skills in the intermediate level and it can easily show through PowerPoint presentation by activating 'reading aloud option' to practice the reading skill." **(TI₅)**

On the other hand, students during the FGD session say content related pictures and power-point slide is frequently used as a type of DC for the practising of English reading skill by teachers. The e-book or e-text are rarely used types of DC according to student's opinion. Striking quotation from students FGD reveal such without any confusion.

"There is no exception to use pictures and power point presentations for practicing reading skill as like as other skills of English language. Our teachers always used PowerPoint presentation with pictures to practice any skills of English language. It is a tradition to our teachers." *(FGD₂ & ₄)*

Moreover, digital content specialists opined that e-book and on-net audio or video with sub-title are the most applicable for practicing reading skill of English language. A statement regarding this is mentioned below-

"Now a days, digital content is available in the online platform so if teacher wish to practice reading skill of English, they can use any types of on-net audio video or any sorts of eBook e.g. English novel, drama etc. for the practice of reading skill. It will be most helpful for the students because they will practice reading skills and they will perceive the pronunciation of the British accent and the American accent at the same time and it will clarify their pronunciation without any mistakes." *(DCSI₁)*

In addition to, digital content specialists also have suggested that in the practicing of reading skill power-point slide and pictures are generally used by the teachers in English classroom. But it is pressing to contextualize the content and to properly manage the class for the healthier result. **(DCSI₂)**

From the classroom observation it has found by the researcher that mainly power-point slide is used by the teachers for the practicing of English reading skill. Then, are used as the second type of DC by some of the colleges.

En bloc, it can be outcome that only above three types of DC such as e-book, pictures and power point slide are used by the teachers in the practicing of English reading skill as types of DC in most of the colleges.

4.3. 8 Types of the used Digital content in Practicing of English Writing skill

Types of the DC used in the practicing of writing skill in the English classroom are presented here under the subsequent parts.

The underneath table consists of teachers', students and digital content specialist's responses about types of the used DC in the practicing of writing skill.

Table-4.10: Respondents' responses about types of the used DC in practicing of writing skill

(Multiple answer was accepted from the respondents)

Responses	Frequency of Responses		
	Response from Teachers' Interview	Response from Students' FGD	Response from Digital Content Specialist Interview
Power-point slide	4	2	2
Content related Picture	3	1	3
Video Clip	2	1	2
E-book/ E-text	2	1	2

Data in the table elucidates that power point slide is the highest used DC for the practicing of English writing skill simultaneously opined by the all respondents. Furthermore, pictures are

77

the second used DC for the practicing of English writing skill. After then video clips and e-book or e-text are concurrently used for practicing of English writing skill. Teachers expressed strongly their opinion regarding this in the times of interview-

"To make correct writing, students should have some rules and grammar especially they should know it from the very core of their heart. I also encourage them in writing with me by showing rules and regulations to the PowerPoint slide and by this way they will practice writing skills from viewing the PPT slide or pictures and thus why they will improve their writing skill of English." *(TI$_6$)*

On the contrary, students discussed in a opposite manner that their teachers seldom use digital content in practicing English writing skill. They also added that their teachers practiced writing skill manually. A notable extract from the students FGD also discovered such truth-

"Our teachers rarely use digital content for practicing English writing skill rather they use either dialoguing or debating with our classmates. But when they use digital content, they mainly use PowerPoint slide or pictures to practice English writing skill." **(FGD$_3$)**

In this regard, the digital content specialists have orated that English teachers use power-point presentation in most of cases for practicing of English writing skill. They also added that sometimes teachers also use documentary or picture to show and then ask the students to write up the summary of that documentary or picture. One remark from the interview has mentioned here to understand the digital content specialists' view-

"English Teacher may use the documentary on the independence of Bangladesh or some relevant pictures regarding the independence of Bangladesh and then ask students to write the summarisation of the documentary or what's the pictures tells. By this way they can use these types of digital content for practicing English writing skill. Although the severity of using such kinds of DC are rare in the context of Bangladesh but some teachers of the urban areas' colleges may use such DC for practicing English writing skill." *(DCSI$_1$)*

Nonetheless documentary-based DC has not been found during the classroom observation by the researcher.

In addition to, the researcher has found similarities between the teachers' and the students' response regarding the types of DC using for practicing English writing skill from the classroom observation. But one noticeable thing has happened during the classroom observation that is teachers give writing task to the students using the power point presentation by showing some pictures and the students devotedly have done all the assigned task. These collaborating activities are seen in most of the college English classes by the researcher.

The common view of the analysing is that power-point slide, pictures, video clips and e-book or e-text are commonly used as types of DC for practicing of English writing skill identified by the digital content specialists, teachers and students.

4.4 Types of pedagogy do teachers use in presenting or making DC for effective teaching and learning English at grade XI-XII

This is another prominent research question which is analysed in this segment under several sub-segments in turn.

Types of pedagogy do teachers use in presenting or making DC for effective teaching and learning English at grade XI-XII are documented here from what teachers & content specialists say during the semi-structured interview and what students say during the FGD and what found during classroom observation in time of the data collection stage.

The congregated data from different tools is analysed mainly thematically and presented narratively. Besides the researchers used different tables, graphs and charts where necessary is felt. Total analysis is presented in the subsequent sections.

4.4.1 Status of taking preparation by teachers before using DC in English Class

In this part, status of taking preparation before conducting English class by using DC has analysed. The following table shows the situation of taking preparation before using DC in English classroom by Teachers.

Table-4.11: Situation of taking preparation before using DC in English classroom by Teacher's

Responses	Frequency of Responses
Yes	8
No	0

Data in the above table signifies that all of the (**8 out of 8**) English teachers take preparation before using DC in classroom. When teachers are asked about how they take preparation, most teachers promptly reply 'we do it, otherwise we can't use it properly.' **(TI₂, TI₄, & TI₈).**

Another teacher also has said that-

"Firstly, I prepare my content by myself then I make it clear & simple. And before presenting in the class I must go through it again and again so that my presentation can be flawless." **(TI₁)**

The other teacher stated that-

"As a part of the taking preparation, I checking my net connection, charge of my laptop, USB port, connection of electricity etc. Besides, I'm rechecking my PPT slide and go through on it before taking my class." **(TI₃)**

Similarly, one of the teachers mentioned that-

"Before the English class I am selecting the contents, sorting them, editing and updating them." **(TI₇)**

80

In a same vibe, other teachers added that-

"I am preparing PowerPoint slides according to the students' needs before the English class."

(TI₄)

In addition to, rest of one teacher described about his preparation before the class as follows:

"Usually I take preparation before taking my class at my room. I try to keep strongly in mind what I am going to teach the students. I take extra knowledge from the text and outside of the text by using various digital content like on net audio video. I give them so many examples related to nature and life. So that I am taking help from the digital content. I always give the students so many practical examples to give them extra idea about the content" *(TI₂)*

In this regards, digital content specialist opined that pre-planning and taking preparation is one of the pre-requisites for the DC based class. So, there is a general tendency amongst the English teacher to take preparation before taking class. In the interview session, one of the digital content specialists remarked that-

"If a teacher wishes to conduct an English class by using digital content, he or she must be pre planning before using it because first of all he or she have to make the PowerPoint or match the digital content with the topic." **(DCSI₃)**

Students also expressed the same opinion in the times of FGD. Students mentioned that their teachers take preparation before taking class if they use any sorts of DC in the English class. In supporting of their statement students exemplified examples like teachers bear projector in the classroom before taking the class.

During the classroom observation, the researcher has found that most of the college teachers are busy to revise their DC before using it in the classroom. They also prepare their devices for using DC smoothly before the class. On the contrary, teachers who are not using laptop or power-point presentation in the observed class, they instantly used their mobile phone to show

content related pictures, e-text and sometimes related audio or video from their save items. All of these proved that teachers are taking preparation before their English class while using DC.

Therefore, it can be said that all of the **(8 out of 8)** teachers take preparation before using DC in English class.

4.4.2 Status of following principles by Teacher's for DC in English class

The usage of DC in English teaching-learning process is needed some principles to follow. The teacher's response regarding this is presented in the below.

Table-4.12: Teachers response about following principles in using of DC in English

Responses	Frequency of Responses
Yes	5
No	3

The table exhibits that 5 out of 8 teachers follow principles for using DC in English class. The teachers who follow principle in using of DC mentioned that-

> "We basically follow the principles of teaching aids in using DC, and we prepare DC according to students' age, level and contextualize it with our context. Besides, we go from simple to complex gradually in the digital content-based class." *(TI$_1$, TI$_3$, TI$_{4 \&}$ TI$_7$).*

On the contrary, 3 out of 8 teachers don't follow any principles in using DC. When teachers are inquired of why they do not follow any principle they argue against the point and their response is utterly shocking- *"We need not follow any principle because situation will fix what principle we should follow during the using of digital content."* (**TI$_{4 \&}$ TI$_5$**).

In this context, content specialists have opined that in using DC, teachers should follow some principle though it may vary according to teachers, grade and content. An account of Content specialist$_{1,}$ -

"Digital content should be relevant with textbook content. Teachers should select the content in accordance with students' age, maturity, level of perception etc. The used DC need to be contextualized. It should be simple to complex." **(DCSI₁)**

In agreement with content specialist₁, content specialist₂ anticipates that-

"Teachers should follow e-pedagogy in digital content presentation, in designing students' activity through it and in assessment by using DC." **(DCSI₂)**

After all, it can be said that most of the teachers **(5 out of 8)** follow principles in using DC for English teaching-learning process.

In the underneath segments the principles followed by the teachers in using DC for English subject are specified. According to the respondent's data, the principles of using DC in English subject are categorized in the following items-
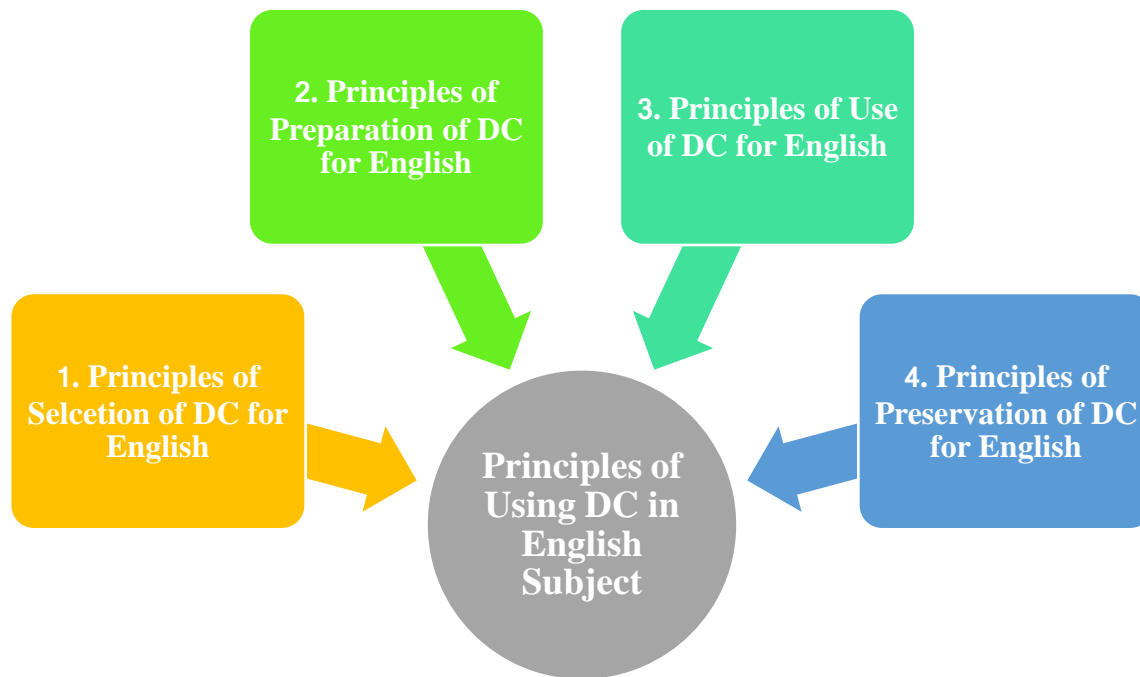
Fg.4.2: Principles of Using DC in English Subject **(Source: Author, 2022)**

This section is dealt with the principles that English teachers followed or adopted for using DC in the classroom teaching-learning process. The table portrayed about the principles of the selection of DC for English class which are found in times of collecting data from the teachers interview and digital content specialist interview.

Table-4.13: Respondents' responses about the principles of the selection of DC for English class

(Multiple answer was accepted from the respondents)

Responses	Frequency of Responses	
	Response from Teachers' Interview	Response from Digital Content Specialist Interview
Follow the objective and learning outcome	5	3
Relevancy with content/topic	5	3
Consider grade level	5	3
Consider age level	5	3
Accessibility to DC	5	2
Availability of DC for English	4	3
Familiar to the students	2	2
Convenient for teachers and students	2	3

Data in the table signifies that teachers as well as digital content specialists have pointed out eight specific principles of selecting DC for conducting English class at grade XI-XII. First of

all, teachers usually follow the objective and learning outcome of the content to determine which DC will fit for achieving learning outcome. At the same time, they consider the grade and age level of the students to use DC and the relevancy of the DC with the specific topic of the English textbook. These are the common principles followed by the English teacher while conducting their class by using DC. Teachers talked about these principles during the semi-structured interview schedule with the researcher. An assistant professor of a renowned college of Dhaka cited that-

> *"This is a common thing to select any kinds of materials for any subject that we should go through the learning outcomes which we determine to achieve at the end of the chapter. There is no exception to select digital content for teaching learning English subject. After that we also consider the students age and which grade, they belong to."* **TI₂**

In a similar tone teacher₅ posited in the interview that-

> *"If we select the digital content without matching with subject knowledge and students' grade then it will mismatch with the requirement of the topic and student's maturity. So, it is very obvious to all of us that if we select any DC it should be match with the topic of the subject and also match with the students age and grade. Otherwise the usage of DC will go in vein."* **TI₅**

Along with teacher's opinion, digital content specialists opined that-

> *"As English is a skilled based subject, so there is a clear need to use specific digital materials to facilitate the learning. DC is such materials which broadly use for practising English language skills. The matter is that when a teacher is going to choose or select a DC s/he should some considerations that also known as criteria or principles of selecting DC. For selecting any DC, one has to consider the grade and age of the target group and then consider the relevancy of the DC with the topic of the subject as well as predetermined outcome of the content intended for. These are the fundamental principle of selecting DC for any subject including English subject as per my perception."* **(DCSI₁)**

Apart from these principles, accessibility to DC and availability of DC for English subject are also important principles of selecting DC for English subject are identified both teachers and digital content specialists. Quotation from teacher interview justified the above principles-

> "Sometime many types of the digital content will be applicable for specific topic of English subject but due to limited or no access to this content we are unable to use such DC in our class. In these cases, I am surfing via internet to get access in that

particular sites to download the DC for my students. Sometimes I use those DC which are available in my surroundings and I easily use them." ***TI₈***

In this context, digital content specialist's opinion is as follows-

"It is our normal tendency that we usually use those types of pictures, audio, video etc which are available in the internet. This also set as a principle of selecting DC for English subject in practicing language skills. Teacher generally practiced audio clip of IELTS which are available in the internet and wherein no bindings for free accessing." **(DCSI₃)**

On the other hand, familiar to the students and convenient for teachers and students are two important principles of selecting DC for English have opined by both teachers and digital content specialists. Teacher₁ from the Chandpur district specified in this regard-

"Sometimes we use those digital content which are accounted with the students and they are easily except those as a digital content so that they easily interact with them in the classroom situation. Besides, we can also choose those digital content for the English which are also convenient to use from our side and also from our student sides." **TI₁**

Digital content specialists correspondingly discoursed in a same vibe that-

"The learning environment will be effective when the interaction between teachers and students and the digital content aids will be cooperative. If the selected digital content will be known to the students then it will be easy for them to interact with it and except it warmly. So, teachers always try to choose those DC which are familiar to students." **(DCSI₂)**

Almost every principle of selecting DC for English class have found during the classroom observation by the researcher. For example, researcher has observed that teachers used pictures of the Nelson Mandala when he taught the lesson 'Apartheid', and also used the voice recording of the Nelson Mandala from downloading from the YouTube. Other teachers also used picture of the Madhusudan Dutta when they taught the lesson 'Return of the Native'. This is the proof of the selecting DC in line with the relevancy of the content, intended outcome of the lesson, and matching DC with the students' grade and age level.

Thus, it can be said that English teachers used mainly eight principles including following the objective and learning outcome, relevancy with content/topic, consider grade and age level,

accessibility to DC, availability of DC for English, familiar to the students, convenient for teachers and students; when they select DC for teaching-learning process of English for grade XI-XII.

This portion is about the principles of the preparation of DC for English class for grade XI-XII. The underneath table comprise of the accumulated responses of the teachers and the digital content specialists.

Table-4.14: Respondents' responses about the principles of the preparation of DC for English class

(Multiple answer was accepted from the respondents)

Responses	Frequency of Responses	
	Response from Teachers' Interview	Response from Digital Content Specialist Interview
Adopted DC from online	5	2
Carefully visualize the DC	5	2
Adjusting DC with the context of English subject and country	5	3
Prepared DC as if grow students thinking and curiosity	5	3
Prepare DC as if students understand easily	4	3

Data in the table implies that teachers and digital content specialists have opined in a similar tone that for preparing DC for the English subject have to follow five principles which are: adopted DC from online, carefully visualize the DC, adjusting DC with the context of English

subject and country, prepared DC as if grow students thinking and curiosity, prepare DC as if students understand easily. It is clear from the table that 5 out of 8 teachers agreed in the same line that first four principles are the significantly followed by them whether last one principle is identified by four teachers. Among the 3 digital content specialists 3 are opined in a same line about the last three principles and first two principles are identified by two digital content specialists.

Mr. Ashoke, an assistant teacher of a college mentioned that-

"I collecting different authentic text like the Daily star, Washington Post, New York Times, BBC News for practicing improving students' English reading skill. Besides, I also use NCTB prescribed soft copy of the EFT books for supporting in the classroom." **TI4**

The quotation implied that teacher used DC by matching with the subject and context of the Bangladesh which also adopted from the online. In this connection, one of the digital content specialists speculated that-

"There is a much more Digital content in the online or virtual world. When teachers would like to choose amongst these, they should consider the context of the digital content and also measured the students' needs and their age level. When teachers prepare DC for the students, they should prepare DC as a manner so that every student easily understand the DC, easily see the DC and grows their thinking and curiosity." **DCSI1**

When researcher discussed with the students in FGD session, they give also similar information. One of the quotations from students FGD are presented here to understand the student's perspective-

"Our teachers when used DC we easily understand the topic and sometimes DC spread curiosity and extra thinking about the topic. Once our teacher showed the video recording of the Bangabandhu regarding the independence announcement of our liberation which helps us to think beyond the class and spread out zeal to all of our friend." **FGD2**

During the classroom observation it is noticed by the researcher that teachers prepared DC according to the context of the country and subject. They prepared DC in manner so that students will easily visualize it from the last branch and they are able to easily understand. For instance, teacher showed the pictures of some adulterer food like crispy food at grade XI classes. As an

observer I sat in the last branch and clearly saw the pictures. That means students also clearly saw the pictures which help to understand the topic from the context of the Bangladesh.

To the sum, it can be said that mainly five principles of the preparation of DC for English subject of grade XI-XII are followed or adopted by the English teachers.

4.4.2.3 Principles of the Use of DC for English Class

This segment is dealt about the principles of the use of DC for English class, data collected from the teachers and digital content specialists. The below table tabulated the responses and the frequency of responses of the teachers and digital content specialists regarding the principles of using DC in the English classroom.

Table-4.15: Respondents' responses about the principles of the use of DC for English class

(Multiple answer was accepted from the respondents)

Responses	Frequency of Responses	
	Response from Teachers' Interview	Response from Digital Content Specialist Interview
Take preparation before using DC	8	3
Manage time properly	4	3
Display/show DC accurately	4	3
Go simple to complex	5	3
Go concrete to abstract	3	2
Derive the maximum benefit in learning	3	2
Guide students to respond actively to DC	4	3

The above data illuminates with seven principles of using DC in English class recognized by the teachers and digital content specialists. It is clearly shown in the table that all the teachers and digital content specialist recognized that taking preparation before using DC is the first followed principle of using DC in English class. Besides, all of the digital content specialists acknowledged that manage time properly, display/show DC accurately, go simple to complex, and guide students to respond actively to DC are another prevalent principle of using DC for English class. Rest of the two principles like concrete to abstract and derive the maximum benefit in learning are indicated by 2 out of 3 digital content specialists. Whether 4 out of 8 teachers identified that manage time properly, display/show DC accurately and guide students to respond actively to DC as principles of using DC in classroom. Others principles e.g. go simple to complex and concrete to abstract, and, derive the maximum benefit in learning are indicated by five teachers and three teachers respectively.

Semi-structured interview with the teachers revealed that-

"When we use digital content in the classroom some mandatory things, we keep in our mind. First of all, we taking preparations before using DC in the classroom and when we use it, we ought to try to manage the allocated class time properly." **TI$_6$**

Another teacher also added in this respect-

"In the times of using digital content in English classes I will try to guide the students to respond effectively to the audio and visual stimuli so that they can easily interact within the classroom." **TI$_8$**

On the other hand, Mr. Bhynian said in the semi-structured interview that-

"We tried to go simple to complex when we use digital content for practicing English language skills. For example, we use the pictures of some relevant topic so that they can understand and assume about the topic before reading the text. When we showing the pictures, they easily grasp the topic and by this way we also nursing the principles of going concrete to abstract knowledge." **TI$_3$**

Almost in a similar tone, digital content specialists mentioned that-

"Some principles should follow by teachers when they use digital content in English classroom. Firstly, they take preparation before presenting and manage the class properly as if all of the students get benefited and in the time of showing digital content, teacher should show DC in such a manner so that every student can see DC very clearly and interact in the classroom to achieve the maximum benefit of learning." **(DCSI$_2$)**

In this connection, another digital content specialist added that-

"In the English classroom students sometimes may mislead from the track so in this case's teacher should guide to the audience to respond actively to the DC. Teacher can interact with the students by using various stimulated DC like audio or video clips and thus way they should describe the topic from simple to Complex and give the clear idea about concrete to abstract knowledge." **(DCSI₃)**

During the FGD with student's similar discussion have found. One of the remarkable quotations from the FGD is mentioned below-

"Our teachers make power point slide before taking class. They give lecture by showing different content related pictures to us and then give the abstract about the topic." **(FGD₄)**

Researchers also have found the similar findings during the classroom observation. Teachers are well prepared in the digital content-based class. They follow the principles of going simple to complex and concrete to abstract by introducing the various pictures, audio and videos. Teachers tried to make students concentrated and focused on the DC and make sure that students are clearly see and understand the used DC in the English classroom.

In a nutshell, it can be assumed that teachers are fundamentally follow seven principles when they use DC in the English classroom teaching-learning process of grade XI-XII.

4.4.2.4 Principles of Preservation of DC for English Class

Some essentials principles are followed by the teachers in the times of preserving the DC for English subject at grade XI-XII. The below table has showed the responses and frequency of the responses provided by the teachers and digital content specialists throughout the semi-structured interview.

