

---

---

# LANGUAGE IN INDIA

Strength for Today and Bright Hope for Tomorrow

Volume 22:10 October 2022  
ISSN 1930-2940

Editors:

Sam Mohanlal, Ph.D.

B. Mallikarjun, Ph.D.

A. R. Fatihi, Ph.D.

G. Baskaran, Ph.D.

T. Deivasigamani, Ph.D.

Pammi Pavan Kumar, Ph.D.

Soibam Rebika Devi, M.Sc., Ph.D.

Managing Editor & Publisher: M. S. Thirumalai, Ph.D.

---

---

*Language in India* [www.languageinindia.com](http://www.languageinindia.com) is an open access journal. *Language in India* [www.languageinindia.com](http://www.languageinindia.com) does not charge readers or their institutions for access.

We have agreements with several database organizations such as *EBSCOHost* database, *MLA International Bibliography* and the *Directory of Periodicals*, *ProQuest (Linguistics and Language Behavior Abstracts)* and *Gale Research* (Cengage Learning) for indexing articles and books published in *Language in India*. The journal is included in the *Cabell's Directory*, a leading directory in the USA.

Articles published in *Language in India* are peer-reviewed by one or more members of the Board of Editors or an outside scholar who is a specialist in the related field. Since the dissertations are already reviewed by the University-appointed examiners, dissertations accepted for publication in *Language in India* are not reviewed again.

The next issue (the issue of November 2022) will be uploaded by the fourth week of October 2022 or earlier.

---

---

## Contents

Azmi Azam Transnational Perspectives in The Academy: An Exploration of Climate Change Education Through Arts and Humanities in Canada and Bangladesh	1-81
Ms. Amala P Binoe, MASLP and Dr. Rohila Shetty, Ph.D. Interlingual Homophone Retrieval in Typical Malayalam-Tamil Bilinguals	82-99
B.A. Mahalakshmi Prasad. M.A. Status of English Language Knowledge in Technical Education	100-106
Alitta Tom, MASLP. and Vini Abhijith Gupta, Assistant Professor Role of Rehearsal Language in Working Memory in Bilingual Children	107-131
Nisthul Bensi, Dr. Satish Kumaraswamy and Mr. Mishal K Comparison of Visual Word Recognition in Adult and Geriatric Population	132-146
Ali Mohammad Hekmat, Shafiullah Roghmal, Muhammad Naeem Yaqubi & Mohammad Mustafa Kamal Development of Student Engagement in Higher Education	147-161
Muhammad Naeem Yaqubi, Mohammad Mustafa Kamal, Ali Mohammad Hekamat, and Shafiullah Roghmal The Effectiveness of Student-Centric Approach on EFL Learner's Attitude and Accomplishments	162-171
Mohammad Tamim Aslampoo, Ali Mohammad Hekmat, Mohammad Mustafa Kamal and Soma Hotak Effectiveness of English Vocabulary Learning Strategies for Learning Second Language Learners	172-182
Ms. Aswathy K P, MASLP and Dr. Rohila Shetty, Ph.D. Acoustic Analysis of Voice in Khatibs	183-201
Mrs. Nazia A Manaf, MASLP and Dr. Rohila Shetty, Ph.D. Western Aphasia Battery – Arabic	202-231
Amakcham Opendro Meitei The Problem of Slavery in Toni Morrison's <i>Beloved</i>	232-237

Jitendra Kumar Singh Representing the History through Trauma: A Comparative Study	238-244
Dr. Arambam Sadananda Singh A Brief Sketch of Interrogative in Sukte (Salhte)	245-250

---

TRANSNATIONAL PERSPECTIVES IN THE ACADEMY: AN EXPLORATION OF  
CLIMATE CHANGE EDUCATION THROUGH ARTS AND HUMANITIES IN  
CANADA AND BANGLADESH

AZMI AZAM

Supervisor: Dr. Steve Alsop

Supervisor's signature \_\_\_\_\_

A Research Project submitted to the Graduate Program in Education in partial fulfillment  
of the requirements for the degree of

Master of Education

Graduate Program in Education

York University

Toronto, Ontario

January 2022

## Table of Contents

<b>Abstract</b> .....	02
<b>Acknowledgement</b> .....	03
<b>Chapter 1: Introduction</b>	
1.0 Introduction.....	04
1.1 Purpose of the Study.....	05
1.2 Research Questions.....	06
1.3 Overview of Chapters.....	07
<b>Chapter 2: Literature Review</b>	
2.0 Introduction.....	09
2.1 Why teach climate change education in Bangladesh?.....	11
2.2 Bangladesh and its water resources.....	15
2.3 Bangladesh and its climate.....	16
2.4 Bangladesh and floods.....	17
2.5 Bangladesh and weather broadcasting.....	17
2.6 The Importance of Climate Change Education and Role of Canadian Universities.....	19
2.7 Climate Change Education in a University of Bangladesh.....	21
2.8 Probable Initiatives of Climate Change Education for Bangladesh.....	22
2.9 Interdisciplinary Approach and Teaching of Climate Change.....	25
<b>Chapter 3: Research Methodology</b>	
3.0 Introduction.....	30
3.1 Timeline.....	31
3.2 Method.....	31
3.3 Interview Questions.....	33
3.4 Data Analysis.....	35
3.5 Ethical Review Procedures.....	35
<b>Chapter 4: University Professors</b>	
4.0 Introduction.....	37
4.1 Interviewees from Bangladesh.....	38
4.2 Interviewees from Canada.....	40
<b>Chapter 5: Thematic Analysis</b>	
5.0 Introduction.....	42
5.1 Theme One: Place Based Education.....	42
5.2 Theme Two: Environmental Landscapes in Fictions and Non-Fictions.....	47
5.3 Theme Three: Compassion and Empathy (humanism).....	50
5.4 Theme Four: Institutional structures - Curriculum and Courses (including interdisciplinary).....	56
5.5 Conclusion.....	61
<b>Chapter 6: Conclusion</b>	
6.0 Introduction.....	63
6.1 Research Questions.....	64
6.2 Recommendation.....	68
6.3 Limitation.....	72
6.4 Last Words.....	73
<b>References</b> .....	75
<b>Appendix-A</b> .....	77

## ABSTRACT

The aim of this Major Research Project is to investigate transnational perspectives of university teachers (in Bangladesh and Canada) who are currently teaching climate change education through texts from Arts and Humanities and different teaching strategies. The emphasis is given on the emergence of teaching climate change education in the context of South-Asian countries like Bangladesh. A comparison with the teaching context of Canada helps us to understand the importance of climate change education at university level worldwide. Through this study, I aim to find a means of encompassing these methods into my teaching pedagogy and future research. I am interested in how these wisdoms have an impact on overall student learning in an effort to promote climate change education and how students could learn more from the local communities of climate refugees.

To proceed the study, I have used an auto-ethnography qualitative research method and interviewed four professors. I have given my own experiences and viewpoints as a student along with the professors' teaching tactics and suggestions. In the thematic data analysis, four themes came out: place-based education, institutional structures-curriculum and courses (including interdisciplinary), compassion and empathy, environmental landscapes in fiction and Non-fictions. The research showed that all the professors carry more or less the same notion. All of them showed equal importance to climate change education and they believe it needs more attention in academic sectors. They all considered such an approach as a multipurposed education system that can facilitate holistic development by affecting students' psychological conception of the world around them, especially in the present post-pandemic situation.

## ACKNOWLEDGEMENTS

I would like to thank my supervisor, Dr. Steve Alsop. This major research project would not have been possible without his guidance, patience, discipline, and wisdom. He not only offered me the opportunity to explore my ideas but also constantly guided my academic journey. Not only did he dedicate a significant amount of time, sharing with me his thoughts about each section of my research, but also introduced me to multiple schools of theories, notions, and ideas, which shaped my understanding. I would like to thank the four interviewees for their time and patience dedicated to my research work.

I would like to thank my late mother, Al-Haj Asma Jabin and, my father, Amir-Azam for their support, not only morally but also financially. Their day-to-day encouragement kept me going during the tough periods. I would like to thank my husband Shoumen who has been especially patient during these days of struggle; his support has been invaluable. I would like to thank my friends and relatives, who have never complained about prioritizing my research above them.

This journey of writing my MRP has been the most incredible experience as I have learned the value of education from diverse epistemological perspectives.

## Chapter 1: Introduction

### 1.0 Introduction

Environmental change is a burning concern for all scholars and educators of the 21<sup>st</sup> century. The rapid increase of the climate crisis is a global topic of discussion. News networks continuously show devastating effects of climate changes on agriculture, natural resources, food consumption, and so on. Human actions and their regular ingrained habits are the main causes of today's climate crisis. It is evident that humanity's increased use of fossil fuels such as coal, oil and gas to generate electricity, usage of transport, power manufacturing and rapid increase of industrialization resulted in the present crisis of climate change. Under such circumstances, it seems obvious that universities must step forward with academic plans to educate the youth regarding these factors. Universities can help cultivate awareness and sense of responsibility in the new generation to tackle the climate emergency and build a sustainable world. By navigating the new realities of climate change, universities can incorporate academic lesson-plans to educate students on climate change education and sustainability topics to fight for climate justice on a global scale. If we evaluate a country based on its most needed education requirements, we will find that climate change education is in high demand for all sorts of students around the world.

As a former South-Asian undergraduate student and a teacher, I have noticed that despite the urgency of teaching youth about this burning issue, many universities in South-Asia and many other parts of the world are still not giving this subject sufficient attention. During my undergraduate studies in English literature and language, I realized that using arts and humanities subjects, like English literature, could be very effective to teach



climate change education to youth. Most of the settings and themes in literature carry various natural landscapes and climatic changes which I think can be used as examples for teaching climate change education in the classroom. As a South-Asian by birth and with my experiences so far, I would say that despite having interesting initiatives in many fields and subjects, some South-Asian academics are still missing the idea to give climate change education top priority in the academic curriculums.

The most common reason behind this I assume is the lack of resources or teaching strategies. I also recognize that it is likely much more complicated than this. In that case, I think that English literature can be amalgamated together with climate change education and can be used to promote a curriculum that targets to discuss and teach actions related to recent problems with the environmental issues. Sulzer makes this point more clear:

English education has an important role to play in providing a basis in not only understanding the facts about pressing issues like the climate crisis, COVID-19, or other topics, but also the complexity of actions, belief, and power that shape these topics in the social world. To do this important work, English educators must enact a type of planning that explicitly puts canonical works in conversation with contemporary concerns. (Sulzer, 2021 p.13)

Moreover, acquiring teaching strategies from other nations can help South Asian teachers to structure better lesson plans. Hence, I wanted to learn more about modes of teaching climate change education and ways to effectively engage in discourse. I am curious to explore how South-Asian (Bangladesh) and North-American (Canada) universities are teaching climate change topics with fiction and non-fiction and what are the similarities and dissimilarities between them.

### 1.1 Purpose of the Study

The purpose of this study is to investigate transnational perspectives of university

teachers who are currently teaching climate change education through literary productions of Arts and Humanities and to make a comparison between their teaching strategies. Through this study, I aim to find means of encompassing these methods into my teaching pedagogy and future research. I am interested to see how these wisdoms have an impact on student learning overall in an effort to promote climate change education through subjects like English Literature and how students could learn more from the local communities of climate refugees. To add, what role might such an approach of teaching play in the promotion of climate change education in South-Asian universities like Khulna University, Bangladesh and then compare it with climate change education teaching in York University, Canada.

## 1.2 Research Questions

I have observed that in the urban areas of South-Asian territories such as Khulna city in Bangladesh, there are fewer opportunities for teachers to integrate climate change education. The reason behind this is the many shortcomings of resources. On the other hand, to cope with the fast pace of commercial world and challenges to survive in the corporate world of North American territories such as Toronto, students and teachers have less opportunities or interests to think about protecting the environment. In that case, using Arts and Humanities texts with different learning strategies for climate change education serves the multi-purpose role of teaching within a fixed time. It not only assures a career opportunity in the corporate world but also turns a student into an eco ambassador for the future.

As a student of English literature and a teacher, I could see ample scope to

amalgamate English literature with climate change education and I strongly promote learning more ways of using it in post-pandemic academic situations. Therefore, my focus in this study is to investigate how teachers can use fiction and non-fiction texts as a tool to teach climate change education at university level, what are their potential methods and to analyze its over-all benefits on students. Setting up within the context of climate change teaching in Canada and Bangladesh, my MRP explores the following three questions:

- (i) What are the key features of university-based climate change education?
- (ii) How can universities more effectively reach out and connect with local communities regarding climate change related initiatives and what are the benefits?
- (iii) What are the particular advantages of teaching English literature with a climate change focus?

This topic not only promotes student learning in academic sector, but also contributes to the overall development of the individual, helping to cultivate analytical thinking, action-based activities and active communication skills in diverse learning opportunities with peers and locals. It also motivates youngsters to find a deeper sense of environmental care and their connotations within a community. To structure this endeavor, I have interviewed two academic professors from Khulna University, Bangladesh and two academic professors from York University, Canada.

### 1.3 Overview of Chapters

This MRP is anticipated to qualitatively scrutinize international attitude of teaching climate change education through the use of Arts and Humanities texts. Chapter 2 provides

a review of relevant literature related to the present context of Bangladesh, especially the southern part of the country and teaching approaches. Chapter 3 describes the research methodology, including an overview of participants, ethical review procedures, timeline for the research, interview questions and analysis procedures. Chapter 4 illustrates the academic introduction of the selected professors of Khulna University and York University and description of their relevance for the interview. A thematic analysis of the interview data along with quotations will be discussed in Chapter 5. Comparative analysis with key themes will be highlighted in this section. Finally, Chapter 6 will provide the main conclusions, the answers of the research questions, limitations of the project and recommendations for further research along with my final words.

In short, I would conclude that this Major Research Project is intended to investigate and analyze the all-encompassing effects of studying climate change education through fiction and non-fiction texts. It also intends to dive into the international similarities and differences of using English literature texts and different teaching methods between Canadian and Bangladeshi teaching standard.

## Chapter 2: Literature Review

### 2.0 Introduction:

Climate crisis is increasing in a rapid speed beyond the capacity of human beings' control. Climate change is already having a negative impact on the lives of people around the world. Failure to act urgently will reverse development gains for the most vulnerable in every society. Bangladesh, the country I was born and brought up faces climate crisis every year. According to my observation, most of the educational institutes of South Asian countries like Bangladesh are not doing enough to teach climate change education to the students. The way climate change information on media is telecasted in Bangladesh confuses the students regarding their own land.

Hugh Brammer's (2016) article points out that the information regarding climate change in Bangladesh is flawed in many ways. So, academic institutions need to reform their educational system for a better change in environmental justice. This highlights Bangladesh as one of the most vulnerable countries for climate crisis and the pressing need for climate education in PSE system. Moreover, climate change is undoubtedly a universal warning and in this year's experiences with Covid-19 pandemic, we have seen the emerging 'collapsology' (Servigne, Stevens & Brown, 2020) that is taking place around the globe. This climate change impacted the coastal countries more compared to inland regions and Bangladesh is not an exception, especially in the southern-west part of the country.

I was born in this country knowing its green agricultural pastures and series of rivers and beaches. From a very early age, I was trained to be an ambassador of climate

change education and environmental sustainability prospects. Khulna, my birthplace, is one of the three metropolitan cities of Bangladesh and is gifted with natural greenery and water resources. It is known for the biggest mangrove forest in the world, the Sundarbans. But natives in the small sub-districts like Tripura, Khasia and so on, which are surrounded by numerous river resources, claim that climate change has impacted their lives adversely and government aid is too minimal for the recovery process (Ahmed and Haq, 2017). So, from my school life, I was always taught to preserve nature as an activist but I observed that the curriculum programs in schools on climate change education was not effective enough to meet up the speed and urgency.

My childhood school, Government Coronation Girls' High School, located in Khulna city, made a long lasting impression on my learning experiences in nature preservation. This ultimately integrated into my own teaching pedagogy. The school used to provide study tours every year and used to teach optional subjects like- farming, agriculture, environmental sustainability education, bird conservation education, fish conservation education and so on. There was one teacher who used to take the students to parks and zoos and inspired us to become future environmental sustainability ambassadors. She informed her students that in 1960s, 'Grow More Food Campaign' allowed farmers to increase the use of fertilizers to increase food supply and this caused fatal damage to the natural soil erosion (Rahman and Zhang, 2018). So, students need to campaign against it and ask the policy makers for shifting the broadcasting of using excessive inorganic fertilizers in future agriculture.

When I got admitted to York University, I took ESD courses and finally realized how important these courses are for students, especially students coming from nations that

are more prone to natural vulnerabilities. As I have a background in literature and linguistics, I feel that texts of Arts and Humanities can be used as an inter-disciplinary approach to teach climate change education. Most of the settings and themes in the texts of Arts and Humanities depict natural landscapes and climatic changes, which I think can be incorporated with various teaching methods to teach climate change in South-Asian universities.

### 2.1 Why Teach Climate Change Education in Bangladesh?

Bangladesh, officially known as the 'People's Republic of Bangladesh' and the country of rivers, is a nature-blessed country in South Asia. Like many tropical countries, Bangladesh faces climate change crisis every year and the necessity of teaching the youth regarding this has become unavoidable with the passage of time. I was born and brought-up in this country knowing its green agricultural pastures and series of rivers and beaches from my early school life. Therefore, from an early age, I was taught to be an ambassador of climate change education. When I was in university for my undergraduate studies, I felt the necessity of knowing more about this subject along with the core subject: English Literature and Language. Since then, I realized that climate change education could be creatively taught through Arts and Humanities like English Literature. I wish to broaden climate change education beyond the focus of science only to make climate change education subject more interesting and acceptable to diverse students. In a natural calamity prone country like Bangladesh, such an approach will be a great boost for the youth to step forward academically as future eco-ambassadors.

Joydeb Garai (2016) conducted a study using quantitative method with semi-structured interview questionnaire for data collection in purposive manner. According to his study, the impacts of climate change on agricultural productivities, food securities and institutions challenges the coastal people of Bangladesh in the face. It finds that the frequency and severity of natural disasters have increased in recent years threatening food securities by inundating low agriculture land, restricting economic activities, decreasing employment opportunities, expanding different health diseases, destructing houses, crops and other infrastructures in Bangladesh. The women, children, elderly and disabled people cannot easily cope with the unfavorable environment during disasters and are marked as the most vulnerable victims of climate change. Not much empirical research has been done about the impacts of climate change, so policy makers seek more comprehensive view about this concern and wants to implement policy for the survival of coastal people (Alam & Amin, 2014, part 2, chapter 11, p. 151).

Therefore, it has been a major necessity to educate the present generation about environmental sustainability development ethics, especially in countries that have less access to such education pathways. Like many other Asian countries, Bangladesh lacks the immediate concern and speed to wrestle with the hostile influences of climate catastrophe through action-based practices. For example, during 2020 Corona virus pandemic, the developed countries issued lock-down policy and asked for 15 days of quarantine. Bangladesh government also issued a similar procedure, whereas Bangladeshi citizens hardly understood pandemic lock-downs and quarantine process. Those who were outside Bangladesh visited the country and the spread of the virus increased. This made me realize how important it is to teach the students of Bangladesh regarding sustainability education



and climate change to create a positive impact. Not only that, I was more worried about the natural resource preservation techniques my birthplace Bangladesh is undertaking for a sustainable future. My experiences as an international student and a teacher makes me feel responsible to research on such a matter, such that they can bring a positive change in the life of the people of my community.

In 2019, researchers like Kumar and Hasan surveyed 381 farmers including ten focus group discussions (FGDs). They collected data from ten coastal sub-districts in order to know how knowledgeable the farmers are in Bangladesh regarding global warming and climate change education. The report shows that farmers in the FGDs almost perfectly detected this climatic transition. However, individual farmers had a knowledge gap of understanding the trends of winter temperature and rainfall. Among the 381 sampled farmers, only 30% had accurate Cluster analysis. This investigation revealed that farmers in the western coastal areas had better perceptions of climate change than those in the eastern parts. (Kumar and Hasan, 2019; p. 9)

Moreover, in 2007, Bangladesh was hit by the cyclone *Sidr* and it created a massive havoc in the coastal parts of Khulna district. The cyclone *Sidr* that hit Bangladesh on 15th of November 2007-caused about 3,406 deaths and over 55,000 people sustained physical injuries. Heavy rain accompanying cyclones and tidal waves due to wind effect caused extensive physical destruction, casualties, damage of crops and livestock, and flooding in a total of thirty districts across the South Western coastal district of Bangladesh. Cyclone *Sidr* affected nine districts of Bangladesh. The most devastated districts were Bagerghat, Barguna, Patuakhali, and Pirojpur (Kabir et al, 2011).

After *Sidr*, another cyclone took place called *Aila* hitting the southern coastline of

Bangladesh on 25th of May 2009. It was the biggest storm that hit the Sundarbans within the last three decades. Satkhira and Khulna, districts of Bangladesh, suffered the heaviest damages. There had been an outbreak of diarrhea causing acute scarcity of drinking water. Although, no official data were available on such issues in media.

As Brammer (2016) points out in his article, the media fails to capture the accuracy of information and the scarcity of resources keep the people of Bangladesh ignorant toward their own position between the climate crisis. It also raises the question how well the students of Bangladesh know their own country's climate change and how they can be involved in action-based education. Such inclination taught me the importance of nature and climate change education through self-exploration and practical initiatives. Gradually in higher academics, the setting of action-based observatory education changed toward technology based classroom education. My under-graduate experience in English Literature and Language from Khulna University made me realize that education in universities is more aimed at professional excellence in future rather than climate sustainability actions. When I started teaching at North South University, I realized from a teacher's perspective the fact that how important it is to educate students regarding climate awareness.

Based on my online research, I was unnerved to know that "living in the geographical conditions of Bangladesh expose children to a higher risk of drowning" (Gupta et al, 2019). Therefore, WHO has launched four community-based interventions under UN's Sustainability Development Goal 3 and in 2016, Bangladesh CIPRB developed the Project BHASA: Anchal and SwimSafe (Gupta et al, 2019). There are 400 Anchal centers under the program across all three intervention sub-districts of Barisal which is located closely to Khulna and the SwimSafe program has 21-step swimming course. I

realized that academic curriculums, especially in universities, must undertake such initiatives as a part of their optional courses to teach sustainability in coastal cities.

Moreover, the metropolitan port-city Khulna is the main sector of fish industries. Being located closely to Padma river, Hilsha fish, known as the silver of the south, is facing severe threat since 2003 because of overfishing, pollution, disruption of migration root and climate change (Mozumder et al, 2019). The government is restricting the catching of Hilsha but the locals are not fully aware of the consequences that they are at the brink of being climate refugees. I truly feel that all these information must be incorporated in the curriculum of universities to make students aware of their own land and its conditions.

## 2.2 Bangladesh and its Water Resources

In Bangladesh, the Ganges delta is formed by the confluence of the Ganges, Brahmaputra and Meghna rivers and their respective tributaries. The Ganges connect with the Jamuna and later joins the Meghna, finally flowing into the Bay of Bengal. Bangladesh is called the "Land of Rivers"; as it is the home to over 57 transboundary rivers. However, this makes the resolution of water issues politically complicated, in most cases, as the country is a lower riparian state to India. The country is divided into three regions. The fertile Ganges Delta, the largest river delta in the world dominating most of the country. The Madhupur and the Barind plateaus form the northwest and central parts of the country. The northeast and southeast are home to evergreen hill ranges. Bangladesh is predominantly rich fertile flat land. Most of it is less than 12 m (39 ft) above sea level, and it is estimated that about 10% of its land would be flooded if the sea level were to rise annually. Forests cover 17% of the country and 12% is covered by hill systems. The

country's wetlands are of important significance to global environmental science. This shows the significance that university students of Bangladesh of all departments must learn climate change education and sustainability topics to preserve their own land and to take measures when necessary. In fact, similar geographical settings are seen in other countries too. So, it is a global demand that every university student must learn climate change education to protect their own motherland. Even, common citizens must learn this topic as well and share their views of protecting the mother earth.

### 2.3 Bangladesh and its Climate

Bangladesh is blessed with diverse tropical climates. The climate of Bangladesh includes a mild winter from October to March, and a hot, humid summer from March to June. A warm and humid monsoon season lasts from June to October and supplies most of the country's rainfall. Natural calamities, for example floods, tropical cyclones, tornadoes, and tidal bores occur almost every year, combined with the effects of deforestation, soil degradation and erosion. The cyclones of 1970 and 1991 were particularly devastating. Moreover, Bangladesh is also one of the most populous countries in the world. Dhaka, the capital and largest city, is the nation's economic, political, and cultural hub having the maximum industries and causing maximum pollutions. Another metropolitan city Chittagong, that has the largest seaport and hill-tracks, is the second-largest city. Khulna is the third-largest city having the 2<sup>nd</sup> commercial seaport in Mongla and having the Sundarbans, known as the land of royal Bengal tigers and mangrove forest. Bangladesh forms the larger and eastern part of the Bengal region. The drastic change in the climate and man-made pollutions effect the greenery of the hills, forests and animal habitat of the

cities. In order to eradicate the damages, the teaching of climate change education becomes more necessary at tertiary level for the new generation of students.

#### 2.4 Bangladesh and Floods

In September 1998, Bangladesh saw the most devastating flood in modern world history. As the Brahmaputra, the Ganges and Meghna spilt over and swallowed 300,000 houses and 30 million more were made homeless. Effectively, two-thirds of the country was underwater. The severity of the flooding was attributed to unusually high monsoon rains and the shedding of equally large amounts of melt water from the Himalayas, and the widespread cutting down of trees for firewood or animal husbandry. A similar countrywide flood took place in 2007, which left five million people displaced. So, it can be estimated that Bangladesh is recognized to be one of the countries most vulnerable to climate change. Over the course of a century, 508 cyclones have affected the Bay of Bengal region, 17% of which are believed to have caused landfall in Bangladesh. Natural hazards that come from increased rainfall, rising sea levels, and tropical cyclones are projected to increase as the climate changes, each seriously affecting agriculture, water and food consumption, human health, and shelter.

#### 2.5 Bangladesh and Weather Broadcasting

Renowned scholar Hugh Brammer (2016) published an article pointing out that the reports regarding climate change in Bangladesh is faulty. He also said that the academic institutions need to reshape their education system for a better change in the environmental justice to aware its future audiences. Brammer's observation could not be ignored as he has spent over 20 years in Bangladesh and had been the former East Pakistan officer working

on soil surveys and agricultural development, wrote several books on the country's environment, natural disasters and land use. He explored 50 years of the country's rainfall and temperature data in order to assess the evidence for climate change related to global warming:

The prevalent errors and misunderstandings about Bangladesh's physical environments and climate reviewed in earlier sections indicate an urgent particular need to make changes in the teaching of geography and related environmental subjects in the country's academic institutions, substituting field studies for 'paper' studies so that students, at all levels, obtain a practical knowledge and understanding of the physical, economic and social geography of their country. That would enable them to replace popular assumptions and assertions with fact-based information and understanding. (Brammer, 2016; p. 32)

When I was in school, I was taught similar topics in geography classes and I was told that by 2050, a 3 feet rise in sea levels will inundate some 20% of the land and displace more than 30 million people. Later, it was heard that to address the sea level rise threat in Bangladesh, the Bangladesh Delta Plan 2100 has been launched. Since then, the tension was dwelling in my mind regarding what students can do or must do about it. In my school and university life, I have been told about the problems but the solutions were not as frequently been discussed and this worried me a lot.

Therefore, I believe that universities need to incorporate such a method in their curriculums that could direct climate change education and sustainability topics to the university students. It is a fact that climate change issues can not be solved through university teachings only. Although, university teachers could play a big role by teaching the youth to be responsible enough to give climate crisis its prerequisite attentions through academic researches and experiential actions.

## 2.6 The Importance of climate change education and role of Canadian universities

Education for Climate Change has become part of the UN's program of education for Sustainability Development (ESD). It was first explained in Agenda 21 at the Earth Summit (1992) in Rio de Janeiro and it focuses mainly on educating professionals and future activists on sustainability and climate change issues. Since then, many universities have signed the Talloires Declaration that puts importance on climate change education courses in university teachings and researches (Hoque, Clarke and Sultana, 2017) and it came into the spotlight becoming one of the most crucial courses to be taught in every institute of every country. Because of the over-all climate change and environmental imbalance, every citizen of the world, whether young or old, must know the various ways of protecting the nature. As today's students are the future leaders of tomorrow, it is mandatory to teach them not only climate sustainability ideas but also appropriate pedagogies that can enhance student learning. With the rapid increase of technology and industrialization, it has become mandatory to learn the ways of a sustainable life-style. Many world organizations are highly promoting to take such courses as a mandatory requirement for all. Even every subject can include it as an extra course for credit completion putting into a multi-disciplinary approach:

ESD and climate change education for all college students is advocated by many scholars who believe that every discipline can contribute to this initiative from the current repertoires of lesson plans and curriculum units. (Mintz and Tal, 2018; p. 127).

These courses guide and educate students for improved life-styles, recycle and waste management systems, plant-based dietaries, animal rights, deep ecology, biodiversity, disaster risk reductions, poverty reduction, sustainable consumptions, population control and so on. Researches have shown that many academics tend to focus

mostly on academic excellence for a professional empowerment rather than creating climate activists for the future.

This has to be reversed because for climate change education, higher skill knowledge and critical thinking ability have to coordinate with each other. On the other hand, many of the climate change education amplifies knowledge and initiates students to put it into action but the urge of doing so has to be more pressing. It has been generally noticed that countries that focus on climate change education in their academic curriculas are able to procure greener neighbourhood, action-based research, better medical treatments, public awareness, personal hygiene and sustainable future for their society compared to that of the countries that pays less attention to such concepts.

Nowadays, many countries have ESD and climate change courses for students related to action based assignments and practical projects and Canadian universities are playing a huge role promoting such notions. For example - in Canada, we find York University offering EDUC 5446: Ecology, Ethics and Education, ENVS 5164: Environmental Economics, ENVS 6118: Applied Ecology, ENVS 6114: Sustainable Development for Canada; University of Toronto offers 6 certificates: 3771-Climate Change, 3454-Introduction to GIS for Environmental Management, 3455- Advanced GIS for Environmental Management, 3457- Environmental Remote Sensing, 3566- Fundamentals of Environmental Management and 3568- Strategies in Environmental Management; UBC offers B.A. in Environmental and Sustainability Programs with four courses in a four year undergraduate structure. Additionally, other universities in Quebec and British Colombia provide numerous courses in its under-graduate and graduate format related to the topics of Earth Systems and Climate Science, Engineering for Sustainability,



Environmental Governance, Environmental History and Culture. Like many other North American territories, Canada is stepping forward with rampant pace for climate change education assessments and related researches to ensure a progressive future for the upcoming generation compared to that of Asian continents who are still struggling to figure out ways of dealing with environmental catastrophes.

### 2.7 Climate Change Education in a University of Bangladesh

According to my online journal research, I have found that very few research on climate change education and sustainability development subjects in Bangladesh has been originated compared to that of North American and European countries. The campus sustainability assessment framework which the North American universities follow is hardly activated in many Asian universities, especially in Bangladesh. This raises the question that what are the barriers to implementing environmental practices in Bangladeshi universities?

Several studies have indicated that post-secondary education has only a limited contribution to a change in graduate's knowledge and attitudes related to environmental and sustainability issues...It was also argued that most tertiary education students have only a limited exposure to ESD. (Mintz and Tal, 2018)

On the contrary, I would like to highlight that Khulna University has a separate discipline of Environmental Science that focuses on various sustainability concepts: Aquatic Biodiversity, Climate Change, Livelihood vulnerability, environmental ethics, waste management, and so on. The department has 21 faculties with 5 laboratories, a seminar library and a conference room. Compared to the wealthy industrial carbon producing nations, the curriculums and thesis of this department are very limited but still it carries optimism that if appropriate strategies and resources are provided, it can take a

better shape. Students who submit their thesis to the department does that to meet the requirement of the completion of the graduation but its practical implications are very limited. Their maximum efforts are theoretically focused and their awareness and vigor to put it into a practical form is less. If their researches were put into actions, the Khulna city would have been more greener and eco-friendly.

Additionally, more than four thousand students graduate from Khulna University per year. Among them, maximum 50 students graduate from Environmental Science and the rest from other subjects. When I was an undergraduate student at Khulna University, I saw students throwing tiffin bags on university pathways and wasting food and drinking water. I also saw students not recycling used papers, neither they are at all concerned about any of the climatic changes taking place around them. This highlights that students are not aware of sustainability concepts and they need to be educated on this issue. Climate change education and Environmental Sustainability concepts are easily accessible and comprehensible that any student of any discipline can incorporate. So, if other disciplines promote it, students can learn the etiquettes of respecting their own motherland and stimulate environmentally sustainable future.

### 2.8 Probable Initiatives of Climate Change Education for Bangladesh

Climate Change and Environmental sustainability education is one of the most popular courses in numerous universities. Many universities undertake frameworks that support such insights. For example, in Australia, University of Melbourne, the SEAD framework approaches 3 key components to be applied:

Environmental sustainability education through instrumental knowledge, practical knowledge and emancipatory knowledge, academic development through learning and teaching/instructional knowledge, pedagogical knowledge, curricular knowledge; and organizational change. (Holdsworth and Thomas, 2015)

But the question is does other countries like Bangladesh follows the steps of countries like Australia and Canada? Bangladesh is located in South Asia at 23.8 degree North and 90.3 degree East. Agriculture is one of its most reliable sources of income for farmers. As an over populated country like Bangladesh, the government is broadcasting to increase the use of fertilizer to maximize the supply of food but “the doubling of agricultural food production worldwide up to the 1990s can be partly attributed to a 6.9-fold increase in nitrogen (N) fertilizer and a 3.5-fold increase in phosphorous (P) fertilizer” (Rahman and Zhang, 2018). The demand of food is a global phenomena but how effectively countries are dealing with it is a matter of consideration as farmers of most countries use high level of sodium and potassium containing fertilizers without any training session. The excess use of it not only makes the soil poisonous by decreasing the soil pH but also causes harm to the over-all biosphere. Contrastingly, many countries are using fertilizers efficiently through fertilizer management technologies and education on crop management knowledge models, fertilizer models, leaf color charts (LCC) and soil-plant analysis development that are given as mandatory or optional courses in private coachings and universities.

Research shows that young farmers who have no education or training apply large amounts of inorganic manure. Whereas, middle-aged male farmers who have at least minimum training contribute towards the reduction in inorganic fertilizer and this shows the importance of agricultural training courses. As we know that climate change creates an impact on agricultural productions, such training can aware farmers regarding climate change issues and sustainability measures.

On the other hand, if we evaluate a city based on its most obligatory education requirement, we will find that climate change education is one of the most necessary education for Bangladesh because of its geographical location and its dependency on environmental resources. Khulna is a coastal city surrounded by Padma, Megna and Brahmaputra, the three major river routes that surround the city. It has the biggest port in Mongla that adds foreign profits to the economy through import and export of goods. This makes the city vulnerable in case of water related calamities and therefore, climate change education is more necessary for this city. The BHASA and SwimSafe programs should be included as courses in the universities and teachers must take initiatives to make these courses a part of the curriculum. Another natural resource of the city are the fisheries. It is one of the primary industries that support local livelihood, food security and human health even if it is carried out in small scale. It single handedly contributes a big deal to the national economy and provides employment to millions of Bangladeshis. Despite this, the sustainability of the fishery resources is a growing concern:

As the single most important fishery, the Hilsha catch alone constitutes approximately 12% (0.5 million tons) of the total fish production of 4.134 million metric tons as of 2016-2017. Fisheries have a total annual value of US\$ 2 billion, thus accounting for more than 1% of Bangladesh's GDP and employing approximately 0.5 million fishers and 2.5 million people in the value chain. (Mozumder et al, 2019).

As Khulna city is surrounded by Padma River, catching Hilsha is a popular activity for villagers in coastal villages. Besides Hilsha, many white fish hatcheries provide a good source of income to the locals especially in the Koyra area, which is located very close to the Sundarbans. Many villages constitute this small-scale fish industry by cultivating rui, pabda, moladhela, magur and many other local fishes. This makes it necessary to teach the various ways of fish breeding and hatchery production that take place in most of the areas

near Khulna city. Universities in Khulna city have separate departments of fishery that teach the ways of fish cultivation. Such knowledge is confined to those students who are admitted to that curriculum. Therefore, it is suggestive to provide one or two courses related to this subject available for all students of different departments.

### 2.9 Inter-Disciplinary Approach and Teaching Climate Change Education

In universities, Arts and Humanities departments can use fictional and non-fictional texts as their referential tool to discuss climate change topics. Moreover, different other departments can add a small-scale course of 3 credits related to environmental sustainability education as a part of their under-graduate curriculum. This will not only serve the purpose to educate university students regarding the global climate change but also inspire them to protect the city they are living:

The UN Decade on Education for Sustainable Development (UNDESD) has emphasized the need for a commitment by educational institutions to educate all students about the necessity of sustainability around the globe. (Hoque, Clarke and Sultana, 2017)

Therefore, every department of any university around the globe can put an effort to make climate change education a part and parcel of their own curriculum. For example, Khulna University's department of English literature and language can easily use literary materials to incorporate the teaching of climate change. In its under-graduate curriculum design, there are 8 semesters in four years timeline and the requirement of credit completion is 145. In this period, students complete 48 courses in which 5 are optional courses and 13 are sessional courses. Optional courses are required to complete the credits and it can be taken from a variety of non-literary courses which can be applied in literature studies. Some of such course are - CSE, Bangla, Psychology, Philosophy and so on. Sessional courses are basically seminars where students discuss and perform literature

related topics. I think this is an excellent platform where students can relate climate change and environmental sustainability topics with the themes and images depicted in literary productions. For example- in the optional course of Bangla Literature 1, students are asked to read the poem by Jibonanada Das's 'Bonolota' (1935). The poem amalgamates nature with human emotions and psyche and tries to portray that nature and human are inseparable. The teacher can include the text *How Everything Can Collapse* (2020) by Servigne and Stevens and ask the students to make a comparative analysis between the two to illustrate the fact that we all are connected and we need to be aware of the ecological balance to avoid a future disaster.

On the other hand, the teacher may ask the students to form small groups and assign pages from the book *Tales of Two Planets* (2020) by Freeman. This book is a list of essays written by climate refugees and the teacher may ask the students what they feel about the sufferings and what initiatives can be taken to avoid such consequences in the future. The teacher can also ask to relate literary characters that resemble the suffering of the climate refugees presented in the book. For example, students can relate Shakespeare's characterization of Prospero and Caliban in *The Tempest* (1611) with the sufferings of climate refugees. There are scholars who have published research articles on similar approaches of teaching. Such as- Lannin (Et al, 2020) explains in his study how multi-modal texts of English literature can link student learning and understanding of the climate change through the depiction of the climate and environment in the literary texts. He draws examples from "Horegallu" by Sudha Murty (2006) and *Same Sun Here*, a novel by Silas House and Neela Vaswani (2012). He explains how the students can associate their understanding by answering the following questions: What is the environmental challenge

addressed in the text? How are humans and the environment affected? And what questions do you have as you think of these environmental challenges? (p.7). On the other hand, another scholar Damico (et al, 2020) approaches ways of involving students with climate justice by using stories that speaks of climate change. According to their research there are many ways to mobilize the study of such stories in the classroom. Teachers can guide students to identify specific destructive stories (e.g., the ones we identified) across a range of texts (fiction/nonfiction and print/digital) with core critical literacy questions (e.g. What story is being valued? Who benefits from this story? Who doesn't?). This might include students inquiring into destructive stories in their own lives as readers, citizens, and consumers. Where are these stories in social media? Are they in students' homes and schools? Are they in conversations among students' friends and families? What other destructive stories are evident? Exploring these stories in the classroom positions them as worthy of inquiry. Doing this type of investigative work with texts with an eco-linguistic lens promotes climate justice literacy in the classrooms.

Moreover, the researcher believes that educators can make the students understand the climate crisis and involve in problem solving discussions. He further stresses that, literacy educators are uniquely positioned to help students identify and examine ecologically destructive and beneficial stories we live by that circulate in an escalating array of complicated, motivated texts about climate change. Literacy educators can begin this work by enriching their own understandings of the climate crisis and making climate justice more central in their classrooms. (p.7)

Furthermore, I believe that the English literature classroom is an imperative platform to critically explore climate crisis issues. Scholars and teachers of today believe

that “a purely science-oriented approach to climate change can miss the social, historical, ethical, and human realities that are critical to the problem” (Sulzer, 2021, p.2). Then the question arises of how to start it when teaching canonical literature is the main target of getting good grades. Due to the rapid change in environmental settings, the present climatic situation is becoming more catastrophic. The recent pandemic is a cause and effect case of climatic change and scientific usage. Because of the lockdown, the carbon emission lowered and the ozone layer became thinner but the opening of lockdowns again creates imbalances as human beings start repeating the same mistakes again. In such unprecedented situations, an English literature classroom can contribute towards creating awareness towards the youth regarding the alarming future of natural calamities. Additionally, An inter-disciplinary approach is always useful to make learning multi-dimensional. Sulzer says,

The current pandemic requires a stance of criticality, and English educators have an indispensable role to play. Pandemics reveal the fault lines of society, which will become increasingly agitated in the future, because pandemics are interrelated with the climate crisis. (2021, p.1)

English literary texts use nature as one of its dominating settings and many literary masterpieces represent nature through the skillful dexterity of the writer. Students of literature can read and compare it with the present situation and therefore, connect themselves with the climate education. The application of such inter-disciplinary approach can be very effective and helpful. Some of the recent scholars have already applied it in case of teaching Shakespearean works to deal with post-pandemic situations:

English education cannot sit on the sidelines for the fire drill or the fire. In this moment, we need methods for critically engaging COVID-19 and the climate crisis in the English classroom. In this article, I propose one such method, offering a seven-step heuristic based on the idea of ‘juxtaposition,’ defined as putting texts



side by side to stimulate a creative leap. I use *Macbeth* to demonstrate how one of Shakespeare's most often-taught works provides a pathway for critical engagement with COVID-19 and the climate crisis. (Sulzer, 2021, p.2)

Moreover, Sulzer in his article "The Future Is Known. Now What? Using *Macbeth* to Explore the Social Complexity of the Climate Crisis and COVID-19" (2021) provides the use of juxtaposition to practice the approach and, in page 6, suggests seven heuristic ways to make this strategy work.

English Literature education in the classroom has an important role to play in providing a basis in understanding the pressing issues of today like the climate crisis, or post-pandemic situations. To do this imperative effort, educators must ordain a type of planning that clearly puts canonical works into conversation with contemporary concerns. Such approaches open more ways of learning for students and teachers and this MRP tries to focus on this. The following chapter will illustrate how such an approach is taking attention in the two selected universities of Bangladesh and Canada.

## Chapter 3: Research Methodology

### 3.0 Introduction

This research is intended to investigate and analyze the extensive effect and opportunities for climate change education through Arts and Humanities in Bangladesh and Canada through two universities and its pedagogical probabilities. It will also highlight the difference of education system in Bangladesh and Canada, comparing opportunities in Khulna University and York University in particular. For this project, fiction and non-fiction along with different teaching strategies will be treated as a pedagogical tool to teach climate change and environmental sustainability education and to evaluate the impacts on university students.