Table-4.16: Respondents' responses about the principles of the preservation of DC for English class

(Multiple answer was accepted from the respondents)

Responses	Frequency of Responses	
	Response from Teachers' Interview	Response from Digital Content Specialist Interview
Think DC as an asset	5	2
Reuse and re-process the DC	5	3
Preserve DC sustainably	4	3
Less consume the space	4	3
Less consume the time	4	2
Saving the cost	3	2
Preserve DC in the virtual space or device memory	5	3

The data in the table demonstrate that after all seven principles e.g. think DC as an asset, reuse and re-process, preserve sustainably, less consume the space and time, saving the cost and preserve DC in the virtual space or device memory are followed by the teachers during preserving DC. 5 out of 8 teachers have pointed out that think DC as an asset, reuse and re-process, and, preserve DC in the virtual space or device memory are concurrently followed principles for preserving DC for English subject. Teacher opinion from the semi-structured interview schedule exposed that-

"I feel urgent need in preserving the digital content. I think it is my asset and I think it is the asset for the next generations. I hope it may show right path for every one of us and also I hope that it would be a guideline for us." **TI$_2$**

Another teacher also added in this context that-

"If we make a PowerPoint slide for specific or particular content of English subject, we can frequently use it for one class after one and we can use same PowerPoint slide for the next level of education also." **TI$_6$**

The other teacher further added that-

"In the maximum time I preserve my DC in the google space, sometimes in my device memory like pen drive, computer drive and I also preserve my important DC in my e-mail and google drive." **TI₁**

Respectively two and three digital content specialists opined similarly regarding these three principles of preservation. One of them remarks is as follows:

"Obviously DC is an asset for education. If a teacher once makes a DC it will reuse for further use. Sometimes teacher repeatedly use DC by re-processing e.g. slightly editing or modifying. Further, they can preserve in the virtual space e.g. google drive for recapitalizing in the future." **(DCSI₃)**

In addition to, preserve DC sustainably, less consume the space and time, and, saving the cost are other remarkable principles of preserving DC respectively said by 4 out of 8 teachers and 3 out of 8 teachers. In this regards a remark from the teachers' interview schedule is mentioned below-

"As Digital content is found in soft copy so it should be preserved in such a way so that it can be used sustainable and it is easy to preserve by saving time, space and cost." **TI₆**

Digital content specialist interview also revealed same kind of principles-

"It is easy to preserve digital content in the virtual platform for example we can preserve it in our Google Drive, e-mail and also in our device memory like c-drive or pen drive and something like that. It takes less space and time to preserve. Preserving any sorts of digital content are saving of cost than traditional content." **(DCSI₂)**

In the times of FGD session, students also consented the same principles of preserving DC for English subject. An extract from students FGD exposed that-

"We can easily preserve our digital content materials in our Gmail and google drive in the virtual space. We can also reuse it when we need. DC can also preserve in our mobile or desktop device. There is a less consumption of space and time for preserving it." **(FGD₂)**

During the classroom observation similar scenario also found by the researcher. Researcher observed that teachers use DC from their device e.g. laptop or smart mobile and they open the DC from their Gmail or device memory for showing to students. After the class teachers preserve the DC in their device memory and supply to the class captain to share all of the students by using pen drive.

In the light of the above analysis it can be postulated that majorly seven core principles of preserving DC for English subject have been followed by the English teacher while using DC in the teaching-learning process of English.

4.4.3 Model adopted or followed for teaching learning process of English while using DC

The model adopted or followed for teaching-learning process of English while using DC is documented here according to teachers and content specialists' view. The beneath table tabulated the responses and frequency of responses of the teachers and digital content specialists regarding the model used for teaching-learning process of English which are aggregated from the collected data from the semi-structured interview.

Table-4.17: Respondents' responses about the model adopted or followed for teaching learning process of English while using DC

(Multiple answer was accepted from the respondents)

Responses	Frequency of Responses	
	Response from Teachers' Interview	Response from Digital Content Specialist Interview
TPACK Model	6	3
Bottom-Up Model	2	0
Inventory Model	2	1

In the table above, it is visibly highlighted that all of the digital content specialists and 6 out of 8 teachers delineate that use of the Technological Pedagogical Content Knowledge (TPACK) model for using digital content in the teaching-learning process of English is highly appropriate and helpful. This is why, teachers usually follow TPACK model in their English class when use DC. One of the teachers expressed his point of view by stated-

"The usage of digital content in teaching learning process has bring multiple opportunities for the teachers and learners. To adopt and use any kinds of DC in teaching-learning process needs to follow particular model as teaching aids follow some model when used in teaching-learning process. Appropriate usage of the DC largely depends on following a model. TPACK model is such a model which guide to properly used digital content in accordance with matching the knowledge of content, technology and pedagogy. I always tried my best to follow TPACK model whenever I use DC in the English classroom for grade XI-XII." *TI₆*

In this regard digital content specialists opined that-

"TPACK model leads how to use particular digital content with the particular content by adopting particular pedagogy and technology appropriately. TPACK model is the best suite for the English subject when using DC. Because, for practicing English language skills teachers can use variety of DC e.g. pictures, audio, videos, websites links etc. wherein teacher needs followed the knowledge of technology which technology be suited for context of the class, subject, similarly the knowledge of the content as well as pedagogy which be suited for specific DC. Thus, TPACK model is important to be followed by the teachers when they eager to conduct their class using DC to get the better output and conduct the class according to education science."

(DCSI₁)

On the other hand, 2 out of 8 teachers described that they sometimes follow 'Bottom-Up model' in using DC for English subject at grade XI-XII. The rationale behind using this model is presented below-

"Bottom-Up model is used to teach from part to whole. This is an easy model to follow when we use DC in the English class. Firstly, we select a DC such as a picture to make student understand about a particular meaning of the word. Then we give the elaborated idea about the word. In this cases Bottom-Up model helps us a lot. So, I usually use Bottom-Up model in my English class." **TI₅**

During the classroom observation same insights are found by the researcher that some of the teacher follow Bottom-Up model and most of the teacher follow TPACK model for using DC in grade XI-XII for teaching and learning English. Although there is a confusion regarding the perfect use of these model.

In reverse, digital content specialists have not suggested about the Bottom-Up model to follow in the English subject while using DC. Instead of Bottom-Up model, digital content specialists mentioned that teacher may follow 'Inventory model' for the teaching-learning process

of English. English teachers also acknowledge that they follow Inventory model sometimes. Supporting of this model, teacher noteworthily mentioned that-

> *"I usually use inventory model which is the result of my thinking and my psychology and tried to make a specific hint by which students can share me, getting joy and try to memorize them (what I say). As for example: the lesson ''Under the Banyan Tree' students take photo not only they see it but try to imagine what happens, what kind of idea they get from here (it), what and how they apply it in their practical life. Is there anything merely or observation or something extra idea by which they can go beyond material use of the tree but heavenly note. They should get inner meaning and try to understand the reality of life and try to share the idea with others in order to make them alert about life"* **TI$_2$**

With the supporting to the teacher$_2$ one of the digital content specialists asserted that-

> **"***No universal model instead I suggest customised need-based teaching learning model.***"** **(DCSI$_2$)**

During the classroom observation the researcher also faced the similar experienced that a teacher was not prepared about what he uses as type of DC in his class. Interestingly, he started his class lecture on the topic of 'E-mail' and he used mobile for showing how he sent a mail to others. By adopting this inventory model, the teachers continued the class instantly and the students also enjoy the class.

After all, it can also be generalized that TPACK model is the uppermost followed or adopted model for teaching-learning process of English while using DC. After then Bottom-Up model has followed and then Inventory model has followed by the teachers in English subject during using DC at grade XI-XII.

4.4.4 Method used for teaching learning process of English while using DC

In this section, the researcher is presented the analysed data about method used for teaching learning process of English while using DC under several segments. Table in the below presented the responses and frequency of responses of the teachers and digital content specialists regarding the method used for teaching-learning process of English which are accumulated from the composed data from the semi-structured interview.

Table-4.18: Respondents' responses about the method used for teaching learning process of English while using DC

(Multiple answer was accepted from the respondents)

Responses	Frequency of Responses	
	Response from Teachers' Interview	Response from Digital Content Specialist Interview
Lecture Method	5	2
Audio-Visual Method	5	3
Communicative Language Teaching (CLT) Method	4	3
Participatory Method	4	3
Eclecticism Method	4	2

Data in the table confirms that lecture method and audio-visual method are the widely used method for English subject while using DC. 5 out of 8 teachers and 2 out of 3 digital content specialists and 3 out of 3 digital content specialists have respectively opined in favor of these methods. Teachers view regarding these methods is mentioned below-

"Lecture method is the basis of all method, I think. Because when we want to specify about the particular topic it is important to deliver our lectures by adopting lecture method. For example, when we use any sorts of digital content e.g. pictures of Nelson Mandala to describe about him. Firstly, we need to deliver lecture on the picture. That means we naturally use lecture method in times of saying about the pictures of Nelson Mandala. We could not but use lecture method whenever use DC for teaching-learning process of English. So, I like the lecture method to use in my digital content based English language class." **(TI₈)**

Another teacher discoursed in this context that-

"When I use digital content in practicing English language skills, I usually use audio and visual instruments like I use content related images, photos, pictures and something like that and sometimes I also use some content related audio clips, video clips, and streaming audio and video from the you-tube for practicing students listening and speaking skills. In these cases, we have to use audio-visual method to incorporate all of the digital content in English classes. Hence, I prefer audio-visual method to use in my English classes." *(TI₂)*

In this connection, one of the digital content specialists opined that-

"To clarify idea about a specific topic teacher can use audio-visual method with the lecture *method. With the help of audio-visual method, teacher may include topic related images, pictures, audio, video and whatnot to make the class enjoyable and memorable. For practicing English language skills these methods are useful."*
(DCSI₃)

On the other hand, 4 out of 8 teachers have opined that Communicative Language Teaching (CLT) method, Participatory method and Eclecticism method are used in teaching learning process of English whereas using DC. Whether 3 out of 3 digital content specialists and 2 out of 3 digital content specialists have respectively opined in favour of these method. A remark from the teacher interview presented here to understand the teachers' perspective-

"As communicative language teaching method is one of the established methods for teaching and learning English so I easily used this method for practicing English language skills while using digital content." **(TI₁)**

Teacher₇ said in favour eclecticism method as follows:

"Eclecticism method is the blending and combination of all good sides of all methods so I use eclecticism method for practicing English language skills while using digital content in my classes. Eclecticism method allows me to use audio, video, pictures and any types of digital content with using any suitable method for the students. So, I usually use this method." **(TI₇)**

On the other hand, teacher₃ stated in favour of participatory method-

"Participatory methods for English teaching and learning promotes the learner's engagement in the classroom and activities of the learners. So, I do adopt

participatory method for practicing English language skills. I incorporate dialogue between one student to others and debating between one group with other group, and also pair or group work as types of participatory approach in my English classes for student's active participation. Hereafter I typically use participatory method for my English class." **(TI₃)**

In this connection digital content specialists opined that-

"CLT method is well-established method for English language. It also works well for the DC based English class. In the same time, participatory method also useful for English class while using DC. Various types of DC help teachers to participate students in various activities like debate, dialogue or group work etc. But now a days, eclecticism method is gradually being popular among English teachers as it is the combination of good sides of various method." **(DCSI₃)**

In a nutshell, it can be said that lecture method and audio-visual method are vastly used method for English subject while using DC. Some of the teachers use Communicative Language Teaching (CLT) method, eclecticism method and participatory method simultaneously for DC based English teaching-learning process.

4.5 Advantages do teachers and students get from using DC in teaching and learning English at grade XI-XII

In this segment, this prominent research question is analysed under several sub-segments in turn by using thematic analysis process. Here, the advantages of DC are analysed into some themes by compiling the responses of the all respondents.

The use of digital content in the classroom is unavoidable to ensure the quality of education. In keeping with the developed countries in the age of globalization, Bangladesh has also integrated digital content in the classroom in the field of education. It has been integrated in the classroom with the teaching-learning method instead of the traditional teaching-learning method. Technology, like other learning components, has begun to be used as a learning tool in classroom activities, helping to meet the needs of teachers and students. Government has adjusted for the multimedia projectors, laptops, internet modems and speakers in the classrooms, which is for enhancing facilities for digital content-based class. The advantages of using DC in English classroom are discussed in the following sections by categorizing themes into major to minor themes. The overall thematical analysis framework of the advantages of using DC in English subject are presented graphically in the below-
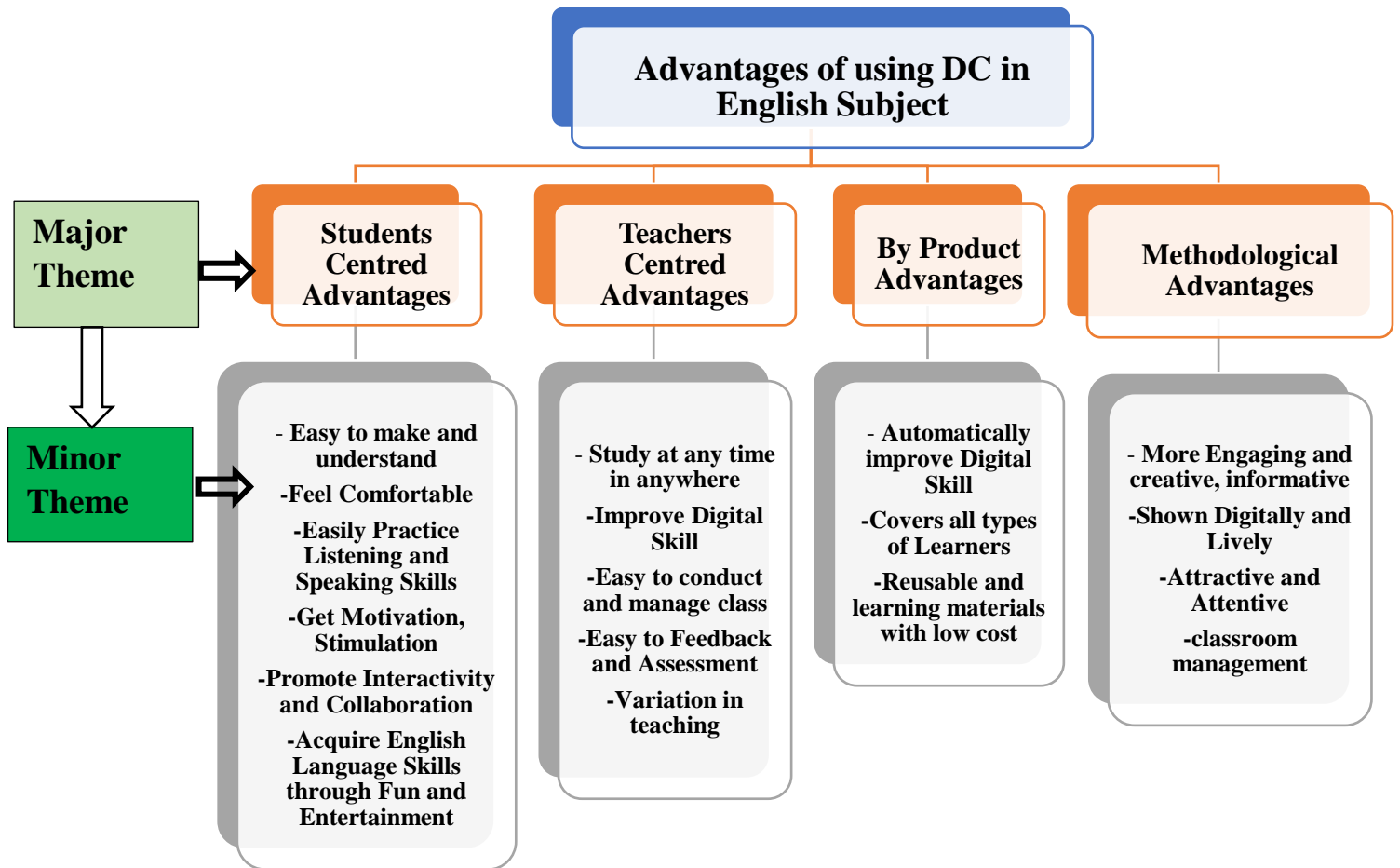
Fg-4. 3: Thematic analytical framework of the Advantages of using DC in English **(Source: Author, 2022)**

4.5.1 Major Theme-1: Students Centred Advantages

Active participation of students in the teaching-learning process is helpful in learning. In a student-centred manner, the student learns the class topic on his own interest. Students have a direct relationship with the learning material. The teacher develops a direct relationship with the content.

In the semi-structured interview, teachers have been asked about the advantages of using DC in teaching and learning English at grade XI-XII. One of the teachers stated,

"As digital content includes videos and other multimedia content and links; is related to website so it makes learning experience more productive and more engaging. Learner become more creative than before." TI₁

If the teacher s demonstrates digital content in the classroom, the learners' thinking power can be activated and students tries to assimilate every subject instantly. In this regard, other teachers opined that-

"Lessons are prepared considering student learning style. Students can relate lesson content with his previous knowledge, realizes the depth of knowledge, asks open questions to the teacher, and takes best output from teacher. Entering a digital learning-based environment, the meritorious and thoughtful student can easily express their creativity." TI₃

Similar information was obtained from digital content specialists. One of them stated,

"The aim was to make the class activities enjoyable by making the 'difficult, obscure and abstract subjects' easy for the teachers to present class content through pictures, animations and video clips." DCSI₃

4.5.1.1 Minor theme: Easy to make and understand

As a result of digital content, the teaching method has improved and become more enjoyable. On the other hand, various information and data of education can be easily obtained by the students sitting in the classroom and this has been possible mainly due to the use of digital content.

"There are many poems in English books. The teacher plays the audio version of poems. As a result, we learned with great pleasure and could easily understand the meaning. I think, there is no substitute for digital content in the classroom for better understanding." *FGD₁*

One teacher agreed on this in his interview and he added,

4.5.1.2 Minor Theme: Feel Comfortable

Anyone can download digital learning content for free or use it on any mobile phone for self-learning or using it in the classroom. In this way the students, with the help of the teacher, assimilate the real idea of the subject matter through the process of deep thinking. The student constructively connects the current content with his previous ideas according to the constructivist theory and actively provides right answers and is quick to argue in favour of his given answers. Students in English class will feel comfortable learning their subject with the help of DC.

A teacher has told researcher about his experience. He stated-

"When I use digital content in class, students can easily understand. Their classes are enjoyable and the students in the class are more engaged. Since it saves us a lot of time, students feel comfortable." **TI₄**

A digital content specialist agrees and said,

"Students can bring their class materials on a pen drive. The class is colourful because of using the images. Also, the use of multimedia projectors and sound boxes enables the students to absorb all these contents in the classroom. This makes the students less annoyed and feel comfortable." **DCSI₂**

In a similar fashion, students opined in the FGD as follows:

"Online classes are also rapidly gaining popularity through gamification. In this way students can learn many important things by playing tricks. There is no limit in the digital world. There is always a cycle of new thinking, innovation and editing going on. Changes can be made at any time if necessary." **FGD₄**

Due to lack of practice and being a foreign language, the fear of English does not seem to be cutting from the minds of the students. It is difficult for an English teacher to conduct classes in traditional manner. The main purpose of teaching is to make the content of the lesson understandable to most of the students. But not every student in the classroom is equal. So, if the lesson for conducting the class in English fails to fully understand or partially understand, then that lesson will be of no use.

In a focus group discussion, one of the respondents said -

"If the teacher had given us the video materials of the class, we would have been able to improve our listening skills by looking at it. For example, when we read biography of a scholar, if our teacher provides us video content; we can learn about the biography of the scholar, at the same time our English listening and speaking skills will increase. Showing audio through graphics and sound boxes enhances listening skills." **FGD₂**

Regarding the statement a digital content specialist agrees and suggested,

"Other means of learning English speaking such as reading English newspapers, hearing sports commentary, etc. should be encouraged by the teacher at classroom. More importantly, it creates an environment in which students can practice listening in their classrooms." **DCSI₂**

4.5.1.4 Minor Theme: Get Motivation and Stimulation

Interest or focus on course content is very important. Motivation creates enthusiasm in a person. This endeavour is an inherent feature. Appropriate motivation motivates students to learn. Motivation motivates in any task, which is why a person can solve many complex problems without the help of others. Motivation helps the student to perform various tasks while maintaining their desire to learn and builds personality so that they can establish themselves as a good citizen. Interest grows by creating motivation in students and motivation is an output of using DC.

This was stated by a digital content specialist,

"Despite the fact that technology is frequently viewed as a barrier to interpersonal relationships, skilled teachers understand how to use technology to foster peer collaboration, learning motivation, and creative thinking, while also allowing students to demonstrate independence and develop strong knowledge about a particular subject." DCSI₁

4.5.1.5 Minor Theme: Promote Interactivity and Collaboration

One of the most important responsibilities of a teacher in the classroom is to develop interactive class by achieving the learning outcomes according to the content. Teacher should promote interactivity and make collaboration with the student. It can be done easily and in less time by applying proper methods and techniques. After students have viewed a video or another type of digital content, they should be encouraged to interact and cooperate to create new meanings from that information. Students can participate in a backchannel dialogue about their learning by utilizing technology tools to pose fresh questions and suggestions.

Respondent from semi-structured interview described,

"Use digital content in English subject to assist students in collaborative groups in comparing and contrasting new concepts, while students can develop authentic products to demonstrate their understanding. Students must develop into producers of fresh digital material rather than merely consumers of knowledge." TI₅

Similar information was obtained from the digital content specialists. One of them stated,

"Today's students do not want to read conventional note sheets etc. Students are given PowerPoint slides in class. PDF documents are also provided as course materials. Students can easily read these using their smart phones. This makes teaching in the classroom more interactive than before. Also, those who do not have a smartphone, get help from their friends. As a result, friendly relations were formed with each other. The teacher coordinates this work, so that there is collaboration with the teacher." DCSI₄

Teacher can explain the content through visual aid pictures, charts, designs, etc. in the case of education or training. There is an ancient Chinese proverb that says, "It is better to see once than to hear a thousand times." Visual Aid is a 'world language' that everyone can understand. If the student sees a visual scene related to the content, he can learn it quickly and remember it for a long time. The main purpose of using Visual Aid is to help the student to know and understand the content by showing something.

A teacher describes his teaching techniques,

"When we teach listening skill to learners, we show an English movie on the projector. Students enjoy watching movies at the same time and learn important words with proper pronunciation." **TI_2**

A digital content specialist agrees and makes a statement in this regard,

"The use of digital content plays an important role in enhancing the English language skills of the students. Here fun and entertainment are used as two important mediums. This medium helps in enhancing the thematic skills of the students. It serves as an important medium for enhancing English language skills where useful content is arranged for the use of students. Various types of digital content such as English books, various magazines, English journals, online games which enhance students' English skills and create entertainment." **$DCSI_1$**

4.5.2 Major Theme-2: Teachers Centred Advantages

Now a days. teachers gain more access to digital tools and resources, traditional instructional approaches for teaching are changing. Textbooks are no longer the major source of information, and students can use the devices in their pockets to fact-check their teachers.

Additionally, material must encompass more than simply digitized textbooks and documents. Students must interact with digital content and produce new ways to show what they have learned.

A teacher agrees and makes a statement in this regard,

"Classroom activities are being made enjoyable by using information technology in the educational activities of teachers and students. Various studies have shown that ICT activities are able to play a role in creating interest in reading in addition to learning standard pronunciation by combining information and communication technology to improve reading skills. This is benefiting our teachers in taking classes more than before." **TI$_6$**

Another teacher stated,

"Teachers can ensure the learning outcomes of the students by applying appropriate methods and techniques with less effort and in less time with prior preparation. The use of various online based documents makes the teacher's knowledge sharper." **TI$_5$**

4.5.2.1 Minor Theme: Study at any time in anywhere

The use of digital content is not limited to the classroom. It is possible to engage students in the learning process anytime, anywhere using digital content. For teaching English, any place can be selected anytime. In this case the obligation is comparatively less. Students may be able to participate in the learning process using digital content outside of college boundaries, open fields, under tree canopies, roofs, etc. Classroom rules and regulations and to help them achieve marginal qualifications. Teachers can teach anywhere and anytime. A teacher in the semi-structured interview stated that-

"I can resolve my confusion in anytime by surfing internet. Dc helps me to study at anywhere in anytime. I can check my lecture sheet in anywhere if I wish. I usually go through my lecture on the way of my college in the vehicle which I going to be delivered in the next class." **TI$_7$**

Delivering digital education is now easy. It is now possible to provide a new kind of experience in English education through the latest DC. There is no way to deny the radical change that is taking place in the traditional education system. This has been possible due to the availability of modern technology. The Internet has now opened up the world to teachers and students. Wherever it is, it is possible to get educational information from any source in the world. The digital content stored in the cloud, such as YouTube, etc., which can be viewed through one's own laptop or smartphone, is useful to the public.

This was stated by a digital content specialist,

'Teachers must accept their new role as facilitators of technology e.g. DC use in the English classroom. Students will use a variety of devices, including cell phones, computers, and iPads, regardless of their own preferences. Personally, I am a PC user. Several of you may be accessing our site from Macs or mobile devices. Nonetheless, we are all now required to deal with students using all of the above.' **DCSI₃**.

4.5.2.3 Minor Theme: Easy to conduct and manage class

In the traditional way, the teacher lectures in front of the students in the classroom. Students sitting in front ask questions if they do not understand any part of the teacher's discussion or description, the teacher answers accordingly or explains it by writing on the board. Digital or multimedia class system is not like that. For example, the teacher will create lectures (with pictures, examples) on various topics on the computer in PowerPoint and display them through the projector in the class.

A digital content specialist opined,

"There is another method, the teacher has already made a lecture on a chapter or subject easily, it will be uploaded online by video or sent to students mail. Students will get an idea of the subject matter by watching the video lecture one or more times. The advantage of this method is that the students of remote areas will get the opportunity to

listen to the discussions and this makes it easier for the teacher to conduct the class."

DCSI₁

4.5.2.4 Minor Theme: Easy to Feedback and Assessment

In the age of globalization, digital content should be integrated in the field of education to ensure the quality of education in Bangladesh in line with the developed countries. Using digital content as an educational tool like other learning materials in classroom activities, will help meet the needs of teachers-students.

A digital content specialist agrees and makes a statement in this regard,

"At present, teachers can evaluate students' examination books using modern technology if they want. Teachers can mail each of them separately to give feedback. As a result, the student knows very little, will not be ashamed." DCSI₂

4.5.2.5 Minor Theme: Variation in Teaching

A digital classroom is a type of technology-based classroom where teaching is conducted entirely using ICT features. It has many different forms such as flipped classrooms, blended learning and smart classrooms. However, each of these terms has its own characteristics.

A teacher described from his experience,

"We have been able to diversify our teaching when using digital content. For example, a flipped classroom is a learning system where students receive instruction online and apply their acquired knowledge directly to the classroom. In the case of blending learning, face-to-face learning as well as online instruction is coordinated. These online instructions are provided through various social media, online platforms and tools." TI₅

4.5.3 Major Theme-3: By Product Advantages

There are many more benefits to learning English through digital content. The use of digital learning content is vital to ensure that all students acquire quality marginal qualifications at every level, possessing developed thinking, imagination, and inquisitive thinking instead of memorization. Education is conducive to the stimulation of the student's thinking and creativity and the development of his lifelong knowledge through indigenous atmosphere and material involvement. In this process students automatically become accustomed to the digital medium and the needs of all types of learners are met. Using digital content takes less time; Similarly, students can collect content at low cost. Students will be creative, numerate, literate, well-trained and readily re-trained for any development.

A digital content specialist agrees and makes a statement in this regard,

"In the Caribbean region, the pedagogy of the classroom was once like that of a typical classroom. The table-chairs lined up for sitting, the subject teacher's lecturing speech with chalk in front of the blackboard, the hypnotized students' memorizing on the teacher's every word. Now that environment has changed, computer technology has been replaced in the classroom. Previously their classrooms used television, radio, VCR, overhead projector technology. Later computer technology was introduced. The advent of personal computers and the Internet has improved the quality of their teaching and learning." DCSI₃

4.5.3.1 Minor Theme: Automatically improve Digital Skill

The popularity of the recorded class has begun to grow. With the availability of high bandwidth internet at affordable prices, students have gradually started using educational video classes like Khan Academy. In our country also a number of other online classroom platforms like 'Ten Minute School', 'Repto', 'Teacher Window', 'E-Teaching', 'Study-Press' etc. have started activities. Students can take this lesson from their own position as per their time-opportunity.

One response from students FGD is quoted,

"Videos are uploaded to various YouTube channels using digital content. I can learn these things from YouTube as well as in the classroom. I can automatically improve digital skill by using the digital content and watching these interactive class." **FGD₂**

4.5.3.2 Minor Theme: Covers all types of Learners

Using Infographics, fact summaries, ppt, pdfs, research reports, annual publications, news, interests etc. in a classroom can motivate all types of learners.

A teacher commented about this issue,

"Teacher planned to teach his students about the 'Solar system'. For this he hung a large poster of the solar system in the class and described the orbits of the sun and its planets continuously. He wrote the important information on the board. The students saw an imaginary still image of the solar system and wrote down the necessary information. Every student of this class has easily understood this lecture." **TI₆**

4.5.3.3 Minor Theme: Reusable and learning materials with low cost

The materials that are used to make the teaching-learning work enjoyable, interesting and easy to understand, in a word, are especially helpful in the teaching-learning work, such materials are called teaching materials. Many digital learning materials can be easily and freely collected from the Internet. Some digital learning materials are also available on the market at low prices on CD or DVD. Moreover, teachers themselves can prepare digital learning materials as per their requirement. Digital learning materials are not easily wasted and can be saved year after year. Once a teacher has collected or prepared the digital learning materials, he can use it again and again, and share or exchange it with other teachers. Students are also interested in learning as digital learning materials are visually appealing and engaging. Multimedia projectors can be viewed, heard and understood by a large number of students in the English classroom.

Digital content specialist explained,

"Imagine being able to take the sample documents and articles you use throughout the school year and "drag and drop" them directly into any new or updated content. You can save your most popular material and import it directly into our authoring tool using content reuse." DCSI$_1$.

4.5.4 Major Theme-4: Methodological Advantages

Method is the prescribed way to do something, the process. It is not appropriate to perform any work without proper process. Using animated digital contents in multimedia for English classrooms can make the subject matter easier and make the teaching process participatory, enjoyable and student-centred. Teaching will be more attention-grabbing. To make the concepts of the English textbook more interesting and easier to understand, according to the context of Bangladesh, various types of pictures, charts, diagrams, audio, video and multimedia materials are being presented through animation. These digital learning contents are being prepared on the basis of direct participation and feedback of subject teachers, trainers, pedagogy specialists, education sector experts, child psychologists, colour, programming and animation experts from various colleges.

In this case, the method is the process of achieving the objectives of the lesson through the creation of content, teacher, student interaction. The process by which the teacher gives effective, efficient, effective teaching and achieves learning results is called method. The advantages which are getting from the method is generally called methodological advantages.

Respondent from semi-structured interview described,

"Our job is to make the subject matter easier and the learning-teaching process participatory, interesting and enjoyable by using the digital contents in the classroom. Transforming the classroom into a student-centred classroom by using the contents in the classroom. To draw more attention to the teaching and to clarify and apply the thematic ideas. Increase the teacher's understanding of the text. Arranging self-learning for both teachers and students. Introduce students and teachers in remote areas with modern

111

computer technology are the finest methodological advantages of using DC in the English classroom." TI₇

Respondent from FGD mentioned,

"When our teachers use animated digital contents in multimedia classrooms can make the subject matter easier and make the teaching process participatory, enjoyable and student-centred. Teaching will be more attention-grabbing." FGD₄

4.5.4.1 Minor Theme: More Engaging, creative and informative

Systematic educational facilities like using DC in teaching-learning process are more appealing and imaginative, which results in students being more engaged and avoiding dropout. Rather than employing the same method, pupils are exposed to a variety of modern teaching methods at various levels.

Respondent from semi-structured interview described,

"Students can use PowerPoint to deliver their paper suggestions or outlines to the class. For instance, a student could present his or her claim on one slide and then the paper's outline on another. Alternatively, the student could use the table feature to exhibit two possible paper outlines side by side. This type of PowerPoint make classroom more engaging and creative as well." TI₁

In this regard, digital content specialist stated,

"Engaging students in class makes it more pleasurable for both the teacher and the students. Students can write on the whiteboard to demonstrate their comprehension of course material. Additionally, students may take turns writing and responding to questions, physically identifying areas of difficulty, or providing alternate perspectives on the chalkboard that may be beneficial to their peers." DCSI₃

Education is becoming more appealing because of the new approaches used. When a teacher taught in the traditional manner or solely through textbooks, it became tedious for the students; on the other hand, when teachers conducted question-and-answer sessions and various types of dramatic lessons using DC in the English classroom, it became interesting for the students, and they could easily divert their attention to learning.

Respondent from semi-structured interview opined,

"DC encourages and supports teacher by facilitating the professional structuring of content presentation. The templates offered have been designed to default to excellent presentation criteria such as the number of lines of material per slide and appropriate font sizes and types: utilizing the default templates' styles can considerably improve a presentation's clarity and attract student in English classroom." **FGD₁**

Another response from students FGD is quoted,

"PowerPoint are traditional visual aids that is a very important part of classroom teaching. Students often find lessons boring and so teachers use the DC based multimedia as a way to encourage their students to pay attention. A teacher has to find ways to keep the students interested and engaged in the lesson." **FGD₄**

4.5.4.3 Minor Theme: Shown Digitally and Lively

The use of DC while teaching in the English classroom is an effective method which enriches the methodological advantages in education. In this regard, DC based multimedia is an effective method. Through using DC via projector in English classrooms, the whole teaching and learning system can seem lively to the students. For example, the integration and use of technology in the education system has been a landmark step in the last decade. The use of specialized software and hardware began to enrich the classroom experience and make it more productive. Teachers

began teaching with a combination of multimedia projectors and video. The use of this method enables the teachers to impart more effective teaching and the school-college education management activities also become more effective.

Respondent mention his experience,

"Using the visual presentation has prompted me to think more creatively about how I process information for my students. I may arrive to class and begin by writing bullet points on the board, then proceed to annotate with symbols while interacting with my students (asterisks, arrows, underlining). If they still don't get it, I could erase and draw a diagram, or I could erase and create a flow chart. The visual presentation is dynamic, adaptable, sensitive, immediate, digital, lively and entirely in the present of the English classroom." TI$_5$

4.5.4.4 Minor Theme: Classroom management

Disruptive students may be less disruptive if they are within a teacher's visibility. A teacher that has a solid awareness of his or her students' actions during classroom instruction has a better chance at maintaining a productive learning environment. DC assists classroom management because it requires light.

Digital content specialist stated,

"Visual reinforcements of DC like pictures, diagrams, can be displayed on a chalkboard to keep students' attention. Sometimes, students are more willing to engage in a classroom setting if they believe what they are learning has real value. Students that see teachers construct diagrams on a PowerPoint witness the process of turning written information into visual information." DCSI$_4$

4.6 Challenges of using DC in teaching and learning English at grade XI-XII

In this segment, the overall description of the challenges of using DC in teaching and learning English at grade XI-XII is presented in the framework of thematic analysis. The whole thematic analysis is carried out through three phases:
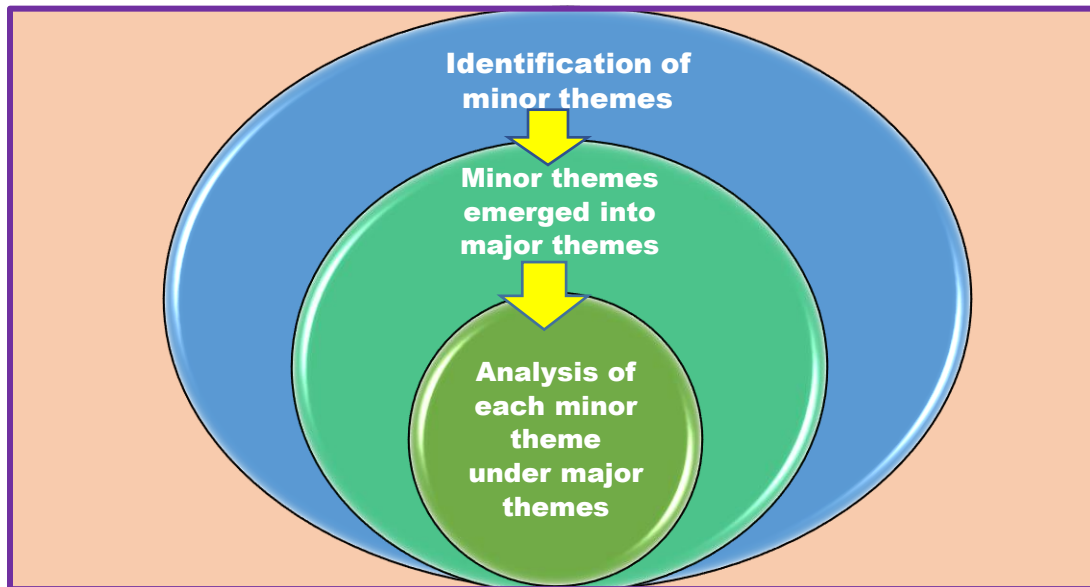
Fg-4.4: Phases of thematic analysis (**Source: Author, 2022**)

4.6.1 Phase-1: Identification of minor themes

After analysing the gathered data from teachers, digital content specialists, students and classroom observation via different tools, the researcher has identified nineteen specific challenges regarding the using of DC in teaching and learning English at grade XI-XII.

4.6.2 Phase-2: Minor themes emerged into major themes

In this phase, the total theme of the challenges of using DC in teaching and learning English at grade XI-XII is presented through the following diagram:

Minor Themes

-Scarcity of Equipment;

-Lack of facilities;

-Absence of Language Lab;

-Slow or no Internet Connection

Infrastructural Challenges

-Lack of proper management, preservation and supervision;

Cost and Unwillingness of authority;

-Lack of supporting technical manpower;

- Face Technical Problem   -Electricity Cut

- All lessons are not viable to DC   -Misuse of allocated class time

- Insufficient and unavailability of DC of English in the context of BD

- Digital Divide

- Short Duration of Class Time

- Lack of trained and potential digital content creators

Technical & Methodological Challenges

-Deficiency of Skilled and Experienced Teachers;

-Lack of Proper and available training;

-Unwillingness to use DC

-Thinking DC as a burden and extra-work

Teacher led Challenges

Major Themes

Challenges of using DC (Research Question-4)

Fg-4.5: Framework of thematic analysis **(Source: Author, 2022)**

The diagram above depicts the picture of the challenges in using DC in teaching and learning English at grade XI-XII. A total of nineteen minor themes falls under three major themes which basically represent the research question four.

4.6.3 Phase-3: Analysis of each minor theme under major themes

In this portion, the subsequent minor themes regarding the challenges in using DC in teaching and learning English at grade XI-XII are fully analysed under the major themes. The analysis is carried out on the basis of data collected from semi-structured interview with teachers & digital content specialists, FGD from students and from the classroom observation.

4.6.4 Major Theme-1: Infrastructural Challenges

One of the conditions for using digital content in the classroom is to have uninterrupted power supply in the classroom. Not every region of Bangladesh is 100% electrified. Teachers in rural colleges are discouraged from using digital content due to infrastructural problems.

In this context, a digital content specialist has highlighted the real situation,

"If you want to use digital content in the English classroom, you have to have uninterrupted electricity. The power went out suddenly while showing a PowerPoint in the English classroom. The classroom was disrupted then. The maximum colleges specially in the village areas do not have the infrastructure to use digital content. Internet services are not yet equally effective in all parts of the country. Even 3G services have not yet reached everyone in some remote areas. There are also incidents of power and internet services being disrupted due to storms, thunderstorms, and natural disasters." $DCSI_2$

Likewise, a teacher agrees with the previous statement,

"It has not yet been possible to fully develop an e-learning system at the secondary level. To implement the goal, the government has taken initiative to introduce one multimedia

117

classroom in each educational institution. This is not possible due to lack of skilled teachers, slow speed of internet, uninterrupted power supply and development of necessary infrastructure.” **TI₁**

4.6.4.1 Minor Theme: Scarcity of Equipment

Numerous issues arise because of a lack of appropriate educational ingredients. Students fall far behind in college because of their inability to obtain essential materials. While resources are offered for a period, if they have a technological error, the pupils' reading is harmed. Additionally, teachers are frequently stopped due to a shortage of supplies to meet their needs. As a result, the supply of DC must be increased in order to make English education more dynamic.

A teacher shares classroom teaching experience,

“There is not enough digital content in the classrooms of Bangladesh. Although there is a small amount of digital content, but these are not suitable for use, so the students are not able to bring their expected results.” **TI₅**

4.6.4.2 Minor Theme: Lack of facilities

Many colleges do not have internet facilities, so it is not possible to show digital content in class. Also, teachers do not have their own laptop or computer. Teachers are unable to use laptops in the classroom despite the government's interest in not providing laptop and computers to all. A digital content specialist agrees by posing,

“Many companies lack the necessary infrastructure to utilize digital content, which creates new issues. Additionally, digital content has flaws that can create complications. Additionally, the absence of internet mismanagement in contemporary media causes numerous holes in a variety of disciplines of education. Additionally, digital content cannot be distributed evenly to pupils of all abilities, leading in inequality.” **DCSI₂.**

One of the teachers says,

"It is known to all that for conducting English classes using digital content, infrastructural facilities are needed. But in our college, there is no availability of infrastructural facilities. There is no specific multimedia classroom. There is no smart board, but there is only a projector which is unable to meet the demand of all the teachers. Besides, there is a scarcity of computer, laptop and sound system." TI$_6$

Digital content specialists assume that-

"The main challenge in using digital content in teaching and learning English at grade XI-XII is the lack of sufficient digital equipment. In the perspective of Bangladesh, most of the college have no enough equipment. There is a scarcity of computer, projector, audio system and what not. Lack of necessity equipment mostly hinders in the using of digital content." DCSI$_1$

One response from students FGD is quoted here to understand the existence of this challenge. Roni (Pseudonym) has stated that-

"Our teachers don't use digital content in our English class, because our school has only one computer and one projector which are mainly used for ICT subject." FGD$_2$

Abir (Pseudonym) also adds that due to lack of multimedia projector their teacher conducts one or two digital content-based classes in each terminal. **FGD$_2$**

4.6.4.3 Minor Theme: Absence of Language Lab

Many institutions do not have language practice labs which results in students lagging behind in developing language skills. As a result, students lag behind in jobs and other areas due to lack of language skills development. Often there is a language practice lab but the lab does not have adequate equipment so that students fail to practice as required. Therefore, it is important to increase the number of language practice labs as well as materials for using digital content in English subject.

One response from students FGD is quoted,

"Language clubs are needed to enrich student's thinking capacity. Language clubs are also needed for their language development. Colleges do not have adequate infrastructural space for language clubs, so students are lagging behind." **FGD₃**

4.6.4.4 Minor Theme: Slow or no Internet Connection

The internet is a very important medium for digital content but sometimes many errors can be noticed in the management of this internet. Many institutions do not have internet facilities which deprives the students of many facilities. Many institutions have internet connection but slow which makes it difficult for teachers to teach and students to learn. Sometimes teachers and students may not be able to gather much needed information and time due to slow or not having internet connection in the colleges.

One digital content specialist assumed,

"Student and teacher; both sides are getting frustrated when there is an interruption in electricity line while taking English class. Proper Internet connection is mandatory for a digital English classroom. In a digital English classroom, teacher can demonstrate content from YouTube and Google etc. If there is interruption in while taking English class. Student attention can away from class." **DCSI₄**

One response from students FGD is quoted in this context,

"Our teacher provides digital content like ppt, sheet 15 minute before class. But there is no broadband connection in our college, so we can't download it. As in as art, we cannot get proper preparation for our upcoming class." **FGD₃**

4.6.5 Major Theme-2: Technical and Methodological Challenges

There is a notable generation gap between the knowledge of some parents and instructors and the knowledge of their children about digital contents, computers and the internet. Many teachers did not use computers in the classroom until the 1980s, whereas today's youngsters grow up with computers and the internet at home and at college.

A digital content specialist approves,

"Teacher must have Knowledge about how to operate a computer and digital content-based classroom. In order to take a class with digital content, teacher must know how to use PowerPoint and how to prepare PowerPoint in a class. Most teachers do not have pedagogical knowledge to use ICT in English class and they cannot use it properly"
DCSI₁.

In this context, a teacher said with regret,

"Creating e-books, presenting lessons through digital content using multimedia in the English classroom: very few teachers have mastered this technique. To ensure the quality of education, information technology has been integrated in the teaching and learning system of education in Bangladesh keeping pace with the developed countries in the age of globalization. Teacher must have technical and methodological knowledge to implement this pedagogy. But it is matter of great regret that most of our teacher are not well trained and they don't have enough knowledge on it." TI₂

In the focus group discussion, one student admitted that they do not know how to use digital content effectively. One respondent admitted,

"Teacher uploaded the documents at the end of the class. I had no idea how to download and use the documents. We are assigned to make assignments and submit it via online but many of us do not know the function." FGD₄

Classroom management is the sum of all the methods and techniques adopted by the teacher in the classroom for teaching the students and all the ancillary activities that need to be performed. Classroom management is being taken very seriously in this modern age education system. It is matter of great remorse that lack of proper management and preservation of digital content may decrease the potentiality of teacher to take the class.

In this context, a teacher said with repentance,

> *"Digital content needs to be well managed and stored in the classroom and college. It is usually seen that if a projector breaks down, it takes many days to fix it, the software is not updated." **TI₆***

A digital content specialist elect,

> *The confidentiality of the information used in digital content is an important issue but it is often not possible to protect the confidentiality of the information. For example, due to the lack of confidentiality of information, we often hear unpleasant incidents like questions papers being published before the exam. As a result of such mismanagement, digital content often becomes detrimental instead of beneficial. **DCSI₁***

There is always a need to be extra vigilant about the preservation of modern media. It is important to be sensitive enough to use digital media but due to the lack of adequate caring, digital media becomes ineffective at one stage. A student was asked about their digital equipment at their Institution, in reply it comes to know that,

> *"Our organization has more than fifty modern equipment but most of them have become inoperable due to lack of adequate maintenance." **FGD₂***

4.6.5.2 Minor Theme: Cost and Unwillingness of authority

Though digital media has more advantages, its use costs are relatively high. Internet costs, electricity costs and the cost of training to use digital media etc. are some of the barriers to using digital media which drives people to the opposite side of using it. The cost is a bit higher in modern technology, but the cost is much higher in some cases of using digital content which is against the ability of marginalized people. If authority want to use digital content in the English classroom, you have to buy those digital contents. Although the Bangladesh government is trying hard, it is not enough. College authorities are still not serious about buying digital content. The college's annual budget does not provide for the purchase of digital content**.**

In this context, a digital content specialist said,

"When it comes to buying digital content-based materials, there is little cost involved in purchasing. Most of the times, no cost is incurred for the purchase of educational materials, so no educational materials are purchased. **DCSI$_3$**

In this context, another digital content specialist assumed,

"Institutional officials are often indifferent in providing benefits of digital media to students. Many teachers are reluctant to teach students in a modern way due to their lack of training in digital content. Officials are apathetic to provide training to teachers on digital content, although they know that it is creating a problem for teachers, students and the education system also." **DCSI$_2$**

4.6.5.3 Minor Theme: Lack of supporting technical manpower

Using digital content in classroom requires digital setup. There is a shortage of teachers in the colleges of Bangladesh and there are no teachers available to take regular classes. On the other hand, there is no one to set up the kind of setup that is needed to use digital content in English classroom.

*"We have a few projectors in our college, but we don't have enough people to set up these projects in the classroom. Sometimes its students try to set up digital content, but it there is possibility to be hampered." said one student respondent. **FGD₄***

4.6.5.4 Minor Theme: Face Technical Problem

Very few people have an idea about modern technology. There is a significant lack of participation of skilled people in this sector as most of the public have no idea about digital content. In the context of Bangladesh, there is a dearth of people who know about digital media, because of which Bangladesh lags far behind compared to other countries in terms of using technology in the teaching-learning process. Therefore, skilled manpower is very important in terms of technology to move forward.