Moreover, it is universally admitted that maturity and education always play a vital role in case of sustainability actions. Many researches have also proved that a higher level of education significantly reduces the probability of pollution, over-fertilization, over-fishing, undisciplined waste management, overuse of energies and vehicle use. It also highlights the ethics of “collapsology” (Servigne and Stevens, 2020) when young adults step forward as sustainability activists and consultants. This project aimed to explore how the students of university level could achieve climate change education through fiction and non-fiction texts from Arts and Humanities teachers. Because of the Covid pandemic and the protocol of social distancing, scheduled zoom meetings were arranged to conduct the interviews with the academic professors. Four zoom interviews were organized with four academic individuals: two from Khulna University, Bangladesh and two from York university, Canada. Ten questions were asked to get their responses and their details will be given in the following chapter.

### 3.1 Timeline

This Major Research project is designed to occur through the remaining months of 2021, and reach completion of all stages by Summer 2022. Timelines are subject to change based on progression of tasks; however, will not extend past March 2022.

Task	Tentative Dates
Submit Human Participants Form and await approval from the Graduate Program In Education Human Participant Review Committee	April 2021
Conduct Research (Hold interviews)	April-May-June-July 2021
Complete MRP for approval of Supervisor	December 2021
MRP evaluation by Second Reader	January 2022
Evaluation of MRP at Summative Discussion Meeting	February 2022
Supervisor submits the final Research Project Discussion Report to the Graduate Program Office and copy to student; student submits electronic approved copy to Graduate Office	March 2022

### 3.2 Methods

For this research, I have chosen qualitative research method with interviews. An auto-ethnographic touch is also present in the research as I have mentioned my personal experience as a student and self-reflection as a teacher on discussion topics. Data have been collected through semi-structured zoom interviews of 30-60 minutes each from four

participants from university academic backgrounds and my auto-biographical observation as a student.

I have chosen semi structured interviews because they allow participants to freely express their philosophies within a certain array in order to acquire undeviating information and auto-biographical stories serve the purpose to explore and connect to wider cultural and social understandings. During the interview, interview questions will be customized in time according to the planned interview outline and interviewees' answers. The interview started with two major topics: Climate Change Education and English Literature. Under each topic, there were guided questions and sub-topics. The first set of interview was recorded and reviewed and transcribed. The second set of interview will be done similarly if further clarification is needed in certain questions.

In order to choose the four interviewees from two different countries, Bangladesh and Canada, I hope to gain a deeper scope of international approaches to climate change education through Arts and Humanities teachings. It is important to emphasize that this Project was intended not to generalize one appropriate way of teaching, but the goal was to achieve a deeper sense of how important it is to teach climate change education in PSE and how other subjects such as English Literature can be useful. What mattered more was how it was executed, and what qualitative similarities and dissimilarities resulted from the data analysis.

One set of written consent was taken before the interview as a written declaration of conscious participation into the research knowing the purpose clearly. It was also admitted orally during the interview that the researcher and the participants will mutually respect each others' cultural, professional and religious backgrounds. The set of interview

questions were sent through email to the participants beforehand and were asked for a zoom meeting at their conveniences. The second set of interview was an open option if further clarification was needed in certain questions.

### 3.3 Interview questions

I made ten open-ended interview questions to explore the subject area and the participants' personal experiences. The questions were given to them beforehand (at least 2 weeks) so that they could prepare their responses. As I am interested in better understanding what the Arts and Humanities (in particular) might offer in climate change education, I have interviewed 4 professors from two universities with an interest in exploring ways of teaching climate change. With these notions in mind, I gave them the following series of open-ended questions in a semi-structured interview:

1. Can you talk about your climate change teaching at your University? What are your goals? What guides and informs your approaches? What themes do you explore? What texts do you draw on? What activities do you engage students in? Do you have particular favorite activities? What assignments do the students do?
2. Can you talk about the history of your courses? Such as how long have they been running? What have been enrolments? How do students react? What are your plans for the future?
3. Given the magnitude and significance of the climate crisis, in comparison, course development in universities (and the humanities in particular) has been seemingly slow (Martinez, 2017). Is this your experience? Why do you think this is the case? What changes are necessary at the institutional and department levels to support change? How can universities better support climate change education in your opinion?

4. How can universities more effectively reach out and connect with local communities in climate change related initiatives?
5. The numbers of climate refugees are dramatically increasing. How can universities better respond to this humanitarian and ecological crisis (especially from your department)?
6. Are there any lessons that can be drawn for change education from the COVID-19 pandemic? Bruno Latour describes the pandemic as a “warm up” (Watts, 2020)? In what senses is this warm-up? How the curriculum of your department could respond to it?
7. Do you think an inter-disciplinary approach can be useful in teaching climate change education in PSE? If yes, could you explain why and how? How would you relate humanities education with climate change education?
8. How curriculums of your university could add climate change education courses more effectively and teach the importance of environmental sustainability through humanities courses?
9. What are the pedagogical strategies that can be applied and how much effective they could be in your context of teaching? Would you prefer open debates, workshops and seminars or traditional written studies for it? How and why? Would you suggest interviewing climate refugees live for open discussion sessions and associate their stories with stories of humanities syllabus?
10. If we use humanities curriculum and relate it with the depiction of nature’s setting and ask the students to associate their climate change education with it, do you think it may be useful? Please explain.

These questions were worth much consideration as they offer variety of assistances to the teachers for further research and could open more opportunities for academic

practices. Such research could provide the professors and the students more opportunities to critically think of the environmental sustainability opportunism, climate change education through other subjects, acknowledgment of land and their individual contribution in the society.

### 3.4 Data Analysis

The data from the four interviews were analyzed through thematic content analysis from a qualitative point of view. Transcription of each of the interviews permitted me to highlight similarities and differences between the participant's responses. I have used the online transcription tool installed in my iPhone called *Temi*. Additionally, the Zoom interviews were recorded through Zoom recording and QuickTime Player in my laptop. As a result, the themes that appeared during the analysis and my experiences as a student are discussed in details in the later chapters.

### 3.5 Ethical Review Procedures

For the requirements of this Project to be approved from the Delegated Ethics Review Committee, a completed Major Research Project Proposal package was submitted in April 2021, which included the following:

- MRP Proposal,
- MRP Protocol Form (Research Involving Human Participants),
- Completed Informed Consent Forms
- Proof of completion of the TCPS 2 Tutorial (Course on Research Ethics, CORE).

In addition to being considered successful, a review of York University's "Senate

Policy Research Involving Human Participants” was obligatory, along with a review of the “Student Researcher Responsibility Document” located on the York University website. The Delegated Ethics Review Committee issued the commencement of this research Project in May 21<sup>st</sup>, 2021 and was informed to me through email with no attachment form/list of any sort of minor/major changes. The approval signified that this MRP would discuss and address the four participants with respect to their professional and cultural propensities to explore climate change education through Arts and Humanities texts and different teaching strategies in two different universities of two different countries. Pseudonyms will be used in place of the real names of the participants in data analysis section to maintain their anonymity. These practices were in line with ethical submissions.



## Chapter 4: University professors

### 4.0 Introduction

In order to choose the interviewees, I kept that in mind that they need to belong to the relevant subject area and must have experiences in academic sectors. So, two academic professors from Arts and Humanities, especially of English Literature, from Khulna University and two academic professors of Social Science and Education from York University were chosen to be interviewed for this project. All the interviewees were my course professors except one. At first, I emailed them and asked them to be a participant for the Zoom interview session for 30-60 minutes. Once they agreed through email, I wrote their names in my research proposal and consent letter and sent it to the Ethics' committee for approval. Once the proposal was granted, I emailed them back regarding the interview questions.

In order to create mutual trust and friendly rapport with the interviewees, a pre-lesson conversation was arranged by zoom and email. There, I clearly stated the purpose of my research, my background and the probable risks and benefits of the data collection methods. It was clearly communicated that the purpose of my research is not to judge professional dexterities or knowledge depths. My aim was to figure out probabilities of progressive learning options of climate change education through fiction and non-fiction texts and their different ways of teaching. I also clarified that I will make a comparative analysis of their teaching strategies. When the participants agreed, then another communication was held to explain the research. It was also clearly stated that if any selected participant does not want to participate in any stage of the interview, his/her decision would be respected in a formal manner without any further impetus.

While collecting data, a culturally appropriate attitude was taken to ensure that there were no ethical concerns regarding this study. All of them agreed through a formal email to attend the Zoom interview sessions and therefore, the interviews were conducted along with their written consent to conduct the interview with recordings and using their words as a source of information for the project. I have used pseudonyms instead of the real names of the professors in the project's data analysis section. The followings are the professional identity of the selected interviewees:

#### 4.1 Interviewees from Bangladesh

For the interviews from a large university in Bangladesh, I interviewed two academic representatives from the school of Arts and Humanities, department of English

1. My 1<sup>st</sup> interviewee (under the pseudonym Donna) is a professor from the Department of English from a prominent university in Khulna, Bangladesh

She is a former Dean (2016-2018) and former head (2015-2016) of the department of English Language and Literature. She has done her MPhil and PhD from Oslo University, Norway and her MA from Dhaka University. She is one of the leading individuals in case of curriculum design of her department. Her research interests are in women's writing, refugee and migration studies, post-colonial and translation studies, metaphysical poetry, modern drama and Henrik Ibsen works and environmental literature. She has published more than 20 research articles and books. I explained to her regarding my research and she was very enthusiastic about it. She was one of my teachers. She taught me Shakespearean drama and Metaphysical poetry. When she used to take classes, she always tried to explain the ecological effect on the human mind and also highlighted how human beings can control the environment surrounding them. She has relevant educational

qualifications and teaching experiences from both national and international academic sectors and therefore, I thought she could relate to the subject matter of this project very well. She is mentioned under the pseudonym Donna in the project's thematic analysis. She gave the interview on 02/07.2021 on Zoom for 38 minutes and was very enthusiastic.

2. My 2<sup>nd</sup> interviewee (under the pseudonym Harvey) is a professor from the Department of English from a prominent university in Khulna , Bangladesh

He is a former head and he has completed his PhD from Islamic University, Kushtia, Bangladesh in English Literature. His research interest includes feminism, orientalism, secularism and ecology in English Literature. He published many research journals in renowned publishing organizations. He is a member of different NGOs and environmental sustainability organizations in Khulna district. He is a prominent figure in the curriculum design of his department and he promotes Environmental Literature as a topic of discussion in his sessional classes. During my honors life, he was one of my course teachers and he used to hold a lot of sessional classes to promote experiential learning. Sessional classes are actually seminar classes where the students speak out of their experiences of learning. We used to participate in debates, extempore speech, dramatic performances and open discussions. It was a platform where we used to bring our thoughts regarding various themes of literature and associate it with our daily lives. I could remember that during his teaching of T. S. Eliot's *The Waste Land (1922)*, he briefly associated the post-modern society's environmental crisis and suggested active and progressive human actions to solve the ecological problems in the class discussion. He is mentioned under the pseudonym Harvey in the project. He gave the interview on 04/06/2021 for 43 minutes and 53 seconds.

## 4.2 Interviewees from Canada

1. My 3<sup>rd</sup> interviewee (under the pseudonym Robert) is a professor from the Department of Education from a prominent university in Toronto, Canada.

He did his Ph.D. in the Sociology of Education and his current research interests include: the social and political organization of knowledge; environmental and sustainability education; global migration and settlement; university/community relations and teacher education. He has a keen interest in learning the sustainability approaches in developing countries and is enthusiastic to undertake related researches. He was one of my course teachers for winter term and I had taken a course under him where he introduced two texts based on climate crisis: Freeman's *Tales of Two Planets (2020)* and Servigne & Raphael's (2020) and *How Everything Can Collapse (2020)*. He agreed through email for a formal Zoom video interview of 30 minutes for my research. He gave his interview on 30/06/2021 for 36 minutes 46 seconds and was very excited. He is mentioned in the project under the pseudonym Robert.

2. My 4<sup>th</sup> interviewee (under the pseudonym Alex) is a professor from the Department of Social Science from a prominent university of Toronto, Canada.

His research and teaching interests include global tourism, environmental communication, climate change education and media representations of social movements. His research has been published in *Journalism*, *Journal of Science Communication*, *Noricum Review*, *Tourist Studies*, *International Communication Gazette*, *International Journal of Cultural Studies*, *Canadian Journal of Communication* and in several edited volumes. I have not done any course with him but according to the suggestion of my

supervisor, I have seen his course outline and I was impressed to know that he could be a good source of information for the project. I would like to highlight some key facts and impressions from his course outline:

In one of his courses, he organized four learning modules, each taking up distinct elements of the representation of climate change. The first module, “Representing Climate Change,” introduces the concept of climate change, why it matters, and the efforts science communicators have made to raise public awareness of the issues. The second module, “Climate Change and Everyday Life,” studies how climate change intersects with lived experiences both nationally and internationally. The third module, “Media, Culture and Climate Change,” gives close scrutiny to the ways in which climate change is represented by science communicators, journalists, policymakers, climate deniers, tourism promoters, environmental NGOs and activists among others. In the final module, “Imagining Climate Change Futures,” students watch a blockbuster Hollywood climate disaster movie and read a fiction on climate crisis. He agreed through email for a formal Zoom video interview of 30-60 minutes for my research. He gave the interview on 06/07/2021 for an hour, 7 minutes and 36 seconds. He is mentioned in the study under the pseudonym Alex.

## Chapter 5: Thematic Analysis

### 5.0 Introduction

This chapter offers an overview of the four themes that emerged from data analysis. The first theme is place-based learning. The other three themes are: environmental landscapes, institutional structures and, compassion and empathy. All the professors have their unique ways of teaching that will be discussed along with their opinions. The discussion of each theme ends with a comparison between the professors and their pedagogical ways.

### 5.1 Theme one: Place Based Learning

The importance of place-based learning (interpreted broadly as encompassing experiential and community-based learning) was a theme that emerged across the interviews. During our interview, Robert spoke about the significance of outdoor learning experiences in environmental education. He said he used to take his students to the campus to experience learning outside the classroom. In this respect, his pedagogy values the university campus and outdoors as an experience conducive to learning and reflection. He continued by highlighting experiential learning as an engrossed learning method through which students learn by doing things by themselves and by reflecting on the experiences. He believed that such a learning procedure provides ample opportunities for students. He used to take his students to the campus arena and sit under a tree or open space. Then he asked them questions regarding their observations on environment and human connection with them. He believed this could provide the students with immense opportunities to connect with nature saying in our interview that: “we would do these kinds of outdoor experiences and the assignments were about creating a worthwhile learning experience for

students using the out of doors.”

Alex was another strong supporter of experiential learning in the form of community based knowledge. He said when students try to relate a story of literature, which could be like their own experiences, they could relate to the situation more effectively. He called such learning as “effective experiential education”. He said it is a useful technique to “find ways to bring the community into the classroom, through the relationships that the students have and the networks they have within their community.” He also illustrated that such discussions make learning more interesting and exciting as well as give the students an opportunity to brainstorm on the issue and discuss probable solutions to it:

It's not like it's in your backyard yet. Right. But when you start to think about how those macro level changes might actually impact your backyard, ... Or some students of course are already experiencing this. And they bring that into the discussion in the classroom. And then there's this back and forth between the community that they're coming to the classroom from.

Alex also said that he ask his students to submit field research papers. In such assignments, he ask his students to go to a local organization or a community initiative in order to learn something. Students could hold interviews, take pictures, or simply create a descriptive essay regarding the association and its associates. They could also make constructive criticism on the work ethics or provide suggestive measures. He also suggested that nature oriented activities like -cleanup operations, farm visits and first-hand learning of taking care of animals and plants, courses and workshops on recycling and visiting local NGOs are good resources for experiential academic acts. So, he welcomed students with more open-minded community based experiential research and discussion panels on such terms but with prejudice free mentality, as he believed it is a never-ending

discourse for both students and teachers. He also promoted his students to submit documentary projects through social media like - making a tiktok video or a Facebook webpage based on their own observation of climate change. He reflected this could make learning more fun and interesting as well as help students to easily associate their views on climate change issues.

According to Harvey, teachers of today are taking initiatives to make students understand the real consequences of climate change and forming research panel to visit places affected by climate change in the Southern parts of Bangladesh. Through their observations, they are writing research articles and projects that portray the climate change situations in Khulna city. He says that -

some other departments like the Soil department, Forest and Wood Technology, Agro-Technology, and the Environmental Science department are sending researchers to capture the real picture of the surrounding areas of Khulna University and this will impact the whole of Bangladesh. Students will gather real close-hand experiences of witnessing the situation caused by climate change in place and mind of the victims. This will encourage them to step forward with remedies and effective survival strategies to overcome future calamities.

He also mentioned that some researchers have already taken the initiative to meet the climate refugees and collected data to research on their experiences of climate crisis and their survival tactics.

Khulna University (KU) has this initiative to connect with local communities, you know. KU is located near the coastal areas of Bay of Bengal. So, we can easily connect to them. In fact, we have selected some villages, and some educators have already been there to talk to the coastal people regarding climate change... are sending researchers to capture the real picture of the surrounding areas of KU and this will impact the whole of Bangladesh.

In case of Donna's interview, I found her as another enthusiast of outdoor experiential learning. She said that when students visit places and people, it help them to connect with the texts in a more effective way. She says:



I am sure that there will be a huge change in the mind of the interviewer when they will meet climate refugees and their stories can be linked with the stories of the interviewers' studied literature.

So, she believed that the combination of textual knowledge and practical experience could assist students to learn climate change education more successfully. Donna related it to the fact that every year Khulna city, which is located to the southern part of Bangladesh, faces natural calamities. Therefore, it became a responsibility for all academic teachers, especially university professors, to step forward with their available opportunities to teach and make students aware of climate change by allowing to visit those places. She promoted action based student initiatives where students can meet climate refugees and have conversation in the form of an interview or simple rendezvous to understand situations:

It is very hard for the local people to come to the fact that their life is changing due to climate changes. Apart from that, in villages, they do not have institutional trainings for such challenges. So, in universities, for example like ours, students can go to climate refugees and try to teach them some survival strategies and mental health therapies as well as how to do adjustments during natural calamities. They can bring examples from literature to make the ascendancy more applicable

She also suggested action-based social tasks and promoted appropriate training sections to make students real-life eco-ambassadors. She wanted to discuss deforestation and planting trees, waste recycling and food consumptions and many other action-based topics in the classroom. She wanted to ask her students to discuss these in the local communities in terms of suggestions and applications. She also promoted having training sessions for such actions in the classroom as well as outside the classroom as volunteer assemblies.

She showed much interest to study climate refugees' testimonies and suggested not only using their stories in the curriculum for the students but also meeting them in real life. She commented that-

when climate refugees of Middle East travel to USA or South Asian refugees travel to Europe, they adjust their language and culture according to the setting they have chosen to migrate. And there is a long term impact on education, language and culture that also need to be incorporated in our study.

So, meeting them will be a great source of multi-dimensional information for the students. She also believed that these first-hand experiences could bring more knowledge and understanding of the importance of preserving the climate and the natural habitat:

Climate refugees do come to the town from the outside effected areas for new shelter and new jobs. We have rehabilitation projects and teachers of our departments can observe and research how refugee survives and tries to voice the silence...I think that could open more doors to future students to link up and expand the research areas of climate activists.

She further illustrated that “this is obviously very important, to physically reaching out to these people,” pointing out that these locals have huge source of knowledge, which students must receive. She said when a student reads a text and then meets similar characters in real life, they get more connected. They use their imagination to think about the suffering and provide solutions.

If I compare the four professors with respect to place-based education, I find that they were all supporters of different types of experiential learning. Robert and Alex were more inclined to use outdoor classes whereas Harvey and Donna showed little interest on such an approach. Robert and Alex were more eager to explore experiential learning as nature observation, establishing community gardens, making TikTok videos, using cartoon graphics and flaneur. On the other hand, Harvey and Donna wanted to use the traditional ways of written submissions and promoted various physical volunteering servitudes and visitations to climate effective places. They all agreed on the significance of meeting the local community and climate refugees as a part of their experiential learning.

## 5.2 Theme Two: Environmental Landscapes in Fictions and Non-Fictions

The four professors use texts from Arts and Humanities in their climate pedagogies. Harvey mentioned the works of Donne, Wordsworth, and Frost but he particularly mentioned S. T. Coleridge's *The Rime of the Ancient Mariner* (1798) describing how literature pictures the cruelty of mankind and nature's revenge in return. According to him, this metaphorical poem could be a good example to relate human beings' ignorance to the nature's resources and its consequences. He used this text in his teaching thinking that the students could easily relate the setting with their own situation living in a similar coastal area. Such a practice could be termed as eco-criticism. Regarding the application of the poem, he says:

You know nature's setting is very important in our life and Humanities can help our students to learn nature and its aspects...The death of the bird is a metaphor and it raising the question of animal rights. The symbolic punishment showed in the literary work is also very crucial topic and can be related to natural calamities that takes place due to man destroying natural resources.

Harvey also highlighted Amitav Ghosh's work named *Gun Island* (2019) where the Sundarban is depicted as a victim of human ferocity and industrialization. The text also marks the massive extinction of the Royal Bengal Tigers and therefore features animal rights. The author notes about the issues of Sundarbans caused by climate change and its further consequences faced by the coastal people residing near the Sundarban River. Harvey also pointed out how the royal Bengal tigers may extinct if climate change is not given a focus of attention by the environmentalists and forest preservation is not done.

Moreover, he marks the poem T. S. Eliot's *The Waste Land* (1922), which he believed as an excellent masterpiece to discuss climate change. Emphasizing the importance of this piece of work, he highlights:

Most of the themes in literature are closely associated with climate change phenomena such as *The Waste Land*. I also think that we should improve some courses related to the environmental change, climate change, global warming, pollution, water contamination and so on. I am teaching here the most famous text, *the Waste Land* highlighting the contamination of water and the environment pollution. I pointed out how to compare and contrast a world, which has no pollution, and a world, which is filled with pollution like *The Waste Land*.

Similarly, Donna highlighted the literary works of Amitav Ghosh as it is closely knitted to indigenous locals of South Asia and the present condition of climate crisis. To prioritize this text, she said:

There are some courses that are very related to our lives like those of Amitav Ghosh's works. Now we have many other literatures that have been introduced after the pandemic. Those literature needs to reach us. We, the teachers and the researchers, need to read them and research on them because we can relate to those aspects practically and emotionally as we are living on those realities. So, literature and Humanities should try to respond to this Covid 19 situations especially in the third world and how to deal with it must be illustrated and discussed.

In case of using English literature syllabus for climate change education, she sounded very positive. She believed that it could give the students the scope to expand their horizon of interests and practice eco-criticism. She admitted that she often used sociology, psychology and other disciplinary course materials to illustrate the themes and motives of her literary texts. She also mentioned the text *Love in the time of Cholera (1985)* as a good example to discuss in an open debate regarding the mental health of the victims in a climate crisis and their ways of dealing with it.

Also, she mentioned that some students use resources related to climate refugees and climate change for their thesis. She suggested that climate crisis is a global and never-ending issue and it should be added as a topic of study with or without a fixed syllabus. She believed that if a designed curriculum is not available, climate change issues could be taught from a humanitarian manner where students could be asked voluntarily to talk about

it in the classroom.

Furthermore, Robert also supported using the depiction and description of nature in non-fiction literary works mentioning Vandana Shiva's *Earth Democracy* (2005). He also mentioned Octavia Butler's *the Parable of the Sower* (1993), Naomi Klein's *This Changes Everything: Capitalism vs the Climate* (2014), and Canadian writer Margaret Atwood's *Triology, Oryx and Crake* (2003), and *The Year of the Flood* (2009). Prior to that, he said:

I will always use, uh, artistic works and fiction and poetry, and so on, in, in relation to, uh, more, uh, what you would expect it in academic texts related to climate change...really think about resources that are useful in the context of people's work as teachers or community workers or artistic and creative people, uh, all engaged in really trying to mobilize a broader public around issues of climate change.

Similarly, Alex suggested graphic novels' settings to teach climate change education to students. He said that while sitting in the library with an assigned textbook, the students might use their imagination to view nature's concept and apply compare and contrast theory. This could make learning more fun and might turn the seriousness of the climate crisis into a bit more tolerable to students:

And maybe it's a little less scary because it's a story like, right. Um, but if you already have a bit of a, the way I thought about it is if you already have some of the science that be developed, and now you're reading about a character, who's going through like you're talking about the flooding for instance, right.

All the professors turned out to be great supporters of using various types of texts from various fields. The professors of English Literature used literary productions to discuss climate change depictions. The professors of Education and Social Sciences used graphic novels and climate change related texts. Two of the professors intended to use the traditional English literary pieces and linked it with climate change education. For example- Harvey mentioned *Tintern Abbey* (1798) to describe the before and after situation

of climate change the writer experienced and wanted to discuss it compared to the present situation of the real world. He proposed the same technique with the use of *The Waste Land* (1922). Similarly, Donna showed a more accessible approach to teach where she would mention climate change crisis without a pre-planned outline but through her lectures on literature and its themes. They all carried this notion in common that it could help to decrease the seriousness of the issue and make the study of climate crisis more tolerable for students in the classroom.

### 5.3 Theme Three: Compassion and Empathy

The four professors who participated in the interview agreed that climate change education does not only improve students' knowledge on environmental issues but also helps to build humanitarian features. Harvey strongly emphasized that climate change education could be taught as a source of multipurpose tutelage for the university students. It could not only specialize them in multiple subject areas, but could also help cultivating humane characteristics. Through using latest technologies for teaching and communicating with the locals, it might make learning easier, effective and assessable to the youth and make them aware of the features that are required to become a better human being. This could be achieved in three ways. Firstly, by reading the testimonies of the survivors of climate crisis. Secondly, by comparing them with fictional characters of the texts. Thirdly, by meeting climate victims in real life through visiting their places. He said this might create greater learning scales for students. He specially marked that the texts of Arts and Humanities portray human emotions that could help the students to understand human psyche better and exercise some of the features in their lives. He said:

Climate change education through Humanities may help students building up humane characteristics such as compassion, forgiving, responsible, nurturing and so

on because Humanities is related to human faculties and emotions which I think, can be used as a tool to link up with the present condition of climate change.

He further said, “Our students are our future leaders. No matter in which subject they specialize themselves, they can always apply multi-disciplinary approach in their ways of studies...I always avoid one-sided knowledge. Knowledge must be multi-disciplinary in true nature.” In that sense, he wanted to say that only textual knowledge is one-sided learning achievement whereas literature helps to study human psychology and subjective features that the students must incorporate.

Moreover, Donna highlighted that the younger generation of university students is motivated to visit places that are affected by climate crisis. Moreover, today’s students like to communicate with the victims in person to know their mentality. According to her observation, she found that they bring food, clothing and medicine from the university rescue teams with the sense of responsibility and eagerness to help. This assisted them to exercise humane characteristics of fraternity and sympathy. It not only helped them to build a dutiful personality but also helped them to see things practically and use their rationality in case of judging critical situations. Such brainstorming could help them to become better researchers and critics in the future and motivate to become better citizen and eco-ambassadors. She said:

If they accompany a team and reach out to the victims and record their stories in order to research on human psychology and survival strategies, I think that could open more doors to future students to link up and expand the research areas of climate activists.

Similarly, Robert believed that universities must give platforms for the youth’s voice and must listen to their empathetic realization regarding the global climate crisis. He said that the youth has new ideas that needs a place to be presented and campus is the best

place for it. He believed when we discuss regarding a common problem, we practice mutual trust, compassion, confidence and passion. So, he welcomed the strategies the university students would propose to eradicate the emerging issues of environmental crisis. In short, he addressed a bridge between the teacher and student by opening many options to hear the students in the campus arenas:

So university campuses find ways to facilitate youth and youth thinking differently, youth formulating new ideas and coming up with strategies ... the university is ought to be a real kind of hotbed of transformative activity.

I could relate one of my experiences with him. As I took one of his courses and was assigned to read pages from the given two texts, I was encouraged to share my weekly views and obligations in the discussion panels: Weekly wikis and Forum. My classmates in the course were encouraged to shade their opinions on my thoughts as well and that connected us all together to brainstorm upon a common issue: the global climate crisis. It taught me to be self-opinionated and confident placing my voice in front of others. It taught me that my voice matters to the world and there is always a way where people can connect to each other through subjective values. It worked for me as a therapeutic relief from the anxiety I used to have regarding the future and survival of the next generation.

Supporting the same views, Alex believed that it is time to break down barriers between people, to explain personal emotions by getting them into conversations, to build trust in one another through comfortable sharing of thoughts and observations regarding climate change education. He suggested students should also talk about aspects that are troubling to them. They should come up with the mentality of working together to eradicate the devastating effects of the climate change by constructing a curriculum that might



function and perform the target of having a better eco-friendly world for the future. He further stressed that:

The curriculum must be made in such a way that it connects broader humane issues with climate crisis in terms of the way it is transpired forming the natural world and the role humans are playing in causing it to the local community to be the lived reality of the student in the course.

He further illustrated that by reading the stories of the climate victims and communicating them in real by the students, the course would create a more lasting effect on the students as they can relate and connect their sympathy for their own neighborhood. He drew on an example like if students of Canada could talk to somebody who migrated to Canada from other places and could compare the good/bad environmental changes of both places, this might result to a more engaging compassionate effect to students than just reading climate refugees' testimonies. Moreover, he encouraged having community gardens established in smaller communities where students could go and talk about climate issues with people facing the problems personally to observe the emotional dynamics. He related an experience from his past:

In the community where I live there was an initiative a couple of years ago to build rain gardens in people's front yards to try to make, um, to soak up more water, right. To prevent, uh, flooding in people's basements, you know, these sorts of initiatives or, uh, one of the things we've talked about on this committee that I was just describing to you is maybe thinking about ways where you could do climate teachings, right, where you go to libraries or community centers, and you bring some of these resources, uh, to the public and you find ways to engage with the public.

In short, he emphasized meeting them personally for the students to learn the power of resilience. He believed such interactions might create a huge impact along with theoretical teaching because it might provide a huge sources of useful information on

human psyche, which textbooks might fail to specify. By useful information, he meant life before and after a calamity, survival tactics of men and women, psychological traumas, motivational views, agonies and sorrows and so on to be discussed in classroom seminars. He further thought that it could connect them with the local people with a humanitarian link:

You need people with knowledge and expertise across a wide spectrum of fields. So we can build a climate change education at the post-secondary level, uh, that cuts across disciplines and sheds light on these issues from a variety of different perspectives.

Furthermore, Robert discussed the benefits of outdoor classroom teachings, explaining that such an education is a reinforcement of emotional, behavioral and intellectual development. He illustrated that students who learn through both traditional and modern education of climate change could cultivate a sense of eco-friendly vision of the world and might develop empathy towards other existing entities. He also said,

If you use your imagination and you give your students ample warning, that you can make good use of the out of doors in order to teach across subject areas. And also, I mean, it was a very natural way to begin to address things related to environmental education and climate change education. And it was even able to convince those students who were teaching history or physic

He pointed out that the climate change victim's stories teach us not to give up too easily. In that way, his pedagogy gave the message to students that struggles could be faced with progressive zeal and hope is there to eradicate it. Optimistically, he explained,

And really the thing that I'm trying to achieve in the graduate reports is to encourage people to think very broadly about the kinds of things that can lose in their own living and their own teaching, um, to really try to build support for and mobilize for climate action.

As a teacher of environmental ethics and sustainability, Robert emphasized that by having a curriculum with a strong focus on experiential and community learning, discussing landscapes through texts and an assumption that we will not give up easily, we could teach our students to be resilient, determined and to see things through radical views. He also illustrated that we all want our students to see the world around them from a deeper sense, to look up and appreciate the natural resources. He emphasized that university teachers seek to provide a rich learning environment; one that allows students to enjoy learning, to discover along the way with practicality. Moreover, Robert talked of erasing the mental boundaries and being united to learn from each other. He said:

All of us need to get over the kind of fortress mentality that said that those of us who are living in areas that are unaffected by this kind of human suffering, we put up walls and keep the suffering populations at bay, or we need to kind of like, remember what it is to be human and remember what our humanity calls us to do. ...this is where the universities have a very important place to play in terms of changing the public discourse.

In conclusion, all the professors strongly supported practical knowledge and transformative education. All of them valued the opinion of the young generation, especially university students. They wanted to create such a curriculum that can serve multi-purpose teaching using Arts and Humanities texts to discuss modern climate change crisis. They believed that it serves as a source for multi-purpose learning opportunities for the students in case of their academic and holistic development. They pointed out that it could help to achieve practical experiences as well as exercise humane features in a more effecting and lasting manner.

#### 5.4 Theme Four: Institutional structures - Curriculum and Courses (including interdisciplinary)

The professors admitted that they use their respective curriculums and courses to teach climate change pedagogies and promoted interdisciplinary curriculum approaches. According to Donna, climate change education courses were more readily available in science departments rather than in Humanities in her university. She regretted the fact that because of the lack of resources and structures, the only scope for them to discuss climate issues in the classroom was from the English literature syllabus:

There are very good courses on climate change in department of environmental science and there are other natural science departments. But in Humanities, especially in the department I teach that's English, we do not have any particular course on climate change teaching. But we use some texts that deal with climate change issues. By reflecting on those, we discuss climate changes. Sometimes, students of Masters in their thesis write on climate change knowledge through the study of English literature. So, those are the only scopes for us to discuss the climate change in the department.

She advised to add two to three courses on climate change and discuss climate change related themes depicted in literary productions as a reference tool. Moreover, she was very much eager to add post-pandemic literature to her curriculum. She believed it is time that academics shuffle the traditional syllabus and structure it according to the needs and demands of the post-modern era. She also believed that the Covid-19 pandemic is an eye opener for all regarding climate change issues. The journals as well as the testimonies written on the pandemic could be a great source of knowledge providing a new dimension toward the world of literature studies. Mentioning Arundhati Roy's article, she encouraged teaching post-pandemic literature as a part of the study:

Specially after the pandemic, I think the pandemic has taught us a great lesson regarding our unconcern views to climate changes and incorporating our knowledge in climate changes in our curriculum. But after experiencing the hardships of the

pandemic, we have become conscious of climate changes. With time, climate change education has become a necessity, so as Arundhati Roy said the pandemic is a portal.

Moreover, Harvey pointed out that climate change education is needed as much as any other studies in the academics for the future survival of the people of Khulna city. He strongly believed that because of the lack of knowledge on this subject, it might cause extinction of natural resources:

I think that our civilization is under threat and especially in Bangladesh, because of our negligence in teaching climate change education...So if we make an effort to teach awareness through Humanities courses to the students, including climate change education, it will develop the characteristic of patriotism in students and may contribute in development of other fields too such as animal rights, forest preservation, hygiene awareness and so on.

He highlighted that the rapid increase and unsystematic development of industries caused huge damage to the forests of Sundarban. As Bangladesh is a country of rivers and calamities take place mostly during monsoon, Sundarban works as the ultimate protector of the city and the coastal villages. Only for the lack of knowledge and systematic planning, people are cutting down trees from Sundarban and it is minimizing the over-all width of the forest. He also mentioned that the deterioration of the forest assets might cause numerous problems for the local people and he wanted the students to know and step forward to eradicate deforestation. He admitted that some Asian universities still lack resources and strategies appropriate to teach climate change education and to meet the needs of the students learning outcomes. But he showed optimism for the teachers who are trying their best to meet the expectations. He suggested some plans that could mitigate the gap:

We have lots of shortcomings. We have no language laboratories. Especially for Humanities, we don't have proper research laboratories. This is not a new thing in Bangladesh. Many universities have this scarcity. In this situation, I have a plan. If we organize mini discussion seminars, essay competitions, blog writings, action –

based assignments, set speech, symposiums related to the climate change and its consequences, it will benefit the students of Humanities. I will select such texts from English literature that may work as a tool to discuss climate change.

Similarly, Alex said the institutions are slow in teaching climate change topics to students and the course directors need to speed up with current resources and teaching strategies. But he observed that in the last five years, people are more aware of climate crisis on the local scale. This awareness led many universities to organize its courses dealing with the topic climate change and start associations dealing with climate change education and climate refugees. For example, he mentioned that his university has formed an association called 'climate emergency'. Four professors, along with him, created the subcommittee and appointed a TA to explore environmental and urban changes resulted through climate crisis by sending emails to various faculties regarding curriculum designs and teaching techniques to abate the achievement gap:

We started to put together an educational resource list, and we're hoping to run workshops in the fall with course directors. Some of these different faculties have expressed interest. So that's one project that I, that's what I mean, where I feel a bit of hope and optimism that hopefully we can get the support of the wider university and people from across the faculty.

He reasoned that in an age of media and Internet, students could easily make climate change education more tech-savvy and fun. They could make video speech or tiktok movies and share them on Facebook or other sharing websites or even in the classroom to increase awareness of their fellow classmates. He specially emphasized meeting climate crisis victims and having conversations with them to make visual documentaries on them. He believed such interactions could create a huge impact along with theoretical teaching because:

Our younger generations of students are kind of prepared in this way to think about this issue in this cross-disciplinary/multifaceted way to better prepared and to handle it when it comes within the crisis spaces.

To describe further on his teaching strategies, he said that when he teaches, he imagines his students to be in two categories; one who is learning this for the first time and the other who is experienced. He starts teaching it as if all students could converse these climate crisis topics to their friends and families. Then he engages the other category students into the conversation to relate their experiences. Also, he highly promoted observatory learning, field research assignments and the use of popular culture and art in the classroom as teaching strategies. He believed such open discussions could make learning more interesting and exciting as well as give the students an opportunity to brainstorm on the issue and discuss probable solutions to it. Furthermore, he questioned the use of the word 'refugee' in case of climate crisis in the classroom:

We even have a conversation about whether using the word refugee is the right way to talk about people who are being displaced by a climate change. And we go into how there isn't a, an official kind of legal definition of a climate refugee.

He also believed that such terms must not be used because it might evoke many other terminologies like xenophobia, racism or larger issues related to mobility of place for the cause of survival and identity. So, he welcomed more research and discussion on such terms with more funding as well as radical changes in international law for such initiatives.

He suggested another strategy where he could ask students to bring photographs based on their observation of their neighborhood and climate change in order to provide a flaneur presentation in the classroom. He also believed that critical analysis in written form could be of great importance but active multi-media presentation could be more inter-

actionable. He called this as an active learning process and more engaging one than traditional written submissions. He also suggested showing videos in the classroom made by the students themselves such as TikTok videos/ short YouTube documentaries. Other students could question about the video: what is the story behind it? what motivated him to make it? and what is his purpose of showing this to the class? So, he suggested a mix and match of traditional and popular activities for students to deal with the subjects of climate change. He also suggested graphic novels and cartoon introductions to climate change studies. Instead of sitting in the library with an assigned textbook, teachers could use popular culture education and graphic novels to make things more lucid and approachable. He believed it will make the seriousness a bit more tolerable to students.

Furthermore, Robert also mentioned that teachers still need to step up where they could make students understand the urgency and importance of climate change education. He strongly felt that those who are not affected by climate crisis and somehow blessed with a hazard free past must not create barriers for those who were sufferers of climate calamity. He said this might widen the gap in teaching climate change education and sustainability subjects. Universities must step up and remind that the whole society needs to engage themselves to deal with the catastrophe by dealing responsibilities and obligations towards each other from an altruistic viewpoint:

And I think that that's where universities really need to kind of like step up and remind people of what our responsibilities and our obligations to others. And, you know, this is, this is really, I mean, this is, this is where the universities have a very important place to play in terms of changing the public discourse.

Also, he mentioned “Afro Futurism”, a field of study that evaluates the past and future to create better conditions for the present generation of Black people through the use



of technology, often presented through art, music, and literature. He highly recommended the strategy of amalgamating theoretical knowledge with practical experiences to make learning a lasting achievement. As a teacher of environmental sustainability education and education diploma, Robert said that he try to choose two core texts to ground his course—one is a contemporary essay and the other a work of fiction:

And one of them is always a contemporary essay is, uh, you know, scientific, as you might expect an academic, um, kind of a book on climate change, the environmental crisis. And the other text that I, I always find another text, which is a work of creative work or work of fiction as a companion.

Along with the textual references by the four professors, some other interesting facts came to light. Robert introduced the term “Afro Futurism” believing that it could be a useful topic to study. Alex brought up student initiated multi-media technologies to study climate change education and pointed out the term ‘refugee’ to be re-examined. Donna said a fixed syllabus is not a compulsory requirement but a pre-existing syllabus of literature could be used as a referential tool for climate change education. Havey believed that ignorance might be one of the major the reasons for deforestation and climate change.

### 5.5 Conclusion

In conclusion, it can be said that the four themes that were derived from the interviews with the four professors opened up their distinctive ways of teaching climate change education in the classroom. They all shared a common tension of making their tutelage more resourceful and upgrading. Though they already have a curriculum, they were still looking forward to shape it with more recent publications and to make it more tech savvy. Four of them believed that still more could be offered and they are still lacking behind compared to the speed of climatic crisis taking place every year. However, none of

the professors mentioned the term Cli-Fi in their curriculum designs. All of them intended to use texts from their departments that relate to climate change education with an essence of Arts and Humanities and talk of the present situation of environmental changes based on recent publications. Their beliefs about climate change education serving multipurpose coaching for students added chief attention to the thematic discussion.

## Chapter 6: Conclusion

### 6.0 Introduction

The four Zoom interviews of the chosen professors (two from Khulna University and two from York University) make many topics clearer to me. Climate change education at university level is an important focus for academic instructors around the globe. Teaching climate change education has many benefits in terms of academic pedagogy and students' holistic development in all situations, including the recent post-pandemic scenario. Along with the professors, I also agree that university students undergo a major transformation in their lives. During this period, such a learning approach could help them to develop an eco-friendly attitude having academic and practical knowledge of the world and the future ahead of them. It teaches that education is multi-faceted and multi-purposeful in a post-modern society like today and numerous research has established a complex relationship between knowledge, attitudes, ethics and environmental actions.

Therefore, I conclude by highlighting the core message of this project that teaching climate change education through Arts and Humanities in Bangladesh and abroad, like Canada helps to explore the ethics of environmental precaution, outdoor-experiential learning, social justice and humanitarianism along with the increase of being an expert on multiple subjects for both teachers and students. This final chapter will review the preliminary research questions that guided me as a series of catalysts for the project. The later part of this chapter will illustrate some of my recommendations for practice, policy, and areas for further research, limitations of this project, and some last few words.

## 6.1 Research Questions

Through the four interviews with professors from Canada and Bangladesh, transnational perspectives on the incorporation of Arts and Humanities texts to teach climate change education in universities came to the spotlight. They also suggested some strategies that can be included beyond the physical limits of the classrooms. Moreover, they discussed how such an approach with multi-faceted strategies could bring upon various benefits to students in their academic and personal lives. This section will be a response to the questions that formed the core foundation of my research:

*(i) What are the key features of university-based climate change education?*

My interview analysis reveals a series of key themes which my respondents consider significant in their climate change teaching. These are:

(a) Place-based education, such as- outdoor classes, nature observation, visiting climate effected areas, meeting climate refugees, establishing community gardens and exploring local NGOs: The professors suggested that outdoor place-based learning is important along with textual learning on climate change education. According to them, when students see climate affected areas and climate victims in reality, they connect more to the discussion. They develop a sense of responsibility to voice their opinions for a betterment.

(b) Discussing environmental landscapes depicted in fictions and non-fictions in the classroom: The professors said that the nature and landscapes depicted in literature could be a good referential tool to discuss climate change. Students could use their imagination and apply comparative analysis between utopian and dystopian places of fictions. Non-

fictions like- climate refugees' testimonies, their biographies, documentaries and essays on climate crisis were considered another good source of teaching.