A student was asked about technical problem of using digital equipment at their Institution, in reply it comes to know that,

*"Occasionally there is a sudden mechanical error in the classroom which causes the students to become inattentive to the English class and no suitable person is immediately available to solve these technical problems." **FGD₁***

During the classroom observation, the researcher has noticed the similar problem. Mechanical errors are a common occurrence in the use of digital content, but these mechanical problems create an unpleasant environment during English class. Repeatedly the computer hangs, causes problems in collecting information and class work. Many times, students also suffer during live online English classes.

One victim student said in a statement,

*"I tried to participate in an online exam but failed due to device hanging. Though I had a speedy network service, I faced a problem with my device." **FGD₂***

124

While there are many advantages of using digital content in town areas, there are many problems in rural areas, one of which is electricity. Load shedding is a well-known issue in rural areas. Excessive load shedding in rural areas has caused problems for both students and teachers. Electricity voltage is low in most of the villages and many villages have not yet come under the electricity service. Therefore, in terms of digital facilities, the rural education system lags behind the urban ones.

In line with the support of this challenge one teacher expresses that-

> *"Due to electricity cut we can't continue our class smoothly. In our college electricity goes off daily at 1.00 pm. That's why, after 1.00 pm if teacher wants to conduct class using DC, it is impossible to use it. I think this problem exists all over the country."* **TI8**

In agreement with the teacher's comment, one digital content specialist reports:

> *"In the perspective of Bangladesh, interrupted electricity greatly hampers the normal teaching-learning activities of educational institutions. And for using digital content in the teaching-learning process of English, electricity cut is obviously a big challenge. If college has alternative facilities for electricity this problem can be solved to some extent, but it is not possible for most of the colleges."* **DCSI2**

Comments from students FGD also point out electricity cut as a major challenge. One comment from students FGD is presented here:

> *"Sometimes our class stops for the load-shedding. During load-shedding the teacher gives us group work or pair work, or carries on class traditionally. But we enjoy the digital content-based class. Current (the student refers to electricity as current) disturbs our learning greatly."* **FGD1**

Aynul (Pseudonym) also says that there is no electricity connection in their English classroom.

4.6.5.6 Minor Theme: All lessons are not viable to DC

Though digital content is helpful for teaching and learning English, not all types of text can be master's in digital methods. For example, although it is possible to solve mathematics digitally, it is not possible to solve all kinds of geometric problems through digital methods. Respondent opined,

"Although we can practice listening through digital content, reading-writing and speaking need to be practiced practically. So digital content is not always helpful for all kinds of teaching-learning processes" **FGD₃.**

4.6.5.7 Minor Theme: Misuse of allocated class time

The class time provided is being squandered due to a mechanical problem. If a lesson is scheduled for 40 minutes and 10 to 15 minutes are spent resolving a mechanical fault, the time is wasted and a vacuum in the students' short-term education system is created. As a result, it is critical to have an appropriate environment and structure in place for utilizing digital media.

When a teacher inquired about the use of DC in the English classroom, he explained,

"There are many chapters and topics in my English subject. Each week, I have three classes that last 45 minutes. I am required to use multimedia in my teaching, however the projector frequently fails to function properly, wasting ten minutes of my 45-minute class trying to resolve the projector's issue and thus preventing me from completing my routine curriculum on time." **TI₅**

4.6.5.8 Minor Theme: Insufficient and unavailability of DC of English in the context of Bangladesh

There are several options for English practice in Bangladesh, although they are few in comparison to other nations. Although some private educational institutions in Bangladesh provide digital content for English practice, it is regrettable that most non-private institutions do not. As a result, discrimination is generated when students' merit is considered.

"Digital content is not used when we practice English speaking in class. If the teacher had enough audio for English speaking, I would be able to speak easily." **FGD₂**

4.6.5.9 Minor Theme: Digital Divide

When it comes to the usage of digital content, there is some inequity in society. Those who are financially secure have a greater opportunity to utilize this. As a result, the poor have been abandoned. For individuals who understand how to utilize digital material, finding opportunities in jobs and other fields is easier, and there are several job fields available to them; for those who are unable to use digital content, finding possibilities in all of these areas becomes more difficult. Thus, in a nutshell, digital content contributes to the creation of a digital divide between people.

One respondent confessed,

"PDF, PowerPoint and video documents are given to the students as homework and reading materials. Assignments are also given to various topics and they have to be submitted online. Poor students do not have smartphones or laptops, so they fall behind in this regard." **TS₆**

4.6.5.10 Minor Theme: Short Duration of Class Time

Digital content-based English classes are very limited. Both teachers and students get a little time to finish a huge amount of English syllabus within a short time. Sometimes it is not possible to finish the English syllabus and students get disappointed with the teachers but there is no fault of the teachers. The Digital media work in a systematic way which doesn't read our minds.

127

So, what the actual need of the students and teachers is, it is not always understandable to the digital media.

One student admitted,

> *"The time allotted for the English class is being wasted due to a mechanical error. If 40 minutes are allotted for a class and 10 to 15 minutes are spent on solving a mechanical error, it is a waste of time and it creates a void in the students' short-term education system. Therefore, it is very important to have a suitable environment and system for using digital media." FGD₃*

4.6.5.11 Minor Theme: Lack of trained and potential digital content creators

A significant problem for digital education in the twenty-first century is to prepare certified instructors to teach content using DC. The scenario is fraught with grave concerns about a potential teacher shortage, as well as difficulties with teacher attrition.

The number of digital content creators is very small and only a small number are adequately trained. Due to the small number, it is not easy to provide long term training to the general public on the use of digital content.

In this context, one digital content specialist said,

> *"We are little in number. There is a big imbalance between the ratio of total population and ours. So, because we are small, we cannot provide adequate training to everyone in this huge population and as a result, most people are remaining unknown about digital content." DCSI₁*

4.6.6 Major Theme-3: Teacher Led Challenges

The main purpose of using educational materials is to achieve the purpose for the lesson. Its feature is to make the teaching-learning activities more effective and fruitful by establishing a close relationship with the student through student-centred teaching as well as to make the classroom presentation easy and attractive. There are some challenges which is faced by teacher while using digital content.

Meanwhile the teachers say,

> *"As it is a new experience to take online classes, teachers of many departments have problems in taking classes using D.C. Because there are many teachers in different subjects who have less experience in using technology, they are not even proficient in using technology. However, college authorities believe that teachers will soon be able to use the technology once online classes are introduced." **TI_8***

In this context, a digital content specialist said,

> *"There is no substitute for education and training for the development of professional teaching skills. Training is a universally accepted method of producing quality teachers. Global education and training are considered to be the basic foundation of the education system. After joining the teaching profession, it is essential to develop skills by taking training repeatedly." **$DCSI_2$***

4.6.6.1 Minor Theme: Deficiency of Skilled and Experienced Teachers

Digital content required digital skilled teacher. Teacher must have a knowledge how to use digital content in English class. In Bangladesh perspective, Teacher's training is not adequate. That's why teacher can't execute properly using digital content in teaching English.

One respondent said,

"There are lots of digital content and resources in our college. But our teacher takes the class in traditional manner. They don't know how to use digital content. Another fact that this is lack experienced teacher. Using digital content is a new concept in our country. Due to lack of in-service training, old teacher can't use digital content in class. They got frightened while student asked to use digital content in English." **FGD₁**

4.6.6.2 Minor Theme: Lack of Proper and available training

Teaching is also a great profession; the development of that profession requires proper training. A teacher must constantly look for new knowledge and techniques for the betterment of his profession. To make teaching hundred percent successful, one has to devote oneself to relentless efforts in search of new technologies and modern knowledge of research. It is also important to have knowledge about educational examination and its interpretation and curriculum. There is also a need to acquire knowledge about social and cultural change, personal prosperity and community and environmental development. Teachers need to be creative in acquiring knowledge. It is necessary to change the traditional process of acquiring knowledge and give creative knowledge with a creative outlook.

One teacher opined about lack of proper training,

"In Bangladesh, similar training is usually provided for all types of teachers. This is one of the limitations of training. The needs of young and old teachers, pre-trained teachers and untrained teachers are different. But if similar training is provided for them, it will not be enough for any teacher." **TI₇**

Another teacher speaks out about lack of incentive during training,

'There is a lack of motivation to participate in on-the-job training. This is another major problem for our country. The number of incentives given to teachers to participate in training is in many cases a source of frustration for them." **TI₆**

130

4.6.6.3 Minor Theme: Unwillingness to use DC

Another limitation of on-the-job training is the unwillingness of teachers to use DC in English classroom. Teachers can appreciate the importance of training. No. As a result, they have no interest in participating in the training. As well as in-service training of heads of institutions. Teachers are not properly encouraged to participate. In some cases, it has created obstacles for teachers to participate in training. In many cases, in-service trainings do not use proper methods and techniques. The core trainers selected for the training are not aware of the latest developments in pedagogy and technology, thus undermining the purpose of the training.

Digital content specialist stated,

"In many institutions, both students and teachers are reluctant to use digital content. They are interested in performing lessons in the old and usual way and for this reason they lag far behind modernity over time. One statistic found that those who are not eager to use digital content lag far behind those who use it to excel in education." DCSI₃

4.6.6.4 Minor Theme: Thinking DC as a burden and extra-work

Digital content seems to be troublesome and expensive to many. Many people find it a hassle to acquire and care for digital content products and tools. However, it can be said that, due to a lack of knowledge and skills about digital content, many people consider it a burden and an additional hassle. But the truth is that though using digital content is relatively conservative, it is also a means of saving time and effort.

A digital content specialist speaks out about this matter,

"There are lots of digital resources in urban areas college. But only a few teachers use it. Teacher thinks, using digital content, a burden and extra work for them. Many teachers are not accustomed to using digital media so they find it scary." DCSI₂

4.7 Salient Findings of the Research

The salient findings about the use of DC in teaching and learning English at grade XI-XII encompass of the following:

4.7.1 Findings regarding research question-1

In this section, the findings of research question one is presented chronologically-

- The detailed analysis of the data revealed that all of the respondents including teachers, digital content specialists and students have acquainted with DC and they have the basic ideas and perception about DC.

- All of the teachers (8 out of 8) use DC in English classroom.

- Although most of the teachers used DC for teaching and learning English but the frequency of using DC is very occasional.

- Power-point slide (equally underscored by digital content specialists & Students), content related pictures and E-book or E-text (similarly supported by digital content specialists, Teachers & Students) are massively used types of DC in teaching and learning English for grade XI-XII.

- In most of cases content related different pictures and relevant various audio clips (almost equally digital content specialists, teachers and students say) are vastly used types of DC for practising of English listening skill.

- For the practising of English-speaking skill content related various pictures is largely used type of DC. Whether e-book, power-point slide and then video (simultaneously marked by teachers, students and digital content specialists) are next hugely used DC in the practising of English-speaking skill.

- Only three types of DC such as e-book, pictures and power point slide are used by the teachers in the practising of English reading skill as types of DC in most of the colleges.

- Power-point slide, pictures, video clips and e-book or e-text are commonly used as types of DC for practising of English writing skill identified by the digital content specialists, teachers and students.

4.7.2 Findings regarding research question-2

Noticeable findings of the research question two is mentioned below-

- Every **(8 out of 8)** teachers take preparation before using DC in English class.
- Teachers mainly follow TPACK model while using DC in the English class. Some of them use 'Bottom-up model' and rest of them use 'Inventory model' during the English class in terms of using DC appropriately.
- The general tendency of the English teachers of grade XI-XII is conducting their class by adopting lecture method as well as Communicative Language teaching (CLT) method while using DC. Some of the teachers follow 'Eclecticism method' and 'Audio-visual method' concurrently. Sometimes teachers also adopt 'Participatory method' in the DC based English class found from the data analysis.
- Principle of selection, principle of preparation, principle of use and principle of preservation are the core four principles of using DC for English subject at grade XI-XII.
- Follow the objective and learning outcome, relevancy with content/topic, consider grade and age level, accessibility to DC, availability of DC for English, familiar to the students, convenient for teachers and students are the basic principles of selecting DC for teaching and learning English for grade XI-XII.
- Adopted DC from online, carefully visualize the DC, adjusting DC with the context of English subject and country, prepared DC as if grow students thinking and curiosity, prepare DC as if students understand easily are the fundamentals principles of preparing DC for English subject.
- Take preparation before using DC, manage time properly, display/show DC accurately, go simple to complex and concrete to abstract, derive the maximum benefit in learning, guide students to respond actively to DC are the rudimentary principles of using DC in the teaching-learning process of English for grade XI-XII.
- Think DC as an asset, reuse and re-process, preserve sustainably, less consume the space and time, saving the cost and preserve DC in the virtual space or device memory are the predominant principles of preserving DC for English subject.

4.7.3 Findings regarding research question-3

This section presents the findings of research question three-

⦿ Majorly four types of advantages e.g. students centred, teachers centred, by product advantages and methodological advantages are getting by using DC in the teaching-learning process of English.

⦿ Easy to make students understand, feel comfortable, easily practice listening and speaking skills are the prevalent students' centric advantages of using DC in teaching-learning process of English at grade XI-XII.

⦿ Teacher can study at any time in anywhere, improve their digital skills, easy to conduct and manage class, easy to feedback and assessment, and, variation in teaching are the significant teacher centric advantages of using DC in English subject.

⦿ Automatically improve digital skills, cover all types of learners, reusable and learning materials with low cost are the prominent 'By product advantages' of using DC in the English subject.

⦿ More engaging, creative and informative, attractive and attentive, shown digitally and lively, classroom management are the remarkable methodological advantages of using DC in English for grade XI-XII.

4.7.4 Findings regarding research question-4

This portion consist with the significant findings of research question four of the study-

⦿ Infrastructural challenges, technical and methodological challenges, and, teacher led challenges are the focal challenges in using DC for the teaching and learning English in the perspective of Bangladesh.

⦿ Scarcity of equipment, lack of facilities, absence of Language lab and slow or no Internet connection are the biggest infrastructural challenges for using DC in teaching and learning English at grade XI-XII.

⦿ Comprehensive analysis of the data discovered that there are eleven leading minor challenges of using DC in English subject under 'technical and methodological challenges'

134

which are- lack of proper management, preservation and supervision, cost and unwillingness of authority, lack of supporting technical manpower, face technical problem, electricity cut, all lessons are not viable to DC, misuse of allocated class time, insufficient and unavailability of DC of English in the context of BD, digital divide, short duration of class time and lack of trained and potential digital content creators.

○ Deficiency of skilled and experienced teachers, lack of proper and available training, unwillingness to use DC, and, thinking DC as a burden and extra-work are the prevalent minor challenges of using DC in English subject under 'teacher led challenges' which have also been found by the researcher.

4.8 Gist of the Chapter

The chapter four includes entirely the data has been obtained and interpreted according to research questions. Findings from all the research tools have been put together in line with research questions. The investigated data displays many underlying facts related to the use of digital content in teaching and learning English at grade XI-XII. It is originated out from the collected data after analysing that most of the teachers use DC in the teaching-learning process of English and have followed some specific model, principles and methods for smoothly using DC in English. Besides, it is also found that there are multiple advantages for both teachers and students in using digital content for English at grade XI-XII, and, on the contrary DC have some challenges which obstruct the use of DC in the teaching-learning process of English. In the next chapter, the salient findings of this research study are offered in an abridged way and critically discussed, and some recommendations are given.

5.1 Introduction

This chapter starts with a brief and focused recapitulation of the main findings related to the four research questions posed in this study. The chapter also clarifies about the findings with the support of literature review followed by research questions. Finally, some implications have been suggested by cross referencing the idealistic situation and the findings of the study.

5.2 Discussion

The following discussion proceeds considering the research questions of the study based on the findings and their interpretations. The whole discussion has presented following some segments. Major findings are described under these segments with the support of other literatures and research findings.

The total framework of the discussion of this study is presented graphically in the below:
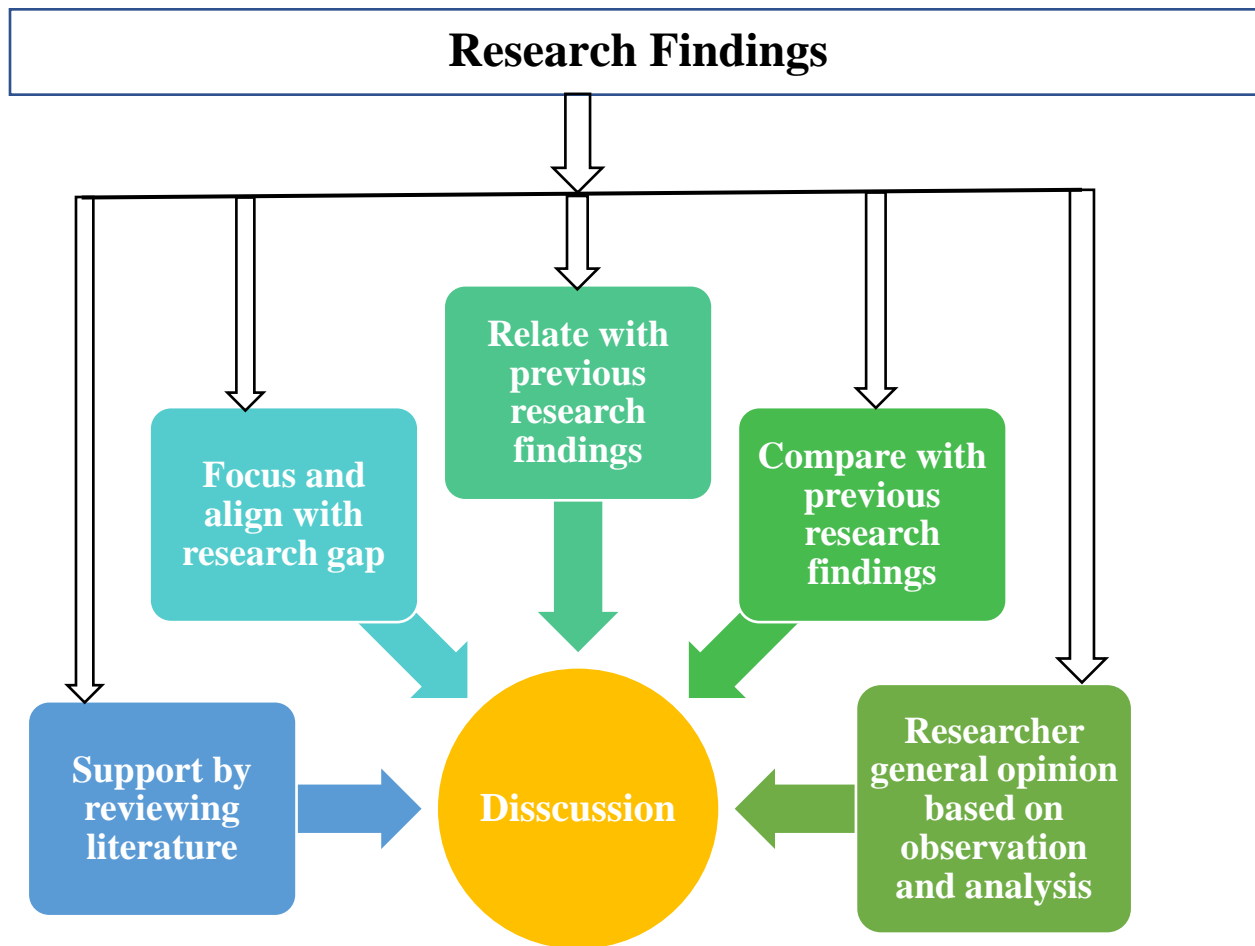
Fg-5.1: Framework of Discussion Process **(Shadowed By: Shaha, 2019)**

5.3 Discussion of the findings related to research question one

Digital age demands digital teaching learning environment with various digital equipment for the digital students. Digital driven teaching learning environment is also ubiquitous for English subject. Once teacher used only traditional contents with traditional method for English subject. But currently there is a multiple opportunity to incorporate manifold digital contents in teaching and learning English. In Bangladesh, usage of digital teaching-learning materials for English subject is not so obsolete. Presently all types of educational institutions have used digital contents

for facilitating students learning. The entire analysis of data of this research study revealed that most of the English teachers used DC for teaching and learning English at grade XI-XII although the frequency of using DC is very occasional. This finding represents that majority of English teachers used DC in the teaching-learning process of English in the colleges. They used DC in English subject but the frequency is irregular. Similar finding is found by Beach (2012) who agreed that teachers (46%) are tended to use digital resources like digital contents in their course of teaching. A school of researcher including Becker, Ravitz, Wong, Yan & Tien (1998) further pointed out that language teacher like English teacher and technical or vocational teacher are more eager to use digital content-based aids in comparing to others. As English is skilled based subject (NCTB, 2011) and focused on practicing listening, speaking, reading and writing skill simultaneously, so, the usage of various digital contents helps to acquire all sorts of skills soundly.

The overarching research question was aimed to find out what types of DC are being used for practising English Language skills (teaching and learning English) at grade XI-XII. Comprehensive analysis of data discovered that content related pictures, E-book or E-text, power-point slide, and, relevant audio and video clips are massively used types of DC in teaching and learning English for grade XI-XII. Almost parallel findings are captured by Shaha & Rahman (2015) that most of the schools in Bangladesh, English teachers are conducted their class by using PPT, video and audio. This similarity of findings indicates that power-point slide, content related pictures, and, relevant audio and video clips are the vastly used types of DC in practicing English skills which are popular among the English teacher and learners of grade ten to twelve. At the same time, these types of DC are more helpful to acquire English language skills in anytime and anywhere with interactive way.

In accordance with this finding, a good number of researchers among them Al-Seghayer (2001), Chun & Plass (1997), Duquette & Painchaud (1996), and, Ehsani & Knodt (1998) have opined strongly that numerous multimedia apparatuses for instance videos, spoken text, graphics, and visual text are tremendously employed for language learning. Sun & Dong (2004) has asserted that info and study contents presented in text, vocalized words, illustrations, and audio-visual arrangements can be combined to generate a reliable, attractive, and multi-sensory language setting

for English language learners which also indicated by a group of researchers (e.g. Al-Seghayer, 2001).

5.4 Discussion of the findings related to research question two

Pedagogy is the part and parcel of education system. Pedagogy is the science of teaching which guides how to teach students to achieve the intended learning outcome appropriately. This research one of the important intentions was to find out the types of pedagogy do teachers use in presenting or making DC for effective teaching and learning English at grade XI-XII. The entire analysis brings into light that English teachers of the higher secondary level education of Bangladesh mainly follow TPACK model whether some of them follow 'Bottom-up model' and rest of them follow 'Inventory model' during the English class in terms of using DC appropriately. In addition to, the general tendency of the English teachers of grade XI-XII is conducting their class by adopting lecture method, audio-visual method, Communicative Language teaching (CLT) method as well as eclecticism method while using DC. Moreover, English teachers of colleges follow mainly four principles which includes principle of selection, principle of preparation, principle of use and principle of preservation for DC in English subject at grade XI-XII. The types of pedagogy which are usually used by English teachers are explored by this research. Surprisingly, the findings regarding the pedagogy of using DC in English have matched with the findings of Shaha (2019).

Shaha's (2019) research also demonstrates that the majority of English teachers who utilize DC adhere to general teaching-learning principles in the classroom. He continued by stating that English teachers primarily use a participative approach and prepare DC based on students' age, level, and situation. Additionally, he noted that in a digital content-based session, English teachers progress from easy to complicated. Similarly, the SETDA (2014) study concluded that digital content can be created and developed with flexibility and modification capabilities from the start, reflecting universal design principles, and can be altered more quickly than traditional, static resources such as printed textbooks. Additionally, SETDA (2014) stated that digital content can

be constructed, generated, and sophisticated over time in a way that recognizes and responds to the full range of learner variance, and that these materials and resources can be shared across classrooms and subsequently adapted to meet the unique needs of individual students. Current study findings also provided that English teachers of higher secondary level of Bangladesh prepared DC as per considering the students age, grade level, relevancy of DC with subjects' topics, the maximum benefit of learning, reusability of DC by re-processing etc.

On the other hand, Kuo, Chen, Hwang & Chen (2015) specified that teachers should adhere to the standards of quality assurance when incorporating digital content into the classroom teaching-learning process with the goal of providing learners with acceptable learning content. Here, the researchers emphasized on the quality of the DC in alignment with the content or topic and the target learners which have also found in this research.

5.5 Discussion of the findings related to research question three

Amalgamation and usage of digital content in the teaching-learning process of education has offered numerous advantages which automatically embraced by the teachers, students and all the stakeholders of education. The careful, systemic, pedagogical and proper utilization of DC in the classroom teaching-learning process have offered multiple advantages for both teachers and students. There is no exception is case of using DC in English classroom at the higher secondary level education of Bangladesh. The one of the foremost purposes of this research was to explore the advantages do teachers and students get from using DC in teaching and learning English at grade XI-XII. Prudently thorough analysis of the data exposed that students centred advantages (e.g. easier to make students understand, feel comfortable, easily practice listening and speaking skills), teachers centred advantages (e.g. teacher can study at any time in anywhere, improve their digital skills, easy to conduct and manage class, easy to feedback and assessment, and, variation in teaching), by product advantages (e.g. automatically improve digital skills, cover all types of learners, reusable and learning materials with low cost) and methodological advantages (e.g. more engaging, creative and informative, attractive and attentive, shown digitally and lively, classroom management) are prominent major advantages getting by using DC in the teaching-learning process of English in the context of Bangladesh.

In this respect, the carried-out research by Franzoni & Assar (2009) confirmed that the deployment of digital teaching/learning content enhances the teaching-learning process. Whether Rahman, Akanda & Shaha (2019) study results composed similar tone and mentioned that DC plays a great influence on students' classroom learning in terms of making their lesson easier, interesting and effective, concentrating student's attention on the lesson, and reflecting objectives of the lesson.

On the other hand, result of the research slightly divergent from this research. The study result of Shaha & Rahman (2015) pointed out that the most significant benefits of employing digital content in the teaching-learning process of English are as follows: DC increases attention and engagement; DC enables solo practice as well as group work.

Moreover, findings regarding the advantages of DC is pertinent with the number of research studies. Digital content today can fully engage students (Kelso & Halpin, 2010; ELNORD, 2006; Beach, 2012). Similarly, researchers e.g. (Anson, Kastman-Breuch, & Swiss, 2009; Beach & O'Brien, 2012; Carrington & Robinson, 2009; Coiro, Knobel, Lankshear, & Leu, 2008; Davies & Merchant, 2009; Warschauer, 2011 as cited in Beach, 2012) concluded that teachers are integrating these digital tools into their classrooms to assist pupils in acquiring English language arts. At the same time, Greenberg & Zanetis (2012); Alavi, Wheeler & Valacich (1995) accentuate that using technology (e.g. Digital content) in the classroom seems to empower and engage the students in their own learning. This way, learners can learn at their own paces and feel more engaged and motivated (Kuo, Chen, Hwang & Chen, 2015). DC also fosters collaborative and cooperative learning between and among students, thus better preparing them with a skill set for real-life work situations (Roblyer & Edwards, 2000; Jonassen et. al, 1999). Furthermore, Jewell (2006:178) proclaimed that the use of DC leads in a more student-centred pedagogy, with learners at the centre of the learning process and more deeply involved in their learning than is the case with conventional direct instruction approaches.

Furthermore, Higgins, Xiao, Katsipataki (2012) summarize research findings from experimental and quasi-experimental studies that have been pooled in meta-analyses to determine

the impact of digital learning in schools. Their search uncovered 48 studies that consolidated empirical data on the impact of digital technologies and resources on school-aged learners' achievement (5-18-year-old). They discovered a slight but persistent favourable relationship between digital learning and educational attainment. Of the 48 studies, 44 (92 percent) shown positive benefits in favour of computer-assisted treatments (including digital content), while four (8 percent) demonstrated negative impacts in favour of traditional methods of teaching.

As well, Sharmin (2013) observed drastic change in every student's behaviour after integrating computer to their lessons. As the ICT tool combined text, sound and colourful, moving images (which are also a part of the DC) engaged students in the learning process and increased learner motivation. This also suggested by Tinio (2009).

Quite the contrary, according to some researchers, digital technologies are ineffective in the educational process. In this context, Shyu & Liao (2004); Kuo, Chen, Hwang & Chen (2015) points out that these digital contents oftentimes fail to motivate learners and makes learning rather unengaging and ineffective. Additionally, Buzzard, Crittenden, Crittenden & McCarty (2011) assert that pupils, for effective engagement and learning, appreciate more conventional teaching technology.

The most important thing is how to teach through multimedia. Teachers began teaching with a combination of multimedia projectors and video. That was the modern education system then. Ilhan & Oruç (2016) agreed on the benefits of using multimedia in the classroom. The use of this method enables the teachers to impart more effective teaching and the school-college education management activities also become more effective. Similar findings found at (Tang, 2011). They conclude that the multimedia-based English language instruction strategy is both possible and effective. Second, teachers should pay close attention to the aspects that influence multimedia instruction during the teaching process. Another study also emphasis this issue that teacher should be more attentive in digital class. (Wolff et al., 2016) Using performance management and tracking systems makes it easier to manage students' progress. Classrooms that use such systems are called 'Digital classes'. As a result of modernization of technology, this smart classroom has come a long way. With the spread of the Internet across the country, it is now possible to extend such education to students in rural areas. Huang et al., (2021) suggests that students need to be taught computer

output skills if they want to get the best output. It is no longer possible to say that high quality content is available only in urban areas. DC is now being applied in various fields of education. DC is now widely used in primary education, supplementary education, exam preparation, recycling, online certification, language education, etc. World-renowned universities and institutes are now offering degrees through online education. DC will go one step further in the years to come. Using artificial intelligence and machine learning, online education is now becoming more individualized. That is, the student will be taught exactly what he needs or needs. This will enable a student to learn at his own pace, which will be more effective for him. Artificial intelligence and machine learning can ensure adequate education for students. Along with the recorded classes, online live classes have also started spreading. Teachers can take interactive classes with multiple students through 'Google Classroom' or many other collaboration software. Students can record these classes and use them for later reference. Online classes through edutainment or gamification are also rapidly gaining popularity. Additionally, Vlachopoulos & Makri (2017) noted that when games are integrated into the learning process, three types of learning outcomes occur: cognitive, behavioural, and affective. In this way students can learn many important things by playing tricks.

By applying digital content in classroom, we need to prepare our young students for the unknown workplace of the future. It is necessary to bring radical changes in the education system and introduce innovative and skill-based curriculum; (Madsen, 2020) have agreed on this. Traditional textbook education does not develop a child's own talents. Instead of memorizing, you need to create something new, or encourage new thinking. Wan Sulaiman & Mustafa (2020), In their review paper, they have given priority to digital textbooks instead of traditional books. Whoever has skills in that subject, he should be made proficient in that subject. We will be able to create a skilled nation only if we can make the student proficient in the subject matter that he has inclined or inclined towards by applying artificial intelligence and machine learning. In the present education system, acquiring digital content-based education is considered as the most important issue

Teachers' professional skills and knowledge are enhanced by creating class-appropriate content. Their confidence has been multiplied by conducting class activities in multimedia classrooms. They can communicate with the students very easily and manage the class very easily.

Analysing the views of the heads of the educational institutions, it is seen that the results of these institutions are better than before, the level of participation of students in the institutions

has increased and the quality of education is changing. We need to build our students as skilled people of the 21st century. And there is no alternative to the integration of information technology in the field of education. Multimedia classroom is an epoch-making and far-reaching initiative in educational institutions. The Sustainable Development Goals (SDGs) adopted by the United Nations place greater emphasis on sustainable quality education for all. It is possible to achieve that desired value by using digital classrooms. It is important to make children's learning environment, teaching methods and content interesting and colourful. The use of digital learning content is essential to ensure that all students acquire quality primary qualifications at each level by developing developed thinking, imagination, and inquisitive thinking instead of memorization. Through this, education will be helpful in developing life-oriented knowledge by developing the student's thinking-consciousness and creativity.

5.6 Discussion of the findings related to research question four

To every action there is an equal and opposite reaction- wise saying by Newton's also similarly applicable for the usage of DC in the English teaching and learning. Some challenges of using DC in the teaching-learning process hampered the full potentiality of the DC. Another significant intention of this research study was to find out the challenges of using DC in teaching and learning English at grade XI-XII. The exhaustive analysis of data explored that infrastructural challenges (e.g. scarcity of equipment, lack of facilities, absence of language lab and slow or no internet connection), technical and methodological challenges (e.g. face technical problem, electricity cut, all lessons are not viable to DC, misuse of allocated class time, insufficient and unavailability of DC of English in the context of BD, digital divide, short duration of class time, lack of trained and potential digital content creators), and, teacher led challenges (e.g. deficiency of skilled and experienced teachers, lack of proper and available training, unwillingness to use DC, and, thinking DC as a burden and extra-work) are the pivotal challenges in using DC for the teaching and learning English in the perspective of Bangladesh.

Similar finding is noticed by Shaffer & Clinton (2006) whose are opined that developing and utilizing digital content for the purpose of teaching and learning English is problematic. Numerous factors influence and hinder the healthy co-adaptation of technology and the

postsecondary education system. These conditions could be related to educational institutions' technological resources, institutions' atmosphere, teachers' preparation, and students' and parents' experiences with technology (Byrom & Bingham, 2001; Zhao, Kevin, Stephen, & Byers, 2002). They are inextricably linked, their impact differs from situation to situation, their connections alter as the educational institution's environment evolves as a result of technology adoption, and the changes take place within specific settings (Zhao & Frank, 2003).

The finding of the present study tends to support the finding of InfoDev (2010) who pointed out that the lack of suitable infrastructure to facilitate the introduction of ICTs in schools poses a significant obstacle. Other than the high costs associated with purchasing and establishing the necessary infrastructure, the ongoing costs of maintenance and upgrades, as well as the cost and effort associated with supporting such infrastructure, all act as hurdles to the proper launch of ICTs such as DC in schools, particularly in poor and rural locations.

Additionally, this finding is consistent with the findings of numerous studies conducted by various authors, such as Chowdhury (2012), who claimed that most institutions lack computers, multimedia capabilities, and internet connections. Likewise, Hew & Brush (2007) revealed that a lack of resources can impede instructors' use of technology. As well, ICF (2015), Raihan, (2015:107), Kelso & Halpin (2010) also mentioned that infrastructure was found to be crucial. Further, Biswas (2015) also identified that 83% teachers pointed out that they lack sufficient infrastructure for using ICT in education. In this regard, Lamanauskas, Slekiene, Raguliene & Bilbokaite (2011) research indicates that aids (DC-related) are in insufficient supply, posing a barrier to successful instruction. Furthermore, Mamum & Tapon (2009) indicated that due to unavailability of computer the teachers could not use the ICT in teaching learning process. But due to their own initiatives, some teachers use their own computer for their better teaching-learning. However, it is revealed that if the facilities are available, they can use those facilities and some of them are really eager to do that.

Teachers face both obstacles and possibilities in technology-rich learning environments (Baker, 2009). English teachers' unwillingness towards using DC is another prevalent challenge of using digital content in teaching and learning English at grade XI-XII which also found by the

researcher in this study. Some teachers do not want to conducted class using DC because of their beliefs and thoughts such as: using video, pictures, images, audios etc. are banned and sin in their religious perspective. For this why they are apathetic to use DC in the teaching-learning process of English. At the same time, they discouraged students not to use it. In this regard, Yang (2001) suggests that the optimistic attitudes of teachers and students towards the integration of the digital technologies e.g. digital content, internet etc. are required for language teaching. Whether, Baker (2009) remarked that teachers require specific guidance and training for even the most optimal position for developing their own and their students' DC skills.

It became apparent in some of the study's findings. Mamum & Tapon (2009) study also identified that most of the teachers are not enough motivated to use the new technology due to the shortage of skill and training on ICT. Hence, they feel hesitate to use the newer technology.

Moreover, according to the Blackwell study (2013), there is scant evidence that teachers used technology to share knowledge about the most effective teaching practices. This is because teachers often lack basic training on how to use technology effectively, leaving them feeling unready to use it successfully in their teaching practices. As a result, in the teacher's mind created a negative attitude (Blackwell, 2013). This also supported by the Laurillard (2008) who remarks that the educational system is led by individuals who are unfamiliar with either the specifics or the ramifications of technology because of their deleterious attitude. The finding of this research regarding the lack of proper and available training for English teachers in using DC for English subject is strongly matched with the findings of the above researchers. On the contrary, one study conducted by the Lakkala et al (2003) found that technology was not a challenge for teachers even who have an adverse attitude.

When an artist creates a sculpture, he or she is immediately influenced by environmental factors such as light and space. In a typical classroom, a teacher faces similar environmental concerns. When an artist creates a painting, he or she must first establish a setting. The same issues apply to a teacher working in an electronic and digital setting. So, teachers are needed to enrich their skills through digital technology to paint their teaching environment. Teaching has become into one of the most difficult professions in our continuously changing culture (Perraton, Robinson & Creed, 2001). Teachers are critical to the success of any change process; they are the change

agents and key catalysts, as Dexter, Anderson, and Becker (1999) note. As new notions of learning emerge, teachers are required to assist and personalize learning for individual students, rather than simply imparting knowledge and abilities. While the advancement of innovative technology has expanded the possibilities for teaching professions, it has also increased the responsibilities on instructors to learn how to use these new tools into their instruction (Robinson & Latchem, 2003). These obstacles require instructors to consistently retrain and acquire new information and abilities while remaining employed (Carlson & Gadio, 2002). According to previous study, instructors must have positive experiences with ICTs that are relevant to the subject they teach in order to effectively use ICTs (Mueller, Wood, Willoughby, Ross, & Specht, 2008). Additionally, some investigations have discovered that successful integration of ICTs is more likely if the teacher's overall pedagogical approach correlates in some manner to the technology's qualities (Zhao, Pugh, Sheldon, & Byers, 2002).

In this research, the researcher found that lack of teachers training and skills greatly hampered the teaching-learning process of English while using DC. This finding is also similar with some studies like-Research by Raihan in 2015 found that teachers are not enough skilled and trained. In a similar vein, Alves, Almeida, Delicado & Carvalho (2010) study highlight that lack of confidence or competences of teachers; they weren't initially trained to use DC in teaching-learning process. Mamum & Tapon (2009) stated that shortage of skilled teachers also a challenge in this regard.

Besides, Baker (2009) study in Australia reveals that only a small proportion of Australian teachers currently have the skills of digital technologies. Which is strongly supported this finding.

Quite the opposite, Ertmer & Ottenbreit-Leftwich (2010) opined it is vital to remember that teachers' confidence in connection to ICT is more significant than their knowledge and skills in regard to ICT.

Lack of proper management, preservation and supervision is another challenge in using of DC which is revealed by this study. In the most of the colleges lacking enough proper management, preservation and supervision from both the govt. and educational institutions' authorities' sides. Consequently, DC is not used often but in occasionally. In a similar fashion, the Elton (1999) study mentioned that teachers and lecturers are not empowered or equipped with the technology

necessary to enhance the type and quality of the teaching-learning process. Furthermore, Vogel et al. (2009) study contends that support at the educational institutions' administrative level is necessary for teachers to use digital content in the teaching-learning process. In this regard, Kelso & Halpin (2010) asserted that huge financial involvement is required to uplifting the use of digital content. In this respect, research by Liu, Navarrete, Maradiegue & Wivagg (2014) delineated that the challenges identified were how to integrate digital technologies e.g. digital content, iPods for effective teaching-learning process, monitoring student work and managing the devices etc. These all are concerning with the proper management, preservation and supervision of using digital content. This finding is also consistent with Raihan's (2015) study positing that the equipment such as computers, computer accessories, projectors or LCD/LED screens, monitors, sound systems are putting the authorities in pressure and tension about the security of these expensive materials. These are listed as a pre-requisite of implementing digital content-based education which are needed to keep safe from destroy, theft or something like that (Raihan, 2015). Similarly, Schilling (2009) denoted that integrating multimedia equipment involves a set of potential drawbacks including start-up and long-term maintenance time, maintaining costs, and customization issues. In the most of educational institutions' there are no system for maintain such kind of equipment. Most of the educational institutions' have a few equipment but this equipment is just being kept locked without sufficient security like security men or guards, CC camera etc.

This study identified electricity cut as a challenge of using DC. Similarly, Biswas (2015) & Halder (2013) also identified that 90% teachers informed that the load shedding is the major obstacles to the conduction of MMC classes. Furthermore, InfoDev (2010) study reveals that power situation in rural and remote-rural areas even in some advanced countries is undependable and this affects the functioning of any ICT initiative. Moreover, Kelso & Halpin (2010) asserted that lack of electricity is main problem to use digital technology in the classroom. Power outages and fluctuations add to the high maintenance costs of computer hardware (InfoDev, 2010). Interrupted electric supply hindrance the use of DC in most of the school of Bangladesh (Shaha & Rahman, 2015). As a result, teachers are unable to use DC although they are willing. This research also identified same kind of scenario.

All lessons are not viable to DC is another finding of this study. This challenge is faced by many English teachers in the higher secondary level of education. They used digital content only for the specific content in a specific area. Most of the teachers are claimed that DC is not suitable for all types of content such as if one can use this for the paragraph writing it is not appropriate in this regard. As Gregori-Signes (2008) affirmed that with the emergence of new technologies and their subsequent integration into English teaching and learning, it has become a significant issue to supply teachers and students with engaging digital content, activities that can be used in place of any form of content, or at least complement, into more traditional ones. Further, research study by Shaha & Rahman (2015) also recognized similar challenges for using DC in English for grade IX-X.

Cost for initial DC investment also identified as a challenge in this study. To launce digital content-based teaching-learning process in the colleges are needed huge investment like projector, computer etc. in the initial stage. But most of the colleges are facing the lack of initial funding for DC. This finding is supported by InfoDev (2010) study wherein pointed out that budgetary allocations for ICT deployment in educational institutions are often limited in underdeveloped nations, and the initial high expenses of setting up ICT systems act as an additional barrier. However, this analysis demonstrates that, given various governments' current fiscal and resource constraints, broad use of DC in education is unlikely in the majority of developing countries.

The main problem with smart classrooms is the high setup costs. In line with our findings, Zolfaghari Mashhadi & Reza Kargozari, (2011) also found similar phenomena. Hardware and software maintenance are also very expensive. Content stored in the cloud, such as YouTube, etc., which can be viewed through one's own laptop or smartphone, is useful to the students. The main reason for the failure of the general education system in our country is the lack of this unique education. When a teacher has fifty students in a common classroom, there is no opportunity to look at each student separately. Most of the students are not able to get the proper education because of this pour education. On the other hand, the drawbacks included an alarming lack of social contact through face-to-face classes, as well as a lack of co - ordination between the teacher and students, as well as amongst students themselves. Many schools do not have internet facilities, so it is not possible to show digital content in class. Also, teachers do not have their own laptop computer. Teachers are unable to use laptops in the classroom despite the government's interest in not

providing laptop computers to all. In line with our findings, some studies show that there are some limitations to using digital content in the classroom (Klimova et al., 2021: Saikat et al., 2021; Zhou et al., 2019).

5.7 Implications of the Research

This study has implications for various levels of what Davis (2010) calls the "educational ecosystem" and for those responsible for planning and implementing digital content in education.

5.7.1 Implications for Policy

Concerned authority i.e. Ministry of Education (MoE), National and Curriculum Textbook (NCTB) etc. are requested to follow the following guideline for the better adaptation of DC in the educational institutions like colleges for teaching-learning process of English.

- ✓ Provide proper infrastructural facilities in every educational institution without any discrimination between urban and rural areas;
- ✓ Introduce test for English listening and speaking skills in the assessment system by using digital content-based technology as like IELTS;
- ✓ Allot marks (equal mark) for English Listening and Speaking Skills in Curriculum and practice accordingly
- ✓ Increase multimedia classroom with adequate number of computers, internet connection and others equipment without any discrimination between Urban and rural colleges;
- ✓ Supply essential equipment for Digital content and its upgrading;
- ✓ To have an alternative power system for load shedding in every educational institution;
- ✓ Provide proper and ample training for English teachers;
- ✓ Give handsome incentive for the Teachers who use digital content and who takes part DC related training;
- ✓ Arrange special training on DC for older English teachers on a priority basis as older teachers are lagging behind than younger teachers in terms of access to and use of digital content;

- ✓ Provide special training on DC for English teachers and facilities for both English teachers and students of rural areas on a priority basis since they are victims of digital divide;
- ✓ Introduce and use digital content from the very beginning of the primary education so that students are able to familiarize with DC from their early age;
- ✓ Increase the class time a little more since it is difficult to use digital content in a 40 or 45-minute class;
- ✓ Appoint a Digital Content based Technician in every Educational Institution who solves and also oversees any issues related to digital content or digital instruments/equipment;
- ✓ Take proper steps in order to dispel the misconception about ICT or digital content which are common especially in rural areas such as students will be spoiled by exposure to digital content or digital equipment;
- ✓ Engage expert teachers to create and enhance variety of digital content for English subject in alignment with subject matter as well as indigenous perspective;
- ✓ Support teachers financially (in extreme cases) who are lagging behind in case of using digital content in the rural areas.

5.7.2 Implications for Practice

The findings of the research put forward some implications for practice-

- ✪ Should use relevant and to the point digital contents instead of vague and irrelevant DC in the English classroom by the English teachers;
- ✪ Treat digital contents as teaching-learning tools or teaching aids not the main part of education;
- ✪ Focus more on how to improve English proficiency specially in listening and speaking skills and how to use digital content appropriately without focusing only on completing the English syllabus;
- ✪ Fix teacher-pupil ratio according to the standard proportion in the digital content based English classroom;
- ✪ The government and teachers should be more hearty and helpful to overcome the difficulties regarding the usage of digital content in teaching and learning properly;

- ✪ The government and teachers should be ardently feeling the importance of digital content in teaching and learning English;

- ✪ Give motivation for using digital content for English teachers;

- ✪ Should raise public awareness regarding digital content, its usage and its needs in education;

- ✪ Monitor and be aware about learners' activities by the guardian while using digital content;

- ✪ To use digital content compulsory in English subject for a fixed day in a week for the educational institutions which have digital equipment.

5.7.3 Implications for Future Research

In this section, some implications have prescribed for the future research. While doing the research, the researcher has found that the following research areas are related to his topic, to be explored by future researchers:

- ⚫ Usage of DC in the tertiary level of education;

- ⚫ Consequence of using digital content in teacher's professional development;

- ⚫ Consequence of DC on students learning at primary level;

- ⚫ Effects of introducing DC for enhancing teaching learning at different education level;

- ⚫ Assessment of teachers' and students' active participation by using DC in classroom;

- ⚫ Use of DC in the other disciplines of education;

- ⚫ The study area was confined to Dhaka and Chandpur districts. The same study might be conducted for the whole country;

- ⚫ The same study could be done comparing practises between schools in urban and rural areas;

- ⚫ Similar study could be conducted in comparison with Bangladesh and some foreign country.

5.8 Conclusion

As digital content has been using in the teaching-learning process of English for more than a decade in Bangladesh, so, the usage of DC according to pedagogy is expected. Before taking this topic as a research topic, the researcher thought that the usage of DC in English for grade XI-XII are frequent and as per the demand of students, curriculum and pedagogy. But after researching it can explore that the usage of DC in English teaching and learning is very occasional and not all-time align with the curriculum and pedagogy at all. Although the usage of DC in English offers lot of avenues but its' full potentially could not use for not being followed perfect pedagogy and some challenges which are also explored by this research. But the researcher expects that the scenario could be better if the addressed challenges are recovered and appropriate pedagogy will be adopted for using DC in the teaching-learning process of English at the higher secondary level of education and other level of education in turn.

Reference

Abraham, L. B. (2008). *Computer-mediated glosses in second language reading comprehension and vocabulary learning: A meta-analysis*. Computer Assisted Language Learning, 21(3), 199- 226. Retrieved from: http://dx.doi.org/10.1080/09588220802090246.