(c) Practicing compassion and empathy for climate victims and the nature: Professors highlighted that when students read climate victims' stories and meet them in real, provide volunteer servitudes, attend training sessions, make documentaries and videos on climate refugees and climate crisis, they become compassionate and empathetic towards nature and the victims. This could help them to become more conscious of the world around them. Such a practice could also provide a holistic development to students' over-all transformation from adolescents to matured adults. It might also improve their sense of belonging to the nature and teach humanitarian characteristics like being resilient, caring, sacrificing, and optimistic.

d) Using English literature, more updated materials and multi-media technologies in curriculum designs: English literature professors said that they use traditional literary pieces to discuss landscapes depicted in the texts. They suggested texts like Amitav Ghosh's *Gun Island* (2019), Gabriel Garcia Marquez's *Love in the time of cholera* (1985), William Wordsworth's *Tintern Abbey* (1798), T.S. Eliot's *The Waste Land* (1922), Samuel Taylor Coleridge's *The Rime of the Ancient Mariner* (1834), Ernest Hemingway's *The Old Man and the Sea* (1952) and so on. These texts were used by them in various ways to discuss climate change topics during classroom activities in their lectures and sessional classes. Their strategy was to describe the depiction of nature in the literary piece and ask to apply compare and contrast theory with the present condition of the environment. Other activities like extempore speech, debate and presentations were suggested along with making tiktok videos, YouTube documentaries and flauers.

*ii) How can universities (including these departments) more effectively reach out and connect with local communities regarding climate change related initiatives and what are the benefits?*

Following the interviews of the professors, the most satisfying answer to this question derived from the professor's suggestion of place-based experiential learning. According to them, outside classroom could make learning more open-minded and approachable. When students visit farms and climate crisis zones, they could associate emotionally with the activists and victims and therefore, could get more connected to them compassionately. Establishing community gardens and opening discussion sessions to all were other effective means of place based learning. Doing volunteering jobs at local NGO and social centers, doing practical research, making documentaries of local places and sharing them in the classroom as well as in local media/websites might connect students with the locals. According to the four professors, it could support as a mean of holistic development to students as they learn the ways of resilience and cultivate love, appreciation and respect for nature and climate victims. It might also improves collaborative-work and communication skills from a meditative stand-point.

*(iii) What are the particular advantages of teaching English literature with a climate change focus?*

According to the four professors, a good number of benefits of teaching English literature with a climate change focus were explained. They said it could make education multi-purposed and help students to use their imagination to create probable solutions. Through this process, students could practice compare and contrast theory between a piece of literary work and the real conditions and suggest remedies for future implementations. It

could help students to create a fusion between the subjective and objective world and connect with the people emotionally and ethically. Fiction could help to explore the possibilities of a changed and changing climate which could be considered as a powerful way to make these abstract futures more immediate for students. As a student of literature, I personally believe that most English and climate fictions show ways in which humanity might manage to respond the apocalyptic nature of the climate crisis. Lots of English literary pieces including short stories, novels, and poems take the more positive, visionary approach to the subject of climate change, focusing on fighting and adapting the crisis. Through envisioning cultural tools and social strategies for transitioning to a post-carbon world, these stories offer inspiration and guidance for how we might address our very real problems through new technology and cultural shifts using the technology we already have. These texts could be used for whole-class reading, and could enrich a larger unit on climate change or even lead to students to research and create their own artistic explorations of futures altered by climate change. One of the professors admitted that students of literature are more prone to use their imagination and emotion from the world of literature and can compare the present situation with the utopian setting of a text. It could embellish their dexterities to use the power of imagination to conceptualize the trauma and horror a climate refugee suffers and thus might connect the student with the victim and makes him responsible to create a future much better than the present.

As a student, I have observed that many fictions focus on the social and practical issues around climate change and the emotional weight of various disasters that come with climate change. This might help students to know human psychology after a climatic trauma and ways of dealing with it. The most important thing that students could learn is

the sense of responsibility to secure Mother Nature and transform themselves into compassionate eco-friendly philanthropists. The professors suggested the following texts for such practices in the classroom: Amitav Ghosh's *Gun Island* (2019), Gabriel Garcia Marquez's *Love in the time of cholera* (1985), William Wordsworth's *Tintern Abbey* (1798), T.S. Eliot's *The Waste Land* (1922), Samuel Taylor Coleridge's *The Rime of the Ancient Mariner* (1834), Ernest Hemingway's *The Old Man and the Sea* (1952), Vandana Shiva's *Earth Democracy* (2005), Octavia Butler's *The Parable of the Sower* (1993), Naomi Klein's *These Changes Everything* (2014), Margaret Atwood's *Trilogy* (2003) and *The Year of the Flood* (2009).

## 6.2 Recommendations

I believe that from this qualitative study, I was able to learn ways in which climate change education is applied in universities. I have interviewed four leading academic professors from two different parts of the world: Bangladesh and Canada to investigate the use of such a pedagogic application in university levels and therefore made a comparison. I hope that this MRP brings countless attention and thoughtfulness to the climate change education as well as a greater appreciation of the work involved in the creation of climate change curricula through inter-disciplinary approach. Based on the conversation with the interviewees, I have arrived to the following recommendations:

- Applying eco-criticism and more experiential learnings as compulsory choices in Arts and Humanities courses.

My first recommendation is the inclusion of eco-criticism along with more outdoor experiential learning in universities of Bangladesh and Canada. One of the professors



mentioned the use of eco-criticism in the interview sessions. Literary criticism is an unavoidable topic for Arts and Humanities students, especially for English literature students, and I have also studied it during my undergraduate studies. Before being able to teach climate change education, he/she must be taught to be a sound eco-critic at first. Eco-critics are trained to “re-read major works of literature from an eco-centric perspective with particular attention to the representation of the natural world...they extend the applicability of a range of eco-centric concepts, using them of things other than the natural world-concepts such as growth and energy, balance and imbalance, symbiosis and mutuality and sustainable or unsustainable uses of energy and resources” (Berry, p.264)

Eco-criticism is the study of the relationship between Humanities’ subjects and the environment in real. It is also called green studies, where the students wear the spectacle of a critic and judge the settings depicted in the text and do compare and contrast theory with the present natural settings around him/her. I would recommend professors to pay more attention to this term and include some of the renowned texts and eco-centric writings in their curriculum designs. For example, I would recommend Ralph Waldo Emerson’s *Nature* (1836), Margaret Fuller’s *Summer on the Lake* (1994), Henry David Thoreau’s *Walden* (1845), Raymond William’s *The Country and the City* (1973), Jonathan Bate’s *Romantic Ecology: Wordsworth and the Environmental Tradition* (1991), Laurence Coupe’s *The Green Studies Reader: From Romanticism to Eco-criticism* (2000), James Thomson’s *The Seasons* (1730), Thomas Gray’s ‘Elegy in a Country Churchyard’ (1751), William Cowper’s *The Task* (1785), Wordsworth’s *The Prelude* (1805), Milton’s *Paradise Lost* (1667) and Herman Melville’s *Moby Dick* (1851).

- More attention and importance must be given to climate change education in the

universities.

My second recommendation is to provide more attention and importance towards teaching climate change education in every possible manner. University professors do carry the notion that today's students are tomorrow's future and therefore, adequate preparation is compulsory for a progressive future. Every adolescent must know his/her duties to protect nature and must realize that having a secured future does not mean having a sound corporate life only but an earth blessed with fresh air, organic food and greenery.

- Adopt the strategies: visiting refugees, outdoor class, volunteering works, visiting local NGOs, using popular media and art

My third recommendation is the adoption of strategies of the interviewed professors' teaching plans into university lesson plans. The suggestions given by them were very effective and all of the strategies must be used. Donna suggested to meet with the locals and have talk therapies, training sessions for the students to know the actions to be taken before and after a natural calamity and promoted social tasks for climate refugees. Harvey advocated for the involvement of a structured syllabus and the use of textbooks of literature to create a connection with climate change education and asked to meet victims who have experienced such a situation. Robert suggested outdoor classroom teaching and valued youth and its voice in case of climate change propagandas. Alex suggested experiential learning by establishing community gardens, discussion sessions in neighbourhood, and using multi-media popular culture like flaneur, climate movies, cartoons and so on. Alex also said that his university has formed a small research organization named climate emergency where they appointed a teaching assistant to send emails to other teachers to get their responses on climate

change related questions. I believe that these suggestions could be great sources to motivate teachers and teaching institutions across the globe.

- Using climate change education texts directly in English literature syllabus

I would like to suggest the frequent use of climate change education texts such as Vandana Shiva's *Earth Democracy* (2005), Octavia Butler's *the Parable of the Sower* (1993), Naomi Klein's *These Changes Everything: Capitalism vs the Climate* (2014), and Canadian writer Margaret Atwood's *Triology, Oryx and Crake* (2003), and *The Year of the Flood* (2009) in English literature lesson-plans. One of the professors believed these texts offer a lot of insights regarding climate change and literature that students can learn. Moreover, I would also like to mention that during my course works, I have read some climate change education books and I would recommend those texts to be added to Bangladeshi universities, especially in Khulna district. In the YU course 5444, I have read Freeman's *Tales of Two Planets* (2020) and Servigne, Stevens & Brown's *How everything can collapse : a manual for our times.*(2020). I found both the texts very informative and discussion-based. In YU online-classes, I used to post my views on the discussion forum called weekly wiki during the course seminars where my classmates used to respond. Such interactions helped me to develop critically on various subjects of climate change. The feedbacks of my classmates on my questions and topics were a boost for me for further inquiry into the matter. I would recommend Bangladeshi professors to use this technique. I would also like to share one of my weekly wikis submissions from the forum in the following as a sample:

The page 177 starts with the groundbreaking accusations to the older generation: Global overpopulation, over-consumption by the rich, and bad technological choices have set our industrial civilization on the road to collapse". Again in page

180, Hans Jones quotes “we prophesy a misfortune so as to stop it happening” It is true that the present environmental instability is the result of the previous generations’ willful act that burdens up the new generation in order to clean their mess for a potential survival. As we teach sustainability education to the younger generation with the ‘pious wish’ of converting them into environmental activists, how responsible we are regarding climate sustainability acts? Later in Page 181, the author directly attacks saying “It is therefore legitimate to wonder if our ancestors really wanted a ‘sustainable’ society. The answer is no. In any case, some ancestors, those who at a given time had the power to impose technological and political decisions on others, chose – *quite knowingly*-an unsustainable society.

# Do you really think it is our previous generation to blame for the present climate changes? (Winter Course 5444, Weekly wiki, session 7, March 2 2021)

### 6.3 Limitations

Like many MRPs, this study has a series of limitations that I have encountered during conducting my research. Firstly, there are limitations linked to data collection and availability of some of the professors. Because of the lock-down protocols and safety-measures, zoom meetings were arranged. This made the meeting too much restricted to timeline and delivery. I believe in person interviews would have been more comfortable. One of the professors took a month to decide a schedule for Zoom meeting. One of them rescheduled the meeting three times within two months and therefore, the promptness of the progress of this project was made lengthier than expected. I was fortunate that I got the Ethic approval very early and started my work or otherwise it might have caused me to extend the deadline for submission. Secondly, two of the professors could not provide outlines as samples of their curriculum. Their suggestions were oral and documentary proofs were not available which made it impossible to collect the totality of the outlines.

Thirdly, students’ opinions were missing. As I finished the four interviews, I felt that students’ opinions and their ways of learning has an equal right of importance to that of the teachers’. This research must have included some students and similar questions

must have been asked to them to know how effective the proposed approach could be on them.

Fourthly, all four participants were from different areas of teaching and therefore they have no say on each other's teaching criterions. The Bangladeshi professors spoke in a different way of viewing the world. They were eager to know what happens academically on the opposite side of the world but they wanted something culturally and contextually more assessable and acceptable to them. On the other hand, the professors from Canada wanted to know how the eastern academic world was working to enrich their knowledge. It was difficult to relate and link to each other when ways of viewing a problem seemed different.

Finally, this research rested on experimental assumptions and subjective attempt of formulating pedagogical ways that could focus the multi faceted purpose of teaching climate change education through Arts and Humanities subjects. I think a more stranded analysis might have been used through ethnographic research, exploring communities in cities who participated in the formation of climate change programs. Despite these challenges, I would say that I was able to address my research questions and the data that I present could foster meaningful questions for policy and practice.

#### 6.4 Last Words

Based on the interview data analysis, it was clearer that the notion of urgency and awareness of teaching climate change education is similar among the teachers of both the countries. The use of fiction and non-fiction texts and various strategies of teaching proved to be very noticeable as appreciable tools of giving climate change education its required

priority. Though the teachers have different notions of using the approach and viewing the ethics of climate change education, their motifs and commitments to make the youth more responsive to the subject were comparable. Due to the lack of resources in Bangladeshi universities, teachers seemed to struggle to build a curriculum that could serve multipurpose agenda to climate change education. On the other hand, Canadian universities have plenty of resources but they still demand the most updated and recent ones. I believe that in future, through the ongoing research and attempts of creating post-pandemic study plans and the urge to know more from the various academies, professors around the world could tackle the obstacle. Moreover, professors showed their eagerness to enrich the field with multi-media and recent research, and this could bring more light to the matter.

I would like to take this opportunity to thank my supervisor Dr. Steven John Alsop for supporting me through this research. My concepts and visions that developed throughout this study were put into play with the help of his supervision and perseverance. I would also like to thank all the participants that took part in this study from Canada and Bangladesh. Their time and dedication were worthy and truly admirable. Each of their knowledge and expertise was not only valuable to my research but will throw more light for further studies I wish to undertake. Their crucial roles in nurturing a passion for academic teaching practices and care for the environment would be a great source of motivation for future researchers. Their zeal of creating a society much better than the present post-pandemic situation and awakening the youth to propagate towards superior potentials through academic pedagogy would assure a better future ahead.

‘Education is not the filling of a pail, but the lighting of a fire.’

–William Butler Yeats

## References

- Alam, G., & Al-Amin, A. (2014). The Role of Higher Education in Institutionalising Climate Change in Bangladesh. In *International Perspectives on Climate Change* (pp. 301–316). Springer International Publishing. [https://doi.org/10.1007/978-3-319-04489-7\\_21](https://doi.org/10.1007/978-3-319-04489-7_21)
- Brammer, H. (2016). Floods, cyclones, drought and climate change in Bangladesh: a reality check. *International Journal of Environmental Studies*, 73(6), 865–886. <https://doi.org/10.1080/00207233.2016.1220713>
- Barry, Peter. (2002) *Beginning Theory: An Introduction to Literary and Cultural Theory*. Manchester: Manchester University Press.
- Damico, J., Baidon, M., & Panos, A. (2020). Climate Justice Literacy: Stories We Live By, Ecolinguistics, and Classroom Practice. *Journal of Adolescent & Adult Literacy*, 63(6), 683–691. <https://doi.org/10.1002/jaal.1051>
- Freeman, John (2020). *Tales of Two Planets*. New York: Penguin.
- Gupta, Rahman. “Complexity in Implementing Community Drowning Reduction Programs in Southern Bangladesh: A Process Evaluation Protocol.” *International journal of environmental research and public health* 16.6 (2019): 968–. Web.
- Garai, Joydeb. “Qualitative Analysis of Coping Strategies of Cyclone Disaster in Coastal Area of Bangladesh.” *Natural hazards (Dordrecht)* 85.1 (2016): 425–435. Web.
- Hasan, M., & Kumar, L. (2020). Meteorological data and farmers’ perception of coastal climate in Bangladesh. *The Science of the Total Environment*, 704, 135384–135384. <https://doi.org/10.1016/j.scitotenv.2019.135384>
- Holdsworth, Thomas. “A Sustainability Education Academic Development Framework (SEAD).” *Environmental education research* 22.8 (2016): 1073–1097. Web.
- Kabir, R., Khan, H., Ball, E., & Caldwell, K. (2016). Climate Change Impact: The Experience of the Coastal Areas of Bangladesh Affected by Cyclones Sidr and Aila. *Journal of Environmental and Public Health*, 2016, 9654753–9654759. <https://doi.org/10.1155/2016/9654753>
- Keeton, M. T. (1976). *Experiential learning*. Jossey-Bass Publishers.
- Lindgren Leavenworth, M., & Manni, A. (2021). Climate fiction and young learners’ thoughts-a dialogue between literature and education. *Environmental Education Research*, 27(5), 727–742. <https://doi.org/10.1080/13504622.2020.1856345>

- Lannin, A., Juergensen, R., Smith, C., Abdelnaby, H., Van Garderen, D., Folk, W., Palmer, T., & Pinkston, L. (2020). Multimodal Text Sets to Use Literature and Engage All Learners in the Science Classroom. *Science Scope (Washington, D.C.)*, 44(2), 20–28.
- Mintz, Tal. “The Place of Content and Pedagogy in Shaping Sustainability Learning Outcomes in Higher Education.” *Environmental education research* 24.2 (2018): 207–229. Web.
- Mozumder, Pyhälä. “Understanding Social-Ecological Challenges of a Small-Scale Hilsa (Tenualosa ilisha) Fishery in Bangladesh.” *International journal of environmental research and public health* 16.23 (2019): 4814–. Web.
- Rahman, Zhang. “Effects of Fertilizer Broadcasting on the Excessive Use of Inorganic Fertilizers and Environmental Sustainability.” *Sustainability (Basel, Switzerland)* 10.3 (2018): 759–. Web.
- O’Brien, C. (2016). *Education for sustainable happiness and well-being*. Routledge. <https://doi.org/10.4324/9781315630946>
- Sarkar, Corrigan. “Promotion of Scientific Literacy: Bangladeshi Teachers’ Perspectives and Practices.” *Research in science & technological education* 32.2 (2014): 162–181. Web.
- Servigne, P., Stevens, R., & Brown, A. (2020). *How everything can collapse : a manual for our times*. Polity.
- Sulzer, M. A. (2021). The Future Is Known. Now What? Using Macbeth to Explore the Social Complexity of the Climate Crisis and COVID-19. *Changing English*, 28(3), 271–285. <https://doi.org/10.1080/1358684X.2020.1855969>
- Yardley, S., Teunissen, P. W., & Dornan, T. (2012). Experiential learning: Transforming theory into practice. *Medical Teacher*, 34(2), 161–164. <https://doi.org/10.3109/0142159X.2012.643264>



## Appendix-A : Consent Letter

### Consent Form

Date: 22/03/2021

Student Name: Azmi Azam/ID-218066464

Researcher name:

Principal Investigator: Azmi Azam, M.Ed , Department of Education, York University.

Contact details: Email: [azmiazam88@gmail.com](mailto:azmiazam88@gmail.com) / [azmi88@yorku.ca](mailto:azmi88@yorku.ca)

The Purpose of the Research:

The topic of my qualitative MRP research is “Transnational perspectives in the academy: an exploration of climate change education through the humanities in Canada and Bangladesh”. The main purpose of my research is to investigate the ways of teaching climate change education in Bangladesh and Canada through humanities in PSE. I will also make a quasi-comparative analysis. I have chosen this research topic because climate change is a global threat to the 21<sup>st</sup> century and we need dynamic PSE structures to improve the intellectual capacity to wrestle or decrease the hostile influences of climate catastrophe. Climate change education is crucial to avoid a potential environmental collapse and to activate actions that preserve natural resources assuring an environmental sustainable future.

What You Will Be Asked to Do in the Research:

The participants will be asked 10 open-ended questions related to climate change education and inter-disciplinary approach for PSE. Interviews will take place on Zoom and will last around 30-60 minutes. Responses will be recorded and breaks will be offered where needed. The questions will be sent to interviewees three to four days in advance of the interviews.

Risks and Discomforts:

It is not anticipated that my research and the interview questions will cause any physical, emotional, economic, social or potential discomfort. I assure you that all the

information will be anonymous. The purpose of my research is not to judge professional skills or knowledge but to figure out some possibilities for progressive teaching and learning options for climate change education through humanities.

#### Benefits of the Research and Benefits to You:

This research is important to me. It can potentially open up different opportunities for students in Khulna City. As I am planning my PhD on climate change education in PSE through humanities curriculum prospects, this research will set a strong ground for my further studies. This research does not have direct benefits for you. Indirectly, it offers what I hope is a lively opportunity to discuss climate change and education in Canada and Bangladesh.

#### Voluntary Participation and Withdrawal:

Your participation in the study is completely voluntary and you may choose to stop participating at any time. Your decision not to volunteer, to stop participating, or to refuse to answer particular questions will not influence the nature of the ongoing relationship you may have with the researchers or study staff, or the nature of your relationship with the university either now, or in the future. If you decide to stop participating, you may withdraw without penalty, financial or otherwise, and you will still receive the promised inducement. In the event you withdraw from the study, all associated data collected will be immediately destroyed wherever possible. Should you wish to withdraw after the study, you will have the option to also withdraw your data up until the analysis is complete.

**Method:** I will conduct semi-structured interviews with 10 open-ended questions which will be circulated in advance.

**Duration and place of interview:**

**Duration:** 30 -60 minutes for each.

**Place:** Live zoom sessions / video recording with consent.

**Confidentiality:**

The data will be kept for a length of a year till 2022 electronically and will be used as field note of a case study in the research report. Unless you choose otherwise, all information you supply during the research will be held in confidence and unless you specifically indicate your consent, your name will not appear in any report or publication of

the research. Your data will be safely stored in a locked facility and only the researcher will have access to this information. Confidentiality will be provided to the fullest extent possible by law.

This study will use the Zoom to collect data, which is an externally hosted cloud-based service. When information is transmitted over the Internet, privacy cannot be guaranteed. There is always a risk your responses may be intercepted by a third party. Further, while York University researchers will not collect or use IP address or other information, which could link your participant to your computer or electronic devices without informing you, there is a small risk with any platform such as this of data that is collected on external servers falling outside the control of the researcher. Recordings (audio/video) will be saved in a password protected file to research team members' local computer, not the cloud based service. If you are concerned about this, I would be happy to make alternative arrangements using telephone audio recordings.

#### Questions about the Research?

If you have questions about the research in general or about your role in the study, please feel free to contact me at [azmiazam88@gmail.com](mailto:azmiazam88@gmail.com) or my supervisor, Dr. Steven John Alsop at [salsop@yorku.ca](mailto:salsop@yorku.ca) and/or 647 761 2292. You may also contact the Graduate Program at [gradprogram@edu.yorku.ca](mailto:gradprogram@edu.yorku.ca).

This research is intended to receive ethics review and approval by the Delegated Ethics Review Committee, which is delegated authority to review research ethics protocols by the Human Participants Review Sub-Committee, York University's Ethics Review Board, and conforms to the standards of the Canadian Tri-Council Research Ethics guidelines. If you have any questions about this process, or about your rights as a participant in the study, please contact the Sr. Manager & Policy Advisor for the Office of Research Ethics, 5<sup>th</sup> Floor, Kaneff Tower, York University (telephone 416-736-5914 or e-mail [ore@yorku.ca](mailto:ore@yorku.ca)).

#### Legal Rights and Signatures:

I \_\_\_\_\_ consent to participate in the research project: "Transnational perspectives in the academy: an exploration of climate change education through the humanities in Canada and Bangladesh", conducted by Azmi Azam. I have understood the nature of this

project and wish to participate. I am not waiving any of my legal rights by signing this form. My signature below indicates my consent.

Signature \_\_\_\_\_ Date \_\_\_\_\_  
Participant

Signature \_\_\_\_\_ Date \_\_\_\_\_  
Principal Investigator

Additional consent (where applicable)

1. Audio recording

I \_\_\_\_\_ consent to the audio-recording of my interview(s).

2. Video recording or use of photographs

I \_\_\_\_\_ consent to the use of images of me (including photographs, video and other moving images), my environment and property in the following ways (please check all that apply):

In academic articles	<input type="checkbox"/> N	<input checked="" type="checkbox"/> Y
In print, digital and slide form	<input type="checkbox"/> N	<input checked="" type="checkbox"/> Y
In academic presentations	<input type="checkbox"/> N	<input checked="" type="checkbox"/> Y
In media	<input type="checkbox"/> N	<input checked="" type="checkbox"/> Y
In thesis materials	<input type="checkbox"/> N	<input checked="" type="checkbox"/> Y

Signature \_\_\_\_\_ Date \_\_\_\_\_

Participant Name:

## Interlingual Homophone Retrieval in Typical Malayalam-Tamil Bilinguals

Ms. AMALA P BINOE, MASLP ([amalapbinoe@gmail.com](mailto:amalapbinoe@gmail.com))

Contact no: 9731924041

Dr. ROHILA SHETTY, Ph.D. ([shettyro@gmail.com](mailto:shettyro@gmail.com))

Address: Dr. M V Shetty college of Speech and Hearing, Mangalore 575015

### Abstract

Interlingual homophones are words that sound similar but have different meanings in different languages. Unlike interlingual homophones, which have two orthographic representations for each language, interlingual homographs have only one orthographic representation. Bilingualism is the capacity of an individual or the members of a community to utilize two languages effectively. Items have similar pronunciations in different languages. Language may have an impact on how interlingual homophones are processed. The Malayalam and Tamil languages are members of the South Dravidian subgroup of the Dravidian language family which is used by people around the state of Kerala and Tamil Nadu who are also exposed to learning other languages. A multilingual person's use of only one language at a time reveals the separation of their various lexicons. In a lexical-decision task, an interlingual homograph activates target words in both of the bilinguals' languages. Hence arises a need to study the retrieval of the semantics of the perceived interlingual homophone in Malayalam-Tamil bilinguals. Thus, the present study aimed at investigating the interlingual homophone retrieval abilities in normal bilinguals and also investigating the language dominance and its pattern in Malayalam Tamil bilinguals. For the fulfillment of this aim, 40 graduate students further divided into 20 Malayalam natives and 20 Tamil natives with no evident health problem, or any associated illness participated in the present study. A list of 12 paired words (Malayalam and Tamil) was presented to all subjects whose task was to carefully listen to the words and to write the meaning of each word. The responses were then tabulated according to the number of correctly written words with correct meaning in each language by a score of 1 and for the wrong written word with incorrect meaning by a score of 0 and further data was analyzed.

Results indicated that the native Malayalam speakers and Tamil speakers performed well in their native languages whereas, during a cross-comparison of data, Malayalam natives responded comparatively better in Tamil word meanings than the Tamil natives' performance for Malayalam word meanings. According to the aforementioned findings, people have a reasonable command of two languages, which are

subconsciously activated in both languages, and those in the non-required language are not suppressed.

## **Introduction**

Semantics is the study of word, phrase and sentence meanings. The semantic analysis focuses on what the words actually mean, as opposed to what a speaker might desire the word to mean. The traditional meaning that a language's word and sentence communicate is what is known as linguistic semantics (Yule,2010).

The relationship between words in a language is described by homophones, homonymy and polysemy. Homophones are two distinct words that sound the same but have different meanings, spellings, or both (Rigges, 2005). Homophones are words that sound the same but mean different things. E.g., new and knew (Wilson and Mihalicek, 2011).

Interlingual homophones are two distinct words that have the same pronunciation but have different meanings in each language. Every person's experience with bilingualism is different, depending on how much and how well they are exposed to the languages they learn as well as how often they utilize them in social situations (American Speech and Hearing Association [ASHA], 2004).

Bilinguals have more difficulty comprehending mixed word sequences than sentences presented in a single language and the processing of interlingual homophones can differ between languages.

Nyugen (2013) examined the impact of interlingual homophones in Vietnamese and English. Bilinguals reveal that for each interlingual homophone, imbalanced bilinguals were predicted to have an orthographic representation in their first language alone but a phonological representation in both of their languages.

Maitreyee and Goswami (2009) analyzed inter-lingual homophone retrieval skills in Hindi-Kannada bilinguals and revealed that skills will be more pronounced in the native language when retrieving word meanings.

Even though interlingual homophones are words with similar pronunciations but different meanings across languages, they may vary in processing with different languages. However, few Indian and Western studies were attempted on the same.

Rajalekshmi, Kumaraswamy and Rao (2015) studied language dominance and its pattern among bilinguals and multilingual and their findings demonstrate that younger people are better at retrieving the meanings of inter-lingual homophones in their native languages (L1). Also, people who acquire additional languages than L1 are equally proficient in both L1 and L2.

Vinodhini and Ramya (2015) found that one can effectively perform better in their first language without the intrusion of others, showing a picture of two distinct lexicons for each language. When a person can speak two languages quite well, their lexical resources are unconsciously active in each language with the resources in the language that is not necessary being suppressed (Green,2003).

Mercier, Pivneva and Titone (2014) explained that bilinguals with strong inhibitory control can avoid cross-language activation during spoken word processing. Furthermore, Pryle and Bogush (2000–2001) contend that regular homophone practice improves readers' general reading comprehension, spelling, pronunciation, and vocabulary knowledge.

It is undeniable that the mother tongue has an impact and that interlingual transfer occurs frequently, particularly in learning contexts when students' exposure to the foreign language is limited to a few hours per week of formal classroom instruction (Mahmoud, 2000).

Malayalam is a Dravidian language used by 96.7% of people around the Indian state of Kerala and the union territory of Lakshadweep. Tamil is also a Dravidian language officially used by the people in the Indian state of Tamil Nadu and the union territory of Puducherry (Pondicherry). These languages are spoken commonly among the two states of South India. When a bilingual person uses just one language at a time, their lexicons are distinct from one another. Despite the aforementioned, in a lexical-decision task, an interlingual homograph activates target words in both bilingual's languages. Therefore, research on how Malayalam-Tamil bilinguals retrieve the meanings of perceived interlingual homophones was necessary.

## **Review of Literature**

Language is a system of conventional spoken, manual (signed) or written symbols through which human beings, as members of a social group and participants in its culture express themselves. The functions of language include communication, the expression of identity, play, imaginative expression, and emotional release.

Semantics is also called semiotics, semiology or semasiology, the philosophical and scientific study of meaning in natural and artificial languages. Linguistic semantics has been defined as the study of how languages organize and express meanings. Linguistic semantics is an attempt to explicate the knowledge of any speaker of a language that allows that speaker to communicate facts, feelings, intentions, and products of the imagination to other speakers and to understand what they communicate to him or her.

Bilingualism is the ability of an individual or the members of a community to use two languages effectively. Interlingual homophones are one of two or more words pronounced alike but different in meaning or derivation or spelling items with similar pronunciations across languages.

The Malayalam language is a member of the South Dravidian subgroup of the Dravidian language family. Malayalam is spoken primarily in India, where it is the official language of the state of Kerala and the union territory of Lakshadweep. It is also spoken by bilingual communities in contiguous parts of Karnataka and Tamil Nadu. In the early 21st century, Malayalam was spoken by more than 35 million people. The Tamil language is also a member of the Dravidian language family, spoken primarily in India. It is the official language of the Indian state of Tamil Nadu and the union territory of Puducherry (Pondicherry).

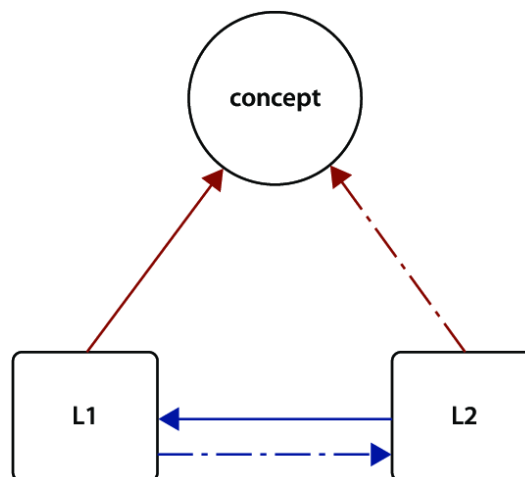
The separation of lexicons is the indicator of the usage of a single language at a time by bilinguals.

Lalor and Kirsner (2001) studied cross-language priming with "false cognates" (words with similar forms but unrelated meanings) and suggested that it was constrained by meanings rather than language. The results suggested that lexical representation in bilinguals is organized along morphological lines and is not processing interlingual homographs governed by language.

Different models explain the phenomenon of processing bilingual individuals using visual orthographs and have studied bilingual lexical representations.

A model proposed by Kroll and Stewart in 1994 is the revised hierarchical model. It captures the implications of the early reliance on L1 for the form of word-to-concept connections.

**Fig 1**  
*Showing Revised Hierarchical Model*



The Revised Hierarchical Model (RHM) is a model developed by Kroll and Stewart in 1994. Bilinguals hold the memory of two languages in their brain. It is possible to think of these storages as two separate boxes, one for each language. These two boxes describe lexical memories. In addition to that, there is a third box that holds all the conceptual memories the Bilingual knows about in both of their acquired languages. Both lexical and conceptual links exist but differ in strength. It shows that lexical links from L2



(second language) to L1 (first language/mother tongue) are stronger than those from L1 to L2, mainly because L2 to L1 is the direction you start learning while acquiring a new language.

### **Western Studies**

Pexman, Lupker & Jared (2001) examined homophone effects for isolation words using a lexical decision task and suggested that phonology plays a role in the early word recognition process. They also discovered that homophones were found to have longer decision latencies than matched control words in the lexical decision task.

Caramazza, Costa, Miozzo, & Yanchao (2001) investigated whether bilinguals' cumulative homophone frequency or specific-word frequency affected their naming latencies for homophones. An equivalent discovery was made when bilingual speakers were asked to name visually displayed Spanish words in English. Control studies ruled out the possibility that these results were the product of orthographic, articulatory, or visual identification artifacts.

Burke, Locantnore, Austin & Chea (2004) inspected homophone priming effects on young and older adults' production of proper names and concluded that homophone production strengthens phonological connections, increasing the transmission of excitation in older adults.

Chambers & Cooke (2009) evaluated the effects of sentence context and proficiency on parallel language activation during spoken language comprehension and could demonstrate that a semantically compatible sentence context eliminates the activation of the English lexicon when interpreting French sentences.

White, Abram, McWhite & Hagler (2010) examined syntactic constraints in the retrieval of homophone orthography and the results demonstrate that written homophone errors can occur during lemma retrieval or orthographic encoding, with the particular stage depending on the syntactic ambiguity of the homophone to be produced.

Ortiz, Midgley & Mestre (2012) investigated whether phonological representations from both the first (L1) and second (L2) language of bilinguals are activated during silent reading of L2 words and the results suggested that there is a parallel activation of both L1 and L2 phonological representation. These findings point to a language nonspecific model for bilinguals at the phonological level of representation.

Kisser, Wendell, Spencer, & Waldstein (2012) used a variety of cognitive tests to compare the results of native and non-native English speakers with comparable educational backgrounds and ages. The findings imply that non-native speakers of English may have a detrimental impact primarily on language-dependent activities.

Hino, Kusunose, Lupker & Jared (2013) studied the processing advantage and disadvantages of homophones in lexical decision tasks. Homophonic stimuli elicit a slower response than non-homophonic controls, according to studies utilizing the lexical judgment task using English stimuli and according to several experiments utilizing Chinese stimuli, homophonic stimuli, however, elicit a faster response than non-homophonic controls.

Middleton, Chen & Verkuilen (2015) found strong evidence in the dual nature account of homophony in frequency inheritance of homophone namings of aphasics.

Deibal & Megan (2020) evaluated individual differences in incidental learning of homophones during silent reading and their findings indicated that phonology is activated when novel words are encountered and can interfere with the acquisition of new spellings associated with the existing phonological representation regardless of homophone mate frequency.

Sousa & Rodrigues (2021) investigated the interlingual homophones in bilingual lexical access and concluded that both languages of a bilingual strongly interact at the phonological level.

### **Indian Studies**

Maitreyee & Goswami (2009) examined the inter-lingual homophone retrieval abilities in Hindi-Kannada bilinguals. The findings showed that native speakers of Hindi and Kannada were more likely than non-native speakers to recollect the meanings of words for both children and adults. Teenagers, however, did well in both languages. A bilingual person is thought to develop different lexicons for their L1 and L2 at a young age, after which there is an interaction between the two lexicons and eventually the language that is used the most takes dominance.

Edward, Venkatesh & Saddy (2012) evaluated the two later-acquired but proficient languages, English and Hindi of two multilingual individuals with transcortical aphasia with basal ganglia and brain stem lesion. They observed dissociation between lexical and syntactic profiles in both languages with uniform performance across the languages at the lexical levels and an uneven performance across the languages at the syntactic levels.

Rajalekshmi, Kumaraswamy & Rao (2015) investigated the language dominance and its pattern in Hindi-English bilingual and multilingual using interlingual homophones. The result shows that the retrieval of meanings of the interlingual homophones is superior in their native languages (L1) in younger adults.

Vinodhini & Ramya (2015) reported the language dominance and its pattern in Tamil-English bilinguals and multilingual using interlingual homophones. The result suggested that younger subjects exhibit a shared lexicon while both teenagers and adults

show selective lexical access which indicates the fact that L1 has a stronger base compared to L2 in the processing of interlingual homophones.

Felix & Kumaraswamy (2021) investigated the interlingual homophone retrieval in typical Malayalam-Hindi bilinguals and the results suggested that retrieval of interlingual homophones is superior in the native language.

### **Need for the Study**

Interlingual homophones are words that share similar pronunciations but have different meanings in different languages. The languages Malayalam and Tamil also have homophones, which have the same pronunciation but completely distinct meanings. When speaking one language, bilinguals show the division of lexicons. Thus, it is crucial to research how Malayalam-Tamil bilinguals retrieve the meanings of interlingual homophones that are perceived.

## **Ology**

### **AIM**

The study aims to investigate the inter-lingual homophone retrieval abilities in typical bilinguals and to investigate the language of dominance and its pattern in Malayalam-Tamil bilinguals using interlingual homophones.

### **PARTICIPANTS**

The participants of the study were forty graduates (twenty natives of Malayalam and twenty natives of Tamil) in the age group of 18 to 26 who were proficient in Malayalam and Tamil languages. The participants with any form of hearing, or neurological problems were excluded from the study.

### **STIMULUS PREPARATION**

A list of 12 paired words that were commonly used in Malayalam and Tamil languages with different meanings (homophones) was prepared. The prepared stimulus was validated by 10 speech-language pathologists who are working in the field for more than 5 years for judging the appropriateness of the words.

### **PROCEDURE**

- The validated list was recorded by the examiner with a high-quality condenser microphone and was displayed using a Lenovo core i3 laptop to the participants in a well-illuminated room.
- The participants' task was to write down the meaning of each word after listening and seeing the displayed words carefully.

## **ANALYSIS**

A score of 1 was provided for the correct writing with meaning and 0 for wrong writing with incorrect meaning was provided. The accumulated data was further subjected to statistical analysis and the results are discussed in the next chapter.

## RESULTS AND DISCUSSION

The study aimed to investigate the inter-lingual homophone retrieval abilities in typical bilinguals and to investigate the language of dominance and its pattern in Malayalam-Tamil bilinguals using interlingual homophones.

The collected data were summarized using Descriptive Statistics: frequency, percentage, mean and standard deviation (S.D). To compare the difference in proportion; Chi-square or Likelihood ratio test was used. The difference in the total score of the response to Malayalam meaning words and Tamil meaning words was analyzed by using Paired “t” test. The p-value < 0.05 was considered significant. Data were analyzed by using the SPSS software (SPSS Inc.; Chicago, IL) version 26.0.

**Table 1**

*Showing the no. of participants in the study.*

(n = 40)		Frequency	%
Natives	Malayalam	20	50
	Tamil	20	50

**Table 2**

*Showing the frequency and percentage for Malayalam meaning words*

Malayalam meaning (n = 40)		Frequency	%
Word 1	Incorrect	5	12.5
	Partially correct	1	2.5
	Correct	34	85
Word 2	Incorrect	13	32.5
	Correct	27	67.5
Word 3	Incorrect	19	47.5
	Correct	21	52.5
Word 4	Incorrect	29	72.5
	Correct	11	27.5

Word 5	Incorrect	10	25
	Partially correct	2	5
	Correct	28	70
Word 6	Incorrect	8	20
	Correct	32	80
Word 7	Incorrect	19	47.5
	Correct	21	52.5
Word 8	Incorrect	18	45
	Partially correct	1	2.5
	Correct	21	52.5
Word 9	Incorrect	17	42.5
	Partially correct	1	2.5
	Correct	22	55
Word 10	Incorrect	15	37.5
	Partially correct	2	5
	Correct	23	57.5
Word 11	Incorrect	5	12.5
	Partially correct	4	10
	Correct	31	77.5
Word 12	Incorrect	13	32.5
	Partially correct	1	2.5
	Correct	26	65

**Table 4.3**

*Showing frequency and percentage for Tamil meaning words*

Tamil meaning (n = 40)		Frequency	%
Word 1	Incorrect	6	15
	Correct	34	85
Word 2	Incorrect	11	27.5
	Correct	29	72.5
Word 3	Incorrect	18	45
	Partially correct	1	2.5
	Correct	21	52.5
Word 4	Correct	40	100
Word 5	Incorrect	3	7.5
	Correct	37	92.5
Word 6	Incorrect	17	42.5
	Partially correct	2	5
	Correct	21	52.5

Word 7	Incorrect	12	30
	Partially correct	1	2.5
	Correct	27	67.5
Word 8	Incorrect	23	57.5
	Partially correct	1	2.5
	Correct	16	40
Word 9	Incorrect	18	45
	Partially correct	1	2.5
	Correct	21	52.5
Word 10	Incorrect	14	35
	Partially correct	2	5
	Correct	24	60
Word 11	Incorrect	16	40
	Partially correct	5	12.5
	Correct	19	47.5
Word 12	Incorrect	7	17.5
	Partially correct	10	25
	Correct	23	57.5

**Table 4**

*Showing comparison of the response to Malayalam meaning words between Malayalam natives and Tamil natives*

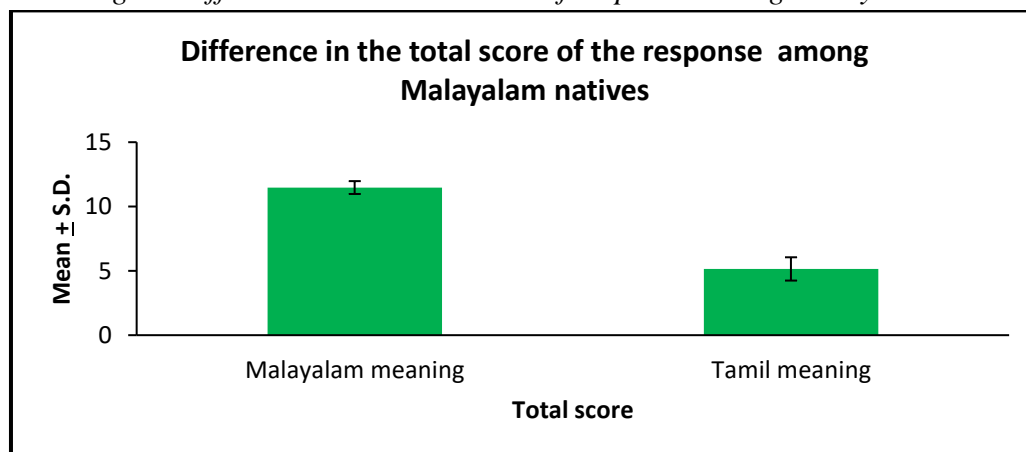
Malayalam meaning		Natives				Likelihood Ratio/Chi square#	p-value
		Malayalam		Tamil			
		n	%	n	%		
Word 1	Incorrect	0	0	5	25	9.382	0.009*
	Partially correct						
	Correct	0	0	1	5		
Word 2	Incorrect	0	0	13	65	19.259#	< 0.001*
	Correct	20	100	7	35		
Word 3	Incorrect	0	0	19	95	36.190#	< 0.001*
	Correct	20	100	1	5		
Word 4	Incorrect	9	45	20	100	15.172#	< 0.001*
	Correct	11	55	0	0		
Word 5	Incorrect	0	0	10	50	21.949	< 0.001*
	Partially correct	0	0	2	10		
	Correct	20	100	8	40		
Word 6	Incorrect	0	0	8	40	13.112	< 0.001*
	Correct	20	100	12	60		
Word 7	Incorrect	0	0	19	95	36.190#	< 0.001*

	Correct	20	100	1	5		
Word 8	Incorrect	0	0	18	90	47.411	< 0.001*
	Partially correct	0	0	1	5		
	Correct	20	100	1	5		
Word 9	Incorrect	0	0	17	85	37.926	< 0.001*
	Partially correct	1	5	0	0		
	Correct	19	95	3	15		
Word 10	Incorrect	0	0	15	75	37.640	< 0.001*
	Partially correct	0	0	2	10		
	Correct	20	100	3	15		
Word 11	Incorrect	0	0	5	25	15.128	0.001*
	Partially correct	0	0	4	20		
	Correct	20	100	11	55		
Word 12	Incorrect	1	5	12	60	18.111	< 0.001*
	Partially correct	0	0	1	5		
	Correct	19	95	7	35		

\* Significant)

**Fig 3**

*Showing the difference in the total score of response among Malayalam natives*



The Likelihood Ratio or Chi-square test was used to compare the response to Malayalam meaning words between Malayalam natives and Tamil natives. There was a difference ( $p < 0.05$ ) in the response to all the Malayalam meaning words between Malayalam natives and Tamil natives.