Ackerley, K., & Coccetta, F. (2007). *Enriching language learning through a multimedia corpus*. ReCALL Journal, 19(3), 351–370.

Agariya, A. K., & Singh, D. (2013). *E-Learning quality: Scale development and validation in Indian context. Knowledge Management & E-Learning*. An International Journal (KM & EL), 4(4), 500-517.

Agnew, P. W., Kellerman, A. S. & Meyer, J. (1996). *Multimedia in the Classroom*, Boston: Allyn and Bacon.

Akter. S, (2014). *Practice of Bangladesh and global studies curriculum in classroom of secondary schools in Dhaka city.* Unpublished M.Ed. dissertation, Institute of Education and Research, University of Dhaka, Dhaka, Bangladesh.

Alauddin et al. (2010). *Handbook on research on strategic performance management.* Dhaka, Bangladesh.

Alavi, M., Wheeler, B.C., & Valacich, J.S. (1995). *Using IT to reengineer business education: An exploratory investigation of collaborative telelearning*. MIS Quarterly 19(3), 293-312.

Al-Seghayer, K. (2001). *The effect of multimedia annotation modes on L2 vocabulary acquisition: A comparative study.* Language Learning and Technology, *5* (1), 201-232.

Alves.N.D.A, Almeida.A.N.D, Delicado.A, Carvalho.T, (2010). *The use of ICTs in teaching and learning processes.* ISA. Gothenburg, Sweden.

Aparicio, M., Bacao, F., & Oliveira, T. (2016). *An e-Learning Theoretical Framework.* Educational Technology & Society, *19* (1), 292–307.

Aronowitz & Scott. (2010). *"Discovery Aligns Digital Content to Common Core Standards".* THE Journal. Retrieved from: http://k12blueprint.com/k12/blueprint/cd/Texas_Digital_Content_Brief.pdf.

ASCD. (2014). *Educational Leadership. Hundreds of school district leaders and educators arrived in Orlando.* https://ascd2014.discoverlosangeles.com/content/ascd2014

Asian Development Bank. (2002). *Digital Divide: Determinants and policies with special reference to Asia,* ERD Working Paper Series No 27, Economic and Research Dept., Asian Development Bank, Philippines.

Bailey, J., Schneider, C., & Ark, T. V. (2013). *National Summit on Education. Navigating The Digital Shift: Implementation Strategies for Blended and Online Learning*. Digital Learning Now!

Baker, R., A., (2009). *Museum & Education Digital Content Exchange: Overview and Report on the Student Trial*. Curriculum Corporation: Melbourne.

Baker, R., A., (2010). *Pedagogies and Digital Content in the Australian School Sector.* Curriculum Corporation: Melbourne.

Beach, R. (2012). *Uses of Digital Tools and Literacies in the English Language Arts Classroom.* Research in the schools- Mid-South Educational Research Association.19 (1). 45-59.

Beach, R., & O'Brien, D. (2012). *Using iPad and iPhone apps for learning with literacy across the curriculum.* Retrieved from http://usingipads.pbworks.com.

Beach, R., Anson, C., Kastman-Breuch, L., & Swiss, T. (2009). *Teaching writing using blogs, wikis, and other digital tools*. Norwood, MA: Christopher Gordon.

Becker, H. J., Ravitz, J. L., Wong, Yan, Tien. (1998). *Teacher and Teacher-Directed Student Use of Computers and Software. Teaching, Learning, and Computing:* National Survey.

Becta. (2008). *Harnessing Technology: Preliminary identification of trends affecting the use of technology for learning*, viewed 4 May 2010, from: http://emergingtechnologies.becta.org.uk/index.php?section=etr&catcode=ETRE_0001&rid=14203.

Bell, J (2005). *Doing your research projects: A guide for first time researcher in education, health and social science.* (4th Ed.). Berkshire: Open University Press.

Bennett, N., Sandore, B., Miller, P. (2001). *Enabling Real Collaboration through Virtual Tools: The Teaching with Digital Content Consortium Experience.* Presentation at

MCN/CIMI2001, Real Life: Virtual Experiences: New Connections for Museum Visitors.

Berta & Raymond, M. (2013). *Distance education quality course delivery framework: A Formative research study* (Unpublished doctoral dissertation). University of Phoenix, Tempe, AZ.

Best, J, W & Khan, J, V (2005). *Research in Education.* (9th edition). New Delhi: Prentice hall of India Private limited.

Bingimlas, K. (2009). Barriers to the Successful Integration of ICT in Teaching and Learning

Environments: A Review of the Literature. *Eurasia Journal of Mathematics Science &*

Technology Education, 5, 235–245. https://doi.org/10.12973/ejmste/75275

Biswas, B., R., (2015). *Multimedia classroom in Bangladesh: Perspective and Challenges. Unpublished dissertation.* Institute of Education and Research. University of Dhaka. Dhaka.

Blackwell, C., (2013). *Teacher Practices with Mobile Technology Integrating Tablet Computers into The Early Childhood Classroom*. Journal of Education Research.

Brent. (2005). *Understanding student's differentiation.* Journal of Engineering Education. 94(1), 57-72.

Brown, J. and Duguid, P. (2014). *Universities in the Digital Age.* op cit.

Butler, D., et al. (2013). *"A Consultative Paper Building towards a Learning Society: A National Digital Strategy for Schools."* Retrieved September, 2015, from http://www.education.ie/en/Schools-Colleges/Information/Information-Communications-Technology-ICT-in-Schools/Digital-Strategy-for-Schools/Building-Towards-a-Learning-Society-A-National-Digital-Strategy-for-Schools-   Consultative-Paper.pdf.

Butler-Pascoe, ME (2009). *English for Specific Purposes (ESP), Innovation, and Technology.* English Education and ESP.p. 1–15.

Buzzard, C, Crittenden, V. L., Crittenden, W. F., McCarty, P. (2011). *The Use of Digital Technologies in the Classroom: A Teaching and Learning Perspective.* Journal of Marketing Education, Vol. 33, Issue 2, p. 131-139.

Byrom, E., & Bingham, M. (2001). *Factors influencing the effective use of technology in teaching and learning.* Retrieved from the South East Initiatives Regional Technology in Education Consortium website: http://www.seirtec.org/publications/lessons.pdf.

Carl conference. (2012). *Creativity and sustainability: Fostering user centered innovation in difficult times*. San Diego: California.

Carlson, S., & Gadio, C. T. (2002). *Teacher professional development in the use of technology.* In W.D. Haddad & A. Draxler (Eds.), *Technologies for education: potential, parameters, and prospects,* Paris and Washington, D.C.: UNESCO and AED, retrieved April 25, 2005 from http://www.schoolnetafrica.net/fileadmin/resources/Teacher_Professional_Developme nt_In_the_use_of_Techno logy.pdf.

Chelliah, J., Clarke, E. (2011). *Collaborative teaching and learning: overcoming the digital divide?* On The Horizon. The Strategic Planning Resource for Education Professionals. 19 (4), p. 276-285.

Chen, Y. F., Chen, H. J., Chen, H. L., & Wu, T. H. (2011). *The Study on Development and Quality Evaluation of Digital Contents of Health Educations for Computer End-Users*. Chia-Nan Annual Bulletin, *37*, 258-270.

Chowdhury. A., A., (2012). *Teacher Educators' Perspectives of the Introduction of ICT in Education in Bangladesh.* Critical Literacy: Theories and Practices 6:2. 66-85.

Chun, D. M. (2006). CALL technologies for L2 reading. In L. Ducate & N. Arnold (Eds.), *Calling on CALL: From theory and research to new directions in foreign language*

Chun, D., & Plass, J. (1997). *Research on text comprehension in multimedia environments.* Language Learning and Technology, *1* (1), 60-81.

Clarke,V & Braun,V. (2014). *Thematic analysis in T. Teo (Ed.)* Encyclopaedia of critical psychology. 1947-1952). New York: Springer.

Cobb, P., Confrey, J., Sessa, A., Lehrer, R. and Schauble, L. (2003) *'Design Experiments in Educational Research'*. Educational Researcher, 32(1), pp. 9–13.

Creswell, J., W. (2009). *Research design: Qualitative, quantitative and mixed method approaches*. (3rd edition). Upper saddle River, New Jersey: Pearson Merrill Prentice Hall.

Cummins, J. (1981). *The role of primary language development in promoting educational success for language minority students.* In J. Cummins (Ed.), Schooling and language minority students: a theoretical framework (pp. 1 – 50). Los Angeles: Evaluation, Dissemination, and Assessment Center.

Dalton, B. & Grisham, D. L. (2011). *eVoc Strategies: 10 Ways to Use Technology to Build Vocabulary.* The Reading Teacher, 64(5), 306-317.

Dani, D. E. & Koenig, K. M. (2008). *Technology and Reform-Based Science Education.* Theory into Practice, Vol. 47, No. 3, p. 204-211.

Davis, N. (2010). *Global interdisciplinary research into the diffusion of information technology innovations in education.* In A. Murnane, A. Jones, & N. Reynolds (Eds.). *Researching IT in education: Theory, practice and future direction* (pp. 142-149). USA and Canada: Routledge.

Dede, C. (2008). *Theoretical perspectives influencing the use of information technology in teaching and learning.* In J. Voogt, & G. Knezek (Eds.), *International handbook of information technology in primary and secondary education* (pp. 43-63). New York: Springer.

Department of Education and Early Childhood Development (EECD), Victoria, 2009, *Expanding Horizons.* Digital Learning Platforms Research Series Paper No. 1, Melbourne.http://www.education.vic.gov.au/researchinnovation/resources/recentpubl. htm.

Dexter, S. L., Anderson, R. E., & Becker, H. J. (1999). *Teachers' views of computers as catalyst for changes in their teaching practices*. Journal of Research on Computing Journal, *31*, 221–239.

Didar, Abdullah, Abul & Jamal, (2011). *Localization of Digital Content for use in Secondary Schools of Bangladesh,* 16.

Duquette, L., & Painchaud, G. (1996). *A comparison of vocabulary acquisition in audio and video contexts. The Canadian Modern Language Review, 53* (1), 143-172.

Ehlers, U. D. (2012). *Quality assurance policies and guidelines in European distance, and e-learning.* In I. Jung & C. Latchem (Eds.), *Quality assurance and accreditation in distance education and e-learning* (pp.79–90). New York, NY: Routledge.

Ehsani, F., & Knodt, E. (1998). *Speech technology in computer-aided language learning: Strengths and limitations of a new CALL paradigm.* Language Learning and Technology, *2* (1), 45-60.

ELNORD. (2006). *"eLearning Nordic 2006".* Edited by Pedersen, S.G., Malmberg, P., Christensen, A.J., Pedersen, M., Nipper, S., Græm, CD., Norrgård, J. & Ramboll Management. Copenhagen: Ramboll Management. www.ramboll-management.com.

Elton, L. (1999). *'New ways of learning in higher education: Managing the change'.* Tertiary Education and Management 5, pp. 207–225.

Empirica (2006). *Benchmarking access and use of ICT in European schools.* Empirica, European Union. Available online at: http://ec.europa.eu/information_society/ eeurope/i2010/docs/studies/final_report_3.pdf.

Ertmer, P. A., & Ottenbreit-Leftwich, A. T. (2010). *Teacher technology change: How knowledge, confidence, beliefs, and culture intersect.* Journal of Research in Technology Education, *42*(3). 255-284.

Esther Prins, Brendaly Drayton, & Ramazan Gungor. (n.d.). *GED Preparation Through Distance Learning in Rural Pennsylvania.* https://doi.org/The Center for Rural Pennsylvania

Felix, B., & Paloma, D. (2003). *A Framework for the Management of Digital Educational Contents Conjugating Instructional and Technical Issues.* Educational Technology & Society, 6 (4), 48-59, Available at http://ifets.ieee.org/periodical/6_4/6.pdf.

Felix, U (2005). *E-learning Pedagogy in the Third Millennium: The Need for Combining Social and Cognitive Constructivist Approaches.* ReCALL, 17(1): 85–100.

Ferdig, E. (2006). *Assessing technology for teaching and learning.* Journal of General, 5, 749-766.

Franzoni, A. L., & Assar, S. (2009). *Student Learning Styles Adaptation Method Based on Teaching Strategies and Electronic Media.* Educational Technology & Society, 12 (4), 15-29.

Frommer, J. (2006). *Wired for sound: Teaching listening via computers and the World Wide Web.* In R. P. Donaldson & M. A. Haggstrom (Eds.), *Changing language education through CALL* (pp. 67–94). Oxford: Routledge.

Gay, L. R. & Airasian, P. (1996*). Educational Research: Competencies for Analysis and Application. Colombus*, Ohio: Prentice-Hall.

Greenberg. A., D. and Zanetis. J. (2012). *The Impact of Broadcast and Streaming Video in Education.* AINHOUSE Research.

Gregor, S., Martin, M., Fernandez, W., Stern, S., & Vitale, M. (2006). *The Transformational dimension in the realization of business value from information technology.* The Journal of Strategic Information Systems, *15*(3), 249–270. doi:10.1016/j.jsis.2006.04.001.

Gregori-Signes, C. (2008a). *"Digital Storytelling within the Common European Framework".* Talk presented at I Congress.

Halder. S, (2013). *Analysing the effect of using Mobile technology in English language teaching learning at Secondary level in Dhaka Division.* Unpublished dissertation. Institute of Education and Research. University of Dhaka. Dhaka.

Harrison, C., Lunzer, E. A., Tymmsw, P., Carol Taylor, F.-G., & Restorick, J. (2004). *Use of ICT and its relationship with performance in examinations: A comparison of the ImpaCT2 project's research findings using pupil-level, school-level and multilevel modelling data.* Computer-Assisted Learning*, 20*(5), 319-337.

Hasanuzzaman, Z. & Rokonuzzaman. (2015). *Teaching in new era, (*PDF). Educause review. p.10.

Hew, K. F., & Brush, T. (2007). *Integrating technology into K–12 teaching and learning: Current knowledge gaps and recommendations for future research.* Educational Technology Research and Development, *55*, 223–252.

Higgins, S., Xiao, Z., Katsipataki, M., (2012). *The Impact of Digital Technology on Learning: A Summary for the Education Endowment Foundation.* Education Endowment Foundation. Durham University.

Hossen. S. F., (2012). *Impact of Information and Communication Technologies on students study habits: A case of Dhaka University*. Unpublished dissertation. Institute of Education and Research. University of Dhaka. Dhaka.

Huang, Y., Liu, H., Wang, W., Dong, R., & Tang, Y. (2021). The Junior Students' Internet Literacy Scale: Measure Development and Validation. *International Journal of*

Environmental Research and Public Health, *18*(19), 10120.

https://doi.org/10.3390/ijerph181910120

ICF (2015). *Literature Review on the Impact of Digital Technology on Learning and Teaching.* Social research. Scotland. Retrieved from: website at- www.gov.scot.

 Ilhan, G. O., & Oruç, Ş. (2016). *Effect of the use of multimedia on students' performance: A case study of social studies class*. 6.

InfoDev. (2010). *ICT in School Education (Primary and Secondary).* Price Water House Cooper.
ISBN: 978-1-78544-819-5.

Jahan. I, (2015). *Changes in Formative Assessment Practice in Secondary Science Classroom as Consequence of Creative Questioning.* Unpublished Dissertation. Institute of Education and Research. University of Dhaka.

Jewell, M., (2006). *'Real-world contexts, skills and service learning for secondary school language learners.* In Hanson-Smith, E and Rilling, S (Ed.) *Learning languages through technology.* Alexandria, VA: TESOL.

Jonassen, D. H., Peck, K. L., and Wilson, B. G. (1999). *Learning with Technology: A Constructivist Perspective*, New Jersey: Merrill/Prentice Hall.

Jones, L. C. (2003). *Supporting listening comprehension and vocabulary acquisition with multimedia annotations: The students' voice.* CALICO Journal*, 21*, 41–65.

Jung, I. (2011). *The Dimensions of e-learning quality: From the learner's perspective*. Educational Technology Research & Development*, 59*(4), 445-464.

Kamal, (2006). *Immune Modulation by helmentic inflection: worms & viral infections*, 28(10), 483-496.

Kelso. K., & Halpin. (2010). *Educational Technologies for English Language Learners.* Center for   Digital Education.

Kimble, G. A. and Garmezy, N., (1963). Principles of general psychology (2nd Ed.). Ronald press. OROVILLE, CA, U.S.A.

Klimova, B., Pikhart, M., Cierniak-Emerych, A., & Dziuba, S. (2021). A Qualitative Analysis of Students' Reflections on the Current Use of Digital Media in Foreign Language Classes. *Sustainability*, *13*(16), 9082. https://doi.org/10.3390/su13169082

Koehler, M. J. (2006*). Technological Pedagogical Content Knowledge: A new framework for teacher knowledge.* Teachers College Record, *108* (6), 1017-1054.

Kothari, C. R., (2006). *Research Methodology Methods & techniques (2ⁿᵈ Ed*.). New Delhi: New Age International (P) Ltd. Publisher.

Krajka, J., (2003). *ESP on the Web – A Proposal for a Web-based Course book Supplement. ESP World Journal* 2/2.Available online at: http://esp-world.7p.com/ articles_5/ESP%20ON%20THE%20WWW_2.html.

Krashen, S. D. (1981*). Second language acquisition and second language learning*. New York: Pergamon Press.

Krashen, S. D. (1982). *Principles and practice in second language acquisition.* New York: Pergamon.

Kress, G. (2010). *Multimodality- A social semiotic approach to contemporary communication*. Oxon, UK: Routledge.

Kuo, T. C. T., Chen, H. R., Hwang, W. Y., & Chen, N. S. (2015). *The Factors and Impacts of Large-Scale Digital Content Accreditations.* Educational Technology & Society*, 18* (3), 29–48.

Lakkala et al. (2003). *Principles of progressive inquiry.* Journal of Geographic research, 108.

Lamanauskas, V., Slekiene, V., Raguliene, L., Bilbokaite, R. (2011). *Digital Teaching and Learning Content in Natural Science Education: Pedagogical Evaluation.* Acta Universitatis Latviensis / Scientific Papers University of Latvia (Science and Technology Education: Trends and Main Tendencies in the 21ˢᵗ Century, Riga, Latvia, November 30 - December 3, 2011), 778. 129-137. ISSN 1407-2157.

Latif. (2009). *Advanced Research on Cloud Computing Design and Application*.

Laufer, B., & Hill, M. (2000). *What lexical information do L2 learners select in a CALL dictionary and how does it affect word retention?* Language Learning & Technology, *4*(2), 58–76.

Laurillard. D. (2008). *Digital technologies and their role in achieving our ambitions for education.* Institute of Education, University of London, Retrieved from: www.ioe.ac.uk/publications.

Lee, A. S., & Baskerville, R. L. (2003*). Generalizing generalizability in information systems research.* Information Systems Research*, 14*(3), 221–243.

Levy. M., (2009). *Technologies in Use for Second Language Learning.* The Modern Language Journal, 93, Focus Issue, (2009).769-782.

Lindstrom, R. (1994). *The Business Week Guide to Multimedia Presentations: Create Dynamic Presentations That Inspire*, New York: McGraw-Hill.

Liu, M. Navarrete, C. C., Maradiegue, E., and Wivagg, J. (2014). *Mobile Learning and English Language Learners: A Case Study of Using iPod Touch as a Teaching and Learning Tool.* Journal of Interactive Learning Research*, 25*(3).

Lund, A. (2004). *The teacher as interface: Teachers of EFL in ICT-rich environments: Beliefs, practices, appropriation*. Oslo: UniPub.

Madsen, S. S. (2020). Understandings and attitudes regarding skill-based and competency-based cultures for learning: A comparative study of Norwegian and New Zealand teacher educators. *Educational Research for Policy and Practice*, *19*(3), 301–317. https://doi.org/10.1007/s10671-020-09260-y

Majumdar, S. (1997). *Network based flexible learning: Prospects and challenges in the 21st century: Invited keynote address at the international conference of vocational and training.* IVETA, 97, 24-28.

Mamum. A. A, & Tapon. M. S. M. (2009). *Using ICT in teaching-learning at the Polytechnic Institute of Bangladesh: Constraints and Limitations*. Teachers world, 33, 207-217.

Mayer, R. E. (2001). *Multimedia learning*, Cambridge, UK: Cambridge University Press.

McCrmix, R & Scrimshaw, P (2001). *Information and communications technology, knowledge and pedagogy*. Education, Communication and information, 1(1):37-57.

Miyata, H., Ishigami, M. (2007). *Effects of using digital contents designed for PDA as a teaching aid in an observational learning of planktons for fieldworks on a ship.* Advanced Technology for Learning, 4(3), p. 146-153.

MoE. (2010). *National Education Policy 2010 [EN/BN]—Bangladesh*. ReliefWeb.

https://reliefweb.int/report/bangladesh/national-education-policy-2010-enbn

Mueller, J., Wood, E., Willoughby, T., Ross, C., & Specht, J. (2008). *Identifying discriminating variables between teachers who fully integrate computers and teachers with limited integration.* Science Direct. Computers and Education*, 51*(4), 1523-1537.

Murai, M., Nakagawa, H., Kobayashi, Y., Iwasaki, K., Matsuno, N. & Iijima, K. (2009). The *Digital Teaching Materials are Utilized for the Science Education at a Japanese Elementary School*. In G.Siemens & C. Fulford (Eds.), *Proceedings of World Conference on Educational Multimedia, Hypermediaand Telecommunications 2009* (pp. 73-78). Chesapeake, VA: AACE.

Murray, L., & Hourigan, T. (2006). *Using micropublishing to facilitate writing in the foreign language.* In L. Ducate & N. Arnold (Eds.), *Calling on CALL: From theory and research to new directions in foreign language teaching* (pp. 149–180). CALICO Monograph Series Volume 5. Texas State University. San Marcos, TX: CALICO Publications.

National curriculum and Textbook board [NCTB], (2011). *National secondary Education curriculum.* Government of the People's Republic of Bangladesh. Ministry of education.

Neo, M & Neo, T. K. (2000). *Multimedia Learning: Using multimedia as a platform for instruction and learning in higher education. Paper presented at the Multimedia University International Symposium on Information and Communication Technologies 2000 (M2USIC'2000),* October 5-6, 2000, Petaling Jaya, Malaysia.

Neo, M & Neo, T. K. (2001). Innovative teaching: *Using multimedia in a problem-based learning environment.* Journal of Educational Technology & Society, 4(4), 19-31. Retrieved from: http://www.jstor.org/stable/jeductechsoci.4.4.19.

Neri, A., Mich, O., Gerosa, M. & Giuliani, D. (2008). *The effectiveness of computer assisted pronunciation training for foreign language learning by children.* Computer Assisted Language Learning, 21(5), 393-408. Retrieved from: http://dx.doi.org/10.1080/09588220802447651.

Ng, W.K., (2005). *Pedagogical Principles and Instructional design of lessons using ICT.* Presentation to expert meeting on training modules on the effective use of ICT in teaching and learning, Bangkok, Thailand.

Novak, J. D. (1998). *Learning, creating, and using knowledge: Concept maps as facilitative tools in schools and corporations.* Mahwah, NJ: Lawrence Erlbaum.

PC Magazine Encyclopaedia, (2015). *"Digital Content".* Available at:www.pcmag.com/encyclopedia/term/41313/digital-content (accessed 27 May 2015).

Pennington, M. (2004). *Electronic media in second language writing: An overview of tools and research findings.* In S. Fotos & C. M. Browne (Eds.), *New perspectives on CALL for second language classrooms* (pp. 69–92). Mahwah, NJ: Erlbaum.

Pennington, M., & Brock, M. N. (1992). *Process and product approaches to computer-assisted composition.* In M. Pennington & V. Stephens (Eds.), *Computers in applied linguistics* (pp. 79–109).Clevedon, UK: Multilingual Matters.

Perraton, H., Robinson, B., & Creed, C. (2001). *Teacher education through distance learning: technology, curriculum, evaluation, cost*. Paris: UNESCO.