**Table 5**

*Showing the comparison of the response to Tamil meaning words between Malayalam natives and Tamil natives*

Tamil meaning		Natives				Likelihood Ratio / Chi square#	p-value
		Malayalam		Tamil			
		N	%	n	%		
Word 1	Incorrect	6	30	0	0	9.382	0.002*
	Correct	14	70	20	100		
Word 2	Incorrect	11	55	0	0	15.172#	< 0.001*
	Correct	9	45	20	100		
Word 3	Incorrect	18	90	0	0	42.243	< 0.001*
	Partially correct	0	0	1	5		
	Correct	2	10	19	95		
Word 4	Correct	20	100	20	100	--	--
Word 5	Incorrect	2	10	1	5	0.367	0.545
	Correct	18	90	19	95		
Word 6	Incorrect	15	75	2	10	19.914	< 0.001*
	Partially correct	1	5	1	5		
	Correct	4	20	17	85		
Word 7	Incorrect	11	55	1	5	14.196	0.001*
	Partially correct	0	0	1	5		
	Correct	9	45	18	90		
Word 8	Incorrect	19	95	4	20	26.717	< 0.001*
	Partially correct	0	0	1	5		
	Correct	1	5	15	75		
Word 9	Incorrect	17	85	1	5	30.503	< 0.001*
	Partially correct	0	0	1	5		
	Correct	3	15	18	90		
Word 10	Incorrect	12	60	2	10	16.976	< 0.001*
	Partially correct	2	10	0	0		
	Correct	6	30	18	90		
Word 11	Incorrect	14	70	2	10	16.49	< 0.001*
	Partially correct	1	5	4	20		

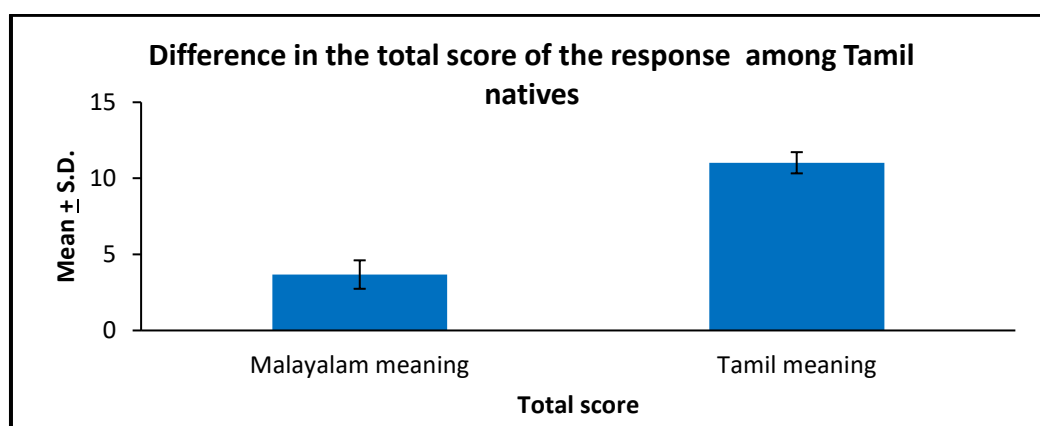


	Correct	5	25	14	70		
Word 12	Incorrect	5	25	2	10	22.991	< 0.001*
	Partially correct						
	Correct	10	50	0	0		
	Correct	5	25	18	90		

(\* Significant)

**Fig 3**

*Showing the difference in the total score of the response among Tamil natives*



The Likelihood Ratio or Chi-square test was used to compare the response to Tamil meaning words between Malayalam natives and Tamil natives. There was a difference ( $p < 0.05$ ) in the response to the Tamil meaning words, except the fifth word, between Malayalam natives and Tamil natives.

**Table 6**

*Showing the difference in the total score of the response to Malayalam meaning words and Tamil meaning words*

Natives	Total score	Mean	S.D.	"t"	p-value
Malayalam	Malayalam Meaning	11.48	0.50	44.615	< 0.001*
	Tamil meaning	5.15	0.90		
Tamil	Malayalam meaning	3.68	0.94	-31.998	< 0.001*
	Tamil meaning	11.03	0.70		

(\* Significant)

The Paired "t" test was used to find the difference in the total score of the response to Malayalam meaning words and Tamil meaning words for each native. There was a

difference ( $p < 0.05$ ) in the mean total score of Malayalam and Tamil meaning words for Malayalam natives as well as Tamil natives.

The present study revealed that the retrieval of meanings of interlingual homophones is superior in native languages. It suggests that one performed better in native (L1) without the interference of other languages (L2).

It can also be concluded that individuals have appropriate orders in two languages that are subconsciously activated in both languages, with those in the language that is not necessarily being muted or suppressed.

## DISCUSSION

Results indicated that the native speakers performed well in their native language(L1). The non-native speakers performed better for Tamil words and a significant difference was obtained. Whereas for Malayalam words, the non-natives performed a little less when compared to the performance of non-natives in Tamil words.

The cross-comparison data for Tamil and Malayalam words for native and non-native speakers yielded a difference that reveals that the retrieval of meanings of interlingual homophones is superior in the native language i.e., L1. The present finding is in accordance with Maitreyee & Goswami (2009), Rajalakshmi & Kumaraswamy (2015), Vinodhini & Ramya (2015) and Felix & Kumaraswamy (2017) who claim that native language will be more dominant for the retrieval of the meaning of words. These findings are also consistent with past research showing that bilinguals organize and retrieve words primarily in their dominant language (Curtis,1978). The Revised Hierarchical model also provides a compelling explanation for the difference between L1 and L2 in terms of L1's superior retrieval ability (Kroll and Stewart, 1994). Based on this paradigm, it can be assumed that words from L1 have greater associations with concepts than those from L2 do. This demonstrates that L1 has a stronger base than L2 for processing interlingual homophones.

The results of the current study also provided support for the idea that one can successfully perform better in one's native language (L1) without interfering with another language's (L2), presenting the idea of two distinct lexicons for both languages. They demonstrate selective lexical access (i.e., only one language is stimulated at a time), which is consistent with prior research (Gerard and Scarborough,1989). This was in contrast to the current study, which claimed that lexical elements were subconsciously activated in both languages when a person had a reasonable command of both. (Greens,1986

## SUMMARY AND CONCLUSION

Interlingual homophones are words that sound similar but have different meanings in different languages. Unlike interlingual homophones, which have two orthographic representations for each language, interlingual homographs have only one orthographic representation.

Bilingualism is the capacity of an individual or the members of a community to utilize two languages effectively. Items have similar pronunciations in different languages. Language may have an impact on how interlingual homophones are processed. Few studies in Indian languages have been attempted by Maitreyee and Goswami (2009), Rajalekshmi, Kumaraswamy and Rao (2015) and Vinodhini and Ramya (2015) that are in accordance with this. The Malayalam and Tamil languages are members of the South Dravidian subgroup of the Dravidian language family which is used by people around the state of Kerala and Tamil Nadu who are also exposed to learning other languages.

A multilingual person's use of only one language at a time reveals the separation of their various lexicons. Despite the aforementioned, in a lexical-decision task, an interlingual homograph activates target words in both of the bilinguals' languages. Hence arises a need to study the retrieval of the semantics of the perceived interlingual homophone in Malayalam-Tamil bilinguals.

Results indicated that the native Malayalam speakers and Tamil speakers performed well in their native languages whereas, during a cross-comparison of data, Malayalam natives responded comparatively better in Tamil word meanings than the Tamil natives' performance for Malayalam word meanings. According to the aforementioned findings, people have a reasonable command of two languages, which are subconsciously activated in both languages, and those in the non-required language are not suppressed.

#### **IMPLICATION OF THE STUDY**

The study has implications for the evaluation, diagnosis and program design of interventions for bilingual young adults. We can learn about the impact of homophone words on how language is perceived and processed by retrieving the semantics of the interlingual homophones that are being used. To choose the best language of intervention for bilingual aphasia clients, L1 might be taken into account as a medium of instruction during rehabilitation for adults.

#### **LIMITATION OF THE STUDY**

- Limited sample size.
- Excluded Malayalam- Tamil bilingual children and older adults.
- A large sample would have yielded more reliable results.

#### **FUTURE SUGGESTIONS**

- The study could be conducted with older adults and children.
- The present study could be further extended to a larger population.

---

#### **References**

American Speech and Hearing Association ASHA (2004) <https://www.asha.org>.

---

**Language in India** [www.languageinindia.com](http://www.languageinindia.com) ISSN 1930-2940 22:10 October 2022

Ms. Amala P Binoe, MASLP and Dr. Rohila Shetty, Ph.D.

Interlingual Homophone Retrieval in Typical Malayalam-Tamil Bilinguals

- Batra, R., Gnanvel, K., & Goswami, S. P. (2009). Inter-Lingual Homophone Retrieval in Bilinguals. *Journal of Indian Speech and Hearing Association*, 23, 33-41.
- Burke, D. M., Locantore, J. K., Austin, A. A., & Chae, B. (2004). Cherry pit primes Brad Pitt: Homophone priming effects on young and older adults' production of proper names. *Psychological Science*, 15(3), 164-170. DOI:10.1111/j.0956-7976.2004.01503004.x.
- Caramazza, A., Costa, A., Miozzo, M., & Bi, Y. (2001). The specific-word frequency effect: implications for the representation of homophones in speech production. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 27(6), 1430. <https://doi.org/10.1037/0278-7393.27.6.1430>
- Carrasco-Ortiz, H., Midgley, K. J., & Frenck-Mestre, C. (2012). Are phonological representations in bilinguals' language specific? An ERP study on interlingual homophones. *Psychophysiology*, 49(4), 531-543. <https://doi.org/10.1111/j.1469-8986.2011.01333.x>
- Chambers, C. G., & Cooke, H. (2009). Lexical competition during second-language listening: Sentence context, but not proficiency, constraints interference from the native lexicon. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 35(4), 1029–1040. <https://doi.org/10.1037/a0015901>
- Curtis Hardyck, (1978). Recognition memory processes and language dominance in bilingualism. *Journal of Psycholinguistic Research*, 7(1), 25-34.
- Deibel, Megan. E. (2020). *Individual Differences in Incidental Learning of Homophones During Silent Reading* [Master's thesis, Kent State University]. OhioLINK Electronic Theses and Dissertations Center. [http://rave.ohiolink.edu/etdc/view?acc\\_num=kent1594912994777369](http://rave.ohiolink.edu/etdc/view?acc_num=kent1594912994777369)
- Edwards, S., Venkatesh, M., & Saddy, J. D. (2012). Production and comprehension of English and Hindi in multilingual transcortical aphasia. *Journal of Neurolinguistics*, 25(6), 615-629 <https://doi.org/10.1016/j.jneuroling.2011.10.003>
- Felix, F., & Kumaraswamy, S. (2021). Interlingual Homophone Retrieval in Typical Malayalam-Hindi Bilinguals. *Arabic Language, Literature & Culture*, 6(1), 12.
- Gerard, L. D., & Scarborough, D. L. (1989). Language-specific lexical access of homographs by bilinguals. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 15(2), 305. <https://psycnet.apa.org/journals/xlm/15/2/305.html?uid=1989-24811-001>
- Green, D. (1986). Control, activation and resource: a framework and a model for the control of speech in bilinguals. *Brain and Language*, 27(2), 210-223. [https://doi.org/10.1016/0093-934X\(86\)90016-7](https://doi.org/10.1016/0093-934X(86)90016-7)
- Green, D. W. (2003). The neural basis of the lexicon and the grammar in L2 acquisition. In R. Van Hout, A. Hulk, F. Kuiken & R. Towell (eds.), *The interface between syntax and the lexicon in second language acquisition*, pp. 197– 218. Amsterdam: John Benjamins.
- Hino, Y., Kusunose, Y., Lupker, S. J., & Jared, D. (2013). The processing advantage and disadvantages for homophones in lexical decision tasks. *Journal of*

- Experimental Psychology: Learning, Memory, and Cognition*, 39(2), 529. <https://doi.org/10.1037/a0029122>
- Kisser, J. E., Wendell, C. R., Spencer, R. J., & Waldstein, S. R. (2012). Neuropsychological performance of native versus non-native English speakers. *Archives of Clinical Neuropsychology*, 27(7), 749-755. <https://doi.org/10.1093/arclin/acs082>
- Kroll, J. F., & Stewart, E. (1994). Category interference in translation and picture naming: Evidence for asymmetric connections between bilingual memory representations. *Journal of memory and language*, 33(2), 149-174. <https://doi.org/10.1006/jmla.1994.1008>
- Lalor, E., & Kirsner, K. (2001). The representation of “false cognates” in the bilingual lexicon. *Psychonomic Bulletin & Review*, 8(3), 552-559. <https://doi.org/10.3758/BF03196191>
- Mahmoud, A. (2000) Modern standard Arabic vs Non-standard Arabic: Where do Arab students transfer from Language, Culture and Curriculum, 13, 126-136, <https://doi.org/10.1080/07908310008666594>
- Maitreyee, R., & Goswami, S.P (2009) Interlingual homophone retrieval in bilinguals. *Journal of Indian Speech-Language and Hearing Association*, 23, 33-41
- Mercier, J., Pivneva, I., & Titone, D. (2014). Individual differences in inhibitory control relate to bilingual spoken word processing. *Bilingualism: Language and Cognition*, 17(1), 89-117. <https://doi.org/10.1017/S1366728913000084>
- Middleton, E. L., Chen, Q., & Verkuilen, J. (2015). Friends and foes in the lexicon: Homophone naming in aphasia. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 41(1), 77–94. <https://doi.org/10.1037/a0037778>
- Nguyen, N. (2013). The Effect of Interlingual Homophones in Vietnamese-English Bilinguals. *Western Undergraduate Psychology Journal*, 1(1). <https://ojs.lib.uwo.ca/index.php/wupj/article/view/1635>
- Pexman, P. M., Lupker, S. J., & Jared, D. (2001). Homophone effects in lexical decision. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 27(1), 139–156. <https://doi.org/10.1037/0278-7393.27.1.139>
- Pryle, Marilyn Bogusch (2000-2001). Peer, Peak, Pique: Using Homophones to Teach Vocabulary (and spelling!) <https://eric.ed.gov/?id=EJ604674>
- Rajalekshmi, S., Satish, K., & Subba Rao, T. A. (2015). Inter-lingual Homophone Retrieval Distinction in Bilingual Younger Adults. *Language in India*, 15(3). <http://www.languageinindia.com/march2015/rajalekshmiinterlingual.pdf>
- Riggs, F. W. (2005) A semantic analysis of Homonyms, Heteronyms and Allonyms in Homonymy. <https://iasj.net/iasj/pdf/ec5d86db05964ada>
- Sousa, L. Rodrigues. D. (2021). The effect of interlingual homophones on bilingual lexical access. <http://www.repositorio.ufc.br/handle/riufc/59579>
- Vinodhini, P., Ramya S., (2015) Retrieval of Inter-Lingual Homophones among Tamil Native Bilinguals. *Language in India Volume 15: 9 September 2015 ISSN 1930-2940*, 111. <http://languageinindia.com/sep2015/vinodhinihomophonesretrievalfinal.pdf>

- White, K. K., Abrams, L., McWhite, C. B., & Hagler, H. L. (2010). Syntactic constraints in the retrieval of homophone orthography. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 36(1), 160.  
<https://doi.org/10.1037/a0017676>
- Wilson, C. & Mihalicek, V., (Eds.). (2011). *Language files: Materials for an introduction to language and linguistics* (11th ed.). Ohio: Ohio State University Press.
- Yule, G. (2010). The study of language 4<sup>th</sup> edition. *Cambridge: Cambri Carlisle, JF* (2010). *Effects of Instruction in Morphological Awareness on Literacy Achievement: An Integrative Review. Reading Research Quarterly*, 45(4), 464-487

---

## APPENDIX

Phonetic transcription of the stimulus material

INTERLINGUAL HOMOPHONE	PHONETIC TRANSCRIPTION
Samsaaram	/samsa:ram/
Makkal	/makkal/
Rasikan	/rasikan/
Kaadhal	/ka:d <sup>h</sup> al/
Thookam	/tu:kam/
Vellam	/ve  lam/
Madhi	/mad <sup>h</sup> i/
Mundhiri	/munḍiri/
Naadu	/na:ḍ/
Patti	/patti/
Chellam	/tʃellam/
Malli	/malli/

## **Status of English Language Knowledge in Technical Education**

**B.A. Mahalakshmi Prasad. M.A.**

Sagar Institute of Science and Technology, Ratibad, Bhopal Madhya Pradesh India

[machiprasad@gmail.com](mailto:machiprasad@gmail.com), Ph: 09844808821

=====  
**Abstract**

This paper looks at language acquisition of students studying in B.Tech. in the city of Bhopal. Madhya Pradesh, India. The Study was conducted in a prestigious engineering college of Bhopal. The study also tries to analyse the reason for the lack of adequate English language acquisition in the students.

**Introduction**

English is the lingua franca and proficiency in English language has become prerequisite for students to be gainfully employed.

Various studies have enumerated a lack of knowledge of language skills and soft skills in STEM professionals.

A distinct paucity of research related to the teaching-learning of soft skills among STEM professionals highlights the important fact that students and institutions approach the subject and development of soft skills with a frivolous attitude (Ríos Carmenado, López, & García, 2015; Veiga, 2017; Pereira & Costa, 2017).

Employability can be read as the possessing of skills that are prerequisite to seeking a job and efficiently discharging one's responsibilities required at the job. It has further dimensions that can be categorised as the ability to transfer the knowledge to others inside the organisation, Zaharim et al. (2009) Organization for Economic Co-operation and Development OCED commission, which India is a member of, addresses the issue of employability and defines it is "as the ability to evaluate, access, communicate and analyze information—both interpreting text-based information and handling mathematical data" (OECD, 2015). The commission also highlights the need for sound technical knowledge, management skills, teamwork and soft skills.

The national Statistics Office (NSO) titled "Households Social Consumption: Education" revealed that 37% students are educated in the rural areas and the rest of the students are from vernacular. The Survey also stresses that only 17% of students of the total study in English medium schools. These statistics reveal that when the student completes his

schooling and joins B.Tech. degree course, he joins the course with a lacuna in the language domain both in expression and reception. To counteract this, remedial language class wherein basics of English and English grammar are conducted.

### **Data and Method**

Students of B.Tech. studying in Bhopal, Madhya Pradesh, India come from varied backgrounds Most of the students have had their basic education from the vernacular medium. The Rajiv Gandhi Proudhyogiki Vishwavidyalaya (RGPV) under whose auspices all the technical courses are conducted has issued a directive to teach in the vernacular. However, there is a tangible lack of technical subject textbooks in the vernacular and therefore all the subjects are taught in English. During placements the companies also recruit students who can communicate well in English.

The Data was collected from 400 students studying a private college in the city of Bhopal, Madhya Pradesh, India A base line study was administered to the students to assess their proficiency and skill in English language.

The study was designed to test their language skills in all the four domains of language use viz listening, speaking, reading, writing.

For listening comprehension: A standardised passage was read out aloud in the class and the students were expected to answer the questions based on the passage.

Assessments in speaking skills was carried out in the form of just a minute session wherein the students had to speak about a given topic for one minute.

Reading assessments was conducted by giving the students a written recipe for making ginger tea and the students had to read the recipe and explain the steps to the class.

Writing skills was assessed by asking them to solve an objective question which were based on the basic concepts of grammar.

### **Results**

For the sake of administering the test and collating the results. The students were divided into two sets namely- Set A [Computer Science (CS), Computer Science and Internet of Things (CS- IOT), Electronics and Communication (EC)]. Set B [Civil Engineering (CE), Electrical Engineering (EE), Artificial Intelligence and Machine Learning (AIML), Mechanical Engineering (ME)]. However, for analysis the data was taken in its entirety so as to get a complete and holistic overview of proficiency in English Language acquired by the students.

The data was graded on a 5point Scale wherein:



**1-Poor** – The student has difficulty in completing tasks with listening comprehension. The student speaks in syntactic forms that is a direct translation from Hindi. Spellings, grammar and punctuation are erratic.

**2- Fair-**

The student can solve easy level listening comprehension passages. Can speak a bit of English. Spellings, grammar and punctuation are erratic e.g. substitution of [their] for [there].

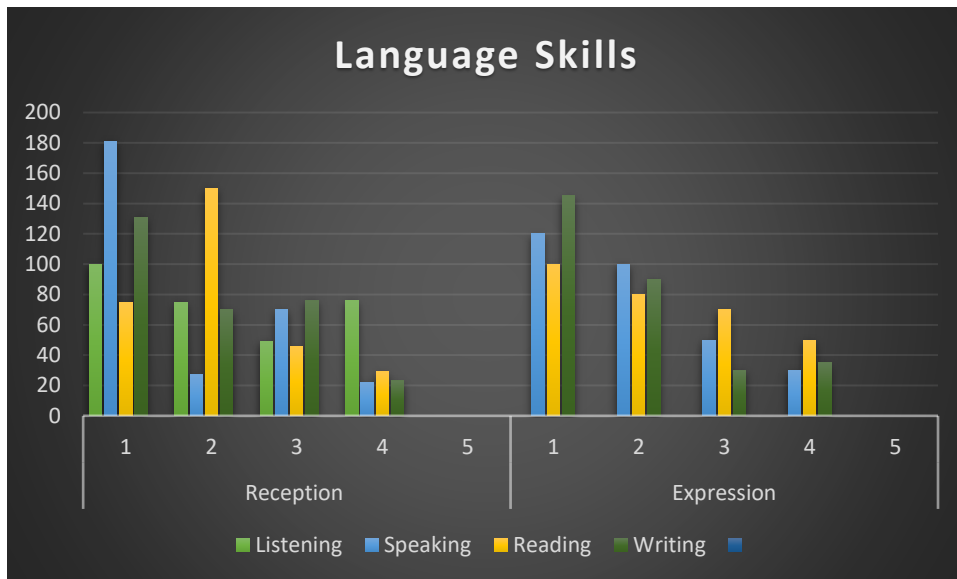
**3-Good** – Students can solve listening comprehension. Can speak well. Spelling, grammar, and punctuation rules are followed albeit erratically. The student is able to cognise that he has made a mistake in spelling and syntax but does not have the knowledge to correct it.

**4- Very Good-** The student has acquired functional knowledge of language in all the domains and is able to perform satisfactorily. However, a distinct lack of knowledge in vocabulary is observed.

**5-Excellent-** The student has acquired functional knowledge of language in all the domains and is able to perform satisfactorily. There is no observable irregularity in speaking and writing.

Table 1: Data of students across language skill set

	Reception					Expression				
	1	2	3	4	5	1	2	3	4	5
<b>Listening</b>	100	75	49	76	0	0	0	0	0	0
<b>Speaking</b>	181	27	70	22	0	120	100	50	30	0
<b>Reading</b>	75	150	46	29	0	100	80	70	50	0
<b>Writing</b>	131	70	76	23	0	145	90	30	35	0



## Result and Analysis

An analysis of the data shows that most of the students in the poor, fair and good category are from government and government aided schools. There is a

slightly higher percentage of students in the good category who have been educated in the urban government schools.

The students also suffer from linguistic and cultural barriers- Receptive (difficulty in distinguishing sounds with common place and manner of articulation e.g. /v/ and /b/ [Vikram] and [Bikram]), expression.

An analysis of their writing skills and speaking skills revealed that the students lack general as well as specific subject related vocabulary and as a result do not know the words in English that have to be substituted for Hindi words. E.g., The robber killed the king. Here the students did not know the meaning of the word “robber”.

The language ability of the students is also affected by socio-economic and psychological attitudes as enumerated by (Ríos Carmenado, López, & García, 2015; Veiga, 2017; Pereira & Costa, 2017). Their approach to language is very complacent and are lazy to actively involve themselves in learning the language. They suffer from a deep sense of insecurity and low self-esteem as a result they are reluctant to come forward to participate in activity-based learning. The whole scenario is compounded and confounded further with the students thinking that an engineering student does not require adequate language skills to find to become employable.

However, the reality is much further than what the students think as excellent soft skills are of paramount requisite for attaining roles in leadership, creativity, communication, management, and other allied fields.

The RGPV has taken an initiative to alleviate this problem by introducing a course in English Language for communication for students studying in the first year of B.Tech. The syllabus comprises of a well-planned module to help students acquire adequate language skills in English. (see attachment syllabus)

## Conclusion

The study reveals that the students studying in the STEM branches need rigorous training in English language, communicative skills, soft skills. These are students who are good in their technical subjects. However, they are unable to be gainfully employed due to lack of adequate soft skills.

---

## Bibliography

1. Ajit, V., & Deshmukh, P. B. (2013). Factors Impacting Employability Skills of Engineers. *International Journal of Science and Research*, 2, 30-32.
2. Bates, G., Rixon, A., Carbone, A., & Pilgrim, C. (2019). Beyond Employability Skills: Developing Professional Purpose. *Journal of Teaching and Learning for Graduate Employability*, 10, 7-26.  
<https://doi.org/10.21153/jtlge2019vol10no1art794>
3. Ríos Carmenado, I. L., López, F. R., & García, C. P. (2015). Promoting Professional Project Management Skills in Engineering Higher Education: Project-Based Learning (PBL) Strategy. *International Journal of Engineering Education*, 31, 1-15.
4. de Campos, D., de Resende, L. and Fagundes, A. (2020) The Importance of Soft Skills for the Engineering. *Creative Education*, 11, 1504-1520.  
doi: [10.4236/ce.2020.118109](https://doi.org/10.4236/ce.2020.118109).
5. Caten, C. S., Silva, D. S., Aguiar, R. B., Filho, L. C. P. S., & Huerta, J. M. P. (2019). Reshaping Engineering Learning to Promote Innovative Entrepreneurial Behavior. *Brazilian Journal of Operations & Production Management*, 16, 141-148.  
<https://doi.org/10.14488/BJOPM.2019.v16.n1.a13>
6. [India's Rural-Urban divide impacts education: NSO Survey \(theedupress.com\)](https://www.theedupress.com)
7. Kulkarni, V. A., Bewoor, A. K., Malathi, P., & Balapgol, B. S. (2017). Employability Skill Matrix for Engineering Graduates of Tier-II Institutes.

8. OECD (2016a). Skills Matter: Further Results from the Survey of Adult Skills. OECD Skills Studies. Paris: OECD Publishing.  
<https://doi.org/10.1787/9789264258051-en>
9. OECD (2016b). The Survey of Adult Skills: Reader's Companion (2nd ed.). OECD Skills Studies. Paris: OECD Publishing.  
<https://doi.org/10.1787/9789264258075-en>
10. OECD (2015). Skills for Social Progress: The Power of Social and Emotional Skills. OECD Skills Studies. Paris: OECD Publishing.  
<https://doi.org/10.1787/9789264226159-en>
11. D. Pezer (2015). The importance of soft skills in technical education. 7 th International Scientific and Expert Conference TEAM 2015 Technique, Education, Agriculture & Management Belgrade, October 15-16, 2015
12. Pereira, O. P., & Costa, C. A. A. T. (2017). The Importance of Soft Skills in the University Academic Curriculum: The Perceptions of the Students in the New Society of Knowledge. International Journal of Business and Social Research, 7, 25-34.  
<https://doi.org/10.18533/ijbsr.v7i6.1052>
13. T.J. Vasko, M. Al-Masoud, P. F. Baumann, "Assessment of soft-skills-program learning outcomes using engineering courses", Proceedings of American Society for Engineering Education, Annual Conference, AC 2011 – 1173, 2011.
14. Veiga, S. L. S. G. E. (2017). The Soft Skills of College Finalists: Aligning or Gaping with the Job Market? 148f. Doctoral Thesis, Lisbon.
15. Zaharim, A., Yusoff, Y. M., Zaidi, M., & Mohamed, A. (2009). Engineering Employability Skills Required by Employers in Asia. In Proceedings of the 6th WSEAS International Conference on Engineering Education (pp. 195-201). Rodos Island: WSEAS.

---

## Appendix

**RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA,  
BHOPAL New Scheme Based On AICTE  
Flexible Curricula B.Tech. First Year Branch- Common to All Disciplines BT103  
English for Communication 3L-0T-2P 4 Credits**

### COURSE CONTENTS:

Unit-I Identifying Common errors in writing: Articles, Subject-Verb Agreement, Prepositions, Active and Passive Voice, Reported Speech: Direct and Indirect, Sentence Structure.

---

**Language in India** [www.languageinindia.com](http://www.languageinindia.com) ISSN 1930-2940 **22:10 October 2022**

B.A. Mahalakshmi Prasad. M.A.

Status of English Language Knowledge in Technical Education

105

Unit-II Vocabulary building and Comprehension: Acquaintance with prefixes and suffixes from foreign languages in English to form derivatives, synonyms, antonyms, Reading comprehension.

Unit-III Communication: Introduction, Meaning and Significance, Process of Communication, Oral and Written Communication, 7 c's of Communication, Barriers to Communication and Ways to overcome them, Importance of Communication for Technical students, nonverbal communication.

Unit-IV Developing Writing Skills: Planning, Drafting and Editing, Precise Writing, Précis, Technical definition and Technical description. Report Writing: Features of writing a good Report, Structure of a Formal Report, Report of Trouble, Laboratory Report, Progress Report.

Unit-V Business Correspondence: Importance of Business Letters, Parts, and Layout; Application, Contents of good Resume, guidelines for writing Resume, Calling/ Sending Quotation, Order, Complaint, E-mail and Tender.

Course Outcomes: The student will acquire basic proficiency in English including reading and listening comprehension, writing and speaking skills. Communicative Language Laboratory:

Course objective: The language laboratory focuses on the practice of English through audio-visual aids and Computer software. It intends to enable the students to speak English correctly with confidence and intends to help them to overcome their inhibitions and self-consciousness while speaking in English.

Topics to be covered in the Language laboratory sessions: 1. Listening Comprehension. 2. Pronunciation, Intonation, Rhythm 3. Practising everyday dialogues in English 4. Interviews. 5. Formal Presentation

Final Assessment should be based on assignment, assessment, presentation, and interview of each candidate.

=====

## Role of Rehearsal Language in Working Memory in Bilingual Children

Alitta Tom, MASLP.

[alittatomjacob@gmail.com](mailto:alittatomjacob@gmail.com) ; Contact No: 8281924294

Vini Abhijith Gupta, Assistant Professor

Dr. M.V. Shetty College of Speech and Hearing, Mangalore

---

### Introduction

Memory is defined as the ability to encode, store, and retrieve information (Squire, 2009). It is an important element of cognitive function because it allows us to be flexible and adapt to information from our constantly changing environment. The ability to think back on the past, remember certain people or events, and base actions in the future on what has previously served well. Memory makes it simple to complete all of this. Memory processes are actions that use information in particular ways to make it accessible later or to retrieve it into the present processing stream.

Human memory is divided into several stages- Sensory memory, Short-term memory (STM), and Long-term memory (LTM). The level that momentarily stores unprocessed impulses from the sensory systems is known as the Sensory Memory or Sensory Storage. For instance, the nose and the adjacent nerve cells gather up environmental impulses and temporarily store them until they procreate further or are lost. STM or temporary working memory is the second level which has a meagre capacity and a maximum storage time of a few minutes. A comparatively long-term storage is offered by the LTM which makes up the third level. Atkinson and Shrifon,1971; cited in Varma and Varma (1989), who were particularly interested in the STM, suggested this multi-store approach. They centered their idea more on STM because they thought that activity at this level controlled how information moved across the overall memory system.

Gathercole and Alloway (2008) defined the capacity to temporarily store and process information in the mind as ‘Working Memory’ (WM). It is frequently defined as a versatile mental workspace which can store significant data while performing challenging mental tasks. Mental arithmetic is an excellent illustration of how WM is used in everyday situations. Take the example of trying to multiply two two-digit numbers without using a calculator or paper and pencil. WM is essential because it supports skills in many domains, including comprehension, learning, and reasoning.

Baddeley and Hitch first presented the ‘WM Model’ in 1974, and Baddeley (2007); cited in Henry (2011) later made revisions to it. Three parts make up the original

WM model, which included a controlling attentional system that oversaw and coordinated a number of subsidiary slave systems. This attentional controller was referred to as the Central Executive, and two slave systems were referred to as the Articulatory or Phonological loop, which is in charge of manipulating speech-based information, and the Visuo-spatial sketchpad, which is in charge of organizing and modifying visual images. The 'episodic buffer', a fourth component, was later added to the WM model. This component offered a few significant additional features.

The WM model is a fundamental theory of memory developed to explain how humans process and temporarily store information along with thinking and reasoning tasks. The model makes it easier to comprehend how memory functions are used during routine, everyday tasks as well as during more difficult tasks that need more effort and creative thought. It also makes it simple to compare memory development between children who are typically developing (TD) and children who have different types of developmental disorders.

Extension of WM is largely attributed by the increase in the use of strategies including chunking, organisation and subvocal verbal rehearsal. Age-related development along with growth in broad executive processing and strategy use results in more efficient functioning of cognitive resources. The rehearsal strategy employed and the word length effect both affect a participant's performance on a WM task.

The rehearsal strategy can be used with WM as well as STM. Gathercole (1999); cited in Dehn (2008) explained verbal rehearsal as a process of serial repetition that helps individuals retain information for a longer time period. Simple rehearsal strategies are often used by children as early as age 5, although spontaneous rehearsal does not start until age 7.

The substantial improvement in memory span after age six is assumed to be mostly attributable because of the emergence and increased use of verbal rehearsal methods. Children with special needs may struggle to independently develop or apply verbal rehearsal strategies. Explicit rehearsal training greatly enhances children's WM capacities, both with and without limitations, according to several studies (Comblain, 1994; Conners et al., 2001; cited in Dehn, 2008).

Adults with short WM spans have also demonstrated improvement following instruction in basic rote rehearsal techniques (Dunning & Holmes, 2014).

Several brain regions may be activated simultaneously including locations in the frontal, parietal and temporal lobes depending on the WM task.

According to Bialystok, Craik, Green and Gollan (2009), speakers' cognitive abilities may alter as a result of their regular practice of speaking two or more languages.

Such individuals who speak two or more languages are called Bilingual. Certain languages are more favourable to mental arithmetic than others. Chan and Elliott (2011) through his investigation found that Chinese fared better on digit memory span tasks than their Malay counterparts as Chinese had shorter pronunciation of their digit names than Malay digit names. Therefore, bilinguals can effectively use linguistic characteristics in word/digit lengths and rehearsal methods while performing memory tasks like listening span and digit span, among others to perform better.

Moralesa, Calvo and Bialystok (2013) conducted two investigations comparing the performance of monolingual and bilingual children on tasks requiring various levels of WM involving 56 and 125 children with ages 5 and ages 5 and 7, respectively. The studies' findings showed that bilingual children did better in WM, especially when the task calls for more executive function than usual.

Kaushanskaya, Gross and Buac (2014) found that the bilingual group of children (English speaking children exposed to Spanish for an average of two years in dual-immersion schooling) from classroom exposure outperformed the monolingual group on measures of verbal working memory and a measure of word learning.

Iyer and Venkatesan (2021) reported that bilingual children outperform trilingual children on WM tasks that included verbal and visuospatial components among 6 to 8-year-old children.

The 'word length effect' was introduced by Baddeley (1973); cited in Dehn (2008). They came to the conclusion through a number of trials that the 'word length effect' was always in favour of shorter words over longer words. It takes a varying amount of time to articulate the names of numbers in different languages. Ellis (1992) came to the conclusion from his three experiments that word lengths of a language's number names have a decisive impact on how easy it is to mentally calculate and count in that language.

Jagadeesh and Uppunda (2020) investigated the impact of rehearsal languages on WM spans in 24 bilingual individuals between the ages of 18 and 25. They found that there were word-length effects at the level of rehearsal strategies, with rehearsal in English (shorter digit length) leading with higher scores.

Manoochehri (2020) found no significant difference between males and females' mean score of forward digit span done in 16-25 years old adults from persian population.

Therefore, it is important to consider the role of rehearsal language in WM for Malayalam - English bilinguals, also the performance of WM on the basis of age and gender is necessary to be assessed.



## Review of Literature

The mental processes of learning, storing, and retrieving information are collectively referred to as memory (Radvansky, 2017). Human memory is made up of different stages, including sensory memory, STM and LTM. Although the terms WM and STM are sometimes used interchangeably, some theorists contend that the two types of memory are separate because WM permits manipulation of information that has been stored while STM simply permits short-term storage.

Baddley (2007); cited in Henry (2011) defined WM as a temporary storage system under attentional control that underpins our capacity for complex thought. This simple definition gives us the following idea that the first WM involves transitory storage, or what we are doing right now. Second, the system is under attentional control, indicating that we typically direct our attention in a particular direction. Finally, the system is crucial for any form of higher order thinking or reasoning work since it supports our capacity for sophisticated thought.

The WM model is a fundamental theory of memory created to explain how we manage and temporarily store information when doing thinking and reasoning tasks. The original WM model has three parts. The most crucial element is a mechanism for managing attention known as ‘the central executive’. In order to accomplish the predetermined goals, this is utilised to make sure that WM resources are focused and employed effectively. There are two other systems for short-term storage available-phonological loop and the visuospatial sketchpad. Later, the ‘episodic buffer’ was a fourth element to the WM model.

The phonological loop is simply said to be a short-term memory storage system for heard information, particularly speech. It is responsible for phonological STM, which is the capacity of individuals to retain brief amounts of heard information.

According to neuroimaging research, the phonological loop is further divided into two subcomponents, both of which are thought to be located in the left hemisphere of the brain. The phonological store and the articulatory rehearsal mechanism are these two subcomponents. The part of the system where speech information is temporarily stored is called the phonological store. The phonological store's information is constantly referred to as the ‘memory trace’, and the phenomenon of rapid fading is known as ‘trace decay’. The fact that phonological representations are transitory rather than fully correct, durable representations of events experienced is reflected in trace decay. Only about two seconds' worth of speech-based materials can be kept due to the phonological store's rapid trace decay, which is only long enough to remember a phone number before dialing it.

In order to slow the rate of phonological storage information decay, the articulatory rehearsal mechanism is used. The material is recited once more into the phonological store so that it does not deteriorate right away. This articulatory rehearsal mechanism, according to Dehn (2008), is like a two-second tape loop or tape recorder. The technique of recitation might stop the material from deteriorating by continuously refreshing it. This recitation technique, also known as 'articulatory rehearsal' or 'verbal rehearsal', is a key strategy for boosting WM's capacity.

The other mechanism described in the WM model is the visuo-spatial sketchpad which is capable of temporarily storing visual and spatial information so that it can be used for thinking, remembering, and processing tasks.

A completely new component known as the 'multi-modal-temporary store' is the episodic buffer. It interacts with information from many distinct modalities rather than merely storing information in one (such as auditory, visual, spatial, or kinesthetic).

The WM model has inspired a wave of study on how children with developmental problems and children with intellectual disabilities (CWID) form their memories. This implies that using the same justification and test types, typical and atypical groups can be directly compared.

The parietal lobe is responsible for storing information whereas the frontal lobe is in charge of controlling WM. (Baddeley, Eysenck and Anderson 2015)

A study by Paulesu et al. (1993) cited in Baddeley, Eysenck & Anderson, (2015) using positron emission tomography (PET) was based on the phonological loop concept. They discovered two distinct areas: one in the left hemisphere, between the parietal and temporal lobes, which appeared to be in charge of phonological storage, and another, more frontally located area, known as Broca's area, which is involved in speech production and may well be related to subvocal rehearsal.

Based on the neuroanatomy of WM, the phonological loop is situated in the left hemisphere's temporal lobes, visuo-spatial memory is located in the right hemisphere, and the dorsolateral prefrontal cortex is principally responsible for central executive functions.

In essence, verbal rehearsal is a serial repeated procedure that helps information be retained for longer periods of time, facilitating long-term encoding (Gathercole, 1999 cited in Dehn, 2008). Although many children begin employing a basic rehearsal technique around age five, spontaneous rehearsal does not start until about age seven. It is believed that at least a portion of the significant improvement in memory span that occurs after age six can be attributed to the growth and increased usage of verbal rehearsal strategies. (Dehn, 2008).

Children with disabilities may struggle to independently overlap or use verbal rehearsal techniques. According to several studies, intentional rehearsal training dramatically enhances both children with and without disabilities' WM capacities. Adults with reduced WMs have also demonstrated improvement after training in straightforward rote rehearsal techniques.

Dehn (2008) reported that rehearsal is associated with the anterior temporal frontal area and phonological storage is provided via a neural network in the left hemisphere encompassing inferior parietal areas.

Dehn (2008) claimed that Broca's region supports articulatory rehearsal while the supramarginal gyrus supports phonological storage.

Gathercole & Hitch (1993) found that verbal rehearsal in children gradually emerged, maybe beginning with the overt naming of each thing as it was shown. Then covert (i.e. subvocal) naming has developed, the mature form of covert cumulative rehearsal for groups of things may then gradually arise.

Children practise more slowly than adults since they read and speak at slower speeds. As children aged, their reading and articulation skills improved, allowing for faster rehearsal rates and a higher memory span. The relationship between memory span and reading rate was investigated by Nichololson (1981) in three groups of ten children aged 8, 10, and 12 using words of 1-4 syllables. He reported that word length effects were present across all groups. Additionally, all groups demonstrated faster reading speeds for shorter words than for longer words.

Gathercole & Hitch (1993) reported that rehearsal emerged more rapidly with auditory presentation than visual presentation because of the close and direct links between hearing and speech.

Bilingualism is "knowing two languages" (Butler and Hakuta, 2004). Bilingual children outperform monolingual children on all metalinguistic tasks demanding high degrees of mental control (Raju and Nataraja, 2016).

Digit span is referred to as a "span test" because the length of the digit lists that must be remembered is gradually increased to find the longest list that can be accurately and perfectly remembered.

Henry (2011) reported that memory span significantly increases with age; a large portion of this gain, particularly beyond preschool years, is due to the employment of memory strategies. He said that the number of distinct units of information that can be retained has a fundamental structural restriction. There are strategies that can be used to raise this number of items, which falls between three and five.

Word length effects arise from the fact that verbal rehearsal of long items takes longer than that of short items in real time. The memory trace within the phonological storage has more time to decay due to the word length disadvantage for larger items. On the other hand, short items can be practised quickly, allowing for the retention of more words within the phonological store's two second time limit. Gathercole & Hitch (1993) reported that word length effects resulted from the links between speaking and hearing.

### **Western Studies**

Alloway & Copello (2013) reported that WM is essential for a range of academic tasks, from challenging ones like reading comprehension, mental math, and word problems to easy tasks like copying from the board and finding a way through the school. WM is important from kindergarten to tertiary classes.

Reading achievement is predicted by WM task results in TD children without the use of phonological awareness tests (Alloway and Copello, 2013).

Verbal WM has a significant impact in math abilities in 7-year-olds and is a consistent predictor of arithmetic challenges in the first year of formal schooling (Alloway and Copello, 2013).

Molen, Van Luit, Jongmans & Van der Molen (2007) found CWID performed poorly on phonological loop capacity and central executive tests compared to peers their own age, but only slightly worse than peers their own mental age. As a result, remedial training is crucial for CWID.

According to Montgomery, Magimairaj & Finney (2010), the assessment, diagnosis, and treatment of language problems in SLI should take into account the potential impact of WM.

Wells, Kofler, Soto., Schaefer, & Sarver (2018) discovered that digit span backward becomes a reliable indicator of WM at the same time when testing for paediatric attention deficit hyperactivity disorders (ADHD) is typically discontinued.

Robinson, Mervis, & Robinson (2003) found children with Williams Syndrome (WS) had a significantly stronger relationship between WM, as determined by backward digit span, and grammatical ability than did their control group, which had a mean chronological age of 10 years and 2 months.

Wilson, Bettger, Nicolae & Klima (1997) reported that WM architecture is influenced by language modality. Additionally, they noted that the performance of forward and backward digit spans suggests that the processing limits of language rehearsal mechanisms vary. The fact that native American Sign Language (ASL)

speakers performed well on tests of backward and forward digit span suggests that the serial order information for ASL is stored without preference for one direction over another.

Withagen, Kappers, Vervloed, Knoors & Verhoeven (2013) compared the STM and WM of 10-year-old blind children with those of sighted children. Word span, name learning, and digit span forward activities were used to measure STM, whereas listening span and digit span backward tasks were used to assess WM. The results showed that on both STM and WM activities, the blind children excelled above their sighted peers. Additionally, it was found that the blind children performed verbal WM tasks significantly better than their sighted peers.

Bialystok (2009) reported that bilingual speakers' cognitive abilities may alter as a result of their regular practice of speaking two or more languages.

Morales, Calvo & Bialystok (2013) reported that fifty six 5-year-olds, bilingual children performed better on executive functioning tasks than monolingual children under all conditions and responded to incongruent trials with more accuracy on Simon type tasks.

Comblain (1994) concluded from his investigation that children and adolescents with Downs' syndrome can considerably increase their WM capacity with rehearsal training.

Alhola & Polo-Kantola (2007) argued that complete sleep deprivation caused by gadget addiction impacts other processes including attention, WM, LTM and decision-making in students.

Anufrieva & Gorbunova (2021) concluded that there are discrepancies between WM and attention processes in real-world and virtual environments. Additionally, the digital world might be seen as a cueing system that facilitates the accomplishment of challenging activities requiring WM and attention.

Gathercole, Pickering, Ambridge & Wearing (2004) examined the organisation of WM and how it changed throughout the course of childhood in children between the age of 4 and 15. The findings showed that WM has a basic modular structure that is present from 6 years of age, probably earlier, and that each component significantly expands in functional capability from the early and middle school years to adolescence.

Reed, Gallagher, Sullivan, Callicott & Green (2017) investigated in 111 young adults and found that there were gender differences at high loads of WM across tasks and within each task, such that males showed superior accuracy even among groups that were matched for performance at lower loads.

Zilles, Lewandowski, Vieker, Henseler, Diekhof, Melcher, Keil & Gruber (2016) concluded from their investigation utilising functional magnetic resonance imaging (fMRI) that females had a slightly reduced capacity in both verbal and visuospatial WM modalities.

Manoochehri (2020) found no significant difference between males and females' mean score of forward digit span done in 16-25 years old adults from persian population.

### **Indian Studies**

In the investigation by Jagadeesh & Uppunda (2020) of the impact of rehearsal languages on WM spans in 24 bilingual individuals between the ages of 18 and 25. They found that there were word-length effects at the level of rehearsal strategies, with rehearsal in English (shorter digit length) leading with higher scores than Kannada digits.

Gupta & Sharma (2017) reported that children with learning disabilities (LD) frequently struggle to study because the high WM demands of the learning activity frequently surpass their WM capacity. These children' academic performance can also be enhanced by remedial training, teaching proper WM strategies, and other measures.

Prathap & Singh (2021) concluded from their investigation on college students that the deterioration in students' prospective memory was correlated with how dependent they were on their digital devices and how much cognitive offloading they were doing.

Iyer & Venkatesan (2021) revealed that bilingual children outperform trilingual children on WM tasks that included verbal and visuospatial components among 6 to 8-year-old children.

### **Need for the Study**

Working memory is the term used to describe the system or systems that are thought to be required in order to maintain information while carrying out difficult tasks like reasoning, comprehension, and learning. (Baddeley, 2010)

WM skills are specifically impaired in children with autism, ADHD and dyslexia. The operational effectiveness of WM is a key predictor of a child's school achievement in the areas of literacy and numeracy. Also the important role that WM plays in speech perception, particularly in difficult auditory environments such as in the presence of background noise, it is likely that variations in WM function and capacity will make it more difficult for hearing aid users to understand speech in noisy environments (Javanbakht, Moosavi and Vahedi, 2021). Poor WM abilities can be addressed by SLPs by taking into account both changes to the environment and child-enacted knowledge and skills, which may help to lessen their negative effects on learning and academic achievement (Boudreau and Costanza-Smith, 2011).

Ames & Whitfield (2003) reported that the use of a rehearsal strategy resulted in higher WM span scores. A study done by Jagadeesh & Uppunda (2020) on the impact of rehearsal languages on WM spans in 24 bilingual individuals between the ages of 18 and 25. They found that there were word-length effects at the level of rehearsal strategies, with rehearsal in English (shorter digit length) leading with higher scores. Surprisingly little research has been done to support the efficacy of the role of rehearsal language in bilingual children (Malayalam-English), effects of age and gender on WM capacities.

Hence to assess how the language of rehearsal affects the WM capacities of bilingual children between the ages of 8.0 to 10.11 years and if age-related and gender differences are observed in WM capacities. Analysis of TD children will serve as a baseline for the purpose of applying rehearsal techniques to help children with developmental delays improve their WM.

## **Method**

### **Aim**

The purpose of the present study is to determine whether rehearsal language affects the performance of WM in TD children aged through 8.0 to 10.11 years. Age related and gender differences in WM capacities were also assessed.

### **Participants with Inclusive and Exclusive Criteria**

Participants included 60 (30 girls and 30 boys) TD sequential bilingual children in fourth through sixth grades who spoke Malayalam as their first language and the medium of instruction in the classroom was English. Age of the children ranged from 8.0 to 10.11 years. This age range was chosen because, according to Dehn (2008), spontaneous rehearsal does not begin until age 7 and the majority of children have normal articulation abilities by the time they are 8 years old (Farquharson, Hogan & Bernthal, 2018).

Children with a history of speech and language disorders, reading and writing disorders, hearing disorders, neurological issues, and cognitive issues such as poor attention, memory were excluded. Children should perform above average academically.

### **Materials Used**

Digits between zero to nine which were bisyllabic were presented in Malayalam language for all three rehearsal conditions of the experiment. The stimuli were spoken by a native female speaker.

### **Procedure**

Through teacher interviews, potential participants were identified from the classroom. All participants had their backward digit spans assessed.

- A random number sequence was presented with a one-second gap between each stimulus. The allotted time to rehearse the sequence aloud was 30 seconds after the last digit in the series was presented.
- The participant wrote the numbers backward. Additionally, they were told to substitute ‘ \_\_\_ ’ for any missing digits in the sequence.
- The allotted time for participants to record their responses was 30 seconds.
- The number of digits in the next sequence (span length) increased by one for each correct response or sequence, whereas the span length decreased by one for each incorrect response.
- Six reversals were performed in total (from correct to wrong and vice-versa) for each participant. The last four reversals' means were used to determine the backward digit (BD) spans after the initial two reversals were eliminated.
- Feedbacks were provided for correct responses.

Three different rehearsal instructions were used to measure verbalization of BD spans:

- (i) No instruction on the language of rehearsal (NI),
- (ii) Instructed to rehearse in Malayalam (RM), and
- (iii) Instructed to rehearse in English (RE).

All participants were tested initially on the NI condition, which serves as the control condition. No directions were offered on the rehearsal language for this condition. To prevent participants from becoming biased in favor of/against rehearsal in either Malayalam or English, the NI condition was carried out first.

To become accustomed to the task, all participants underwent a practice trial first. This was not included for calculating the BD span scores.

### **Analysis**

The total number of digits written correctly during each of the three conditions was calculated. For the scoring purpose, the raw score of the total number of correct digit spans obtained was retained and subjected for statistical analysis. For example, if the child repeats digits backward in NI condition as “742”, the number of correct digits was considered as three.

### **Statistical Analysis**

To determine any significant differences across the language of rehearsal, repeated measures ANOVA and bonferroni post hoc analysis was carried out. Whereas one way ANOVA and bonferroni post hoc analysis were used to find any significant differences in BD span score across age groups. The ‘t’ test was used to evaluate whether there were any statistically significant variations between the genders in the mean values of the BD span scores for the three language rehearsals.



## Results and Discussion

Despite the fact that the digits were presented only in Malayalam, the study intends to observe the variations in BD span scores with rehearsal in Malayalam versus English. Additionally, whether TD children between the ages of 8.0 and 10.11 have any differences in their ability to use WM in relation to language practice were assessed. Furthermore, it sought to determine if there are any gender differences in WM skills across age groups under the three rehearsal conditions. The study's findings are addressed in more detail below. Despite the fact that Malayalam was the language of presentation, all of the participants (n=60) practiced in English under the NI condition.

### Comparison between the rehearsal conditions:

**Table 4.1:**

*Showing the mean and SD scores of BD spans across the language of rehearsal in bilingual children.*

Age group	Gender	BD span score in rehearsal condition	N	Mean	Std. Deviation	Repeated measures ANOVA p value	Post hoc analysis by Bonferroni test		
							No instruction vs Malayalam	No instruction vs English	Malayalam vs English
8.0 - 8.11 years	Boys	BD span score in NI	10	3.000	0.4714	0.000, HS	0.002 HS	1.000 NS	0.002 HS
		BD span score in RM	10	2.000	0.4714				
		BD span score in RE	10	3.000	0.4714				
	Girls	BD span score in NI	10	3.200	0.4216	0.000, HS	0.002 HS	1.000 NS	0.002 HS
		BD span score in RM	10	2.200	0.4216				
		BD span score in RE	10	3.200	0.4216				
9.0 - 9.11 years	Boys	BD span score in NI	10	4.000	0.4714	0.000, HS	0.003 HS	1.000 NS	0.003 HS
		BD span score in RM	10	3.100	0.5676				
		BD span score in RE	10	4.000	0.4714				

	Girls	BD span score in NI	10	4.000	0.4714	0.000, HS	0.002 HS	1.000 NS	0.002 HS
		BD span score in RM	10	3.000	0.4714				
		BD span score in RE	10	4.000	0.4714				
10.0 -10.11 years	Boys	BD span score in NI	10	5.000	0.0000	0.000, HS	0.004 HS	1.000 NS	0.004 HS
		BD span score in RM	10	4.000	0.4714				
		BD span score in RE	10	5.000	0.0000				
	Girls	BD span score in NI	10	4.900	0.3162	0.000, HS	0.002 HS	1.000 NS	0.002 HS
		BD span score in RM	10	3.900	0.3162				
		BD span score in RE	10	4.900	0.3162				

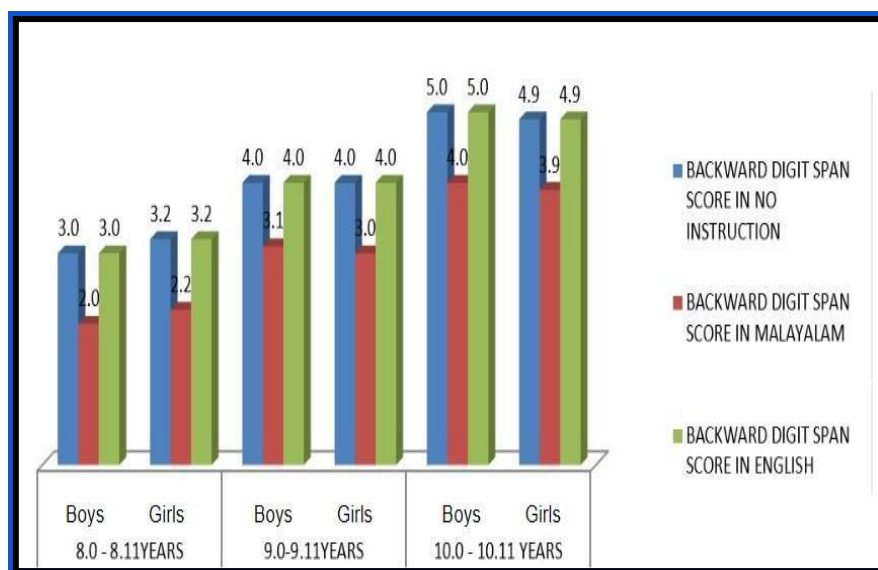
\*HS- High Significance, NS- No Significance.

Table 4.1 displays the BD span results for the three different rehearsal instructions (In NI, RM, and RE).

The findings of the statistical analysis revealed a highly significant difference between the RM vs. NI and RE conditions. In conclusion, across all age groups, BD span scores were lower in the RM condition than they were in the other two conditions (NI & RE).

**Fig 4.1:**

*Showing the graphical representation of mean scores of BD span in comparison across the language of rehearsal in bilingual children. X- axis represents the age groups of bilingual children and Y-axis represents the mean scores of BD span scores across the rehearsal conditions(Rehearsal in NI, RM and RE).*



**Table 4.2:**

*Showing the mean scores of BD span in comparison across the language of rehearsal in bilingual children. (In NI, RM and RE).*

Age group	Gender	Mean		
		BD span score in NI	BD span score in RM	BD span score in RE
8.0 - 8.11 years	Boys	3.0	2.0	3.0
	Girls	3.2	2.2	3.2
9.0 - 9.11 years	Boys	4.0	3.1	4.0
	Girls	4.0	3.0	4.0
10.0 - 10.11 years	Boys	5.0	4.0	5.0
	Girls	4.9	3.9	4.9

The mean scores of BD span in comparison across the language of rehearsal are shown in the aforementioned figure 4.1 and table 4.2 for bilingual children. It can be inferred that across all age groups and for both genders, rehearsal in the Malayalam (RM) condition was lower than both the English (RE) and 'No Instruction' (NI) conditions.

## Comparison Between the Age Groups

**Table 4.3**

*Showing the comparison of BD span scores in three rehearsal conditions across the age groups ( 8.0-8.11, 9.0-9.11 and 10.0-10.11 years).*

Rehearsal conditions	Gender	Age groups	N	Mean	Std. Deviation	ANOVA p value	Post hoc analysis by Bonferroni test		
							8 - 8.11 VS 9 - 9.11	8 - 8.11 VS 10 - 10.11	9 - 9.11 VS 10 - 10.11
BD span score in NI	Boys	8.0 - 8.11 years	10	3.000	0.4714	0.000, HS	0.000, HS	0.000, HS	0.000, HS
		9.0 - 9.11 years	10	4.000	0.4714				
		10.0 - 10.11 years	10	5.000	0.0000				
	Girls	8.0 - 8.11 years	10	3.200	0.4216	0.000, HS	0.000, HS	0.000, HS	0.000, HS
		9.0 - 9.11 years	10	4.000	0.4714				
		10.0 - 10.11 years	10	4.900	0.3162				
BD span score in RM	Boys	8.0 - 8.11 years	10	2.000	0.4714	0.000, HS	0.000, HS	0.000, HS	0.000, HS
		9.0 - 9.11 years	10	3.100	0.5676				
		10.0 - 10.11 years	10	4.000	0.4714				
	Girls	8.0 - 8.11 years	10	2.200	0.4216	0.000, HS	0.000, HS	0.000, HS	0.000, HS
		9.0 - 9.11 years	10	3.000	0.4714				
		10.0 - 10.11 years	10	3.900	0.3162				

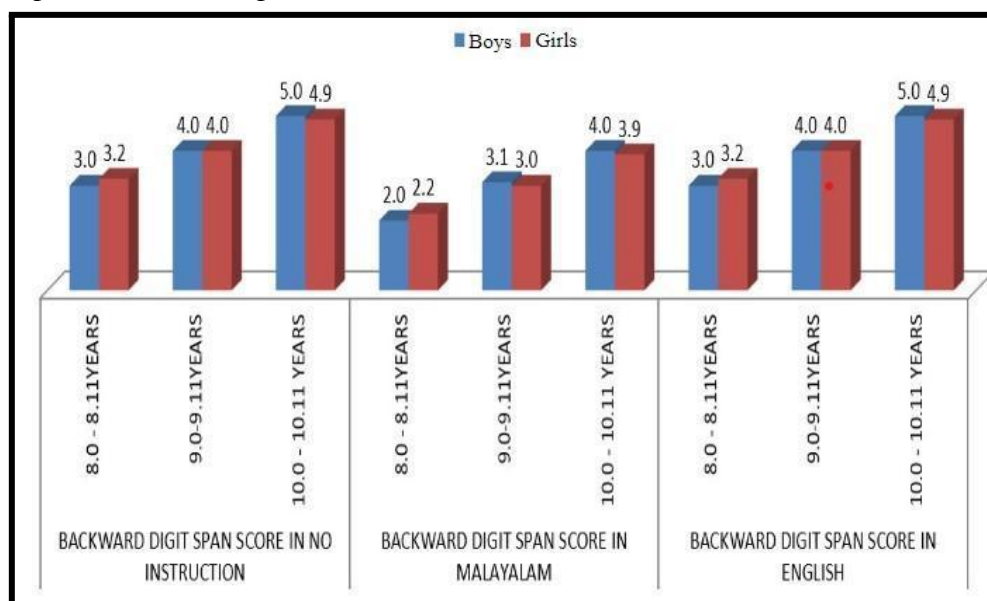
BD span score in RE	Boys	8.0 - 8.11 years	10	3.000	0.4714	0.000, HS	0	0	0
		9.0 - 9.11 years	10	4.000	0.4714				
		10.0 - 10.11 years	10	5.000	0.0000				
	Girls	8.0 - 8.11 years	10	3.200	0.4216	0.000, HS	0.000, HS	0.000, HS	0.000, HS
		9.0 - 9.11 years	10	4.000	0.4714				
		10.0 - 10.11 years	10	4.900	0.3162				

\*HS- High Significance, NS- No Significance.

The BD span results for the three rehearsal instructions (in NI, RM & RE) in age ranges of 8.0–8.11 years, 9.0–9.11 years, and 10.0–10.11 years are shown in Table 4.3. Results of the statistical analysis revealed a highly significant difference between all age groups ( $p=0.00$ ). Consequently, it can be said that WM performance gets better with age.

**Fig 4.2**

*Showing the graphical representation of the mean scores of BD span scores in three rehearsal conditions across the age groups ( 8.0-8.11, 9.0-9.11 and 10.0-10.11 years) in boys and girls. X-axis represents the age groups in different rehearsal conditions and Y-axis represents the BD span scores obtained.*



**Table 4.4**

*Showing the mean scores of BD span scores in three rehearsal conditions across the age groups (8.0-8.11, 9.0-9.11 and 10.0-10.11 years) in boys and girls.*

Rehearsal conditions	Age groups	Boys	Girls
BD span in NI	8.0 - 8.11 years	3.0	3.2
	9.0 - 9.11 years	4.0	4.0
	10.0 - 10.11 years	5.0	4.9
BD span in RM	8.0 - 8.11 years	2.0	2.2
	9.0 - 9.11 years	3.1	3.0
	10.0 - 10.11 years	4.0	3.9
BD span in RE	8.0 - 8.11 years	3.0	3.2
	9.0 - 9.11 years	4.0	4.0
	10.0 - 10.11 years	5.0	4.9

The mean scores of the three rehearsal conditions for boys and girls in the age ranges (8.0-8.11, 9.0–9.11, and 10.0–10.11) are shown in Figure 4.2 and Table 4.3. As a result, we can observe that both boys and girls exhibit an increase in WM capacity as age increases in all three instruction conditions.

#### **Comparison between genders:**

**Table 4.5:**

*Showing the BD span scores in boys and girls across three rehearsal conditions.*

Age group	Rehearsal conditions	Gender	N	Mean	Std. Deviation	t test p value	
8.0 - 8.11 years	BD span score in NI	Boys	10	3.00	0.47	0.331	NS
		Girls	10	3.20	0.42		
	BD span score in RM	Boys	10	2.00	0.47	0.331	NS
		Girls	10	2.20	0.42		
	BD span score in RE	Boys	10	3.00	0.47	0.331	NS
		Girls	10	3.20	0.42		
9.0-9.11 years	BD span score in RI	Boys	10	4.00	0.47	1.000	NS
		Girls	10	4.00	0.47		

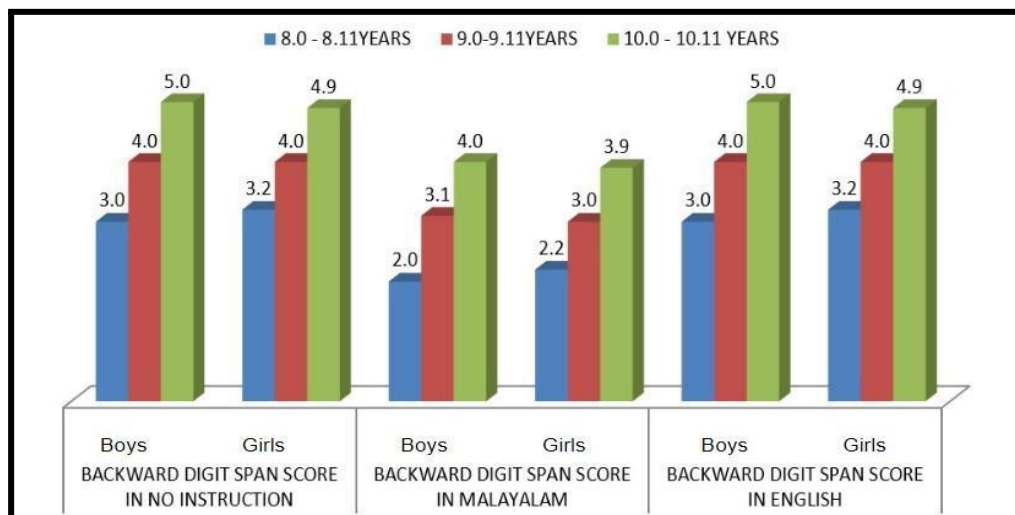
	BD span score in RM	Boys	10	3.10	0.57	0.673	NS
		Girls	10	3.00	0.47		
	BD span score in RE	Boys	10	4.00	0.47	1.000	NS
		Girls	10	4.00	0.47		
10.0 - 10.11 years	BD span score in RI	Boys	10	5.00	0.00	0.331	NS
		Girls	10	4.90	0.32		
	BD span score in RM	Boys	10	4.00	0.47	0.584	NS
		Girls	10	3.90	0.32		
	BD span score in RE	Boys	10	5.00	0.00	0.331	NS
		Girls	10	4.90	0.32		

\*HS- High Significance, NS- No Significance.

The BD span scores for boys and girls under three rehearsal conditions are shown in Table 4.4. In all three conditions, there was no significant difference in the findings between boys and girls across age groups.

**Fig 4.3**

*Showing the graphical representation of the mean BD span scores in the three rehearsal conditions in boys and girls across the age groups. X-axis represents the boys and girls in the three rehearsal conditions and Y-axis represents the BD span scores.*



**Table 4.6**

*Showing the mean BD span scores in the three rehearsal conditions in boys and girls across the age groups.*

Rehearsal Conditions	Gender	Mean		
		8.0 - 8.11 years	9.0-9.11 years	10.0 - 10.11 years
BD span score in NI	Boys	3.0	4.0	5.0
	Girls	3.2	4.0	4.9
BD span score in RM	Boys	2.0	3.1	4.0
	Girls	2.2	3.0	3.9
BD span score in RE	Boys	3.0	4.0	5.0
	Girls	3.2	4.0	4.9

The mean BD span scores for boys and girls across all age groups and rehearsal conditions are shown in the above-mentioned figure 4.3 and table 4.5, respectively. From the results, we can conclude that gender differences are not significantly seen in terms of their WM capacities across the age groups in the three rehearsal conditions. However the errors made by boys were lower than girls in the incorrect digit span.

As a result, the following conclusions can be drawn about the investigation's findings:

- Malayalam rehearsal produced substantially lower BD spans than English rehearsal condition.
- In all three rehearsal conditions, WM capacities increased with age in both boys and girls.
- In terms of WM capacities, there were no appreciable variations between the genders across all age groups in the three rehearsal conditions. However, compared to girls, boys made fewer errors in the incorrect BD span.

## Discussion

The aim of the current study was to determine whether rehearsal language played a role in rehearsal strategy and whether there were any differences in WM capacities related to age and gender across the conditions. The participants were bilingual children aged between 8.0 - 10.11 years were chosen. These participants were asked to listen carefully to a span of digits spoken in Malayalam and were asked to rehearse according to the instruction provided: in NI where the participants have to rehearse either in English or Malayalam, then rehearse in Malayalam and then in English only for 30



seconds respectively. Then the digit span should be written in reverse manner on instruction.

According to the findings, Malayalam rehearsal produced lower BD spans than the English rehearsal condition, which was consistent with the findings of the study by Jagadeesh and Uppunda (2020) to understand the role of rehearsal language of Kannada v/s English language in adults. Also the investigation done by Chan and Elliott (2020) revealed better performance on digit span in the language with shorter pronunciation.

Also, WM abilities improved with age in each of the three rehearsal conditions for both males and females. According to Bayliss, Jarrod, Baddeley, Gunn and Leigh (2005), two age-related but distinct factors - one associated with general processing speed and the other with storage capacity - were responsible for the developmental improvement in complex span. Additionally, when WM, processing speed, and storage capacity were examined in 120 children between the age of 6 and 10, there was a shared age-related contribution that was significant for higher level cognition. Several similar studies (Henry, 2011; Gathercole, Pickering, Ambridge and Wearing, 2004) report an increase in the WM skills exhibited as age increases.

In all age groups and the three rehearsal strategies, there were no gender biased differences in WM skills between boys and girls which correlated with the results of the investigation done by Manoochehri (2020) in adults. Boys, however, made fewer errors in the incorrect BD span than girls did. This is in accordance with the results of Zilles, Lewandowski, Vieker, Henseler, Diekhof, Melcher, Keil and Gruber (2016) study which revealed females had a slightly reduced capacity in both verbal and visuospatial WM modalities.

The outcomes of the current study are advantageous for a speech-language pathologist (SLP). The language and academic skills of children with disabilities depend on their WM skills. Therefore, by using a rehearsal technique tailored to the language chosen for rehearsal and the child's age, WM can be improved. Also, this will serve as a baseline for SLPs to employ this technique when assessing and intervening children with special needs who are between the ages of 8 and 10 to improve their WM skills.

## **Summary and Conclusion**

Our capacity to process data is called Working Memory (Alloway, 2010). This more advanced ability involves maintaining focus on a task despite interruptions or distractions. WM is connected to a variety of cognitive tasks that students perform in school, including reasoning activities, verbal comprehension, and arithmetic skills. It is a powerful indicator of successful reading as well.

WM is also linked to math outcomes: low WM scores are clearly related to poor performance on arithmetic word problems and computational skills (Alloway and

Copello, 2013). Although there is also a strong correlation between mathematical ability and WM, this link is influenced by the task and the child's age.

SLPs are crucial in the diagnosis and treatment of a variety of communication disorders such as ADHD, LD, autism spectrum disorder (ASD), and SLI. Both their academic achievement and their linguistic skills are frequently lacking in these children. SLPs should therefore focus on training strategies such as rehearsal strategies that can enhance such children's WM capacities in order to boost their academic and linguistic performance. SLPs should consider the child's age and the language of rehearsal being used when implementing these rehearsal strategies with bilingual children.

The current investigation aimed to ascertain whether rehearsal language influenced the rehearsal strategy and whether there were any variations in WM capacities related to age and gender across the rehearsal conditions. The chosen participants were 60 bilingual students of age 8.0 -10.11 years (thirty boys and thirty girls) with native language as Malayalam and second language as English. The three rehearsal conditions that were examined were 'No Instruction', in Malayalam, and in English respectively. Backward digit (BD) span across all rehearsal conditions served as the testing stimulus. The outcomes were as follows: better WM scores are obtained when practising in a language with shorter word lengths. Additionally, as age progressed, WM capacities showed improvements, but no variations were observed within gender.

#### **Limitations of the Study**

- Limited sample size.
- The sample was exclusively collected from Kottayam district in Kerala.

#### **Future Directions**

- Sample size can be increased.
- The role of rehearsal language in WM can be done with respect to different dialects in Malayalam.
- Follow up studies based on age related changes in WM capacities can be done in TD of advanced age range (10 -15 years old) to obtain a baseline.
- To find out if the effect is the same across other languages in India, similar investigation can be done to obtain a normative value.
- Further studies can be done to comprehend how these cross-linguistic rehearsal techniques are used in conjunction with other, more challenging WM tasks like listening span, operation span, reading span etc.

---

#### **References**

- Alhola, P., & Polo-Kantola, P. (2007). Sleep deprivation: Impact on cognitive performance. *Neuropsychiatric disease and treatment*.  
<https://pubmed.ncbi.nlm.nih.gov/19300585>

- Alloway, T. P. (2010). Improving working memory: Supporting students' learning. London: Sage Publications Ltd.
- Alloway, T. P., & Copello, E. (2013). Working memory: The what, the why, and the how. *The Educational and Developmental Psychologist*, 30(2), 105-118. <https://doi.org/10.1017/edp.2013.13>
- Ames, K. J., & Whitfield, M. M. (2003). Strategy training and working memory task performance. *Journal of memory and language*, 49(4), 446-468. [https://doi.org/10.1016/S0749-596X\(03\)00095-0](https://doi.org/10.1016/S0749-596X(03)00095-0)
- Anufrieva, A., & Gorbunova, E. (2021). Cognitive Functions In The Digital Environment: Working Memory And Attention Under Real And Digital Conditions. *Higher School of Economics Research Paper No. WP BRP*, 129. <http://dx.doi.org/10.2139/ssrn.3974610>
- Baddeley, A. (2010). Working memory. *Current biology*, 20(4), R136-R140. <https://doi.org/10.1016/j.cub.2009.12.014>
- Baddeley, A., Eysenck, M. E., & Anderson, M. C. (2015). *Memory: Second Edition*. New York: Psychology Press. Pg: 92-93
- Bayliss, D. M., Jarrold, C., Baddeley, A. D., Gunn, D. M., & Leigh, E. (2005). Mapping the developmental constraints on working memory span performance. *Developmental psychology*, 41(4), 579. <https://doi.org/10.1037/0012-1649.41.4.579>
- Bialystok, E., Craik, F. I., Green, D. W., & Gollan, T. H. (2009). Bilingual Minds. *Psychological science in the public interest : a journal of the American Psychological Society*, 10(3), 89-129. <https://doi.org/10.1177/1529100610387084>
- Boudreau, D., & Costanza-Smith, A. (2011). Assessment and treatment of working memory deficits in school-age children: the role of the speech-language pathologist. *Language, speech, and hearing services in schools*, 42(2), 152-166. [https://doi.org/10.1044/0161-1461\(2010/09-0088\)](https://doi.org/10.1044/0161-1461(2010/09-0088))
- Butler, Y. G., & Hakuta, K. (2004). Bilingualism and second language acquisition. *The handbook of bilingualism*. Australia: Blackwell Publishing Ltd. Pg: 114.
- Chan, M. E., & Elliott, J. M. (2011). Cross-linguistic differences in digit memory span. *Australian Psychologist*, 46(1), 25-30. <https://doi.org/10.1111/j.1742-9544.2010.00007.x>
- Comblain, A. (1994). Working memory in Down's syndrome: Training the rehearsal strategy. *Down's Syndrome, Research and Practice*, 2(3), 123-126. <https://hdl.handle.net/2268/13380>
- Dehn, M. J. (2008). *Working memory and academic learning: Assessment and intervention*. New Jersey: John Wiley & Sons. Pg: 15-16, 37, 69-70
- Dunning, D. L., & Holmes, J. (2014). Does working memory training promote the use of strategies on untrained working memory tasks?. *Memory & cognition*, 42(6), 854-862. <https://doi.org/10.3758/s13421-014-0410-5>
- Ellis, N. (1992). Linguistic relativity revisited: The bilingual word-length effect in working memory during counting, remembering numbers, and mental calculation.

*Advances in psychology* Vol. 83, pp. 137-155.  
[https://doi.org/10.1016/S0166-4115\(08\)61492-2](https://doi.org/10.1016/S0166-4115(08)61492-2)

- Engle, R. W., Tuholski, S. W., Laughlin, J. E., & Conway, A. R. (1999). Working memory, short-term memory, and general fluid intelligence: a latent-variable approach. *Journal of experimental psychology: General*, 128(3), 309.  
<https://doi.org/10.1037/0096-3445.128.3.309>
- Farquharson, K., Hogan, T. P., & Bernthal, J. E. (2018). Working memory in school-age children with and without a persistent speech sound disorder. *International Journal of Speech-Language Pathology*, 20(4), 422-433. doi:  
[10.1080/17549507.2017.1293159](https://doi.org/10.1080/17549507.2017.1293159)
- Gathercole, S., & Alloway, P. T. (2008). Working Memory and Learning: A Practical Guide for Teachers (1st ed.). *SAGE Publications Ltd*.Pg:2
- Gathercole, S. E., Pickering, S. J., Ambridge, B., & Wearing, H. (2004). The structure of working memory from 4 to 15 years of age. *Developmental psychology*, 40(2), 177-190. DOI: [10.1037/0012-1649.40.2.177](https://doi.org/10.1037/0012-1649.40.2.177)
- Gupta, P., & Sharma, V. (2017). Working memory and learning disabilities: A review. *International Journal of Indian Psychology*, 4(4), 111-121. DOI:  
[10.25215/0404.013](https://doi.org/10.25215/0404.013)
- Henry, L. (2011). The Development of Working Memory in Children (Discoveries & Explanations in Child Development) (1st ed.) [E-book]. SAGE Publications Ltd.Pg:3-16,31,9.
- Iyer, K. G., & Venkatesan, S. (2021). Working Memory in Bilingual Versus Trilingual Children from Urban High Socioeconomic Indian Families. *Language in India* Volume 21: 8 August 2021 ISSN 1930-2940, 85.  
[iyerworkingmemorybilingualurbanindianchildrenfinal.pdf \(languageinindia.com\)](https://www.researchgate.net/profile/Anoop-B-J/publication/349683281_Role_of_Rehearsal_Language_in_Working_Memory/links/603c7327a6fdcc37a85d64b3/Role-of-Rehearsal-Language-in-Working-Memory.pdf)
- Jagadeesh, A. B., & Uppunda, A. K. (2020). Role of Rehearsal Language in Working Memory. *Journal of the All India Institute of Speech & Hearing*, 39(1).  
[https://www.researchgate.net/profile/Anoop-B-J/publication/349683281\\_Role\\_of\\_Rehearsal\\_Language\\_in\\_Working\\_Memory/links/603c7327a6fdcc37a85d64b3/Role-of-Rehearsal-Language-in-Working-Memory.pdf](https://www.researchgate.net/profile/Anoop-B-J/publication/349683281_Role_of_Rehearsal_Language_in_Working_Memory/links/603c7327a6fdcc37a85d64b3/Role-of-Rehearsal-Language-in-Working-Memory.pdf)
- Javanbakht, M., Moosavi, M. B., & Vahedi, M. (2021). The importance of working memory capacity for improving speech in noise comprehension in children with hearing aid. *International Journal of Pediatric Otorhinolaryngology*, 147, 110774.  
<https://doi.org/10.1016/j.ijporl.2021.110774>
- Kaushanskaya, M., Gross, M., & Buac, M. (2014). Effects of classroom bilingualism on task-shifting, verbal memory, and word learning in children. *Developmental science*, 17(4), 564-583. <https://doi.org/10.1111/desc.12142>
- Manoochehri, M. (2020). Sex differences in verbal forward digit span: A brief communication. *Cognition, Brain, Behavior: An Interdisciplinary Journal*, 24(4), 365-377.
- Montgomery, J. W., Magimairaj, B. M., & Finney, M. C. (2010). Working memory and specific language impairment: An update on the relation and perspectives on

- assessment and treatment, *American Journal of Speech-Language Pathology*, 19(1), 78-94. [https://doi.org/10.1044/1058-0360\(2009/09-0028\)](https://doi.org/10.1044/1058-0360(2009/09-0028))
- Molen, M. J., Van Luit, J. E., Jongmans, M. J., & Van der Molen, M. W. (2007). Verbal working memory in children with mild intellectual disabilities. *Journal of Intellectual Disability Research*, 51(2), 162-169. <https://doi.org/10.1111/j.1365-2788.2006.00863.x>
- Morales, J., Calvo, A., & Bialystok, E. (2013). Working memory development in monolingual and bilingual children. *Journal of experimental child psychology*, 114(2), 187-202. <https://doi.org/10.1016/j.jecp.2012.09.002>
- Nicolson, R. (1981). The relationship between memory span and processing speed. In *Intelligence and learning* (pp. 179-183). Springer, Boston, MA. [https://doi.org/10.1007/978-1-4684-1083-9\\_16](https://doi.org/10.1007/978-1-4684-1083-9_16)
- Prathap, V., & Singh, S. (2021). Impact of Digital Addiction and Cognitive Offloading on Prospective Memory of Young Adults. *Indian Journal of Health & Wellbeing*, 12(4), 439-445.
- Radvansky, G. A. (2017). *Human Memory* (3rd ed.). New York: Routledge. Pg:3
- Raju, S., & Nataraja, N. P. (2016). Assessment of working memory in bilingual children. *Indian Journal of Positive Psychology*, 7(2), 159. [http://www.iahrw.com/index.php/home/journal\\_detail/19#list](http://www.iahrw.com/index.php/home/journal_detail/19#list)
- Reed, J. L., Gallagher, N. M., Sullivan, M., Callicott, J. H., & Green, A. E. (2017). Sex differences in verbal working memory performance emerge at very high loads of common neuroimaging tasks. *Brain and Cognition*, 113, 56-64. <https://doi.org/10.1016/j.bandc.2017.01.001>
- Robinson, B. F., Mervis, C. B., & Robinson, B. W. (2003). The roles of verbal short-term memory and working memory in the acquisition of grammar by children with Williams syndrome. *Developmental Neuropsychology*, 23(1-2), 13-31. <https://doi.org/10.1080/87565641.2003.9651885>
- Squire, L. R. (2009). Memory and brain systems: 1969–2009. *Journal of Neuroscience*, 29(41), 12711-12716. doi: 10.1523/jneurosci.3575-09.2009
- Varma, A.K. & Varma, M. (1989). *Psychology: Introduction to basic psychological processes*. Allahabad: Vohra Publishers & Distributors, India. Pg:143.
- Wells, E. L., Kofler, M. J., Soto, E. F., Schaefer, H. S., & Sarver, D. E. (2018). Assessing working memory in children with ADHD: Minor administration and scoring changes may improve digit span backward's construct validity. *Research in Developmental Disabilities*, 72, 166-178. <https://doi.org/10.1016/j.ridd.2017.10.024>
- Wilson, M., Bettger, J. G., Niculae, I., & Klima, E. S. (1997). Modality of language shapes working memory: Evidence from digit span and spatial span in ASL signers. *Journal of Deaf Studies and Deaf Education*, 150-160. <https://www.jstor.org/stable/23802925>
- Withagen, A., Kappers, A. M., Vervloed, M. P., Knoors, H., & Verhoeven, L. (2013). Short term memory and working memory in blind versus sighted children.

*Research in developmental disabilities*, 34(7), 2161-2172.

<https://doi.org/10.1016/j.ridd.2013.03.028>

Zilles, D., Lewandowski, M., Vieker, H., Henseler, I., Diekhof, E., Melcher, T., Keil M & Gruber, O. (2016). Gender differences in verbal and visuospatial working memory performance and networks. *Neuropsychobiology*, 73(1), 52-63.

<https://doi.org/10.1159/000443174>

---

---

## Comparison of Visual Word Recognition in Adult and Geriatric Population

Nisthul Bensi, Dr. Satish Kumaraswamy and Mr. Mishal K  
Dr. MV Shetty college of Speech and Hearing  
Mangaluru, Karnataka 575013

### Introduction

*Speech perception* refers to the set of operations that transform an auditory signal into representations of a form that makes contact with internally stored information – that is, the stored words in a listener's mental lexicon. (Brain Mapping, 2015)

*Word recognition* refers to a component process of language. Word recognition transforms written and spoken forms of words into linguistic representations. Historically, word recognition also referred to lexical decision performance. (Moreno, 2001)

Word recognition is the process of recognizing a word's pronunciation when it is presented to the eye and does so automatically and without conscious effort. It is difficult to focus on understanding material when reading requires purposeful, laborious decoding. The ability to read words with meaning is an important early goal because reading comprehension is the ultimate goal of training children to read. Visual word recognition plays a big role in reading. Although it seems that readers have minimal issue identifying words that are visually presented, the procedures by which orthography is translated into phonology and semantics are far from straightforward.

When a stimulus's features match the orthography (or spelling) of an entry in the mental lexicon, recognition of the word takes place. In visual word recognition, the entire word may be viewed at once (if it is short enough).

It is well acknowledged that spoken and written word recognition uses semantic and syntactic representations. But whether spoken and written words have different lexical representations has been hotly contested. Some academics contend that a word must first be transformed into a sound representation in order to gain semantic and grammatical information about it. If so, all that is needed for each word is a phonological representation (e.g., one that shows the sequence of component phonemes and the stress pattern).

However, extensive neuropsychological data shows that words have independent phonological and orthographic representations, and that access to word meaning for written words can occur without phonological conversion. According to recent neuroimaging data, certain brain areas are selectively active in grapheme-to-phoneme conversion during visual

word recognition, whereas others are selectively activated in direct lexical access without such conversion. Nonetheless, the phonological representation of a written word appears to be computed automatically (via an implicit "sounding out" or "letter–sound" translation process) for healthy persons.

Word recognition refers to the presumed mental storage, retrieval, and use of a person's sight words. Without word recognition, every word would have to be decoded through phonics every time it was read.

In visual word recognition, a whole word may be viewed at once (provided that it is short enough), and recognition is achieved when the characteristics of the stimulus match the orthography (i.e., spelling) of an entry in the mental lexicon. Speech perception, in contrast, is a process that unfolds over time as the listener perceives subsequent portions of the word. Upon hearing the first syllable of a spoken word such as the “un” in “understand,” several words may be consistent with the input (e.g., “under,” “until,” and “untie”). As subsequent portions are perceived the pool (or “cohort”) of words will be narrowed down, until only one word remains. In visual word recognition, a letter level intervenes between visual processing and lexical access. In auditory word perception, it is often assumed that a phoneme level intervenes between the acoustic input and lexical access. Phonemes are assumed to be the basic sound units of speech perception and production).