Peters, K. (2005). *Learning on the Move: Mobile Technologies in Business and Education*. Australian Flexible Learning Framework, p. 66.

Petty, L. I., Johnston, J., & Shafer, D. (2004). *Distance education for adult learners*. Retrieved March 1, 2006, from http://www.projectideal.org/pdf/handbook/DEHandbook3rdEdTEXT2!.pdf.

Rahman, M.F., Akanda, M. O. R, & Shaha, R.C. (2019). An Analysis of Classroom Observations on the Use of Digital Content in English Subject at Grade IX-X, *Primary Education Journal,* 10(1), 25-34.

Rahman, S. M. H., (2011). *Professional learning of secondary science Teacher's in Bangladesh.* Unpublished doctoral dissertation. Faculty of Education. Monash University. Australia.

Raihan, R. E., (2015). *ICT intervention in Teaching Learning Activity for Low Achiever: A Case Study on a GPS.* Unpublished M.Ed. dissertation, Institute of Education and Research, University of Dhaka, Dhaka, Bangladesh.

Ramirez, D. and Alonso, I. (In prep, 2003). *Primary teachers' insights into the use of the Internet in their English as a Foreign Language lessons: A research case study.*

Reinking, D., & Rickman, S.S. (1990). The effects of computer- mediated texts on the vocabulary learning and comprehension of intermediate-grade readers. Journal of Reading Behavior, 22(4), 395-411.

Robinson, B., & Latchem, C. (2003). *Teacher education: challenges and change.* In B. Robinson, & C. Latchem (Eds.), *Teacher education through open and distance learning*, London: Routledge Falmer, 1-27.

Roblyer, M. D. & Edwards, J. (2000). *Integrating Educational Technology into Teaching* (2nd Ed.), New Jersey: Merrill/Prentice-Hall.

Rong, Q. T., Lee, H. L., & Liao, B. Y. (2006). *The Effects of using "Reciprocal Representation Instructional Strategy" in "The Conception of Convection" learning for elementary students.* Educational Technology and Media, *78*, 28-37.

Saikat, S., Dhillon, J. S., Wan Ahmad, W. F., & Jamaluddin, R. A. (2021). A Systematic Review of the Benefits and Challenges of Mobile Learning during the COVID-19 Pandemic. *Education Sciences*, *11*(9), 459. https://doi.org/10.3390/educsci11090459

Salomon, G. (2000). *It's not just the tool, but the educational rationale that counts.* Ed-Media Meeting, Montreal.

Schilling.K, (2009). *The Impact of Multimedia Course Enhancements on Student Learning Outcomes.* Journal of Education for Library and Information Science, 50(4), 214-225.

SETDA, (2014). *The accessibility of learning content for all students, including students with disabilities, must be addressed in the shift to digital instructional materials.*www.setda.org. http://www.setda.org/priorities/digital-content/.

Sha et al. (2012). *A learner centric view of mobile seamless learning.* British Journal of education technology, 43(1), E19-E23.

Shaffer & Clinton. (2006). *Tools for thought: Re-examining thinking in the Digital age*, Madison: University of Wisconsin.

Shaha, R. C. (2019). An Analysis of using Digital Content in English subject at grade IX-X from teachers' perspective, *Jagannath University Journal of Arts,* 9 (2), 287-300.

Shaha, R.C. & Rahman, M.F. (2015). *Use of Digital Content in teaching and learning English at the secondary level of education*, Unpublished Master Thesis, Institute of Education and Research: University of Dhaka.

Sharmin. S.A, (2013*). Effect of ICT on Students learning: A case of Ranirbandar GPS in Dinajpur District.* Unpublished dissertation. Institute of Education and Research. University of Dhaka. Dhaka.

Shneiderman. B, Borkowski. E. Y, Alavi. M., and Norman. K., (1998). *Educational Technology Research and Development.* Springer, 46(4), 23-42.

Shyu, H. & Liao, P. Y. (2004). *Exploring the types of knowledge and message design in E-learning.* Journal of Education Research, *125*, 5-16.

Silverman, R. & Hines, S. (2009). *The effects of multimedia-enhanced instruction on the vocabulary of English-language learners and non-English-language learners in prekindergarten through second grade.* Journal of Educational Psychology, 101(2), 305-314. http://dx.doi.org/10.1037/a0014217.

Soloway, E., Jackson, S.L., Klein, J., Quintana, C., Reed, J., Spitulnik, J., Stratford, S.J., Studer, S., Jul, S., Eng, J., & Scala, N. (1996). *Learning theory in practice: Case studies of learner-centered design.* Proceedings of ACM CHI'96 Conference. ACM, New York, 189- 196.

Sun, Y. & Dong, Q. (2004). *An experiment on supporting children's English vocabulary learning in multimedia context.* Computer Assisted Language Learning, *17* (2), 131-147.

Sung, Y. T., Chang, K. E., Lin, H. L., Lee, Y. F., & Chen, M. P. (2009). *Establishing certification standards for e-learning courseware quality and analyzing its reliabilities and applications.* Journal of e-Business, *11*(4), 823-846.

Tamim, R. M., Bernard, R. M., Borokhovski, E., Abrami, P. C., & Schmid, R. F. (2011). *What forty years of research says about the impact of technology on learning: A second order meta-analysis and validation study.* Review of Educational research, 81(1), 4-28.

Tang, X. (2011). Study on the Application of Multimedia in English Language Teaching. In S. Lin & X. Huang (Eds.), *Advances in Computer Science, Environment, Ecoinformatics, and Education* (pp. 293–297). Springer. https://doi.org/10.1007/978-3-642-23339-5_53

teaching (pp. 69–98). CALICO Monograph Series Volume 5. Texas State University. San Marcos, TX: CALICO Publications.

The Daily Prothom Alo (24 January, 2022). *Educational Institute of Bangladesh*. Retrieved from: https://www.prothomalo.com/.

The Project Tomorrow report. (2014*). Digital Learning 24/7: Understanding Technology — Enhanced Learning in the Lives of Today's Students.* Speak Up. Rockfield Boulevard, Suite 250 | Irvine, CA 92618. Retrieved from: http://www.tomorrow.org/speakup/SU14DigitalLearning24-7_StudentReport.html.

Tinio. V. T., (2009). *ICT in education. United Nations development programme.* Bureau for Development Policy, New York, NY.

Tozcu, A. C. & Coady, J. (2004). *Successful learning of frequent vocabulary through CALL also benefits reading comprehension and speed.* Computer Assisted Language Learning, 17(5), 473-495. Retrieved from: http://dx.doi.org/10.1080/0958822042000319674.

UNESCO (2008A). *ICT Competency Standards for Teachers: Policy Framework*. UNESCO: United Kingdom.

UNESCO (2011*). "UNESCO ICT Competency Framework for Teachers Version 2.0."* Retrieved September, 2015, from http://unesdoc.unesco.org/images/0021/002134/213475E.pdf.

United Nations Educational, Scientific and Cultural Organization (UNESCO). (2008). *"ICT Competency Standards for Teachers: Competency Standard Modules."* Retrieved September, 2015, from http://unesdoc.unesco.org/images/0015/001562/156207e.pdf.

United Nations Educational, Scientific and Cultural Organization. (2008B). *ICT Competency Standards for Teachers: Competency Standards Modules*. UNESCO: United Kingdom.

United Nations Educational, Scientific and Cultural Organization. (2008C). *ICT Competency Standards for Teachers: Implementation Guidelines, Version 1.0*. UNESCO: United

Kingdom. Retrieved September, 2015, from http://unesdoc.unesco.org/images/0015/001562/156209E.pdf.

Uzunboylu, H., & Tuncay, N. (2010). *Divergence of Digital World of Teachers.* Educational Technology & Society, 13 (1), 186– 194.

Vaughan, T. (1998). *Multimedia: Making it Work* (4th Ed.), Berkeley, CA: Osborne/McGraw-Hill.

Venkatesh, V., Morris, M. G., Davis, G. V., & Davis, F. D. (2003). *User acceptance of information technology: Toward a unified view.* MIS Quarterly, 27(3), 425 – 478.

Vethamain, (2009). *E- Learning.* International education studies journal, 2(4), 182-194.

Vlachopoulos, D., & Makri, A. (2017). The effect of games and simulations on higher education: A systematic literature review. *International Journal of Educational Technology in Higher Education*, *14*(1), 22. https://doi.org/10.1186/s41239-017-0062-1

Vogel et al., (2009). *The comprehensive model system Cosmo relative impact of aerosol on the atmosphere on regional scale*. Germany: Karlsruhe.

Vygotsky, L. S**.** (1978). *Mind in society: The development of higher psychological processes*, Cambridge, MA: Harvard University Press.

Vygotsky, L. S. (1986). *Thought and language*, Cambridge: MIT Press.

Wan Sulaiman, W. N. A., & Mustafa, S. E. (2020). Usability Elements in Digital Textbook Development: A Systematic Review. *Publishing Research Quarterly*, *36*(1), 74–101. https://doi.org/10.1007/s12109-019-09675-3

Wang, Deng & Deng. (2011). *Constructive farming illusions & consumes.* Rational. 422(7314): 40-1.

White, C. (2007). *Focus on the language learner in an era of globalization: Tensions, positions and practices in technology-mediated language teaching*. Language Teaching, 40(4): 321–326.

Wolff, C. E., Jarodzka, H., van den Bogert, N., & Boshuizen, H. P. A. (2016). Teacher vision: Expert and novice teachers' perception of problematic classroom management scenes. *Instructional Science*, *44*(3), 243–265. https://doi.org/10.1007/s11251-016-9367-z

Yang, S. C. (2001). *Language learning on the World Wide Web: An investigation of EFL learners' attitudes and perceptions*, Journal of Educational Computing Research, *24*(2), 155-181.

Yeh, Y., & Wang, C.W. (2003). *Effects of multimedia vocabulary annotations and learning styles on vocabulary learning.* CALICO Journal, *21*, 131–144.

Yin, R. k., (2009). *Case study research, design and methods* (3rd Ed.). Newbury Park: Sage publications.

Yoshii, M. (2006*). LI and L2 glosses: Their effects on incidental vocabulary learning.* Language Learning & Technology, 16(3), 85-101.

Zaman, H., and Rokonuzzaman. (2013). *Achieving digital Bangladesh by 2021 and beyond-B*ackground paper for the 7th Five Year Plan (7FYP).

Zhao, Y. & Frank, K. (2003). *Factors affecting technology uses in schools: An ecological perspective.* American Educational Research Journal, *40*(4), 807-840.

Zhao, Y. (1997). *The effects of listeners' control of speech rate on second language comprehension.* Applied Linguistics, *18*, 49–68.

Zhao, Y., Kevin, P., Stephen, S., & Byers, J. L. (2002). *Conditions for classroom technology innovations.* Teachers College Record, *104*(3), 482-515.

Zhao, Y., Pugh, K., Sheldon, S., & Byers, J. (2002). Conditions for Classroom Technology Innovations. *Teachers College Record - TEACH COLL REC*, *104*, 482–515.

https://doi.org/10.1111/1467-9620.00170

Zhou, L., Chen, L., Fan, Q., & Ji, Y. (2019). Students' Perception of Using Digital Badges in Blended Learning Classrooms. *Sustainability*, *11*(7), 2151.

https://doi.org/10.3390/su11072151

Zimmerman, I. K., (2011). *Digital Content Strategy Guide-Setting the Stage for a Digital Transformation.* CDE.1-28.

Zolfaghari Mashhadi, V., & Reza Kargozari, M. (2011). Influences of digital classrooms on education. *Procedia Computer Science*, *3*, 1178–1183.

https://doi.org/10.1016/j.procs.2010.12.190

Annexure

Appendix-A

Letter of Permission

অধ্যাপক ড. এস এম হাফিজুর রহমান
শিক্ষা ও গবেষণা ইনস্টিটিউট
ঢাকা বিশ্ববিদ্যালয়
ঢাকা-১০০০, বাংলাদেশ

Professor Dr. S M Hafizur Rahman
Institute of Education and Research (IER)
University of Dhaka
Dhaka-1000, Bangladesh
Mobile: +880 1552353426, Fax: +880-2-9667222
E-mail : hafiz.rahman@du.ac.bd, Web: www.du.ac.bd

Request Letter

To

....

....

Subject: Seeking approval for conducting research work

Dear Sir

I am pleased to inform you that Rahul Chandra Shaha bearing roll 17-905, a Master of Philosophy (M.Phil.) student of the Department of Language Education, Institute of Education and Research, University of Dhaka, has been conducting a research work to explore, **"Use of Digital Content in Teaching and Learning English at the secondary level (XI-XII) of Education"** to fulfill his partial requirement of M.Phil. degree.

To complete this research work, he needs your valuable cooperation and help in collecting data and information from the higher secondary English teachers and students of your college. It will be very convenient for him if you provide him with these opportunities for collecting data. I am assuring you that the collected data will be used only in this study and the participants' social identities will not be disclosed.

Therefore, I am requesting you to allow the researcher to collect data from your educational institute.

With regards,

Dr. S M Hafizur Rahman
MPhil Supervisor

Dr. S M Hafizur Rahman
Professor
Institute of Education and Research
University of Dhaka

172

Appendix-B

Consent Letter for English Teacher

Dear Teacher,

I am a student of the department of 'Language Education' at the Institute of Education and Research, University of Dhaka. I am currently a Master of Philosophy student there and conducting a research entitled **"Use of Digital Content in teaching and learning English at the secondary level (XI-XII) of education"**. To understand more clearly about this thesis topic, I need to observe one English class that you conduct, obtain an interview with you and fill up questionnaire by some students in your class. I hereby declare that none of your students or you will ever face any physical or psychological discomfort during this data collection process and also, all the information gathered in these processes will only be used for the purpose of this research. None of the information or your name will ever be disclosed to anyone.

So, I sincerely hope that you will assist me in this research work by permitting me to collect the data and by giving me true and correct information.

Sincerely

Rahul Chandra Shaha (MPhil. Researcher)

Institute of Education and Research
University of Dhaka.

Appendix-C

Classroom Observation Checklist

Institute of Education and Research

University of Dhaka

Research Title: "**Use of Digital Content in Teaching and Learning English at the secondary level (XI-XII) of Education**"

a) General Information

College Name: Title of the Chapter:

Teacher Name: Title of the Lesson:

Class: Duration of Class:

Section: No. of class observed:

Learners Profile: Observer:

Total Student:	Present:	Absent:	Boys:	Girls:

b) Physical Facilities

Serial No.	Indicators	Multiple Scale				Remarks
		All of the Class	Most of the Class	In few class	In no class	

		1	2	3	4	
1.	Electricity connection					
2.	MMC classroom in the College					
3.	Multimedia projector in class					
4.	Audio system/Sound system in class					
	Indicators	**Yes**		**No**		**Remarks**
		1		2		
5.	Computer for learning English					
6.	Language Laboratory in college					
7.	Devices for Practising English listening and speaking skills					

Other:

………………………………………………………………………………………………

……………………………………………………………………………………………

c) <u>Types of Digital Content being used for T-L English</u>

S	Indicators	Yes (1)				No (2)				Remarks
		Listening Skill	Speaking Skill	Reading Skill	Writing Skill	Listening Skill	Speaking Skill	Reading Skill	Writing Skill	
1	Audio									
2	Virtual text									

175

3	Animated photo/text										
4	Steaming audio-video										
5	Video										
6	Power-point										
7	Pictures using Laptop/PC/Mobile										
8	On-net audio-video										
9	Showing images										
10	Others										

Other:

………
………
………
………………………………………………………………………………………………
………
……………………………………………………………………………………………………
………
………………………………………………………………………………………………

d) <u>Types of Pedagogy do Teachers Use</u>

	Indicators	Yes	No	Observation / Remarks
		1	2	
1	Take preparation			

2	Follow/adopt any model			

3	How Ts follow/adopt the particular model in T-L English while using DC?
	
	   a. Which content?
	   b. What pedagogy?
	   c. Which technology?
	   d. Which DC?			

4	Follow any principles in using 'Digital Content' in English class-
	
	   i. Principles of selection
	   ii. Principles of preparation
	   iii. Principles of use
	   iv. Principles of conservation/preservation			

Other:

……………………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………………………………

……………………………………………………………………………………………

e) **Advantages of using Digital Content (Advantages observed in Class)**

……………………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………………………………

…………………………………………………………………………………………

f) **Challenges regarding Digital Content (Challenges observed in Class)**

…………………………………………………………………………………………………
…………………………………………………………………………………………
…………………………………………………………………………………………………
………………………………………………………………………………………
…………………………………………………………………………………………………
………………………………………………………………………………………

g) Additional important observation

…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
………………………………………………………………………………
…………………………………………………………………………………………………

Date and sign of the observer:

Appendix-D

Semi - structured Interview Schedule for Content Specialist

Institute of Education and Research

University of Dhaka

Research Title: "Use of Digital Content in teaching and learning English at the secondary level (Grade XI-XII) of education."

Honourable Respondent,

This Interview schedule has been prepared for the research entitled **"Use of Digital Content in teaching and learning English at the secondary level (Grade XI-XII) of education"**. All of the questions of this schedule are related with the study. Please give your opinion in semi structured questions.

Your valuable opinion will only be used for this research and your identity will not be disclosed. I expect your kind co-operation.

Thanking yours,

Rahul Chandra Shaha (MPhil. Researcher)

&

Lecturer

Institute of Education and Research (I.E.R)

Jagannath University, Dhaka-1211.

Honourable Respondent,

You can read out all the statements carefully. And give your opinion by tick (√) mark and write down (where necessary). You can choose more than one options.

a) **General Information**

Specialist Name:

Gender: ☐   Male   ☐   Female   Age:

Educational Qualification: ☐ Ph.d   ☐ Post Graduate ☐ Graduate ☐ Other

Designation: Subject:

Year of Experience:

Digital Content related training (If Any) (Please mention :)	SL. No	Training Organization	Course Name	Duration

Contact Number:

Interviewer: Date:

b) <u>Main information</u>

<u>Part-1: General idea about Digital Content</u>

1. What is the 'Digital Content' (as per your opinion)? (Please mention)

……………………………………………………………………………………………………
……………………………………………………………………………………………………

2. Give an Example- (Please write down)

……………………………………………………………………………………………………
……………………………………………………………………………………………………

<u>Part-2: Types of Digital Content being used for T-L English</u>

1. Which of the following English Language skills do you suggest to use 'Digital Content'?
   (You can choose more than one options)

   ☐ Practising of Listening skill   ☐ Practising of Speaking skill
   ☐ Practising of Reading skill   ☐ Practising of Writing skill

2. What types of 'Digital Content' do you suggest for practising 'Listening Skill'? (You can
   choose more than one options)

   ☐ Audio; Please give an example--
   ☐ Virtual text; Please give an example-----------------------
   ☐ Animated photo/text; Please give an example-------------------
   ☐ Steaming audio-video; Please give an example---
   ☐ Video; Please give an example--
   ☐ Power-point; Please give an example-------------------------
   ☐ Pictures using Laptop/PC/Mobile; Please give an example-----
   ☐ On-net audio-video; Please give an example---
   ☐ Showing images; Please give an example--

Others (Please write down with example):

181

3. What types of 'Digital Content' do you suggest for practising 'Speaking Skill'? (You can choose more than one options)

☐ Audio; Please give an example--

☐ Virtual text; Please give an example------------------------

☐ Animated photo/text; Please give an example------------------

☐ Steaming audio-video; Please give an example---------------------------------------

☐ Video; Please give an example--

☐ Power-point; Please give an example-------------------------

☐ Pictures using Laptop/PC/Mobile; Please give an example-----

☐ On-net audio-video; Please give an example---

☐ Showing images; Please give an example---

Others (Please write down with example):

…………………………………………………………………………………………………..

....

....

....

4. What types of 'Digital Content' do you suggest for practising 'Reading Skill'? (You can choose more than one options)

☐ Audio; Please give an example--

☐ Virtual text; Please give an example------------------------

☐ Animated photo/text; Please give an example------------------

☐ Steaming audio-video; Please give an example---------------------------------------

☐ Video; Please give an example--

☐ Power-point; Please give an example-------------------------

☐ Pictures using Laptop/PC/Mobile; Please give an example-----

☐ On-net audio-video; Please give an example---

☐ Showing images; Please give an example--

Others (Please write down with example):

…………………………………………………………………………………………………..

....

5. What types of 'Digital Content' do you suggest for practising 'Writing Skill'? (You can choose more than one options)

☐   Audio; Please give an example--

☐ Virtual text; Please give an example------------------------

☐ Animated photo/text; Please give an example-------------------

☐ Steaming audio-video; Please give an example--

☐ Video; Please give an example--

☐ Power-point; Please give an example--------------------------

☐ Pictures using Laptop/PC/Mobile; Please give an example-----

☐ On-net audio-video; Please give an example---

☐ Showing images; Please give an example---

Others (Please write down with example):

………

....

....

....

Part-3: Types of Pedagogy do Teachers Use

1. Which model do you suggest to follow/adopt in Teaching Learning process of English while teachers using DC?

………

………

....

....

....

....

....

....

2. What types of pedagogy do you suggest to follow/adopt by teacher (s) in Teaching Learning process of English while using DC? (Please explain)

……
……
....
....
....
....

3. Do you suggest any principles to follow in using 'Digital Content' in English class?

☐ Yes   ☐ No

i)   If YES, mention two principles of each - (Please write down)

Principles of Selections	**Principles of Preparation**	**Principles of Use**	**Principles of Conservation/ Preservation**
1.	1.	1.	1.
2.	2.	2.	2.

i)   If NOT, why not? (Please mention)

………
....
....
....
....

Part-4: Advantages of using Digital Content

1. Write down the advantages which English teachers get by using 'Digital Content' in Teaching Learning process of English? (Please mention)

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10

2. Give an example regarding the advantages of using Digital Content- (Please write down)

……………………………………………………………………………………………

……………………………………………………………………………………………

....

....

3. Write down the advantages which English learners (students) get by using 'Digital Content' in Teaching Learning process of English? (Please mention)

- 1
- 2
- 3
- 4
- 5
- 6
- 7

Part-5: Challenges regarding Digital Content

1. Write down the main challenges of using DC in teaching and learning English at grade XI-XII in the perspective of Bangladesh? (Please mention)

- 1
- 2
- 3
- 4
- 5
- 6
- 7

2. Give an example regarding the challenges of using DC in teaching and learning English at grade XI-XII? (Please mention)

……………………………………...
....
....
....

3. What are your suggestions or recommendations to overcome such challenges? (Please write down)

- 1
- 2
- 3
- 4
- 5
- 6

(Thank you very much for your patience response)

Appendix-E

Interview Schedule for Teachers

Title of the Research

Use of Digital Content in Teaching and Learning English at the secondary level (XI-XII) of Education

Instructions:

Honourable Respondent,

You can read out all the statements carefully. And give your opinion by tick (√) mark and write down (where necessary). You can choose more than one options.

a) General/Demographic Information

Name:				
Gender: ☐ Male ☐ Female			Age:	
Educational Qualification: ☐ Ph.d ☐ Post Graduate ☐ Graduate ☐ Other				
Designation:			Subject:	
Year of Experience:				
Digital Content related training (If Any) (Please mention :)	SL. No	Training Organization	Course Name	Duration

Contact Number:	
Sign:	Date:

b) Main information

Part-1: General idea about Digital Content

1. What is the 'Digital Content'? (Please mention)

……………………………………………………………………………………………………
……………………………………………………………………………………………………

2. Give an Example- (Please write down)

……………………………………………………………………………………………………
……………………………………………………………………………………………………

Part-2: Types of Digital Content being used for T-L English

1. Do you use 'Digital Content' in classroom teaching-learning process of English?

   ☐ Yes ☐ No

   i) If YES, what types of 'Digital Content' do you use? (Please mention)

   a…………………..…., b………………..………………..,

   c……………………., d………………….., e………………………….

   ii) If NO, why? (Please mention)

   ……………………………………………………………………………………………
   ………………………………………………………………………………………

2. How frequently do you use 'Digital Content' throughout the English class?

   ☐ Very often ☐ Often ☐ Rarely ☐ Never

188

3. Which of the following English Language skills do you use 'Digital Content'? (You can choose more than one options)

☐ Practising of Listening skill   ☐ Practising of Speaking skill

☐ Practising of Reading skill   ☐ Practising of Writing skill

4. What types of 'Digital Content' do you use for practising 'Listening Skill'? (You can choose more than one options)

☐ Audio; Please give an example--

☐ Virtual text; Please give an example-----------------------

☐ Animated photo/text; Please give an example-------------------

☐ Steaming audio-video; Please give an example---

☐ Video; Please give an example---

☐ Power-point; Please give an example-------------------------

☐ Pictures using Laptop/PC/Mobile; Please give an example-----

☐ On-net audio-video; Please give an example---

☐ Showing images; Please give an example---

Others (Please write down with example):

…………………………………..