Yap (2015) discusses the cognitive processes that skilled readers use in order to recognize and pronounce individual words and description of methods and a selective review of empirical literature, with an emphasis on how the recognition of an isolated word is modulated.

Ransom (2021) investigated on face mask and speaking style affect audio-visual word recognition and memory of native and non-native speech and found out that they have implications for communication in classrooms and hospitals where listeners interact with teachers and health care provides, often times non-native speakers, through their protective barriers.

Hershman (2022) determined a pupillometric study of developmental and individual differences in cognitive effort in visual word recognition and found out that they have the potential to open up new avenues of research in the study of skill growth in word recognition and many other domains of skill learning.

Words are the building block of language and are the interface between written and spoken language. Recognition of printed word is both essential to the important skill of reading and among the earliest routes for the experimenter to access higher cognition. In this light, it is little surprise that the identification and pronunciation of written words are among the earliest studied (Cattell, 1886) and most studied aspects of cognition.



Visual word recognition is studied both in its own right, in terms of the processes of recognizing a word and the performance of word-based tasks, but also more broadly in context as a link to semantics and concepts, cognitive individual differences, reading prose and learning to read.

### **Review of Literature**

Speech perception' thus refers to the set of operations that transform an auditory signal into representations of a form that makes contact with internally stored information – that is, the stored words in a listener's mental lexicon. (Mapping 2015)

As seen in newborns' capacities to perceive speech, speech perception—the process by which we use cognitive, motor, and sensory processes to hear and interpret speech—is a consequence of innate preparedness ("nature") and sensitivity to experience ("nurture"). Studies on young children from birth have revealed that they react differently to voice cues, pointing to a significant intrinsic component to language. By demonstrating that the language a baby hears during the first year of life causes the newborn to start creating a different set of sounds (babbling) particular to the language spoken by its parents, further research has demonstrated the significant influence of environment on language acquisition.

The speed of access to lexical representations in both young and older individuals has been the subject of numerous studies in the field of visual word recognition. Word objective frequency, which provides a statistical estimate of the frequency of a printed word in a sample of texts (Howes & Solomon, 1951), is crucial among the lexical variables used to assess the orthographic level (e.g., Monsell, 1991, Whaley, 1978). Although this effect varies with ageing, high-frequency words are identified quicker and more precisely than less common terms (e.g., Balota, 2004, Robert, 2009). The subjective estimation of a printed word's frequency can also be done using behavioral metrics gleaned from evaluations of performances. As a result, it is feasible to estimate.

### **Western Studies**

Armstrong, Perera & Frost (2013) done a study on what, when, where and how of visual word recognition, a long-standing debate in reading research is whether printed words are perceived in a feed forward manner on the basis of orthographic information, with other representations such as semantics and phonology activated subsequently, or whether the system is fully interactive and feedback from these representations shapes early visual word recognition. Then conclude that, consistent with interactive accounts, higher-order linguistic representations modulate early orthographic processing.

Ferraro, Kitzan & Petros (2010) has done a study on the role of vocabulary ability during visual word recognition in younger and older adult and they concluded that the differences in reaction times for words and pseudo-words were greater in the older adults. The importance of vocabulary ability during word recognition and lexical processing is discussed.

Clark, Guediche & Lallier(2020) done a study on compensatory cross-modal effects of sentence context of visual word recognition in adults and the results show a significant cross-modal interaction between the congruency of the auditory sentence context and visual crowding, suggesting that interactions can occur across multiple levels of processing and across different modalities to support reading processes. These findings highlight the need for reading models to specify in greater detail how top–down, cross-modal and interactive mechanisms may allow readers to compensate for deficiencies at early stages of visual processing.

Perea, Sigut & Martínez (2022) involved in the impact of visual cues during visual word recognition in deaf readers and they conclude that the finding supports the idea that, when it comes to visual word recognition, deaf readers rely more heavily than ordinary hearing readers on visual cues. Overall, the findings point to various mechanisms that underlie successful word identification in both hearing and deaf readers.

Sung (2022) investigated the age-related differences in word recognition tasks according to visual interference and noun imagery and they concluded that Elderly adults demonstrated delayed processing when compared with younger adults, whereas age-group differences did not emerge as a function of the interference types.

Simon, Sharafudeen & David (2022) investigated on visual words based static Indian sign Language Alphabet Recognition using KAZE descriptor and they concluded that demonstrate the proposed method obtained an accuracy of 99.23% with KAZE descriptor and MLP classifier.

Rossion & Lochy (2021) did a study on human face recognition lateralized to the right hemisphere due to neural competition with left-lateralized visual word recognition and concluded that the evidence of face recognition performance and its right hemispheric lateralization being modulated by literacy level during development or at adulthood is lacking. Vidal, Viviani & Crepaldi (2021) investigated a general-purpose mechanism of visual feature association in visual word identification and concluded that the results presented in this work suggests that a fundamental processing mechanism behind the processing of visual words also supports the recognition of the other visual objects.

### **Indian Studies**

Mishra, Shekar & Chakraborty (2019) investigated on OCR-VQA: visual question answering by reading text in images and concluded that the various challenges present in this dataset leaving ample scope for the future research. We are optimistic that this new task along with compiled dataset will open-up many exciting research avenues both for the document image analysis and the VQA communities.

Both sense and non-sense words have a greater duration before rehearsal, according to Varghese & Kumaraswamy's (2019) comparison of the duration of sense and non-sense words before and after rehearsal.

Singh, Wang & Shah (2022) the influence of Romanizing a non-alphabetic L1 on L2 reading: the case of Hindi-English visual word recognition and they concluded the findings provide evidence that adopting an additional L1 script might reconfigure the architecture of the bilingual lexicon. Our results support the view that script differences play a critical role in language processing.

Icht, Swead & Mama (2022) investigated on production improves visual and auditory text memory in younger and older adults and they concluded that the more test items were filled in correctly when the relevant information appeared in the produced than in non-produced sentences, showing the learners' ability to use distinctiveness information. The production effects were larger for older than younger adults, in both modalities.

Chaurasiya (2021) investigated on speech intelligibility enhancement in elderly with high-frequency hearing loss through visual speech perception and they concluded that the elderly-individuals of this experiment, whose mother tongue and official language is Hindi and English, respectively, they demonstrate the SIE with HFHL through VSP. This investigation also helps to improve the hearing sensitivity to some extent with VSP.

Babel (2022) did a study on adaptation to social-linguistic associations in audio-visual speech and then concluded that the congruent accent-ethnicity associations facilitate adaptation, and that the mainstream local accent is associated with a more diverse speech community.

### **Need of the Study**

The literature summary above suggests that durational aspects of voice perception are crucial. There have been studies on the durational properties of sense and non-sense words among stutterers, but there is a dearth of useful information in the general population and across genders. The current study examines the durational traits of sense and non-sense words in adults and the geriatric population as a consequence.

### **Method**

#### **Aim**

The aim of the study is to compare the durational aspects in visual word recognition in adults and geriatric population.

- a) To examine the durational characteristics of visual word recognition in adults.
- b) To examine the durational characteristics of visual word recognition in geriatric population.
- c) To compare the durational characteristics of visual word recognition in adults and geriatric population.

### **Participant With Inclusive Criteria**

Adults in the age group of 19-30 years and geriatric population from 65-73 years. Each participant was a native of Kerala and was proficient in both reading and writing Malayalam.

### **Participants With Exclusive Criteria**

Adults and geriatric population who weren't fluent in speaking, reading and writing Malayalam language and also adults / geriatric population with speech, hearing, neurological and psychological problems.

### **Test Materials/Stimulus**

Based on frequent usage, 15 pairs of sense and non-sense words totaling 30 terms were evenly separated into sense and non-sense words in increasing order of syllable combinations. The word list developed was validated by 5 SLP's who were in the field for more than 5 years with Malayalam as native language.

### **Procedure**

The person received the finalized wordlists through computer presentation. The information was collected from each person in a quiet, noise-free room with a computer display placed one foot away from them. The PowerPoint presentation with the white background and black text. Each word recognition using PRAAT software was carefully recorded. 15 sense word and 15 nonsense words were presented to each individual and was instructed to read the words quickly and accurately paying attention.

There was a 1minute pause after the words were read before the presentation of the words (sense and nonsense words) was repeated. For the study, a target response was regarded to be the speaker's initial vocal utterance.

A microphone that was connected to a computer was used to record each person's responses. From the start of the word utterance to its conclusion, individual responses were recorded. The acquired values underwent statistical analysis; the outcomes are described in the following section.

### **Response**

Verbal responses were chosen as the study's response mode. The initial statement made by the speaker establishes the desired response. Therefore, each respondent's response was evaluated from the start to the end of their speech.

### **Statistical Analysis**

The collected data was subjected to a statistical analysis. The average number of words per minute was determined. The mean, standard deviation, confidence interval, and unpaired key test were used to examine the collected data.

## Results

The aim of the study is to compare the durational aspects in visual word recognition in adults and geriatric population.

- a) To examine the durational characteristics of visual word recognition in adults.
- b) To examine the durational characteristics of visual word recognition in geriatric population.
- c) To compare the durational characteristics of visual word recognition in adults and geriatric population.

The results were examined in order to assess the study's goals.

### a) To examine the durational characteristics of visual word recognition in adults:

**Table 1:**

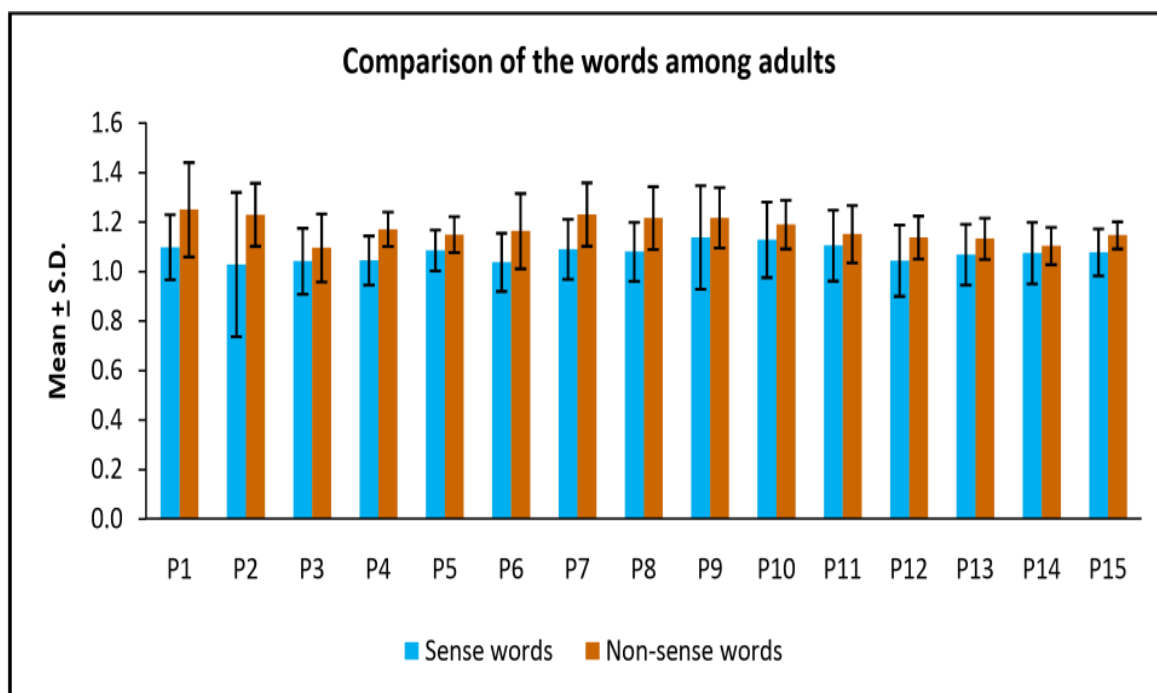
Illustrates the average and range of words per minute for sense and non-sense words in adults.

	Among adults				"t"	p value
	Sense words		Non-sense words			
	Mean	S.D.	Mean	S.D.		
P1	1.099	0.131	1.250	0.191	-2.539	0.017*
P2	1.029	0.291	1.230	0.127	-2.448	0.021*
P3	1.042	0.133	1.096	0.138	-1.087	0.286
P4	1.045	0.099	1.171	0.070	-4.021	< 0.001*
P5	1.086	0.083	1.150	0.073	-2.253	0.032*
P6	1.038	0.117	1.164	0.152	-2.537	0.017*
P7	1.090	0.122	1.231	0.128	-3.081	0.005*
P8	1.080	0.119	1.216	0.127	-3.026	0.005*
P9	1.138	0.209	1.217	0.122	-1.264	0.217
P10	1.129	0.153	1.190	0.098	-1.314	0.199
P11	1.105	0.143	1.152	0.116	-0.977	0.337
P12	1.044	0.144	1.138	0.087	-2.162	0.039*
P13	1.069	0.123	1.133	0.083	-1.681	0.104
P14	1.075	0.124	1.104	0.075	-0.769	0.448
P15	1.078	0.095	1.147	0.055	-2.418	0.022*

(\* Significant)

### Fig 1:

Illustrates the mean value of words per minute for sense and non-sense words in adults.



**b) To examine the durational characteristics visual word recognition in geriatric population**

**Table 2:**

Illustrates the average and range of words per minute for sense and non-sense words in geriatric population

	Among geriatrics				"t"	p value
	Sense words		Non-sense words			
	Mean	S.D.	Mean	S.D.		
P1	1.204	0.337	1.267	0.277	-0.560	0.580
P2	1.237	0.241	1.191	0.221	0.549	0.587
P3	1.143	0.196	1.210	0.255	-0.808	0.426
P4	0.964	0.239	1.183	0.185	-2.806	0.009*
P5	1.139	0.249	1.179	0.180	-0.510	0.614
P6	1.215	0.311	1.271	0.192	-0.595	0.557
P7	1.200	0.289	1.236	0.161	-0.429	0.671
P8	1.264	0.309	1.220	0.194	0.462	0.648
P9	1.166	0.237	1.241	0.133	-1.071	0.293
P10	1.270	0.254	1.261	0.193	0.105	0.917
P11	1.189	0.265	1.232	0.126	-0.556	0.583
P12	1.210	0.304	1.172	0.137	0.441	0.663
P13	1.497	0.345	1.294	0.322	1.663	0.107
P14	1.468	0.283	1.332	0.299	1.282	0.210

P15	1.726	0.233	1.801	0.109	-1.126	0.270
-----	-------	-------	-------	-------	--------	-------

(\*Significant)

**Figure 2:**

Illustrates the mean value of words per minute for sense and non-sense words in geriatric population.

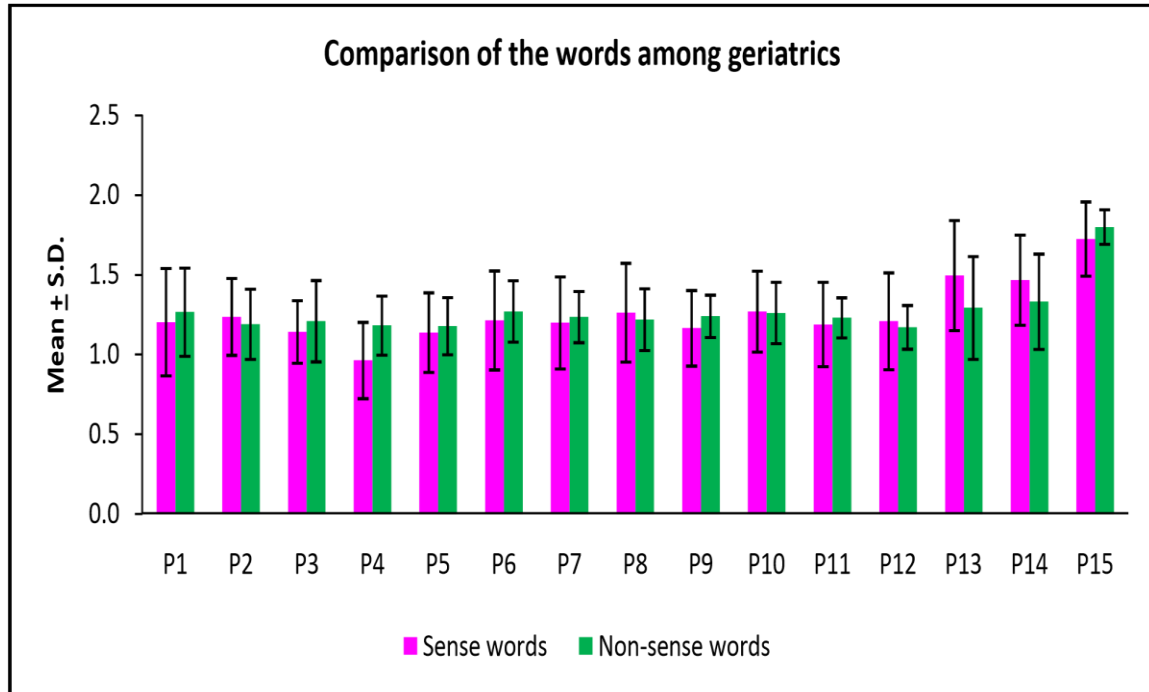


Table 2 and Figure 2 show that non-sense words were observed to have longer duration in geriatrics than sense words. A statistical comparison of the sense and non-sense words of geriatrics reveals a considerable difference.

**c) Shows the comparison of the durational aspects of visual word recognition in adults and geriatric population**

**Table 3:**

Illustrates the average and range of words per minute for sense words in adults and geriatric population

	Sense words				"t"	p value
	Adults		Geriatrics			
	Mean	S.D.	Mean	S.D.		
P1	1.099	0.131	1.204	0.337	-1.130	0.268
P2	1.029	0.291	1.237	0.241	-2.134	0.042*
P3	1.042	0.133	1.143	0.196	-1.646	0.111
P4	1.045	0.099	0.964	0.239	1.214	0.235
P5	1.086	0.083	1.139	0.249	-0.783	0.440
P6	1.038	0.117	1.215	0.311	-2.065	0.048*

P7	1.090	0.122	1.200	0.289	-1.352	0.187
P8	1.080	0.119	1.264	0.309	-2.145	0.041*
P9	1.138	0.209	1.166	0.237	-0.336	0.739
P10	1.129	0.153	1.270	0.254	-1.849	0.075
P11	1.105	0.143	1.189	0.265	-1.084	0.288
P12	1.044	0.144	1.210	0.304	-1.907	0.067
P13	1.069	0.123	1.497	0.345	-4.526	< 0.001*
P14	1.075	0.124	1.468	0.283	-4.934	< 0.001*
P15	1.078	0.095	1.726	0.233	-9.977	< 0.001*

(\* Significant)

**Figure 3:**

Illustrates the mean value of words per minute for sense words in adults and geriatric population

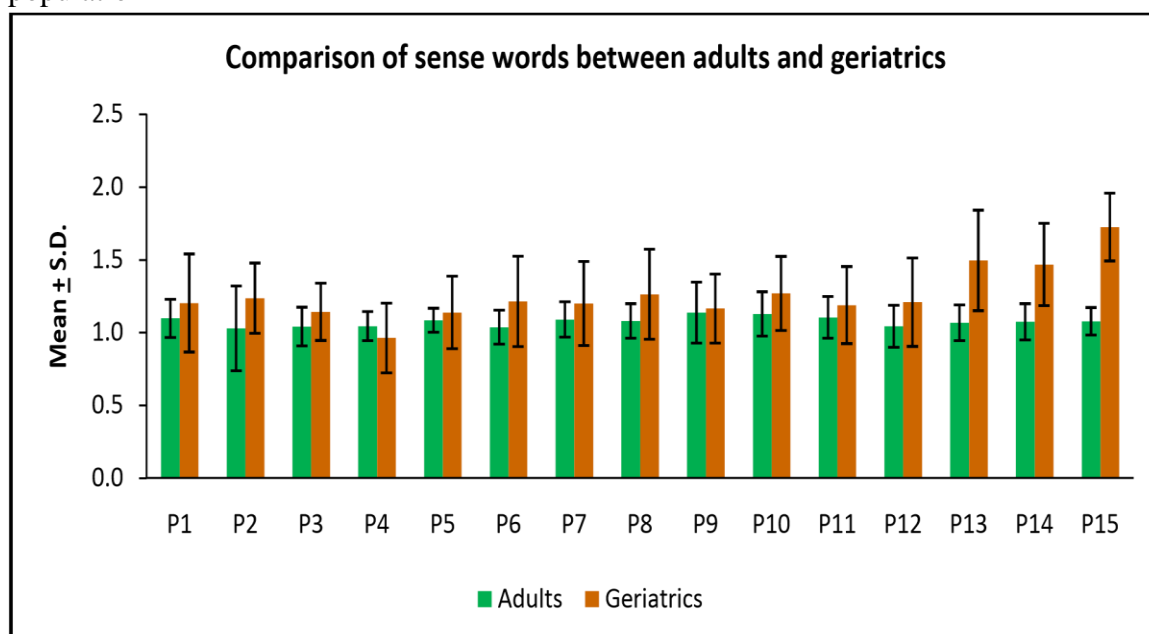


Table 3 and Figure 3 show that sense words were observed to have longer duration in geriatrics than adults. A statistical comparison of the sense words in adults and geriatrics reveals a considerable difference.

**Table 4:**

Illustrates the average and range of words per minute for non-sense words in adults and geriatric population

	Non - sense words				"t"	p value
	Adults		Geriatrics			
	Mean	S.D.	Mean	S.D.		
P1	1.250	0.191	1.267	0.277	-0.192	0.849



P2	1.230	0.127	1.191	0.221	0.591	0.559
P3	1.096	0.138	1.210	0.255	-1.528	0.138
P4	1.171	0.070	1.183	0.185	-0.237	0.814
P5	1.150	0.073	1.179	0.180	-0.592	0.559
P6	1.164	0.152	1.271	0.192	-1.697	0.101
P7	1.231	0.128	1.236	0.161	-0.106	0.917
P8	1.216	0.127	1.220	0.194	-0.068	0.946
P9	1.217	0.122	1.241	0.133	-0.507	0.616
P10	1.190	0.098	1.261	0.193	-1.274	0.213
P11	1.152	0.116	1.232	0.126	-1.810	0.081
P12	1.138	0.087	1.172	0.137	-0.805	0.427
P13	1.133	0.083	1.294	0.322	-1.872	0.072
P14	1.104	0.075	1.332	0.299	-2.865	0.008*
P15	1.147	0.055	1.801	0.109	-20.818	< 0.001*

(\* Significant)

**Figure 4:**

Illustrates the mean value of words per minute for non-sense words in adults and geriatric population

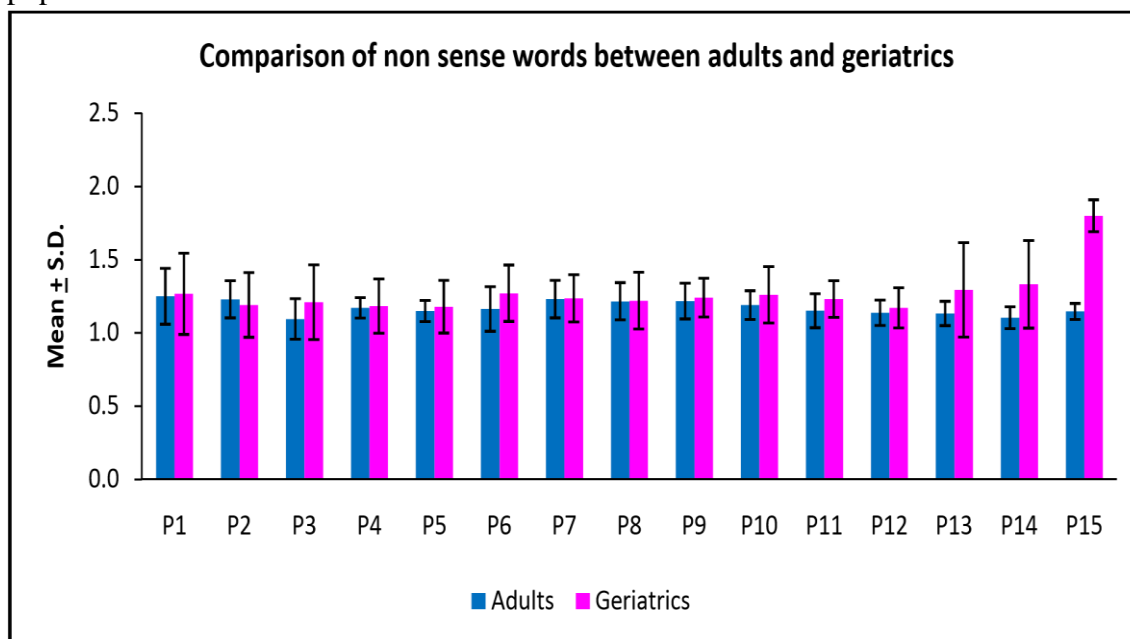


Table 4 and Figure 4 show that non-sense words were observed to have longer duration in geriatric than adults. A statistical comparison of the non-sense words in adults and geriatrics reveals a considerable difference.

## Discussion

Geriatric population have longer word duration than adults, according to analysis of the durational features of sense and non-sense words in adults and geriatric populations.

Both sense and non-sense words have a greater duration before rehearsal, according to Varghese & Kumaraswamy's (2019) comparison of the duration of sense and non-sense words before and after rehearsal.

Icht, Swead, & Mama's (2022) study on the topic of how producing sentences helps younger and older adults' visual and auditory text memory came to the conclusion that more test items were correctly filled out when the information appeared in the produced sentences rather than in non-produced sentences, illustrating the learners' capacity to use distinctiveness information. In both modalities, older persons had larger production effects than younger adults.

### **The overall findings were:**

The comparison between the word duration in adults and geriatric population have significant results.

It also gives us the difference between the sense and non-sense words in both adults and geriatrics and also the durational aspects in the sense and non-sense words.

### **Summary and Conclusion**

The literature summary above suggests that durational aspects of speech perception are crucial. The current study contrasts the durational properties of sense and non-sense words during visual presentation in adults and geriatric participants.

Adults aged 19 to 30 and the geriatric population, aged 65 to 73, were further separated into 15 adults and 15 geriatrics. Each participant was a resident of Kerala and was proficient in Malayalam reading and writing.

Each person received 15 sense words and 15 non-sense words, with instructions to read the words quickly, accurately, and carefully. Each person received a computer presentation of the final wordlists. Each person's data was collected in a silent, well-lit, noise-free room with a computer display placed one foot away from them. Black text was typed on a white background in the PowerPoint presentation. Each word recognition was carefully recorded using the PRAAT program.

The responses were collected using a computer-connected microphone. From the beginning through the end of each person's word utterance, reaction latencies were measured. Responses and their length were recorded using the PRAAT program.

### **Limitation of the Study**

- The sample size was hardly limited.

## Future Suggestions

- The number of participants can be further included
- The further studies can be included with different other age groups.



---

---

## References

- An, H. J., & Sung, J. E. (2022). Age-related Differences in Word Recognition Tasks according to Visual Interference and Noun Imagery. *Communication Sciences & Disorders*, 27(2), 313-329.
- Babel, M. (2022). Adaptation to Social-Linguistic Associations in Audio-Visual Speech. *Brain Sciences journal*, 12(7), 845.
- Balota (2004) & Robert (2009). Volume 60, Issue 3, July 2010, Pages 163-172. *European Review of Applied Psychology*.
- Brain Mapping, D. Poeppel, Speech Perception, Academic Press, 2015 *Neuroscience and Biobehavioral Psychology*, Pages 429-434,
- Cattell, J. M. (1886). The time taken up by cerebral operations. *Mind*, 11, 377 – 92 . Retrieved from <http://psychclassics.yorku.ca>
- Carreiras, M., Armstrong, B. C., Perea, M., & Frost, R. (2014). The what, when, where, and how of visual word recognition. *Trends in cognitive sciences*, 18(2), 90-98.
- Chaurasiya, H. (2021). Speech intelligibility enhancement in elderly with high-frequency hearing loss through visual speech perception. *Indian Journal of Otology*, 27(1), 30.
- Clark, C., Guediche, S., & Lallier, M. (2021) . Compensatory cross-modal effects of sentence context on visual word recognition in adults. *Reading and Writing, An Interdisciplinary Journal* 34(8), 2011-2029.
- Gutierrez-Sigut, E., Vergara-Martinez, M., & Perea, M. (2022). The impact of visual cues during visual word recognition in deaf readers: An ERP study. *International Journal of Cognition*, 218, 104938.
- Howes & Solomon, (1951), Monsell (1991) & Whaley (1978). Volume 60, Issue 3, July 2010, Pages 163-172. *European Review of Applied Psychology*.
- Icht, M., Taitelbaum-Swead, R., & Mama, Y. (2022). Production improves visual and auditory text memory in younger and older adults. *Gerontology, International Journal of Experimental, Clinical, Behavioral and Technological Gerontology* 68(5), 578-586.
- Kitzan, L. J., Ferraro, F. R., Petros, T. V. & Ludorf, M. (1999). The role of vocabulary ability during visual word recognition in younger and older adults. *The Journal of general psychology*, 126(1), 6-16.
- M.A. Moreno, G.C. van Orden, in *International Encyclopedia of the Social & Behavioral Sciences*, 2001
- Mishra, A., Shekhar, S., Singh, A. K., & Chakraborty, A. (2019, September). Ocr-vqa: Visual question answering by reading text in images. In 2019 *International conference on document analysis and recognition (ICDAR)* (pp. 947-952). IEEE.

- Rossion, B., & Lochy, A. (2021). Is human face recognition lateralized to the right hemisphere due to neural competition with left-lateralized visual word recognition? A critical review. *Brain Structure and Function*, 1-31.
- Smiljanic, R., Keerstock, S., Meemann, K., & Ransom, S. M. (2021). Face masks and speaking style affect audio-visual word recognition and memory of native and non-native speech. *The Journal of the Acoustical Society of America*, 149(6), 4013-4023.
- Singh, A., Wang, M., & Faroqi-Shah, Y. (2022) . The influence of romanizing a non-alphabetic L1 on L2 reading: the case of Hindi-English visual word recognition. *Reading and Writing, An Interdisciplinary journal*35(6), 1475-1496.
- Sharafudeen, M., David, S., & Simon, P. (2022). Visual Words based Static Indian Sign Language Alphabet Recognition using KAZE Descriptors. *In Evolution in Signal Processing and Telecommunication Networks* (pp. 93-101). Springer, Singapore.
- Shechter, A., Hershman, R., & Share, D. L. (2022). A pupillometric study of developmental and individual differences in cognitive effort in visual word recognition. *Scientific reports*, 12(1), 1-7.
- Varghese & Kumaraswamy (2019). ISSN 1930-2940 Vol. 19:5 May 2019. *Language in India*.
- Vidal, Y., Viviani, E., Zoccolan, D., & Crepaldi, D. (2021). A general-purpose mechanism of visual feature association in visual word identification and beyond. *Journal of Current Biology*, 31(6), 1261-1267.
- Yap, M. J., & Balota, D. A. (2015). Visual word recognition. *American psychological association*, (26-1).

	<p>Mr. Nisthul M Bensi, Postgraduate Student Dr. MV Shetty college of Speech and Hearing Mangaluru, Karnataka 575013 <a href="mailto:nisthulbensi1998@gmail.com">nisthulbensi1998@gmail.com</a></p>
	<p>Dr. Satish Kumaraswamy Professor and Principal Dr. MV Shetty college of Speech and Hearing Mangaluru, Karnataka 575013 <a href="mailto:sat8378@yahoo.com">sat8378@yahoo.com</a></p>



Mr. Mishal K  
Associate Professor  
Dr. MV Shetty college of Speech and  
Hearing  
[mishalknr@gmail.com](mailto:mishalknr@gmail.com)

## Development of Student Engagement in Higher Education

Ali Mohammad Hekmat, Shafiullah Roghmal, Muhammad Naeem Yaqubi & Muhammad Mustafa Kamal

The English Language Department  
Kabul University of Medical Sciences Abu Ali Ibn Sina, Afghanistan  
[alihekmat125@gmail.com](mailto:alihekmat125@gmail.com)

---

---

### Abstract

**Background:** Student engagement is a learning activity. It is performed in a classroom during a particular time. This time is arranged to learn a specific subject based on a detailed curriculum. Therefore, the development of student engagement in higher education is a must because it is an important context where both student and instructor come into contact to share information in their quest for knowledge.

**Objective:** This study attempted to find the development of student engagement in higher education; due to reshaping students back into the fold of learning. To analyze the students' learning needs, the present study strived to explore how the students are engaged in the learning process. The study attempted to arrange how the student engagement is done in English as foreign language classrooms.

**Methods and materials:** We conducted the qualitative approach to design this scientific article. This study pursued descriptive results and led to descriptive results. A systematic review of relevant articles was used before and throughout the study.

**Result:** This research has provided a particular outcome that presented the development of the student in higher education. The student should take part in all areas of engagement for successful learning.

**Conclusion:** Student engagement is a broad and complex phenomenon that deals with various areas such as a psychological, social, and cultural perspective. Consequently, it is stated that student engagement developed more effectively when both teachers and students participate in the process of learning actively and enthusiastically.

**Keywords:** Participation, Evaluation, Student Engagement, Student reflection, Social, Learning Process

---

---

## Introduction

In higher education, student engagement belongs to the degree of attention, curiosity, interest, optimism, and passion that students are involved in while they are learning and being trained, which causes the level of motivation they have to learn and develop in their education. Generally discussed, the concept of “student engagement” is established on the belief that learning improves when students are inquisitive, interested, or inspired, and that learning tends to suffer when students are bored, dispassionate, disaffected, or otherwise “disengaged.” Stronger student engagement or improved student engagement are common instructional objectives expressed by educators.

In most context student engagement may also refer to the ways in which university leaders, educators, and other adults might “engage” students more fully in the governance and decision-making processes in universities, in the design of programs and learning opportunities, or in the civic life of their community. The concept of student engagement typically arises when educators discuss or prioritize educational strategies and teaching techniques that address the developmental, intellectual, emotional, behavioral, physical, and social factors that either enhance or undermine learning for students.

Student engagement in the English as foreign language classroom may be defined differently from place to place. For example, in one university observable behaviors such as attending class, listening attentively, participating in discussions, turning in work on time, and following rules and directions may be perceived as forms of “engagement,” while in another university the concept of “engagement” may be largely understood in terms of internal states such as enthusiasm, curiosity, optimism, motivation, or interest.

Specifically, the article will focus the area of student engagement seems to have grown in a number of ways – the greatest of which is the change from focusing upon disengaged students (who are not learning) to engaged learners (who are learning).

Student engagement has tested indicators such as student and family socio-economic condition, academic groundwork, major (subjects), type of institution, parameters of students’ perceptions concerning the quality of institutional environments and perceived learning gains in college. All these components were found to be positively related to the degree to which students devote their efforts toward educationally purposeful activities (Koljatic & Kuh, 2001). However, engagement is more than simply finding ways to enhance students’ participation in college life. Engagement is not just about an activity or doing, it is the processes of internalizing what the activity means and how it matters to the students.

---

**Language in India** [www.languageinindia.com](http://www.languageinindia.com) ISSN 1930-2940 22:10 October 2022

Ali Mohammad Hekmat, Shafiullah Roghmal, Muhammad Naeem Yaqubi &  
Mohammad Mustafa Kamal

Development of Student Engagement in Higher Education

148

Engagement and motivation play an enormous role in students' enthusiasm and enjoyment of school (Martin, 2006). Consecutively, both also play large roles in academic achievement. Subsequently, those students who are motivated and engaged in learning tend to perform considerably higher academically and are better behaved than their unmotivated and unengaged peers (Fredricks, Blumenfeld, & Paris, 2004).

### **Objectives**

- To find how student engagement development; reshaped students back into the fold of learning and current work is more willing.
- To fit the learning needs of students.
- To organize how the student engagement carries out in English as foreign language classrooms.

### **Significances of the Study**

Student engagement is significant in the learning process. Teachers are working hard to improve learning. Learning happens when the students are engaged and involved in the classroom retention of knowledge. Engagement “is a measure of how much we are attending to a purpose, task, or activity. When it comes to learning, engagement is influenced by a learner’s level of motivation, focus and cognitive ability as well as online course design and a teacher’s decisions regarding facilitation style”. EdSurge (2020)

Student engagement can be seen as the glue that holds together all aspects of student learning and growth. Not only does student engagement make teaching itself more fun, engaging, and rewarding, but it has been shown to have critical impacts on students. When students display high levels of behavioral, emotional, and cognitive engagement, they are more likely to excel academically, form a stronger sense of connection with their university, and have a more positive sense of social-emotional well-being. On the other hand, low student engagement is associated with a host of negative outcomes, such as delinquency, violence, substance abuse, and school dropout. Although these troubling outcomes tend to appear in adolescence, having poor engagement in elementary and middle school can set students on a negative trajectory. Thus, it is critical to promote student engagement across all grade levels.

### **Research Questions**

This investigation suggests answers to the research questions:

1. Should a student take part in all areas of engagement for successful learning?



2. What might the education system do to assist students in how to involve in the class successfully?
3. Is participation in extracurricular activities related to students' success in university?

### **Literature Review**

The most widely accepted view of engagement in higher education literature emphasizes student behavior and teaching practice was a project which was set up to develop a new measurement tool. This project was about dissatisfaction with college ranking systems and the measurement of quality in higher education in the higher education in the late 1990s. Student engagement was seen as an evolving construct that captures a range of institutional practices and student behaviors related to student satisfaction and achievement including time on task, social and academic integration, and teaching practices (Kuh, 2009). The emphasis was on how institutions can affect student engagement, drawing principles of good practice in undergraduate education. Within this perspective, student engagement is defined as the ‘time and effort students devote to educationally purposeful activities (Doherty, Steel, & Parrish, 2012).

The National Survey of Student Engagement (NSSE) and its successor the Australasian Survey of Student Engagement (AUSSE) are the survey tools used to measure student engagement within the behavioral perspective. The National Survey of Student Engagement (Lutz & Culver, 2010) has five engagement scales: academic challenge, active learning, interactions, enriching educational experiences, and supportive learning environment, while the Australasian Survey of Student Engagement has a sixth, work integrated learning (Coates, 2010). The items in the Australasian Survey of Student Engagement are also grouped into six educational outcome measures: higher order thinking, general learning outcomes, career readiness, grade, departure intention, and satisfaction. Increasingly, these surveys are becoming the definition of student engagement; for example, in one study it was argued that, ‘in order to better understand the concept of student engagement, it is important to review National Survey of Student Engagement’s benchmarks’ (Kezar & Kinzie, 2006). This assumes the measure has high validity, an area of considerable debate.

The value of the behavioral approach is explained as part of the complex and multidimensional picture of student engagement, in particular the relationships between teaching practice and student behavior. A particular strength is the inclusion of more distal consequences of engagement with questions about how their time as a student has contributed towards broader life skills such as understanding people of different ethnicities, developing personal values, and contributing to the welfare of the community. A second strength is the popularity of the approach allowing exploration of the impact of a wide range of variables on student engagement such as missions (Kezar & Kinzie, 2006), expenditure and learning communities (Zhao & Kuh, 2004).

New models of engagement are also being proposed such as four way typology of student engagement styles: intense, collaborative, independent, and passive, linked to the common distinction between social and academic engagement (Coates, 2010). However, the behavioral perspective's understanding of engagement is too narrow; a problem that the psychological perspective goes some way towards resolving.

The psychological perspective of engagement is particularly dominant in the school literature and views engagement as an internal psychosocial process that evolves over time and varies in intensity. A key strength of this approach, in comparison to the behavioral perspective, is the distinction between engagement and its antecedents. Various overlapping dimensions of engagement have been proposed including behavior, cognition, emotion, and conation, with earlier work often defining engagement as just one of these, and later theorists suggesting engagement is a combination.

The second dimension, cognition, is illustrated by (Newmann, 1992) definition of engagement as 'a student's psychological investment in and effort directed towards learning, understanding, or mastering the knowledge skills or crafts'. This cognitive dimension most commonly refers to students' self-regulation and effective use of deep learning strategies, as touched on in the behavioral perspective. However, within the psychological perspective, cognition also incorporates individual characteristics such as motivation, self-efficacy, and expectations (Jimerson, Campos, & Greif, 2003).

Drawing on older philosophical constructions of the human mind, a few theorists have suggested that conation, the will to succeed, is a separate dimension of engagement (Kahu, 2013). A much less researched and theorized concept, conation is considered to have six attributes: belief, courage, energy, commitment, conviction, and change. Most theorists however consider the three dimensions of behavior, cognition, and affect adequately capture the psychological state of engagement, with recent studies supporting the view that the dimensions are facets of a single meta construct (Wang & Fredricks, 2014).

The sociocultural perspective on student engagement focuses on the impact of the broader social context on student experience. In particular, theorists have explored explanations for the polar opposite to engagement, alienation, and 'a subjectively undesirable separation from something outside oneself' (Meredith, Geyer, & Wagner, 2018).

Rigby (2010) argued that institutional habitus results in an inherent social and cultural bias within educational institutions in favor of dominant social groups, leading to poor retention of non-traditional students. Similarly, (Clifton & Mann, 2011) stated that influential work identifies

contextual factors such as disciplinary power, academic culture, and an excessive focus on performativity that can all lead to the disconnection of students within higher education.

Christie, Tett, Cree, and McCune (2016) found that the experience of starting university is variously described for some students as a culture shock. Likewise, (Thomas, 2016), uttered that learning shock and akin to being ‘a fish out of water’ illustrating the powerful barrier this cultural difference represents to engagement for many students. This perspective on education is particularly common within feminist literatures examining women’s alienation within the university culture as well.

Oga-Baldwin and Nakata (2017) discussed that student engagement stands out as one of the important variables in foreign language classroom environment. Although different aspects of student engagement have been discussed in language teaching literature, it has been operationally defined in a small number of studies.

Rocconi and Gonyea (2015) defined engagement in the second language learning as learner responses to teacher feedback. Student responses to teacher feedback can be considered as a part of student engagement in a foreign language course.

Philp and Duchesne (2016) argued that student engagement should be conceptualized considering learning environment, tasks and students. Therefore, student engagement can be defined based on language learning processes.

## **Methods and Materials**

**Research Design:** This scientific article study was conducted using a qualitative approach. It pursued descriptive results. A systematic review of relevant articles was conducted, before and during the study.

**Data Collection Tools:** This study concentrated on textual materials, and the reliable articles were collected from Education Resources Information Center (ERIC), Google Scholar, and Academic journals.org; Furthermore, the Health Management Information Center (HMIC); was consulted. We borrowed the relevant books from Kabul Education University libraries and the Education and Literature Faculties of Kabul University libraries.

**Sampling Method:** The study aimed to select the relevant articles, and the materials which led toward the purpose were assembled. First of all, the targeted articles were reviewed, and after reviewing the themes of the articles. The sub-themes emerged. Afterward, the articles were

analyzed thematically. Besides, careful notetaking, evaluation, and interpreting were conducted. Finally, the information was reported thematically without errors and bias, as far as possible.

**Sample Size:** This qualitative study focuses on secondary data which include research articles and related educational theory books. Throughout the study thirty articles were reviewed; they focused on the development of student engagement in higher education. The unrelated articles were excluded during screening.

**Data Analysis:** The related articles were reviewed according to the research questions. Marginalia were used to collect information. It paved the ground for data evaluation and synthesis. The information was analyzed thematically.

**Study Setting:** This scientific research was performed at Kabul University of Medical Sciences Abu Ali Ibn Sina, Afghanistan, and it helps medical students, and English for Specific Purposes teachers to realize the importance of student engagement in learning and extracurricular activities at the university and they recognize the factors which influence the development of student engagement in higher education.

## Results

Student should take part in all areas of engagement for successful learning. Student engagement is a broad and complex phenomenon that deals with various areas such as: psychological, social, and cultural perspective. Fredricks et al., (2004) described student engagement as a desired outcome that is reflective of a student's thoughts, feelings, and behaviors about learning. Like, Kahu (2013) identifies student engagement as an "individual psychological state" that includes a student's affect (emotion), cognition and behavior. On the other hand student engagement focus mainly on student behavior, suggesting that student engagement is the "extent to which students are engaging in activities that higher education research has shown to be linked with high-quality learning outcomes" or with the "quality of effort and involvement in productive learning activities" (Kuh, 2009).

Reschly and Christenson (2012) defined engagement as the energy and effort that students employ within their learning community, observable via any number of behavioral, cognitive or affective indicators across a continuum. Further, studies added that students are engaged with meta-construct that comprises of behavioral, social psychological or emotional and cognitive engagement:

**Behavioral Engagement:** It contains the idea of student participation and involvement in various academic activities. It is proposed that in order to be behaviorally engaged, a student must stick to the norms of the class and abstain from disrupting behavior.

**Social or Emotional Engagement:** It embraces the sense of identification and importance with the institution drawn by the student and emphasizes on positive and negative reactions of students with their teachers and classmates.

**Cognitive or Cultural Engagement:** Cognitive engagement of a student is reflected with the level of investment done in learning. Cultural engagement of a student is reflected the self-regulation and effective use of deep learning strategies. This engagement is a kind of investment refers to the exertion of efforts for solving complex academic problems and for the development of skills.

Student should be an active agent of the learning process, while student take active part in all area of learning process that is called agentic engagement. It is defined as the constructive contribution of students in terms of suggestion and question in the flow of information received by students in the learning process.

In order to assist student engagement successfully, the education system should consider the new method of student-centered learning. This method gives student the opportunity to decide two things: what material they learn and how they learn it. This method assists students to be engaged actively in the process of learning where the core of the learning is students. In contrast to teacher-centered approaches, student centered learning engages students as leaders and decision-makers in their own learning.

Christenson, Reschly, and Wylie (2012) defined student engagement as how actively involved a student in a learning activity. But student engagement extends beyond this expressive statement, because it has a purpose, and it occurs for a reason due to which it is considered to be a goal-directed and purpose-driven action. Engaged students are taking action to bring about one or more of the following three purposes which is helpful for education system:

- **Make academic progress:**  
Engaged students become better professionals such as better writers, better musicians, and they develop new skills and improve existing skills (Cheon, Reeve, & Moon, 2012). Their gains in knowledge, skills and talent enable certain educational attainments such as doing well in school and achieving higher grades and standardized test scores.
-

- **Fulfill their motivations:**

Engaged students satisfy their curiosity, pursue their interests, enhance their self-efficacy and satisfy their psychological needs such as, autonomy, relatedness and competence. By increasing their engagement level, students become architects of their own motivation (e.g., through effort and persistence, student can enhance their self-efficacy (Reeve & Lee, 2014).

- **Create motivationally supportive learning environments for themselves:**

Engaged students seek out for interesting and important activities, and they ask for high-quality teacher and peer support (Reeve & Lee, 2014).

Based on (Doherty et al., 2012) student engagement can positively impact authentic learning and personal development outcomes in certain ways such as, student who engaged in the classroom and students who spend additional time studying and practicing a subject will develop a tendency to learn more about it. Therefore, student engagement assists the learning process to occur in a very satisfied way in the classroom. To develop classroom engagement many methods of teaching should be performed by instructors inside the classroom. For better learning, instructors should pay their most attention for making the best learning environment where students feel free to learn, to ask and to share their ideas. Classroom is a place where learning occurs, so developing engagement inside the class is significantly vital, teachers are responsible to use teaching methods

Being engaged in the classroom also helps student in enhancing their skills, this issue is very necessary for students to have a productive and a satisfactory life after college graduation. For instance, the students who are extensively involved with educationally focused activities while in college classrooms develop habits and rituals that enlarge their capacity for continuous learning and personal development throughout their lifetime. Additional research has indicated that fully engaged students demonstrate higher graduation rates, better grade point averages, better retention and persistence and higher levels of educational satisfaction. Apart from these, team interventions and teachers' role are too of the most crucial measures that contribute towards increasing student engagement in the classroom.

Participation in extracurricular activities is related to students' success in university. Research has focused on the influence of extracurricular activities on academic performance. McCarthy highlights that "Those students who participate in extracurricular activities have significantly higher-Grade Point Average and significantly lower absenteeism. Although these results are consistent across genders, ethnicities, and socio-economic levels, the results show that differences do exist" (Soodak & McCarthy, 2013). The GPA of a student refers to their average grade, which is indicated to increase when participating in extracurricular activities. In addition to the higher grades, those students who participate in regular, organized activities, are found to be absent from university less frequently than those students who do not participate. Naturally, those

students who attend university more frequently are likely to attain higher grades, which would result in a higher GPA. Attendance and grades are evidently positively influenced by participation in extracurricular activities.

Reeve (2012) defined student engagement as a concept in which the learner acts as a subject. The language acts as an object or means of communication. Furthermore, studies described student engagement as a learning theory. Student engagement in foreign language classroom includes certain cognitive situations, affective tendencies, and social attitudes as well as actions and behaviors in the language teaching process. Cognitive engagement requires learners to be alert, focus his attention, and construct knowledge. Autonomy is also considered as part of cognitive participation. An affectively engaged learner should have positive attitude and willingness towards language learning as well as purposeful tendency for learning language. Social participation requires interaction and entrepreneurship. (Svalberg, 2009) states that engagement is a cyclical process that enables learners to develop new awareness by taking advantage of foreign language awareness. Cognitive, affective and social dimensions are also affected by this cycle. Students' fatigue levels, general health levels, emotional states, and classroom task design may affect their cognitive engagement. In addition, affective engagement can be influenced by subject matter, personality traits, and cognitive and social factors such as self-perception and group dynamics. Finally, social engagement can be influenced by friendship, power dynamics and values in classroom (Oruç & Demirci, 2020). Therefore, cognitive, affective, and social factors are interrelated, and in order to understand language engagement, it is necessary to understand how these dimensions interact with each other.

## **Discussion**

The current study attempted to find development of student engagement in higher education, due to reshape students back into the fold of learning. In order to fit the learning needs of students the present study endeavored to explore how the students are involved in the process learning. The study made an effort to organize how the student engagement carry out in English as foreign language classrooms.

Fredricks et al, 2004 defined that student engagement is a broad and complex phenomenon, deals with three areas such as: psychological, social, and cultural perspective. They described that the student engagement is a desired outcome that reflects student's thoughts, feelings and behaviors about learning while the National Survey of Student Engagement (2010) has five engagement scales: academic challenge, active learning, interactions, enriching educational experiences, and supportive learning environment. On the other hand, the Australasian Survey of Student Engagement grouped the student engagement into six educational outcome measures: higher order thinking, general learning outcomes, career readiness, grade, departure intention, and

satisfaction. The mention three definition all talks about student engagement areas. The Australasian survey of student engagement is more complete definition among the three above.

Kezar and Kinzie (2006) explained the value of the behavioral approach in student engagement theory. They argued that behavioral approach is a complex and multidimensional picture of student engagement, in a clearer and more brilliant example, student engagement is the relationship between teaching practice and student behavior. A particular strength is the inclusion of more distal consequences of engagement with questions about how their time as a student has contributed towards broader life skills such as understanding people of different ethnicities, developing personal values, and contributing to the welfare of the community.

Kezar and Kinzie (2006) believed that student engagement is a very popular approach allowing exploration of the impact of a wide range of variables on student engagement such as missions, expenditure, and learning communities. New models of engagement are also being proposed such as four-way typology of student engagement styles: intense, collaborative, independent, and passive, linked to the common distinction between social and academic engagement. However, the behavioral perspective's understanding of engagement is too narrow; a problem that the psychological perspective goes some way towards resolving.

On the other hand, social or emotional approach of student engagement focuses on the impact of the broader social context on student experience. In specific, theorists have discovered explanations for the polar opposite to engagement, alienation, and 'a subjectively undesirable separation from something outside oneself' (Meredith et al., 2018).

Mann's (2001) influential work identified contextual factors such as power formality, academic culture, and an extreme focus on executive that can all lead to the disconnection of students within higher education. Similarly, Thomas (2002) argued that institutional habitus results in an inherent social and cultural bias within educational institutions in favor of dominant social groups, leading to poor retention of non-traditional students.

Christie et al. (2008), described the experience of starting university as a culture shock or learning shock for some students. Meanwhile, researchers agreed with Christie that culture shock or learning shock is like being 'a fish out of water'. As a result, cultural difference represents to engagement for many students. This perspective on education is particularly common within feminist literatures examining women's alienation within the university culture. The purpose of feminist pedagogy is to develop a new standard in the classroom or possibly even take away the standards classrooms hold for male only. For example, feminist try to develop a classroom that is liberating and without any sort of binary. Feminist Pedagogy naturally creates a new method of



teaching, where its skills and knowledge is not just limited to a classroom but rather society as a whole. Classrooms that employ feminist pedagogy use the various and diverse experiences located within the space as opportunities to cultivate learning by using; life experiences as lessons, breaking down knowledge, and looking at gender, race, and class as one.

Feminist pedagogy points out the power imbalances present in many westernized educational institutions. It works toward de-centering that power. Within most traditional educational settings, the dominant power structure situates instructors as superior to students. Feminist pedagogy rejects this normative classroom dynamic, seeking to foster more democratic spaces functioning with the understanding that both teachers and students are engaged, not objects. Development of student engagement in the classroom in higher education specially helps students to reject normative positions of passivity and motivate them to instead take control of their own learning.

By taking action in their learning, students are encouraged to develop critical thinking and analytical skills. These abilities are then used to deconstruct and challenge the issues in our society such as, oppressive characteristics of a society that has traditionally served the politically offensive and economic privileged.

Raby et al. (2021) stated that engagement is a repeated process that enables learners to develop new awareness by taking advantage of foreign language awareness. In order to engage student with learning activities cognitive theory of learning engagement should be considered. Cognitive engagement requires learners to be alert, focus his attention, and construct knowledge. Autonomy is also recognized as part of cognitive participation. An affectively engaged learner should have positive attitude and willingness towards learning as well as purposeful tendency for learning language.

## **Conclusion**

When students take an active part in learning that is engagement. Student engagement performs a vital role in higher education and it assists the students, the institution, and education partners. As institutions and their teachers are putting better strategies into action, the scope of student engagement is more likely to expand in the future. It strengthens students with the capability to acquire and practice the necessary skills to build a successful future. Educationists agree that student engagement enhances knowledge of the actual values, self-confidence and it develops a greater sense of responsibility. Furthermore, student engagement developing student communication skills and it increases their professional skills. Additionally, Student engagement constructs the best relationships with other students, staff, and faculty members and it helps the students to recognize governance within the institution's education system. Beside that in women pedagogy, feminist's scholars and researchers endeavor to develop the female classes regarding to the society based not based on the dominant western union society. As a result, student engagement improves student personality and enhances their skills of critical thinking. Learning critical

thinking skills are necessary for their real life. The teachers must understand that every opportunity to engage students is unique and should tailor accordingly. For example, Behavioral engagement contains the idea of student participation and involvement in various academic activities. Social or emotional engagement holds the sense of identification and importance with the institution drawn by the student. Cognitive engagement is reflected in a student's level of investment that is done in learning. The cultural engagement of a student is reflected in the self-regulation and effective use of deep learning strategies. Therefore, students should be active agents of the learning process. Student engagement is defined as the constructive contribution of students in terms of suggestions and questions in the flow of information received by students in the learning process. Student engagement developed more effectively when both teachers and students participate in the process of learning actively and enthusiastically.

---

### References

- Cheon, Sung Hyeon, Reeve, Johnmarshall, & Moon, Ik Soo. (2012). Experimentally based, longitudinally designed, teacher-focused intervention to help physical education teachers be more autonomy supportive toward their students. *Journal of Sport and Exercise Psychology, 34*(3), 365-396.
- Christenson, Sandra, Reschly, Amy L, & Wylie, Cathy. (2012). *Handbook of research on student engagement* (Vol. 840): Springer.
- Christie, Hazel, Tett, Lyn, Cree, Vivienne E, & McCune, Velda. (2016). 'It all just clicked': a longitudinal perspective on transitions within university. *Studies in Higher Education, 41*(3), 478-490.
- Clifton, Andrew, & Mann, Claire. (2011). Can YouTube enhance student nurse learning? *Nurse education today, 31*(4), 311-313.
- Coates, Hamish. (2010). Development of the Australasian survey of student engagement (AUSSE). *Higher Education, 60*(1), 1-17.
- Dinella, Lisa M, & Ladd, Gary. (2009). Building and maintaining relationships with school stakeholders.
- Doherty, Iain, Steel, Caroline, & Parrish, Dominique. (2012). The challenges and opportunities for professional societies in higher education in Australasia: A PEST analysis. *Australasian Journal of Educational Technology, 28*(1).
- Fredricks, Jennifer A, Blumenfeld, Phyllis C, & Paris, Alison H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of educational research, 74*(1), 59-109.
- Fredricks, Jennifer A, & McColskey, Wendy. (2012). The measurement of student engagement: A comparative analysis of various methods and student self-report instruments *Handbook of research on student engagement* (pp. 763-782): Springer.

- Jimerson, Shane R, Campos, Emily, & Greif, Jennifer L. (2003). Toward an understanding of definitions and measures of school engagement and related terms. *The California School Psychologist*, 8(1), 7-27.
- Kahu, Ella R. (2013). Framing student engagement in higher education. *Studies in higher education*, 38(5), 758-773.
- Kezar, Adrianna J, & Kinzie, Jillian. (2006). Examining the ways institutions create student engagement: The role of mission. *Journal of College Student Development*, 47(2), 149-172.
- Koljatic, Mladen, & Kuh, George. (2001). A longitudinal assessment of college student engagement in good practices in undergraduate education. *Higher Education*, 42, 351-371. doi: 10.1023/A:1017993113390
- Krause, Kerri-Lee, & Coates, Hamish. (2008). Students' engagement in first-year university. *Assessment & Evaluation in Higher Education*, 33(5), 493-505.
- Kuh, George. (2009). The National Survey of Student Engagement: Conceptual and empirical foundations. *New Directions for Institutional Research*, 141, 5-20. *New Directions for Institutional Research*, 2009, 5-20. doi: 10.1002/ir.283
- Lutz, Megan E, & Culver, Steven. (2010). The national survey of student engagement: A university-level analysis. *Tertiary Education and Management*, 16(1), 35-44.
- Martin, Andrew J. (2006). The Relationship Between Teachers' Perceptions of Student Motivation and Engagement and Teachers' Enjoyment of and Confidence in Teaching. *Asia-Pacific Journal of Teacher Education*, 34(1), 73-93. doi: 10.1080/13598660500480100
- Meredith, Britta, Geyer, Mareike, & Wagner, Manuela. (2018). Social Justice in Beginning Language Instruction: Interpreting Fairy Tales. *Dimension*, 90, 112.
- Newmann, Fred M. (1992). *Student engagement and achievement in American secondary schools*: ERIC.
- Oga-Baldwin, WL Quint, & Nakata, Yoshiyuki. (2017). Engagement, gender, and motivation: A predictive model for Japanese young language learners. *System*, 65, 151-163.
- Oruç, Eylem, & Demirci, Cavide. (2020). Foreign language anxiety and English language achievement in higher education: The mediating role of student engagement. *European Journal of Education Studies*.
- Philp, Jenefer, & Duchesne, Susan. (2016). Exploring engagement in tasks in the language classroom. *Annual Review of Applied Linguistics*, 36, 50-72.
- Raby, Rebecca, Waboso, Nwakerendu, Donison, Laurel, Harding, Evan, Grossman, Keely, Myatt, Haley, & Sheppard, Lindsay C. (2021). School is closed!: Opportunity, Challenge, and Inequality in the Early Days of the Pandemic. *Journal of Teaching and Learning*, 15(2), 40-59.
- Reeve, Johnmarshall. (2012). A self-determination theory perspective on student engagement *Handbook of research on student engagement* (pp. 149-172): Springer.

- Reeve, Johnmarshall, & Lee, Woogul. (2014). Students' classroom engagement produces longitudinal changes in classroom motivation. *Journal of educational psychology*, 106(2), 527.
- Reschly, Amy L, & Christenson, Sandra L. (2012). Jingle, jangle, and conceptual haziness: Evolution and future directions of the engagement construct *Handbook of research on student engagement* (pp. 3-19): Springer.
- Rigby, Ken. (2010). *How schools counter bullying : policies and procedures in selected Australian schools / Ken Rigby & E. Barrington Thomas*. Camberwell, Vic: Australian Council for Educational Research.
- Rocconi, Louis, & Gonyea, Robert M. (2015). *Contextualizing student engagement effect sizes: An empirical analysis*.
- Soodak, Leslie C, & McCarthy, Mary Rose. (2013). Classroom management in inclusive settings *Handbook of classroom management* (pp. 471-500): Routledge.
- Svalberg, Agneta Marie-Louise. (2009). Engagement with language: Interrogating a construct. *Language awareness*, 18(3-4), 242-258.
- Thomas, Liz. (2016). Developing inclusive learning to improve the engagement, belonging, retention, and success of students from diverse groups *Widening higher education participation* (pp. 135-159): Elsevier.
- Wang, Ming-Te, & Fredricks, Jennifer A. (2014). The reciprocal links between school engagement, youth problem behaviors, and school dropout during adolescence. *Child development*, 85(2), 722-737.
- Zhao, Chun-Mei, & Kuh, George D. (2004). Adding value: Learning communities and student engagement. *Research in higher education*, 45(2), 115-138.
- =====

## The Effectiveness of Student-Centric Approach on EFL Learner's Attitude and Accomplishments

Muhammad Naeem Yaqubi, Mohammad Mustafa Kamal, Ali Mohammad Hekamat, and Shafiullah Roghmal

Kabul Medical University and Sciences Abu-Ali Sina  
English Department  
[m.naemyaqubi1988@gmail.com](mailto:m.naemyaqubi1988@gmail.com)

---

---

### Abstract

As English is taught as foreign language in Afghanistan context, the purpose of learning English is to be able communicate effectively and empower the skills in order to achieve the goal. Learners have insufficient achievements during the learning process, they have shown indicators of poor affect such as low motivation, poor autonomy, high anxiety and low self-esteem when speaking English. The researchers felt that such enfeeble notions among the learners exist. It seems that the reason of such condition of English learners in EFL context could be teacher centric approach. As a result of implementing TC method. The findings of the research clearly indicate that using student-centric method improves foreign language learner's capacity and provides learning opportunity to enhance their ability to have a better language performance in academic and real-life context. This approach provides leaning environment very influential which improve motivation and achievement for all language learners.

**Keywords:** Student-centric, Approach, Learner, Teacher, Afghanistan context.

### Introduction

As it is very obvious that English is a foreign language in Afghanistan context. Individuals learn the language through private courses, or other learning institutions which grammar translation method is usually applied. In this approach, interaction is taken place from instructors to students, and there is little commencement and little student-student interaction. As a result of this leading instruction, learners have poor performance, achievement, autonomy, self-esteem and poor motivation. The two terms (teacher centered and student-centered methods were described by educators (Amiri, & Saberi, (2017). Teacher-centered is typically referring to learning situations in which the teachers emphasize control over the materials and the ways in which students study them. For example, where, when, how, and at what speed they learn. Bagherzadeh,

H. (2012)., believes that in teacher-centered classes, the teachers tend to be the most influential and active person in the classroom and do most of the talking (e.g., by indicating concepts, giving lecture, reading loudly, or delivering instructions), however students spending most of their time sitting, listening, taking notes, providing brief responses to teacher's questions. In contrary, student-centeredness is typically referring to form of teaching that students have more opportunities to lead the learning process such as, learning activities, more active participation in class-discussions, explore topics that interest them, design learning projects. Learners can better improve in educational field when they are able to demonstrate in real-life the knowledge and skills they have learned. Students should have the chance to make choices about designing and contributing their own learning.

In contrast, considering Afghanistan context, the teacher-centered instruction is a dominant teaching method in EFL classrooms in all levels. According to Alrabai (2016), among all other sources that contributes poor achievements and poor affects amongst learners comes from teacher-centric approach. It was added that language learning results are generally initiated by the dominance of teacher-centric instruction and spoon-feeding techniques. The administration of teacher-centric method leads to poor language performance and achievements- prevents students' educational growth and development. Benson, P. (2011), asserts that in teacher-centric classes instructors perform most of the tasks, and students are always passive receivers of the knowledge. There is a common consent that this negative correlation between teacher-centered instruction and that student centric approach leads to better language learning and have better affects comparing with teacher centric instruction. Due to the reason that students can learn better by doing things by themselves rather things done by teachers. In student centric teaching teachers encourage learners to think and perform the tasks or activities themselves. According to Rajab, H. (2013), student-learning method provides learning environment which improves motivation and achievement for all levels of students.

### **Problem statement**

English is being taught as foreign language in Afghanistan, observing private courses and institutions in Kabul, Afghanistan the researchers realized that learners confined their learning process with merely proficiency. However, they have insufficient achievements during the learning process. On the top of the mentioned points, they have shown indicators of poor affect such as low motivation, poor autonomy, high anxiety, and low self-esteem when speaking English. The investigators felt that such enfeeble notions among the learners exist. It seems that the reason of such condition of English learners in EFL context could be teacher centric approach. As a result of implementing TC method students will have weak language

achievement and performance. The researchers applied both methods for one year, for the first semester, TC (teacher centric approach) was applied, and for the second semester SC (students centric) method was implemented. The outcome of student-centered method was satisfactory. The study will answer the following questions:

- 1) What are the impacts of student-centric method on EFL learner's attitude, motivation, anxiety, autonomy and views about language learning?
- 2) What is the outcome of implementing student-centered instruction on EFL learners' achievement?

### **Background information**

Anxiety is the first attitude component which affects the language learning. Language anxiety is something common among the speakers of various language it is not restrained to a particular language or people, as Mohammed, A. (2015), believe that language anxiety is not limited to a particular language skill even when speakers give speech it is associated with high level of anxiety. It can be said that it is a distinctive complex of feelings, beliefs, behavior and perceptions. Motivation is the second element that can influence language learning and impacts on the performance of foreign language learners. According to Peyton & Yonug (2010), it is a mixture of exertion desire and favorable attitude about learning a language or achieving a goal. Furthermore, Gardner, R. (2001) believes that it depends to the level of energy and enthusiasm the learner may have to the materials and activities of learning, he claims motivation is the key for leaning a language. Attitude is another crucial factor that can inspire the language learning. According to Visser (2008), it is learner's eagerness to wards something that s/he desires to learn or achieve it. He claims student's attitude consists of attitude towards learning target language. It is unquestionable that attitude can be positive or negative, learners with positive attitude can learn language or achieve goal easily. Another worthy element of learning is the autonomy of learning. It can be utilized with in the learning class or outside of classroom.

Little, D. (2009) asserts that learning autonomy is the aptitude of the learner to undertake the responsibility of his/her own learning process. Notion or belief about learning a language is also more important. Kassem, H. (2013) reflects that key contributors to language learning is belief about language. To sum up there are certain factors that affects language learning such as, anxiety, motivation, attitude, learning autonomy and language believe. The researchers would like to discover the effectiveness of student-centric method on Afghan EFL learner's performance and achievements.

## Methods and Materials

The participants are from various living backgrounds both male and female. Majority of them were from middle class background according to socio-economic status. Being their teacher for one semester we recognized that they have alike rate of exposure to English language. Therefore, we choose them as participants in the research, mainly they were taught by teacher centric approach. Then we decided to apply student-centered method for one semester in order to expose them to the student-centric approach so that we could get their attitude about the impacts of the SC method on learner's achievements and performance. This study relies on questionnaire which is adopted from Hassan M. Kassem. At the end of the term the questionnaires were distributed on the audience and the data were collected. The class that is supposed to participate in the research is selected by convenience sampling method. Number of the participants were 40 freshman dentistry students of KUMs. This scientific investigation is conducted using a quantitative research approach. Finally, the information was reported based on statistics with excel. This study focuses on primary data which include 40 first year dentistry students of Kabul Medical University and Sciences Abo-Ali Sina. The data was analyzed with excel to find out percentage of student's perceptions to towards impacts of student-centric approach on learner's performance and achievements. This scientific research is performed at Kabul University of Medical Sciences, Afghanistan.

**Analysis Based on Percentage:** The graphs/Figures below indicate that the percentage of students who believe English is important for their career to learn is significantly high (65%). Additionally, participant's responses to the statements; (I study English to get a good job, Studying English gives me pleasure, I study English because people respects who knows English.) were positive, the overall percentage comparing with other statements are high. Our findings in figure1 about student's motivation with the regards of learning English in percentage measurement reveals a fact that a great number of populations reacted positively and they showed positive motivation towards learning English.



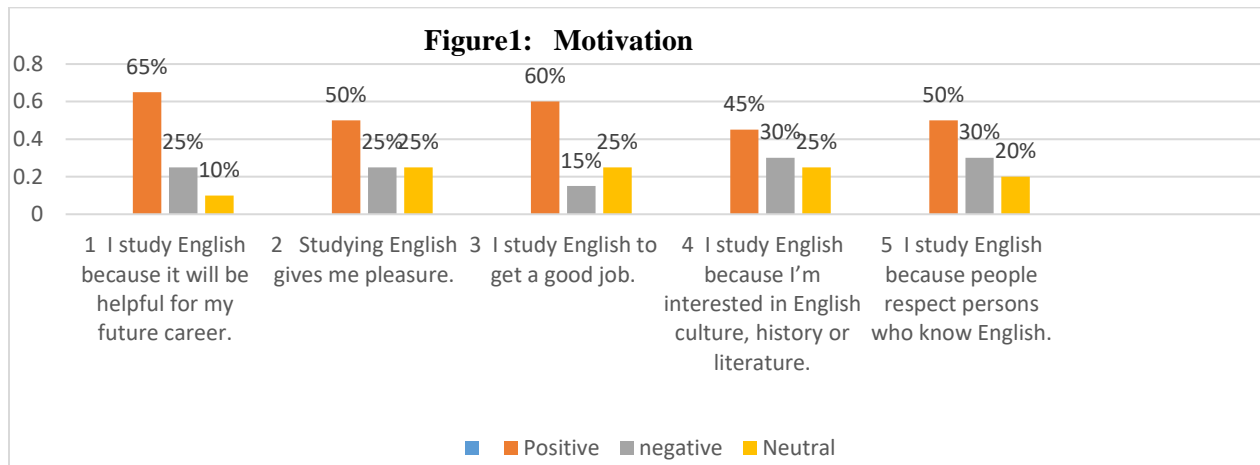
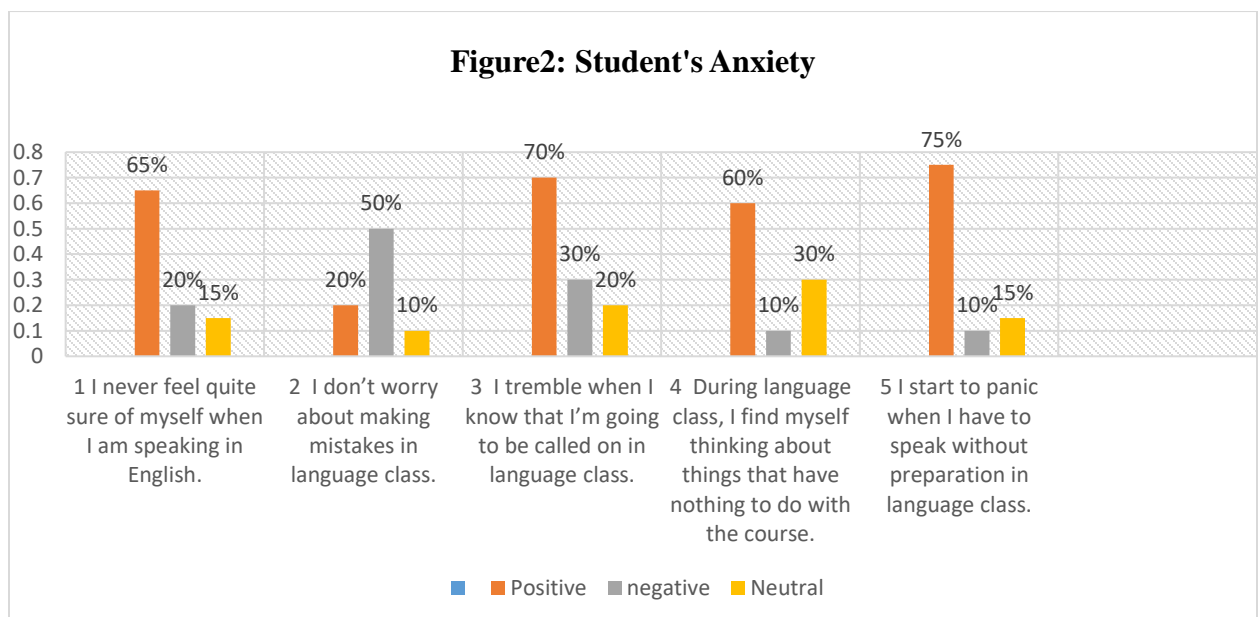
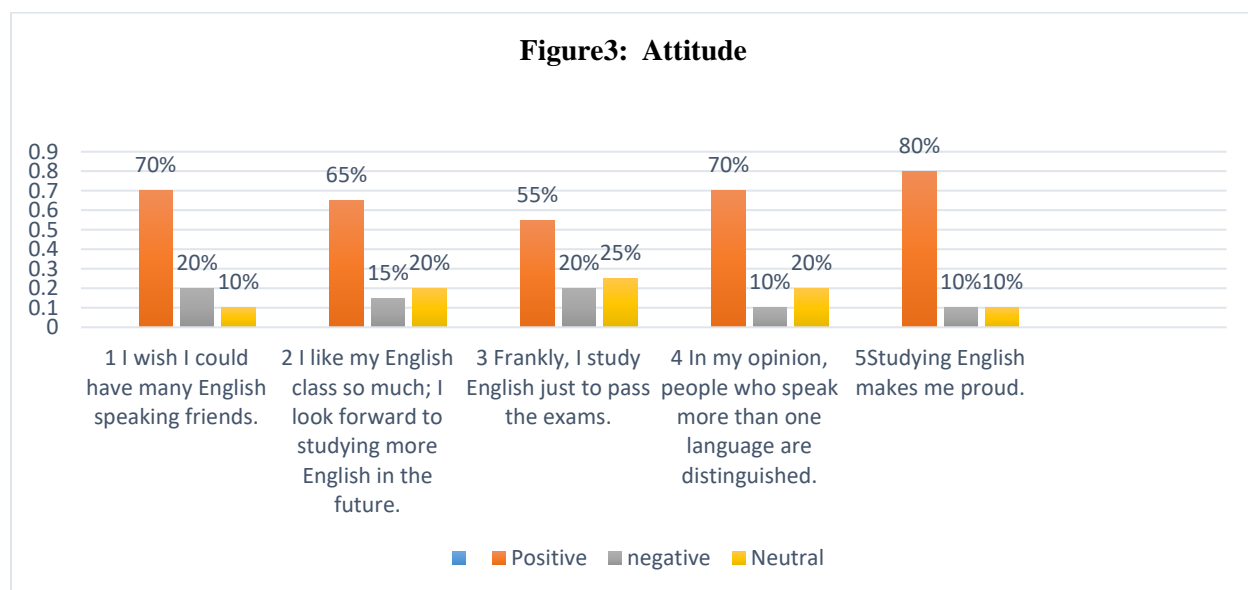


Figure2 shows student's responses percentage vis, it clearly signifies that a huge number of students who showed nervousness towards speaking English in the class, let's see sentence vis two statement which got highest reaction (75%) are; I start to panic when I have to speak without preparation in language class, I tremble when I know that I am going to be called on in language class (70%). I never feel quite sure of myself when I am speaking English (65%). Majority expressed their nervousness about speaking English in the class. From this we can judge that making the environment of the class friendly will contribute students to speak without hesitation and express themselves freely.



Our finding from figure 3 indicates that since a significant number of the participants showed positive attitudes in majority of the statements. We can see the statements; (Studying English makes me proud 80%). (In my opinion people who speak more than one language are distinguished 70%). (I wish I could have many English speaking friends 70%). So we come up with the point that providing more and more opportunities for the learners to be enthusiastic it will also have positive impact on the performance of the learners in academic as well as in real life situation.



Our finding from figure 4 designates that since a significant number of the participants showed positive views in majority of the statements. We can see the statements; (I make good use of my free time in English study 60%). It is out important to me to see the progress I make 65%), majority participants reflected positive and not only that a drastic number of the respondents showed affirmative perceptions towards language learning. So we can reach to the point that giving more freedom to the students will empower their learning process.

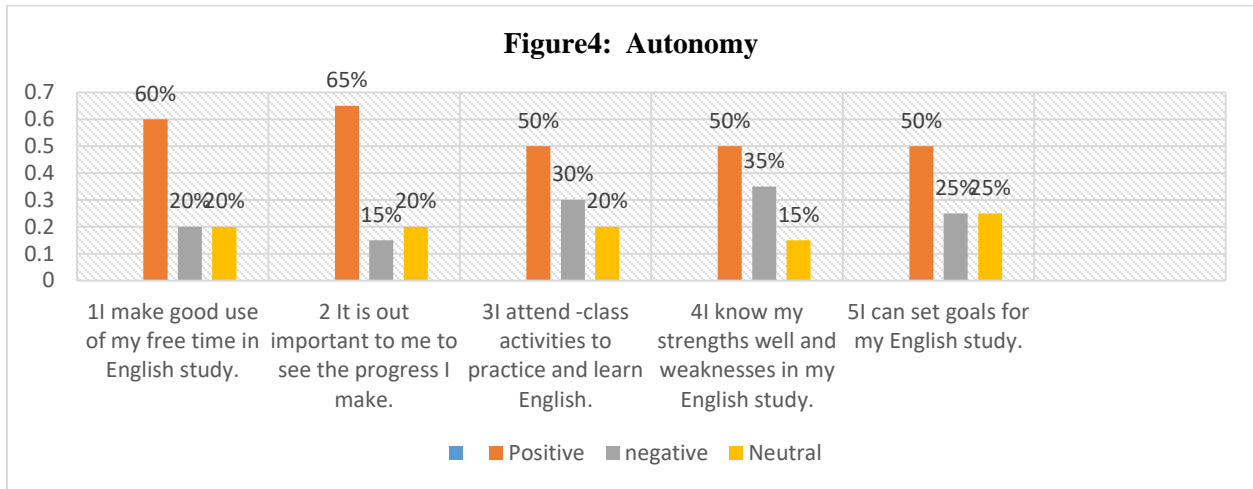
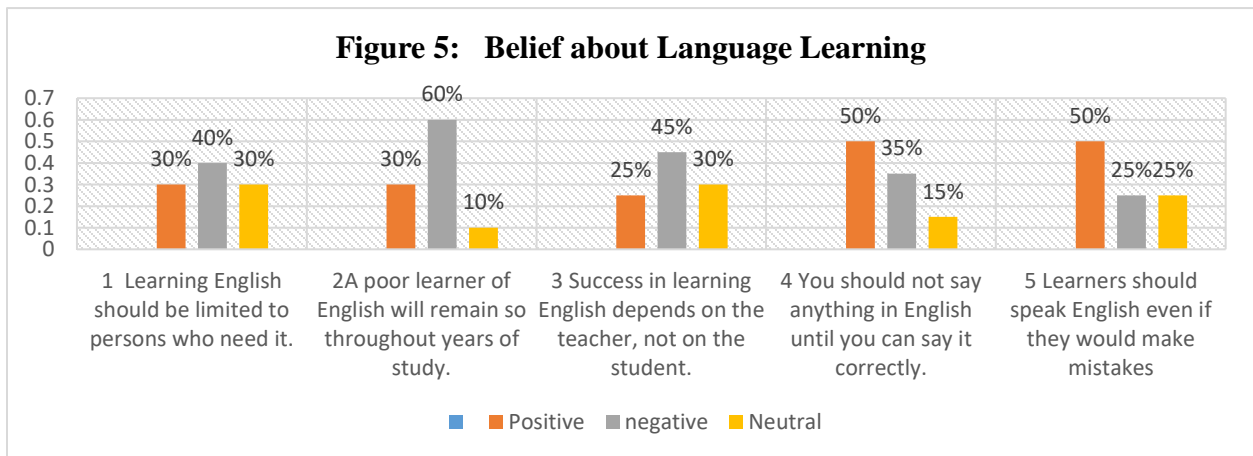


Figure 5 signposts that since a significant number of the participants showed negative attitudes towards belief about language learning in majority of the statements. We can see the statements; (A poor learner of English will remain so throughout the years of study 60%. You should not say anything in English until you can say it correctly 50%. Learner should speak English even if they would make mistakes 50%), participants reflected negatively about the wrong beliefs regarding language learning. We can reach to the point that it needs to be improved based on the learner’s interest of the English learning, so that students could get utmost benefit of the language classes.



## Result

This section is to present the outcomes of the research in a scientific result, the collected data were analyzed by the excel. According to the analysis, the general findings are presented below.

=====  
**Language in India** [www.languageinindia.com](http://www.languageinindia.com) ISSN 1930-2940 22:10 October 2022

Muhammad Naeem Yaqubi, Mohammad Mustafa Kamal, Ali Mohammad Hekamat, and Shafiullah Roghmal

Figure1 has determined that 65% of learning motivation among participants the statement *“I study English because it will be helpful to my future career”*, indicates that students are immensely eager to learn English for it is helpful to their future careers. Through learning English language, they will be able to capacitate themselves and use modernized materials to their field of studies.

In figure2, reveals the highest percentage which is 75% about anxiety among the participants, the statement is, *“I start to panic when I have to speak without preparation in language class”* reveals that without preparation student will face anxiety in the classroom and will have a negative impact on the language outcome.

Figure3 illustrates that more that 75% learning attitude among participants, from the statement *“studying English makes me proud.”* We can recognize that English studying makes students proud and motivate them to study more and more.

Figure4 has shown that 65% of autonomy among the participants, the statement *“it is out important to me to see the progress I make.* Shows the importance of their progress is valuable and will bring a big change to their attitude and nature of leaning. Figure5 has exposed that the highest percentage 60% is belief about language learning among the participants, the statement *“A poor learner of English will remain so throughout years of study.”* designates that a poor learner will remain the same through years. If there is not a positive change in there learning process, they will not grow and won’t reach to the targeted learning goals.

## **Discussion**

In this research, we have found the impact of student-centric method on EFL learning’s attitude, motivation, anxiety, autonomy, and views about language learning. Student’s idea about learning attitude is significantly high. More than half of the participants believe about importance and significant of student-centric method on EFL learning. One of the participants stated that studying English is good for getting a good job, and it give him pleasure. The reaction of research population mostly was positive motivation towards leaning English language as it is shown in figure 1. Nearly, 65% of the participants find English language learning helpful to find a job, and 50% of the population notified that English learning was fun for them. Less than 50% of the participants showed that they are fond of English culture, history, and literature. Half of the population believes that people respect those who know English language. Anxiety is a psychological problem. Overall, speaking second language has its own dilemma. In this case 65% of the participant expressed that they never feel quite sure of themselves whenever they speak

English language. Most of them believe that they do not have any concerns while making mistakes in the language classes. 70% of the research participants expressed that being called on in a language class is nerve-racking. Over 55% of the participants believe that they think about things that are not related to the language classes. Less than 70% of the audience agree that it is dreadful to speak in a language class without being prepared. Autonomy is a skill of learner to undertake the responsibility of his/her own learning process. In figure 4, the participant of the research obviously explained the process of the autonomy of leaning method. More than half of them stated that they have strategies to study English in their free time. Above 64% of the contributors of this study stated that their progress is really important to them, and half said that doing the class activities will help them to learn the language. 50% of the individuals believe that they evaluate their strengths and weakness while they are in the language classes. The literature about learning language reflects that the key contribution to language learning is believe about language. The finding in figure 5 illustrates that learning language is limited due to the person's need. It means that whenever a person feels the need to learn English, he/she start to learn it. Less than 50% believe that learning English language depends to person's interests and needs. If they are interested and need the language, they will successfully try to learn it. More than half of the subjects believe that unsuccessful learners will not grow after years of trials. 45% of the participants agreed that successful teacher will produce successful students. Some of them suggested that English sentences should be produced errorless. 50% of them believe that the learners are supposed to speak the language and should not be quite if they are not sure what to say.

### **Conclusion and Implications**

Findings of the research clearly indicates that using student-centric method improves foreign language learner's capacity and provides learning opportunity to enhance their ability to have a better language performance in academic and real-life context. This approach provides leaning environment very influential which improve motivation and achievement for all language learners. In addition, the students have the flexibility to learn anywhere and anytime which means that learning can be achieved outside of educational centers. In Afghan context, most of the institutions are still applying very old methods which will distract students' learning motivation and enthusiasm; therefore, teachers are highly recommended to learn new methods and apply the suited ones based on the community needs and requisitions. The change will not occur suddenly, but it will be implemented gradually in order to make their classrooms' instructions inductively based and eliminate the negative elements and techniques. We suggest that further research should be conducted to find out the perception of the teachers regarding the impacts of student-centric approach on learner's performance and achievements.

---

---

## References

- Alrabai, F., & Moskovsky, C. (2016). The Relationship between Learners' Affective Variables and Second Language Achievement. *Arab World English Journal*, 7(2), 77-103.
- Amiri, F., & Saberi, L. (2017). The impact of learner-centered approach on Learners' motivation in Iranian EFL students. *International Academic Journal of Social Sciences*, 4(1), 99-109.
- Bagherzadeh, H. (2012). Learners' Beliefs about English Language Learning: Examining the Impact of English Proficiency Level on the Motivation of Students among Non-English Major EFL Students. *Journal of Language Teaching and Research*, 3(4), 784-792.
- Benson, P. (2011). *Teaching and Researching Autonomy* (2<sup>nd</sup> ed.). London, UK: Taylor & Francis.
- Gardner, R. (2001). Integrative motivation and second language acquisition. In Z. Dörnyei, & R. Schmidt (Eds.), *Motivation and second language acquisition* (pp. 19). Honolulu, HI: The University of Hawaii, Second Language Teaching & Curriculum Center.
- Kassem, H. (2013). English as a Foreign Language Learning Beliefs and Attitudes of Saudi College English and Non-English Majors. *Arab World English Journal*, 4(4), 400-419.
- Little, D. (2009). Language learner autonomy and the European Language Portfolio: Two L2 English examples. *Language Teaching*, 42(2), 222-233.
- Mohammed, A. (2015). EFL effective factors: Anxiety and motivation and their effect on Saudi college students' achievement. *Arab World English Journal*, 6(2), 201-218.
- Peyton, J., More, S. & Young, S. (2010). *Evidence-based, Student-centered Instructional Practices*. Center for Applied Linguistic. Retrieved August, 2018, from <https://files.eric.ed.gov/fulltext/ED540599.pdf>
- Rajab, H. (2013). Developing speaking and writing skills of L1 Arabic EFL learners through teaching of IPA phonetic codes. *Theory and Practice in Language Studies*, 3, 653-659.
- Visser, M. (2008). Learning under conditions of hierarchy and discipline: The case of the German Army (1939-1940). *Learning Inquiry*, 2, 127-137.
- 
-

## Effectiveness of English Vocabulary Learning Strategies for Learning Second Language Learners

**Mohammad Tamim Aslampoore, Ali Mohammad Hekmat,  
Mohammad Mustafa Kamal and Soma Hotak**

The English Language Department  
Kabul University of Medical Sciences Abu Ali Ibn Sina, Afghanistan  
[kapulttps@gmail.com](mailto:kapulttps@gmail.com)

---

---

### Abstract

The most significant learning trail of English language is learning vocabulary. Learners usually learn English vocabularies by means of repetition, therefore; it can be so boring for them because there is lack of motivation for learners who want to continue memorizing vocabularies. The study aimed to find the most important vocabulary learning strategies, the effective ways of conducting English vocabulary by learning and importance of leaning English vocabulary in language learning. This study has reviewed significant literature to realize the effective way of learning vocabularies through vocabulary learning strategies. This study applied English vocabulary learning strategies to develop learning English vocabularies through various learning method. This research has provided specific results that showed the effect of vocabulary learning strategies in learning a language. Furthermore, this research brings to light the common strategies that learners use in vocabulary learning. It also discusses the different strategies at length and gives valuable.