....

5. What types of 'Digital Content' do you use for practising 'Speaking Skill'? (You can choose more than one options)

☐ Audio; Please give an example---

☐ Virtual text; Please give an example-----------------------

☐ Animated photo/text; Please give an example-------------------

☐ Steaming audio-video; Please give an example---

☐ Video; Please give an example---

☐ Power-point; Please give an example-------------------------

☐ Pictures using Laptop/PC/Mobile; Please give an example-----

☐ On-net audio-video; Please give an example---

☐ Showing images; Please give an example---

Others (Please write down with example):

6. What types of 'Digital Content' do you use for practising 'Reading Skill'? (You can choose more than one options)

☐ Audio; Please give an example---

☐ Virtual text; Please give an example-----------------------

☐ Animated photo/text; Please give an example------------------

☐ Steaming audio-video; Please give an example--

☐ Video; Please give an example--

☐ Power-point; Please give an example-------------------------

☐ Pictures using Laptop/PC/Mobile; Please give an example-----

☐ On-net audio-video; Please give an example--

☐ Showing images; Please give an example--

Others (Please write down with example):

7. What types of 'Digital Content' do you use for practising 'Writing Skill'? (You can choose more than one options)

☐ Audio; Please give an example---

☐ Virtual text; Please give an example-----------------------

☐ Animated photo/text; Please give an example------------------

☐ Steaming audio-video; Please give an example--

☐ Video; Please give an example--

☐ Power-point; Please give an example-------------------------

☐ Pictures using Laptop/PC/Mobile; Please give an example-----

☐ On-net audio-video; Please give an example--

☐ Showing images; Please give an example--

Others (Please write down with example):

……………………………………...

Part-3: Types of Pedagogy do Teachers Use

1. Do you take any preparation before using 'Digital Content' in the English classroom?

   ☐ Yes   ☐ No

   i)   If YES, How? (Please mention)

………………………………………………………………………………………………………

2. Which model do you follow/adopt in T-L English while using DC?

………………………………………………………………………………………………………
………………………………………………………………………………………………………

3. How do you follow/adopt the particular model in T-L English while using DC? (Please explain) (Which content? -What pedagogy? (method/strategy)- Which technology? Which DC?)

………………………………………………………………………………………………………
………………………………………………………………………………………………………

4. Do you follow any principles in using 'Digital Content' in your class?

   ☐ Yes   ☐ No

   i)   If YES, mention two principles of each - (Please write down)

Principles of Selections	Principles of Preparation	Principles of Use	Principles of Conservation/ Preservation
1. 2.	1. 2.	1. 2.	1. 2.

i)   If NOT, why not? (Please mention)

…………………………………………………………………………………………………

5. Do you follow any technical standard for using DC?

☐ Yes   ☐ No

i)   If yes, what/which types? (Please mention)

…………………………………………………………………………………………………

Part-4: Advantages of using Digital Content

1. Write down two main advantages which you get by using 'Digital Content' in T-L of English? (Please mention)

……………………………………………………………………………………………………

……………………………………………………………………………………………………

2. Give an example regarding the advantages of using Digital Content- (Please write down)

……………………………………………………………………………………………………

……………………………………………………………………………………………………

Part-5: Challenges regarding Digital Content

1. Do you face any challenges while using DC?

☐ Yes   ☐ No

i)   If Yes, What types? (Please mention)

…………………………………………………………………………………………………

2. Write down two main challenges of using DC in teaching and learning English at grade XI-XII? (Please mention)

……………………………………………..

....

....

....

3. Give an example regarding the challenges of using DC in teaching and learning English at grade XI-XII? (Please mention)

……………………………………...

....

....

....

4. What are your suggestions or recommendations to overcome such challenges? (Please write down)

………………………………………………………………………………………………………

………………………………………………………………………………………………………

(Thank you very much for your valuable opinion and time)

Appendix-F

Focus Group Discussion Schedule for Students

Institute of Education and Research
University of Dhaka

Research Title: "Use of Digital Content in teaching and learning English at the secondary level (XI-XII) of education."

Dear Respondents,

This FGD Schedule has been prepared for the research entitled **"Use of Digital Content in teaching and learning English at the secondary level (XI-XII) of education"**. Which is a pre-requisite for the partial fulfilment of M.Phil. degree of Institute of Education and Research (I.E.R), University of Dhaka. All of the topics of this schedule are related to the study. Please give your opinion.

Dear Respondents,

Your valuable opinion will only be used for this research and your identity will not be disclosed. I expect your kind co-operation.

Thanking you

Rahul Chandra Shaha (MPhil. Researcher)

Institute of Education and Research (I.E.R)

University of Dhaka.

a) <u>General Information</u>

1. College Name: 5. Date:
2. Class of Participants: 6. Starting time:
3. Number of Participants: 7. Ending time:
4. Venue:

Serial No.	Participants Name	Age	Gender	Contact No.
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9				
10.				

b) <u>FGD Agenda</u>

❖ Basic idea about 'Digital Content'

- Definition

- Concept

- Characteristics

- Examples

❖ Types of 'Digital Content' (which are used in the English teaching-learning process)

- For practising skills

- For teaching-learning process

❖ Situation of practising English language skills by using 'Digital Content'

- In practising listening skill

- In practising speaking skill

- In practising reading skill

- In practising speaking skill

❖ Advantages of using 'Digital Content'

- In teaching English by Teachers

- In learning English by Students

- Others

❖ Challenges of using 'Digital Content'

- In terms of using Digital Content

- In terms of technical and others perspectives

(Thank you very much for your patience discussion.)

8. <u>Name of the Moderator:</u>   9. <u>Name of the note collector:</u>

Appendix-G

Data Analysis Matrix as Per Research Question

Res. Question	Source (s) of Data			
	Teacher	Content Specialist	Student	Classroom Observation
	Tool (s) of Data Collection			
	Interview Schedule (Semi-structured)	Interview Schedule (Semi-structured)	FGD	Observation Checklist
R.Q. # 1	P21, P22, P23, P24, P25, P26, P27	P21, P22, P23, P24, P25	A2, A3	C1, C2, C3, C4, C5, C6, C7, C8, C9, C10

Res. Question	Source (s) of Data			
	Teacher	Content Specialist	Student	Classroom Observation
	Tool (s) of Data Collection			
	Interview Schedule (Semi-structured)	Interview Schedule (Semi-structured)	FGD	Observation Checklist
R.Q. # 2	P41, P42, P43, P44,	P31, P32, P33	A41, A42, A43	D1, D2, D3, D4

Res. Question	Source (s) of Data			
	Teacher	Content Specialist	Student	Classroom Observation
	Tool (s) of Data Collection			
	Interview Schedule (Semi-structured)	Interview Schedule (Semi-structured)	FGD	Observation Checklist
R.Q. # 3	P51, P52	P41, P42, P43	A51, A52	E

Res. Question	Source (s) of Data			
	Teacher	Content Specialist	Student	Classroom Observation
	Tool (s) of Data Collection			
	Interview Schedule (Semi-structured)	Interview Schedule (Semi-structured)	FGD	Observation Checklist
R.Q. # 4	P61, P62, P63, P64	P51, P52, P53	A61, A62, A7	F

Appendix-H

Pictures of Data collection by the Researcher

Matrix of Entire Data Analysis

R. Q	Focus / Theme		Class Observation	Ts Interview	Ss FGD	CS Interview
1	Types of DC for Listening Skill	Audio	CO_1, CO_2, CO_8, CO_{13}, CO_{14}, CO_{15}, CO_{16},	T_1, T_3, T_5, T_6, T_7, T_8	FGD_1, FGD_2, FGD_3, FGD_4	CSI_1, CSI_2, CSI_3, CSI_4
		Video		T_1, T_3, T_4, T_7, T_8	FGD_2, FGD_3, FGD_4	CSI_1, CSI_2,
		Picture	CO_1, CO_2, CO_3, CO_6, CO_8, CO_{11}, CO_{13}, CO_{15}, CO_{16},	T_1, T_2, T_4, T_6, T_7, T_8	FGD_4,	CSI_4
		Animated Photo/Text	CO_1, CO_3, CO_5, CO_6, CO_{13}, CO_{15},	T_2, T_7,		
		Streaming audio-video	CO_2,	T_3,	FGD_1,	CSI_1,
		Virtual Text	CO_3, CO_{14}, CO_{15}, CO_{16},	T_6, T_8	FGD_3,	
		Power-point	CO_5, CO_6, CO_8, CO_{13},	T_3, T_4, T_8	FGD_3,	
		On-net Audio-video		T_3, T_4, T_5,		CSI_1, CSI_2, CSI_3,
		Showing images	CO_{11}, CO_{14}, CO_{15},	T_2, T_3, T_4, T_7, T_8		

R. Q	Focus / Theme		Class Observation	Ts Interview	Ss FGD	CS Interview
1	Types of DC for Speaking Skill	Audio	CO_8, CO_{13}, CO_{16},	T_3, T_8	FGD_1, FGD_2, FGD_3	CSI_1, CSI_2, CSI_3, CSI_4
		Video		T_1, T_3, T_7, T_8	FGD_2, FGD_3, FGD_4	CSI_1, CSI_2,
		Picture	CO_1, CO_8, CO_{13}, CO_{16}, CO_{17}, CO_{18}, CO_{21},	T_1, T_3, T_4, T_5, T_6, T_7, T_8	FGD_1. FGD_4,	CSI_4
		Animated Photo/Text	CO_{13},	T_7		
		Streaming audio-video		T_3	FGD_4,	CSI_1,

			Class Observation	Ts Interview	Ss FGD	CS Interview
		Virtual Text	CO_3, CO_9, CO_{16}, CO_{17}, CO_{18},	T_2, T_5, T_8	FGD_4,	
		Power-point	CO_4, CO_8, CO_9, CO_{13},	T_3, T_4, T_5, T_6	FGD_2, FGD_3,	
		On-net Audio-video		T_4		CSI_1, CSI_2, CSI_3,
		Showing images	CO_9, CO_{21},	T_2, T_3, T_4, T_7, T_8		

R.Q	Focus / Theme		Class Observation	Ts Interview	Ss FGD	CS Interview
1	Types of DC for Reading Skill	Audio	CO_1, CO_2, CO_8, CO_{13}, CO_{14}, CO_{15}, CO_{16},	T_1, T_8	FGD_4	CSI_1, CSI_2, CSI_3, CSI_4
		Video		T_3	FGD_4	CSI_1, CSI_2,
		Picture	CO_1, CO_2, CO_3, CO_6, CO_7, CO_8, CO_{10}, CO_{11}, CO_{12}, CO_{13}, CO_{15}, CO_{16}, CO_{17}, CO_{18}, CO_{20}, CO_{21},	T_1, T_2, T_4, T_6	FGD_1, FGD_4,	CSI_4
		Animated Photo/Text	CO_1, CO_2, CO_3, CO_5, CO_6, CO_{13},	T_3		
		Streaming audio-video	CO_2,	T_3	FGD_4,	CSI_1,
		Virtual Text	CO_3, CO_9, CO_{14}, CO_{15}, CO_{16}, CO_{17}, CO_{18}, CO_{19}, CO_{20},	T_3, T_4, T_5, T_7, T_8	FGD_1, FGD_4,	
		Power-point	CO_4, CO_5, CO_6, CO_7, CO_8, CO_9, CO_{13},	T_3, T_4, T_5, T_6,	FGD_1, FGD_3,	
		On-net Audio-video		T_7, T_4		CSI_1, CSI_2, CSI_3,
		Showing images	CO_7, CO_9, CO_{11}, CO_{14}, CO_{15}, CO_{21},	T_1, T_2, T_4, T_5		

R. Q	Focus / Theme		Class Observation	Ts Interview	Ss FGD	CS Interview
1	Types of DC for Writing Skill	Audio		T_5, T_8	FGD_4	$CSI_1, CSI_2, CSI_3, CSI_4$
		Video		T_5, T_6	FGD_3, FGD_4	$CSI_1, CSI_2,$
		Picture	$CO_7, CO_{10}, CO_{12}, CO_{20},$	T_2, T_4, T_6	$FGD_4,$	CSI_4
		Animated Photo/Text				
		Streaming audio-video	$CO_{24},$	T_6	$FGD_4,$	$CSI_1,$
		Virtual Text	$CO_{19}, CO_{20},$	T_2, T_8	$FGD_3,$	
		Power-point	$CO_4, CO_7, CO_{13},$	T_3, T_4, T_5, T_6	FGD_1, FGD_3	
		On-net Audio-video		T_7		$CSI_1, CSI_2, CSI_3,$
		Showing images	$CO_7,$	T_2, T_4		

Res. Question	Source (s) of Data			
	Teacher	Content Specialist	Student	Classroom Observation
	Tool (s) of Data Collection			
	Interview Schedule (Semi-structured)	Interview Schedule (Semi-structured)	FGD	Observation Checklist
R.Q. # 2	P41, P42, P43, P44,	P31, P32, P33	A41, A42, A43	D1, D2, D3, D4

R. Q	Focus / Theme	Cls Observation	Ts Interview	Ss FGD	CS Interview
2	Taking Preparation				

R. Q	Focus / Theme	Cls Observation	Ts Interview	Ss FGD	CS Interview

R. Q	Focus / Theme	Cls Observation	Ts Interview	Ss FGD	CS Interview
2	Follow/ Adopt any Model				

R. Q	Focus / Theme	Cls Observation	Ts Interview	Ss FGD	CS Interview
2	Pedagogy follow/adopt by Teacher in T-L English While using DC				

R. Q	Focus / Theme	Cls Observation	Ts Interview	Ss FGD	CS Interview
2	Technology follow/adopt by Teacher in T-L English While using DC				

R. Q	Focus / Theme	Cls Observation	Ts Interview	Ss FGD	CS Interview
2	Principles of the Selection DC for English by Ts				

R. Q	Focus / Theme	Cls Observation	Ts Interview	Ss FGD	CS Interview
2	Principles of the Preparation of DC for English by Ts				

R. Q	Focus / Theme	Cls Observation	Ts Interview	Ss FGD	CS Interview

R.Q	Focus / Theme	Cls Observation	Ts Interview	Ss FGD	CS Interview
2	Principles of the Use of DC for English by Ts				

R.Q	Focus / Theme	Cls Observation	Ts Interview	Ss FGD	CS Interview
2	Principles of Conservation/Preservation of DC for English by Ts				

Res. Question	Source (s) of Data			
	Teacher	Content Specialist	Student	Classroom Observation
	Tool (s) of Data Collection			
	Interview Schedule (Semi-structured)	Interview Schedule (Semi-structured)	FGD	Observation Checklist
R.Q. # 3	P51, P52	P41, P42, P43	A51, A52	E

R.Q	Focus / Theme	Cls Observation	Ts Interview	Ss FGD	CS Interview
3	**Advantages of using DC**				
	3.1 Major Theme-1: Students Centred Advantages	Found in observation	T_1, T_2, T_3, T_4, T_5, T_6, T_7, T_8	FGD_1, FGD_2, FGD_3, FGD_4	CSI_1, CSI_2, CSI_3, CSI_4
	3.1.1 Minor Themes: Easy to make and understand	Found in observation	T_1, T_2, T_5, T_6, T_7	FGD_1, FGD_2, FGD_4	-
	3.1.2 Minor Themes: Feel Comfortable	Found in observation	T_3, T_7	-	CSI_1
	3.1.3 Minor Themes:	Found in observation	T_5,	FGD_1, FGD_2, FGD_3	

Easily Practice Listening and Speaking Skills				
3.1.4 Minor Themes: Get Concrete Knowledge	Found in observation	-	FGD_4	CSI_2
3.1.5 Minor Themes: Get motivation and Stimulation	Found in observation	-	FGD_1	CSI_2
3.1.6 Minor Themes: Promote Interactivity and Collaboration	Found in observation	-	-	CSI_1
3.1.7 Minor Themes: Acquire English Language Skills through Fun and Entertainment	Found in observation	-	-	CSI_2
3.2 Major Theme-2: Teachers Centred Advantages	Found in observation	T_1 , T_2, T_3, T_4, T_5, T_6, T_7, T_8	FGD_1, FGD_2, FGD_3, FGD_4	CSI_1, CSI_2, CSI_3, CSI_4
3.2.1 Minor Theme- Study at any time in anywhere	Found in observation	T_1	-	-
3.2.2 Minor Theme- Improve Digital Skill	Found in observation	T_2	-	-
3.2.3 Minor Theme- Easily Extract, Precise and Edit by Teacher	Found in observation	T_7	-	-
3.2.4 Minor Theme- Easy to conduct and manage class	Found in observation	-	-	CSI_2
3.2.5 Minor Theme-	Found in observation	-	-	CSI_2

Easy to Feedback and Assessment				
3.3 Major Theme-3: By Product Advantages	Found in observation	T_1, T_2, T_3, T_4, T_5, T_6, T_7, T_8	FGD_1, FGD_2, FGD_3, FGD_4	CSI_1, CSI_2, CSI_3, CSI_4
3.3.1 Minor Themes: Automatically improve Digital Skill	Found in observation	T_2	FGD_2, FGD_3	-
3.3.2 Minor Themes: Covers all types of Learner	Found in observation	T_4	-	-
3.3.3 Minor Themes: Reusable	Found in observation	T_5, T_6	FGD_1	-
3.3.4 Minor Themes: Available & Free of cost	Found in observation	T_7, T_8	-	CSI_2
3.3.5 Minor Themes: Low time Consumption	Found in observation	T_8	-	CSI_2
3.3.6 Minor Themes: More Colorful Learning Consumption	Found in observation	-	FGD_1, FGD_2, FGD_3	-
3.3.7 Minor Themes: Global platform for learning English	Found in observation	-	-	CSI_3
3.4 Major Theme-4: Methodological Advantages	Found in observation	T_1, T_2, T_3, T_4, T_5, T_6, T_7, T_8	FGD_1, FGD_2, FGD_3, FGD_4	CSI_1, CSI_2, CSI_3, CSI_4
3.4.1 Minor Themes: More Engaging and creative	Found in observation	T_1, T_2, T_3	FGD_3	-
3.4.2 Minor Themes:	Found in observation	T_1, T_3, T_4	FGD_1, FGD_2, FGD_3, FGD_4	CSI_1

Attractive and Attentive				
3.4.3 Minor Themes: Shown Digitally and Lively	Found in observation	T_1, T_2, T_7	-	-
3.4.4 Minor Themes: Easy going and Enjoyable	Found in observation	T_2, T_3, T_7	-	CSI_2
3.4.5 Minor Themes: Class become more informative	Found in observation	T_3, T_4	-	-

Res. Question	Source (s) of Data			
	Teacher	Content Specialist	Student	Classroom Observation
	Tool (s) of Data Collection			
	Interview Schedule (Semi-structured)	Interview Schedule (Semi-structured)	FGD	Observation Checklist
R.Q. # 4	P61, P62, P63, P64	P51, P52, P53	A61, A62, A7	F

R.Q	Focus / Theme	Cls Observation	Ts Interview	Ss FGD	CS Interview
4	**Challenges regarding DC**				
	4.1 Major Theme-1: Infrastructural Challenges	Found in observation	T_1, T_2, T_3, T_4, T_5, T_6, T_7, T_8	FGD_1, FGD_2, FGD_3, FGD_4	CSI_1, CSI_2, CSI_3, CSI_4
	4.1.1 Minor Theme: Scarcity of Equipment	Found in observation	T_1, T_2, T_3, T_4, T_5, T_6, T_7, T_8	FGD_1, FGD_2, FGD_3, FGD_4	CSI_1, CSI_2, CSI_3, CSI_4
	4.1.2 Minor Theme: Lack of facilities	Found in observation	T_1, T_2, T_3, T_4, T_5, T_6, T_7, T_8	FGD_1, FGD_2, FGD_3, FGD_4	CSI_1, CSI_2, CSI_3, CSI_4
	4.1.3 Minor Theme: Absence of Language Lab	Found in observation	T_1, T_5, T_6, T_7, T_8	FGD_2	CSI_2

4.1.4 Minor Theme: Slow or no Internet Connection	Found in observation	T_1, T_4, T_8	-	-
4.1.5 Minor Theme: Absence of Language Club	Found in observation	T_1, T_5, T_6	-	CSI_2
4.2 Major Theme-2: Technical and Methodological Challenges	Found in observation	T_1, T_2, T_3, T_4, T_5, T_6, T_7, T_8	FGD_1, FGD_2, FGD_3, FGD_4	CSI_1, CSI_2, CSI_3, CSI_4
4.2.1 Minor Theme: Lack of proper management and preservation	Found in observation	T_1, T_2, T_7	-	-
4.2.2 Minor Theme: Insufficient supervision	Found in observation	T_1	-	-
4.2.3 Minor Theme: Cost	Found in observation	T_2	-	CSI_2, CSI_3
4.2.4 Minor Theme: Unwillingness of authority	Found in observation	T_2	-	CSI_3
4.2.5 Minor Theme: Lack of supporting technical manpower	Found in observation	T_2	-	-
4.2.6 Minor Theme: Face Technical Problem	Found in observation	T_2, T_3	FGD_1	CSI_3
4.2.7 Minor Theme: All lessons are not viable to DC	Found in observation	T_3	-	-
4.2.8 Minor Theme: Electricity Cut	Found in observation	T_4, T_8	FGD_1, FGD_2, FGD_3, FGD_4	CSI_1, CSI_2
4.2.9 Minor Theme:	Found in observation	T_4	FGD_2, FGD_3	-

Result Oriented Teaching-Learning				
4.2.10 Minor Theme: Misuse of allocated class time	Found in observation	T_7	FGD_1, FGD_2, FGD_3	-
4.2.11 Minor Theme: Insufficient and unavailability of DC of English in the context of BD	Found in observation	-	-	CSI_2
4.2.12 Minor Theme: Digital Divide	Found in observation	-	FGD_1	CSI_1
4.2.13 Minor Theme: Short Duration of Class Time	Found in observation	-	FGD_1, FGD_2	-
4.2.14 Minor Theme: Lack of trained and potential digital content creators	Found in observation	-	-	CSI_1, CSI_3
4.3 Major Theme-3: Teacher Led Challenges	Found in observation	T_1, T_2, T_3, T_4, T_5, T_6, T_7, T_8	FGD_1, FGD_2, FGD_3, FGD_4	CSI_1, CSI_2, CSI_3, CSI_4
4.3.1 Minor Theme: Deficiency of Skilled and Experienced Teachers	Found in observation	T_1	CSI_2	FGD_3, FGD_4
4.3.2 Minor Theme: Uneasy method to someone	Found in observation	T_2	-	-
4.3.3 Minor Theme: Lack of Proper and available training	Found in observation	T_2, T_5, T_6, T_8	CSI_3	FGD_2, FGD_3, FGD_4
4.3.4 Minor Theme: Unwillingness to use DC	Found in observation	T_2	CSI_3	FGD_1, FGD_3, FGD_4

4.3.5 Minor Theme: Thinking DC as a burden and extra-work	Found in observation	T_2	-	FGD_1, FGD_2, FGD_3