**Keywords:** Vocabulary learning strategies, Effective Vocabulary Learning, Technique, EFL learning, Afghanistan

### Introduction

Vocabulary learning strategies is essential to successful learner of any language especially for second language learners. An often – quoted definition of learning strategy is given by Oxford that is learning strategies are those behaviors or actions which students use to make language learning more successful, self- directed and enjoyable. Another definition from Wang and Wen (2003) which clarifies the meaning of vocabulary learning strategies as ‘behaviors or actions which learners use to make learning more effective, this definition expresses the aim to use strategies. They help learners to make learning more effective; strategies are learner’s behaviors or actions,

not thoughts. In this way, vocabulary learning Strategies can be defined as ‘behaviors or actions which learners use to make vocabulary learning more effective’.

Today, it is certainly true that English has played crucial role as a medium of communication among people from different countries; Afghanistan is no exception. Hence, English competences have become significant for Afghan students as it is the global language for the circulation of academic knowledge, and it helps transfer the educational skills of many students. A great vocabulary is just one essential tool in writer’s toolbox, along with punctuation, Grammar, and many others. Vocabulary can make your writing and communication more powerful and more effective and help you say exactly what you mean. This indispensable tool will help you choose the best word for every job and avoid vague words that do not give your readers a good sense of your meaning. It is tried in this article to introduce the most important vocabulary learning strategies that have been found as the most effective.

In our point of view vocabulary plays a vital role in English language acquisition, particularly for University students. Acquiring a deep and rich vocabulary knowledge base can help these students to convey their message more efficiently. However, learning vocabulary is not an easy job. New words run fast out of mind if they are stored without any use. Practitioners and applied linguists have always been trying to not only emphasize the importance of vocabulary learning but also propose a way for efficient learning of new vocabulary items. Recently, learning strategies have been considered as influential tolls for accelerating learning, especially language learning.

Oxford (1993) mentions the critical role of language learning strategies and defines them as behaviors, actions, and techniques that students apply to ameliorate their progress in producing and comprehending second language learning the strategies makes learning faster and better. The famous linguist Wilkins comments: “Without grammar, little can be expressed; without vocabulary, nothing can be expressed” (Wilkins, Stephens Balakrishnan, & Huisman, 2012).

Thus, mastering in vocabulary strategies is one of the most difficult tasks that any learner and teacher faces while gaining another language, Limited vocabulary knowledge can be a huge problem which leads the learners to encounter difficulties in language learning , also vocabulary learning strategies are necessary in acquiring a language as they are the basic building blocks of language and they are the units of meaning from which the larger structure of language such as sentences paragraphs, and whole texts are formed.

Moreover, various studies have shown that lexical complications frequently interfere with language learning. Language learning can be block up when learners have insufficient knowledge

---

**Language in India** [www.languageinindia.com](http://www.languageinindia.com) ISSN 1930-2940 22:10 October 2022

Mohammad Tamim Aslampoo, Ali Mohammad Hekmat,

Mohammad Mustafa Kamal and Soma Hotak

Effectiveness of English Vocabulary Learning Strategies for Learning Second Language Learners



of vocabulary. That is to say, there is an increased interest in vocabulary as an important element of language learning. Therefore, it is essential to gain more visions into how Afghan learners Explore vocabulary strategies to help them learn English vocabulary.

### **Objectives**

The research investigated the Effectiveness of vocabulary learning strategies on student speaking and writing productivity and it will explore ways of learning English words to enhance students and teacher's English language capacity.

### **Significances of the Study**

Making strategies for learning vocabulary is crucial for all learners of a language especially foreign language. If learners determine a plan of learning based on that plan design their vocabulary, they will learn a huge amount of vocabulary in a very less time. The more vocabulary, therefore, a learner understands the more skillful expressions he/she can make. Second and foreign language learners are the first to acknowledge the importance of vocabulary. However, regarding the learning of vocabulary, the situation in each context is different. Drawing upon the fact that in the context of foreign language learning the opportunities are restricted in terms of target-language input, output, and interaction, what seems necessary for vocabulary learning is the employment of motivational and effective learning strategies (Tseng & Schmitt, 2008).

### **Research Questions**

This investigation suggests answers to the following research questions.

1. What are the most important vocabulary learning strategies?
2. How to conduct English vocabulary learning in an effective way?
3. How important English vocabulary learning strategies are in the language learning?

### **Review of literature**

There is a consensus among language theorists and scholars on the definition of vocabulary learning strategies which is "the process by which information is obtained, stored, retrieved, and used" (Fan, 2003). For the vocabulary learning, for instance, Brown and Payne (1994, as cited in Hatch & Brown, 1995, p. 373) have identified five phases: (a) finding sources for encountering new words, (b) drawing a clear image of the forms of the new words, either visual or auditory or both, (c) learning the meaning of the words, (d) getting a strong memory connection between the forms and the meanings of the words, and (e) using the words. Accordingly, all strategies for learning L2 vocabulary are, to a certain extent, related to these five stages.

Continuing study the review of literature, numerous researchers attempted to classify language learning strategies. For instance, Chamot (2004) introduced metacognitive, cognitive, and social/affective as the most basic three types of learning strategies. Following the investigation

---

**Language in India** [www.languageinindia.com](http://www.languageinindia.com) ISSN 1930-2940 22:10 October 2022

Mohammad Tamim Aslampoo, Ali Mohammad Hekmat,

Mohammad Mustafa Kamal and Soma Hotak

Effectiveness of English Vocabulary Learning Strategies for Learning Second Language

Learners

with this types of vocabulary learning strategies, Oxford (1993) proposed two broad categories of strategies including direct and indirect. In previous version of the oxford dictionary about vocabulary leaning strategy was written that this strategy includes memory, cognitive, and social strategies.

Drawing on the review of literature, it has been found that the most frequently used vocabulary learning strategies by learners are using a bilingual dictionary, verbal and written repetition, studying the spelling, guessing from context, and asking classmates for meaning (Schmitt, 1997). Moreover, it was revealed that learners use more types of strategies for learning vocabulary than for reading, listening, speaking, and writing (Chamot, 2004).

Furthermore, Gu and Johnson (1996) identified six types of strategy - guessing, dictionary, note-taking, rehearsal, encoding, and activation - together with two other factors: beliefs about vocabulary learning and metacognitive regulation. Metacognitive regulation consists of strategies for selective attention and self-initiation. The latter make the meaning of vocabulary items clear through the use of a variety of means. Guessing strategies, skillful use of dictionaries and note-taking strategies are labeled as cognitive strategies. Rehearsal and encoding categories are classified under memory strategies. Word lists and repetition are instances of rehearsal strategies. Encoding strategies include strategies such as association, imagery, visual, auditory, semantic, and contextual encoding as well as word-structure. Activation strategies include those strategies through which learners actually use new words in different contexts (Bastanfar & Hashemi, 2010).

In addition, Lawson and Hogben (1996), in a classification which is more a reflection of the strategies, categorized the four strategies as: repetition, word feature analysis, simple elaboration and complex elaboration. The strategy “repetition” includes reading of related words, simple rehearsal, writing of word and meaning, cumulative rehearsal and testing. The “word feature analysis” contains spelling, word classification and suffix. Simple elaboration consists of sentence translation, simple use of context, appearance similarity, sound link and complex elaboration includes complex use of context, paraphrase, and mnemonic. In the research, it was found that learners who had used a greater range of learning strategies recalled more of the learned words later. However, all the learners alike tended to favor simple repetition strategies over more complex elaboration strategies, despite the fact that the latter yielded higher recall. Hence the researchers concluded that there is a need to present strategies more directly during language teaching since students are not aware of the advantages of these procedures (Bastanfar & Hashemi, 2010).

Using and conducting English vocabulary as second language in an effect way directly relates to word knowledge. Learning vocabulary is a necessary competence, and it is important for

---

**Language in India** [www.languageinindia.com](http://www.languageinindia.com) ISSN 1930-2940 22:10 October 2022

Mohammad Tamim Aslampoore, Ali Mohammad Hekmat,

Mohammad Mustafa Kamal and Soma Hotak

Effectiveness of English Vocabulary Learning Strategies for Learning Second Language Learners

production and comprehension in a second language. In the importance of learning vocabulary in communication. Wilkins et al. (2012) indicates, “No matter how good one’s grammar is and how beautiful one’s pronunciation is, but if one has not enough vocabulary to convey one’s own feelings or to understand others’ opinions, one still cannot communicate with others in the language”. As an essential and fundamental building block of language, vocabulary learning is a key aspect of language learning, whichever curriculum, or syllabus we are following and whichever model of language we are applying. The four traditional basic language skills of reading, writing, speaking and listening are all based upon the students’ vocabulary knowledge.

Furthermore, teachers of English language may consider some of the pedagogical strategies for teaching vocabulary and how to learn vocabulary in an effective which is suggested by Teng (2019) as follows:

1. Choose high-frequency words to teach: More frequent words are more useful than less frequent words and they are learnt simply.
2. Supplement explicit vocabulary learning to incidental learning: Incidental vocabulary learning is not enough, and teachers should supplement deliberate vocabulary teaching into classes to facilitate learners to develop the depth and the breadth of vocabulary knowledge.
3. Know how useful each strategy is: Teachers need to model and practice vocabulary teaching in classes so that students are aware of the strategies they can use to learn vocabulary.
4. Focus more on productive vocabulary: The more students engage with the productive use of a word (say or write it, and create grammatical and collocation comparisons), the more likely that they are to master it.
5. Foster learners’ morphological awareness: A word family consists of three morphological structures: the root (promote), the inflections (promotes, promoted, promoting), and the derivatives (promotion, promoting, promoter). Students can be trained to use contextual clues to guess the meaning of new or unknown words that they come across. Teachers can ask them to break down the words into prefixes, roots, and suffixes; then they can brainstorm the potential meanings of the unknown words.
6. Train students’ lexical inference ability: Lexical inference is described as a cognitive top-down process of resorting to different resources to identify the meaning of a word. As guessing from context is one of the most frequent and favored strategies for learners when meeting new words in reading, teachers should spend some class time to develop students’ lexical differencing ability (i.e., ability to guess the meaning of words from context).
7. Choose appropriate textbooks: It is necessary for teachers to support students by choosing appropriate textbooks, contriving new reading materials, or looking for supplementary sources of suitable reading input.

8. Vocabulary learning is incremental: Learning the form, meaning, and use of vocabulary occur over time. Teachers should help students understand that learning vocabulary is a long-term process. Thus, rather than trying to memorize all the words at a time, it is better for students to spend some time reviewing their lists of unknown words each day or week. Teachers should support this learning process.

In the trend of globalization, internationalization of language is unavoidable. English will undoubtedly play the most important role. It includes three elements: pronunciation, vocabulary and grammar. It is obvious that vocabulary is the most essential and liveliest part of the three elements. English has four aspects and skills that must be known by the learners. The four aspects are spelling, pronunciation, vocabulary, and grammar. Meanwhile, the four skills namely listening, reading, writing and speaking. Those four aspects can develop the four skills in English. The aspect, which is studied in this research paper, is known as vocabulary.

There are some reasons that proves the importance of vocabulary to be learned. First, it will be hard for the learners if they must study English with limited words in their mind. Thus, learning vocabulary can help the learners to enrich their words in English. If they know those words, they can express their thought through English but if they do not know words in English they cannot write, read, and speak anything in English. Second, it is impossible to teach spelling, pronunciation, and grammar for the beginners if they do not know the words first. Those reasons make the writer can see how important to learn vocabulary for the EFL learners. Developing vocabulary will be great if it can be started from a young age. They are great word-learners. They have some special characteristics that can make them easier in learning vocabulary. Children cannot learn by themselves, and they need a good teacher to facilitate them in learning.

## **Methods and Materials**

**Research Design:** The research design was article review, first we searched for the key words which related to the research topic through the online scientific and up to date bases. This scientific investigation was conducted using a qualitative approach. It led to descriptive results. A systematic review of relevant articles was done before and during the study.

**Data Collection Tools:** This study concentrated on textual materials and the reliable articles were collected from Google Scholar and Academic Journals.org. The articles were reviewed through some essential keywords (English Vocabulary, English Skills, EFL, Speaking and Writing). In addition, the education resources information center (ERIC) was consulted; the relevant books were borrowed from Kabul University of Medical Sciences, Kabul University, Kabul Education University libraries.

**Sampling Method:** The article review research was used in this study; the same led materials were assembled purposefully. Subsequently the articles were analyzed thematically after careful note taking, evaluating, and interpreting. At first, the targeted articles were reviewed and after reviewing the themes of the articles will be emerged. Finally, the information was reported thematically without errors and bias, as far as possible. The related articles were reviewed and they pave the ground for data evaluation and synthesizing.

**Study Settings:** This scientific research was performed at Kabul University of Medical Sciences, Afghanistan, and it helps medical students, and English for Specific Purposes teacher to realize the importance of vocabulary learning strategies to advance the students vocabulary learning competencies.

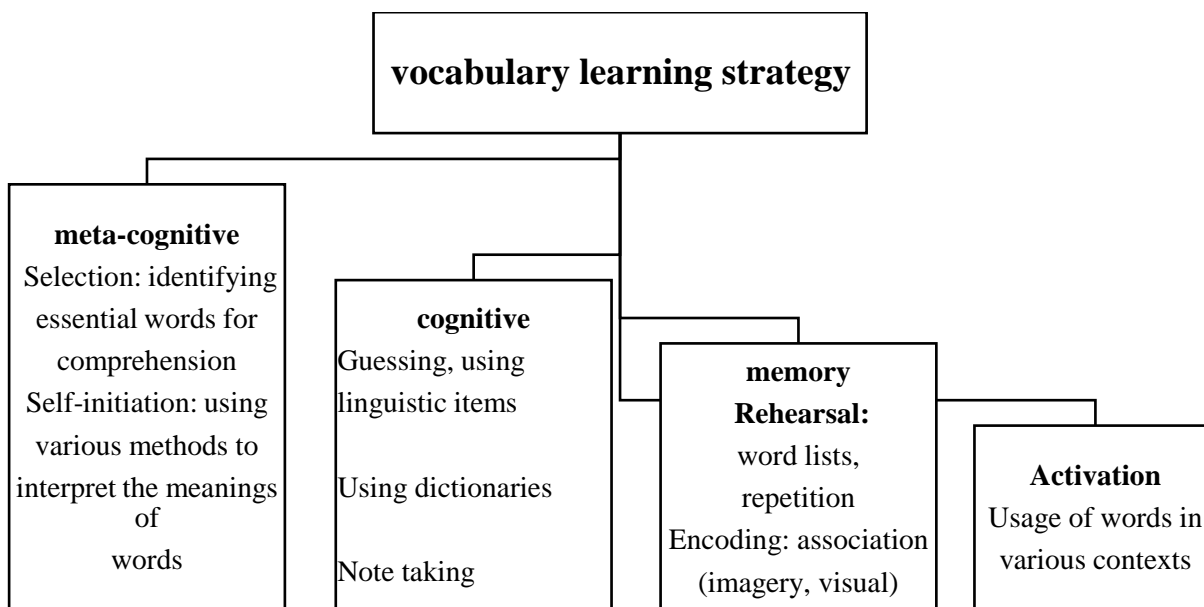
## **Results**

This research article offers a detailed presentation about the strategies of vocabulary learning. It summarizes the findings about vocabulary learning and general outline of the usage of strategies.

Wen Qiufang (1997) introduced two systems in English learning vocabulary, beliefs, and methods. Students' beliefs are important determinants of their behaviors. Vocabulary learning belief refers to the learner's attitude toward vocabulary learning. It has great effects on student choice and use of the strategies and will help the students control their learning process and make an evaluation for their learning outcomes. Therefore, the researchers will understand better the students' use of strategies by investigating students' vocabulary learning beliefs. They predominantly believed that word should be carefully studied and put to use. Their results proved that students like to use function-focused belief. The students who hold this belief preferred to learn English by using it.

It was consistent with some western research. For example, Krashen and Parry didn't encourage English students to recite the vocabulary, and they held that vocabulary should be learned through extensive reading. Extensive research has demonstrated that vocabulary is easier to learn in context than in isolated word lists because the meaningful context permits more complex and deeper processing. The students began to realize that using the language was an effective way to learn a foreign language. They found out that it was easy for them to remember a new word by using it. The new words could be learned easily by using either in the daily life or in written way. Learning vocabulary by using them is much easier to learners than by just reciting vocabulary mechanically.

Factor analysis on English vocabulary learning strategies items identified 16 factors for learners' English vocabulary learning strategies. The 16 factors are: self-management, plan-making & plan-implementing, selective attention, learner autonomy, reviewing & testing, repetition, association, imagery, word formation, grouping, contextualization, dictionary use, note-taking, guessing, affective control and social activities. O'Malley & Chamot (1986) distinguish three general types of learning strategies: met cognitive strategies, cognitive strategies, and social/affective strategies. This classification of vocabulary learning strategies is well recognized by scholars and researchers. According to the factor analysis, the 16 factors are further classified into meta-cognitive strategy, cognitive strategy, memory rehearsal and activation strategy.



### Discussion

Each learner employs different strategies to assist in learning new vocabulary. A learning strategy is a series of actions a learner takes to facilitate the completion of a learning task. The learner brings to the language learning situation a wide spectrum of individual differences that will influence the learning rate and the ultimate learning result. The most widely reported learner factors include age, sex, language aptitude, intelligence, prior knowledge, motivation, self-concept/image, personality, and cognitive and learning style (Peter, 2003). This brings forth the concept of good learners and poor learners; those learners who are highly motivated feel a genuine need to practice the vocabulary and use this strategy to maintain the vocabulary. Good learners not only use more strategies, but they also rely more heavily on different strategies than the ones poor learners use (Scafaru and Tofan, 2006).

In a study carried out by Ahmed (1989) it was found that good learners were more aware of what they could learn about words; they paid more attention to collation and spelling and at the same time they were more conscious of contextual learning. Learners are able to comprehend more new vocabulary once they use a number of strategies and do not simply stick to one which is the case for poor learners who concentrate on one method simply. On the contrary, the article by Scafaru and Tofan (2006) is very contradictory of this statement as it further mentions that statements like “the good learners practice” are not really helpful. What we need are more specific findings which tell us what the learner actually does when he practices”. In fact, it is through practice that learners commit words to memory and thus use it as confirmed by Peter (2003). Some learners will repeat the new word a number of times until they are comfortable with it. Others will go beyond simple rote repetition to commit the word to memory (Peter, 2003). These types of strategies are part of practice which is used by the good learners.

Ahmed (1989), in a study involving 300 Sudanese learners of English, found that good learners not only used more vocabulary learning strategies but also relied more on different strategies than did poorer learners.

In the research conducted by Scafaru and Tofan (2006), there was use of over seven different strategies which included micro-strategies, macro-strategies, dictionary use, memorization, practice, preferred source of information and note taking. Note taking is a strategy which a lot of learners use, and it has been proved to be effective as some learners prefer to work on visual memory, which means since they have written a new vocabulary they are able to create an image in their mind about the word. Learners took notes in the margin, used vocabulary books, organized words by meaning, spelling formation, word derivation, grammatical information, or vocabulary cards.

Research from the studies has also proven that dictionaries have a great impact in learning and one of the most common things that learners buy first is a dictionary. Like it or not, a dictionary is amongst the first things a foreign language student purchases (Baxter, 1980; Luppescu & Day, 1993), and learners carry their dictionaries around, not grammar books (Krashen, 1989).

It has been argued whether a monolingual dictionary is better than a bilingual one. Further, research has shown how the dictionaries have been used by learners. Since a combination of good features of both types of dictionaries is not impossible, there has been considerable interest in the last twenty years in the “new bilingualised comprise dictionaries”, hybrid dictionaries that essentially provide translations in addition to the good feature of monolingual dictionaries (Hartmann, 1991, p.79).

Elola, Rodríguez García, and Winfrey (2008), for example, compared monolingual, bilingual, and bilingualised dictionaries among 123 EFL learners in Israel. Through their study, it was found that, regardless of the learners' proficiency level, the bilingualised version was rather significantly better than, or as good as, the other two types in both comprehension and production tasks.

## **Conclusion**

Research suggests that learning new words in a language seems to be very important. In English language, vocabulary plays a vital role for sending and receiving messages to build a rational communication. Learning vocabulary of languages such as English language needs retaliating and using a new word in deferent ways to make the intended word a permanent vocabulary and use the word comfortably. If language learners learn new words without the role and regulation of word memorization, it will be very difficult for them to memorize less number of words in a day or even weeks. In addition to that, learning motivation will be another effective factor that has a positive impact on the learning process, especially in language vocabulary learning. Initially, languages can be learned through their vocabularies, not any other components of the targeted language, which means that vocabularies are important that the grammar roles and regulations. Therefore, language dictionaries are the most important learning device that leaners should have and used them properly.

According to Vakilifard, Ebadi, and Zangeneh (2015), a dictionary is amongst the first things a foreign language student purchases, which means dictionaries are dynamic guidance for language learners. There are many deferent words in a dictionary, but leaners should be smart enough to know what to learn and how to learn new vocabulary. Lexical words are divided into two deferent types such as active vocabulary and passive vocabulary. Active vocabularies are those language vocabularies that learners understand the meaning and use them in their daily conversation easily and logically while passive vocabularies are those vocabularies that learners only know their meaning but cannot use them in their daily communication. Thus, it is suggested that language learners should be motivated to learn the vocabulary of the target language in an active way rather than passive one.

The new vocabulary should first be used in native sentences, then based on the native sentences, other sentences should be structured and made. Word family will be another helpful factor to increase learners' vocabulary amount. Eventually, the only way to communicate in a language is to learn its vocabulary. After conducting this research, it is recommended that learners should understand the new word roots, prefixes, suffixes, and infixes to memorize them effortlessly, and they need more explorations on the effectiveness of English vocabulary learning strategies for the second language learners.

---

**Language in India** [www.languageinindia.com](http://www.languageinindia.com) ISSN 1930-2940 22:10 October 2022

Mohammad Tamim Aslampoore, Ali Mohammad Hekmat,

Mohammad Mustafa Kamal and Soma Hotak

Effectiveness of English Vocabulary Learning Strategies for Learning Second Language Learners



---

---

## References

- Bastanfar, A., & Hashemi, T. (2010). Vocabulary Learning Strategies and ELT Materials: A Study of the Extent to Which VLS Research Informs Local Coursebooks in Iran. *International Education Studies*, 3(3), 158-166.
- Chamot, A. U. (2004). Issues in language learning strategy research and teaching. *Electronic journal of foreign language teaching*, 1(1), 14-26.
- Elola, I., Rodríguez García, V., & Winfrey, K. (2008). Dictionary use and vocabulary choices in L2 writing. *ELIA*, 8, 63-89.
- Fan, M. Y. (2003). Frequency of use, perceived usefulness, and actual usefulness of second language vocabulary strategies: A study of Hong Kong learners. *The Modern Language Journal*, 87(2), 222-241.
- Gu, Y., & Johnson, R. K. (1996). Vocabulary learning strategies and language learning outcomes. *Language Learning*, 46(4), 643-679.
- Oxford, R. L. (1993). Research update on teaching L2 listening. *System*, 21(2), 205-211.
- Teng, F. (2019). The effects of context and word exposure frequency on incidental vocabulary acquisition and retention through reading. *The Language Learning Journal*, 47(2), 145-158.
- Tseng, W. T., & Schmitt, N. (2008). Toward a model of motivated vocabulary learning: A structural equation modeling approach. *Language Learning*, 58(2), 357-400.
- Vakilifard, A., Ebadi, S., & Zangeneh, F. A. (2015). Exploring Vocabulary Learning Strategies in American English File Course Books. *English for Specific Purposes World*, 16 (1).
- Wang, W., & Wen, Q. (2003). Teaching Experience and Evaluation of Second-Language Students' Writing. *Canadian Journal of Applied Linguistics*, 6(2), 219-236.
- Wilkins, S., Stephens Balakrishnan, M., & Huisman, J. (2012). Student satisfaction and student perceptions of quality at international branch campuses in the United Arab Emirates. *Journal of Higher Education Policy and Management*, 34(5), 543-556.
- 
-

## Acoustic Analysis of Voice in Khatibs

**Ms. Aswathy K P, MASLP**

[kpachuz10@gmail.com](mailto:kpachuz10@gmail.com)

**Dr. Rohila Shetty, Ph.D.**

[shettyro@gmail.com](mailto:shettyro@gmail.com)

Dr. M.V Shetty College of Speech and Hearing  
Mangalore 575015

### Abstract

**Khatib** is a professional voice user who is at risk of developing voice problems. Like teachers, Islamic religious officials appear to be at a high risk of acquiring voice disorders. It is critical to increase awareness of the prevalence of voice problems because there is a dearth of research on the incidence of voice abnormalities among Islamic religious authorities. The study was to analysis the acoustic characteristics among male Khatibs. It was carried out among 22 male khatibs in which 11 of them had experience of less than 20 years and 11 of them with experience of more than 20 years. The recording was carried out using PRAAT software and the analysis was done on features including fundamental frequency, jitter, shimmer and HNR. The statistical analyses for the obtained recordings were carried out using ANOVA and t test. The result shows slight variation in fundamental frequency, jitter and shimmer when analyzed between the Khatibs with more than 20 years of experience, and also with less than 20 years of experience. All acoustic parameters did not show any differences whereas on the basis of years of experience, differences were observed in the parameters like fundamental frequency, jitter and HNR. When comparing the acoustic characteristic of khatibs with other professionals, it was found that all these professionals including teachers, singers and even khatibs face problems in vocal variation showing changes in voice characteristics and less vocal strain was observed even though there is more use of voice. Therefore, it's important for all these professionals to be aware of the vocal hygiene tips that help in the voice variation and to accelerate these tips as a management once they are in their working age.

### Introduction

Voice is a crucial element of speech which is characteristically a human trait. It is an effective communication tool that not only delivers messages but also provides context (Colton & Casper, 1996). When a person speaks or sing, many muscles, including those in the mouth and throat are active. Similar to other muscles in the body, speech-supporting muscles can become tense, damaged and prone to wear and tear. Furthermore, using the incorrect strategy could give you hoarseness.

A professional voice user is an individual who uses his/her voice for livelihood.

Overuse, abuse or the misuse of voice are features of functional vocal disorders. The cause could be physiological changes brought by environmental exposure (allergies), hormonal changes, or other systemic illnesses that affects the voice, such as acid reflex disease (GERD), acute infectious laryngitis and benign vocal fold masses.

A classification system based on "vocal usage" was proposed by Kaufman & Isaacson in 1991. It consists of 4 levels. Elite vocal performers who fall under Level I include professional singers and actors for whom even a minor voice issue can have major consequences. Level II refers to professional voice users such as theologians, public speakers, lecturers, telephone operators, etc., for whom even mild vocal impairment would prohibit effective job performance. Doctors, attorneys, businesspeople, salespeople, and other professionals who would be unable to conduct their jobs effectively if they had severe dysphonia make up Level III. Even while mild or moderate dysphonia could be uncomfortable, it wouldn't prevent competent job performance. Level IV includes factory employees, labourers and clerks whose employment would not be hindered by vocal impairment.

Teachers were compared to Islamic religious officials in the study by Büyükcatalay, Gökmen & Dursun (2020). They found that, like teachers, Islamic religious officials appear to be at a high risk of acquiring voice disorders. It is critical to increase awareness of the prevalence of voice problems because there is a dearth of research on the incidence of voice abnormalities among Islamic religious authorities.

Khatib is a professional voice user who is at risk of developing voice problems. A khatib / khateeb or hatib is an individual who gives the sermon at the Friday and Eid prayers in Islam. Typically, the khatib leads the prayers. The khatibs should be capable of leading the prayer and giving the discourse (khutba). Muslim khatibs perform a congregational prayer, which is offered five times a day at mosque. In three of these five prayers, the khatib must recite aloud verses from the Holy Qur'an. Each *adhan* lasts for 10-15 minutes and is performed through loudspeaker in-order to make aware people around mosque about the time of the prayer.

In addition to these verbal pleas, some khatibs also read the Khutbah during the hour of prayer (lesson taught in the mosques during weekly ceremonies usually on Fridays). Both positions are open to anyone who the mosque deems qualified, but the khatib frequently has a permanent position (part-time or all the time) (Farahat & Mesallam, 2016). A few khatibs also take religious classes in morning and evening nearly an hour for children.

Acoustic analysis is a collection of complex yet fundamental laws that regulate how sound waves are created and behaves. The application of acoustic measurements depends on their link to perceived voice quality and how much they mirror a person's regular speaking patterns. Despite being essential for identifying voice disorders, these measurements are not always reliable. Acoustic measurements provide fundamental factual information that aids in the identification and management of voice disorders.

Measurements of these variations include harmonic to noise ratio (HNR), jitter, shimmer and fundamental frequency (F0). The F0 is the voice parameter that matters the most. It reflects the vocal cords' frequency of vibration cycles per second as well as the glottis' biomechanical properties. Jitter refers to a frequency change detected within a sample of phonation that changes with strain, stiffness, and vocal fold mass. Shimmer is controlled by sub-glottal pressure and glottal resistance (Robieux, Galant, Lagier, Legou & Giovanni, 2015). The relationship between the sounds made by the vocal chords and background noise is reflected in the HNR (Brkic, Liu, Campion & Leonhard, 2022).

There is no set limit for when someone is using their voice excessively because no two voices are the same. Vocal strain can be caused by a variety of internal and environmental causes, including the volume, intensity, and tone at which you speak. Knowing how voice functions will help to comprehend some of the effects of overusing or overstraining it.

### **Review of Literature**

Pitch, loudness, resonance, quality, and flexibility are paralinguistic characteristics of the human voice that reveal information about the speaker. Speakers change these paralinguistic to add emotion to their speech (Williamson, 2014). The air you breathe in and out creates an air stream in your trachea, which gives the voice its strength. The stronger the airstream, the louder the voice will be. When performing, it is crucial to have open passages since the vocal folds are powered by this airflow or intake. Because of this, a lot of people find it challenging to perform when they have any kind of blockage, such a cold or a cough. The primary sound generator during speech is located in the larynx. The architecture of the vocal tract further modifies voice which is a laryngeal alteration of pulmonary airflow. The voice serves as a mirror of the interior in addition to communicating language, creating music and expressing emotions. Consequently, voice is a potent weapon that not only transmits a message but also gives it additional meaning (Colton & Casper, 1996).

The mucous membrane that makes up the vocal folds is folded in two and stretched over the larynx. They can vibrate anywhere from 100 to 1000 times per second while in use to assist in obtaining a required sound. The vocal folds are exerting considerable effort to produce various sounds and tones when performing. Individual differences exist in vocal fold thickness, although generally speaking, men have thicker vocal folds than women. Everybody uses their voice differently and has different needs. A vocal issue often exists when the quality, pitch, loudness or flexibility of the voice differs from the voices of people of a comparable age, sex and cultural group.

Voice experts or professional voice users are those who depend on their voice to perform their job duties. They use their voice more frequently and intensely than non-professional voice users. Professional voice users are unaware of the anatomy and physiology underlying their vocal mechanism and are also unaware of the negative effects of poor vocal hygiene. Vocal overuse or abuse is a common practice among cheerleaders, teachers, rock singers, actors, and other people who use their voice professionally. They comprise the group

with a high risk of vocal issues.

According to pertinent legislation, vocabulary and context, definitions of work-related voice problems or vocal injuries may differ from one geographic place to another. Any speech pathologist, however, is aware of the vast number of occupational voice users including singers, stage performers, sports coaches, sales assistants, teachers, lecturers, lawyers, telephone operators, call-center employees, receptionists, priests, and medical professionals. Voice is a crucial occupational tool in today's workplace. The severe financial costs of voice abnormalities as well as their effect on social and professional identity are observed firsthand by speech pathologists. (Phyland & Miles- 2019)

In the literature and acoustic analytic applications, the fundamental frequency, jitter, shimmer and HNR are now the most utilized and frequently mentioned acoustic parameters. The frequency at which a vocal sound wave repeats within a specific time interval is known as the fundamental frequency (FO), expressed in Hertz. Additionally, it describes how many times the glottis has cycled back and forth. This frequency is within a typical range of values for the various genders and ages. These numbers are not constant, though, as FO is also used to denote prosody. In addition, it differs by sex and age and is believed to be influenced by factors like a person's mindset, the time of day that suits their lifestyle, and how they utilize their voice professionally (Teixeira, Oliveira & Lopes, 2013).

Fundamental frequency also conveys paralinguistic data such as the speaker's emotional state (McRoberts, Kennedy & Shankweiler 1995). In studies where spontaneous emotional utterances have been recorded and analyzed, both the average FO and FO range are usually higher when compared to less affectively characterized speech (e.g., Williams & Stevens, 1981). It is demonstrated that the marking of positive and negative affect by FO variation is distinct from the process of creating stress contrasts (McRoberts, Kennedy & Shankweiler 1998).

Teixeira, Oliveira & Lopes (2013), has been found that jitter and shimmer measurements of the FO have been beneficial in defining the voice qualities. While shimmer refers to changes in the sound wave's amplitude, jitter is defined as the parameter of frequency variation from cycle to cycle. These factors can be examined with a consistent voice that continuously produces a vowel. Individuals with frequent voice disorders will have higher jitter values. The majority of researchers regarded the sustained phonation in young people as having a normal value fluctuation between 0.5 and 1.0 percent. The shimmer is connected with the existence of noise emission and breathiness, and it alters with changes in glottal resistance and mass lesions on the vocal cords. For readings between 0.4 and 1 percent for children and fewer than 3 percent for adults, it is deemed pathological voice.

The HNR measures the proportion of periodic to non-periodic speech components in a segment of spoken speech. The first component results from the vocal cords vibrating, while the second is the glottal noise, measured in decibels (dB). The comparison of the two factors represents the effectiveness of speaking or more specifically, the amount of air that is

converted into vibrational energy by the vocal cords. In such circumstances, the HNR will be higher. Consequently, a voice sound is distinguished by a high HNR, which is connected to sonorant and harmonic voice. A low HNR indicates dysphonia and an asthenic voice. In other words, an HNR value of less than 7 dB is regarded as abnormal (McRoberts, Kennedy & Shankweiler 1995).

**Khutba** refers to several forms of address that have a ritualistic or religious component. Khatibs can conduct Islamic prayers, lead Islamic worship rituals, function as community leaders, and give religious instructions. A Khatib leads a group of 2 or more people when they pray. An appointed Khatib often delivers the Friday sermon. All mosques have Khatib to conduct the (congregational) prayers. According to Hadith (a collection of traditions containing sayings of the Prophet Muhammad which, with accounts of his daily practice (the Sunna), constitute the major source of guidance for Muslims apart from the Koran. (Definition from *Oxford Languages Dictionary*, Oxford University Press) <https://www.google.com/search?q=Hadith+definition&oq=Hadith+definition&aqs=chrome..69i57.8841j0j15&sourceid=chrome&ie=UTF-8>), the best candidate is one who is morally upright and has a thorough grasp of the Holy Qur'an and Sunnah (the prophetic tradition). The Khatib develops the outline of his sermon using this context as a guide.

### **Western Studies**

Sorensen & Horii (1982) studied on cigarette smoking and voice fundamental frequency and found that smokers had lower FO levels than nonsmokers.

Soltani, Ashayeri, Modarresi, Salavati & Ghomashchi (2014) analyzed fundamental frequency changes of Persian speakers across the life span and the results shown that from childhood to maturity, the mean F0 declines for both sexes.

Farahat & Mesallam (2016) studied psychosocial assessment of voice problems among Saudi imams and found significant voice-related issues were noted by 65% of imams. Pestana, Freitas & Manso (2017) compared the relevance of voice disorders in singers and discovered a considerably greater prevalence of self-perceived dysphonia among traditional and popular music singers as well as singing instructors.

Gorris, Maccarini, Vanoni & Garzaro (2020) studied on acoustic analysis of normal voice patterns in Italian adults by using PRAAT and discovered that there were statistically significant gender differences across all vocal parameters, especially for the variables associated to the FO and jitter local absolute.

Garcia, Dumitrache, & Lopez (2021) analyzed the acoustic analysis of the voice in patients with parkinson's disease and hypokinetic dysarthria and revealed that the vowel space area, intensity, F0, jitter, and shimmer all showed substantial variations.

Elsherbeny, Baz & Afsah (2022) compared the acoustic characteristics of voice and speech in Arabic-speaking stuttering children and found that children's voices and speech have noticeable variances from typical children's voices and speech.

AlBustan, Marie, Darawsheh, Natour (2022) studied on voice handicap and acoustic measures in Arab Kuwaiti prospective professional singers and discovered that the perception of voice impairment and acoustic measurements are separate characteristics that are unrelated.

### **Indian Studies**

Sebastian, Babu, Oommen & Ballraj (2012) studied on acoustic measurements of geriatric voice and found that males and females did not differ significantly for the parameters of jitter and shimmer, only for the parameters of FO and formant frequencies (F1 and F2). For males, as fundamental frequency increases as the age also increases.

Mahato, Regmi & Bista (2018) compared acoustic analysis of voice in school teachers and found that long-term vocal abuse, overuse, or misuse in teaching practise can lead to vocal nodules or polyps or an insufficient phonatory rhythm due to tissue damage to the vocal folds.

Lathadevi, Goudar & Pundalikappa (2018) analyzed the objective acoustic analysis and comparison of normal and abnormal voices, and they demonstrated how many anomalous voice metrics, such as jitter (ddp), shimmer (dda), median pitch, and HNR measurements, differed from those of normal voices. Jitter (p-value of 0.026) and Shimmer (p-value of 0.035) were the two variables that showed significance, but HNR did not.

Gunjawate, Ravi & Bellur (2018) conducted a systematic review of the literature on the acoustic analysis of voice in singers and found that acoustic metrics including fundamental frequency, perturbation, cepstral, spectral, dysphonia severity index, and singing power ratio were not standardised, and there was a great deal of diversity in the instruments and activities utilised.

Ambreen, Bashir & Kausar (2019) studied on the acoustic analysis of normal voice patterns in Pakistani adults and found that fundamental frequency, absolute and relative jitter, jitter period perturbation quotient, shimmer five-point amplitude perturbation quotient, and harmonics-to-noise ratio all showed significant gender differences. In all of the jitter measurements, the interaction between age and gender was significant. Women showed an increase in all of these measures during the 31–40-year age range and a decrease during the 41–50 year age range as a result of the interaction, whereas men showed opposite effect throughout both of these age groups.

Balasubramanium, Saldanha & Gunjawate (2020) studied on vocal and non-vocal habits among 37 beat boxers in India and the findings revealed that common vocal complaints during and after boxing were voice fatigue, breathing problems, and muscular stress.

Priyadharshini, Vasupradaa & Yeshoda (2021) studied on acoustic analysis of voice of temple priests and revealed that compared to other groups of professional voice users, it was discovered that the mean frequency range and disruptions were significantly larger.

Munjal, Sharma & Chhabra (2021) studied on perceptual, aerodynamic and acoustic

evaluation of vocal characteristics in subjects with obesity. And discovered the obese group had higher levels of basic frequency tremor and normalized noise energy with considerably shorter maximum phonation time and expiratory reserve volume.

Narasimhan & Gowda (2022) studied on multiparametric analysis of voice following prolonged voice use and voice rest in teachers and discovered that there were substantial differences between the three conditions for fundamental frequency, jitter, shimmer, harmonic to noise ratio, and smoothed cepstral peak prominence. Only three characteristics correctly classified 98.3% of the samples between the three situations, according to the discriminant analysis.

Nussbaum, Schirmer & Schweinberger (2022) studied on contributions of fundamental frequency and timbre to vocal emotion perception and their electrophysiological correlates and found that the relative contributions of timbre and F0 to vocal emotion processing differ depending on the emotional category, with timbre being more significant for pleasure and F0 being more significant for happy, afraid and sad expressions.

Balasubramaniam, Jacob, Susan, Krishnamurthy & Rahul (2022) studied on acoustic and perceptual changes in voice during pregnancy and found these value is sensitive to vocal deviations in both pregnant women and professional voice users, who are more susceptible to voice changes or disorders because of their frequent use of the voice.

Elangovan, Paul & Kumaraswamy (2022) studied on aerodynamic and acoustical analysis of adults and geriatrics and they indicated that fundamental frequency increases from adult to geriatrics.

## **Method**

### **Aim**

The aim of the present study was to analyze the acoustic features of male khatibs by comparing the voice parameters (fundamental frequency, jitter, shimmer and harmonic to noise ratio) of /a/, /i/ and /u/ and based on the years of experience between the 2 interval groups: below 20 (including 20) years and above 20 years.

### **Participants with Inclusion and Exclusion Criteria**

Participants were 22 experienced Malayalam speaking khatibs in the age range of 20-70 years. Khatibs who have been preaching for at-least 3years from now and with absent history of speech, language, hearing, and other medical problems were selected.

### **Equipment**

Software PRAAT (Pachogue Rotatory Animal Assisted Therapy, Version 6.2.14) was used to analyze the acoustic characteristics. It is used to measure fundamental frequency, jitter, shimmer and HNR.



## Procedure

A standard laptop with a in-built microphone was used. The subjects were comfortably seated, and recordings were made through a microphone in a quiet environment. The microphone of the laptop was placed at about 3inches from the mouth of the subjects for audio recordings and subjects were asked to take a deep breath and phonate /a/, /i/,/u/ as long as possible at a comfortable pitch level. The illustration of the procedure was shown by the clinician before the actual procedure.

The selected voice parameters (fundamental frequency, jitter, shimmer, HNR) are compared with the years of experience and are statistically analyzed.

## Analysis

The collected data was subjected to statistical analysis to determine the significant differences across /a/,/i/ and /u/ by ANOVA test and t-test was performed for comparison with 2 groups on the basis of years of experience.

## Result

The present study was to obtain acoustic voice data of khatibs who are one among the prominent group with risk of voice abuse. The aim of the study was to compare the acoustic characteristics of khatibs based on:

- (i) Evaluating the acoustical features of male khatibs by the different voice parameters (fundamental frequency, jitter, shimmer and HNR) of /a/, /i/ and /u/.
- (ii) Comparing the year of experience between 2 interval groups: below 20(including 20) years and above 20 years with the same parameters of /a/, /i/ and /u/.

### Comparison among male Khatib

Table 1: Showing comparison of /a/,/i/ and /u/ of fundamental frequency, jitter, shimmer and HNR of male khatibs.

Vowel sound	N	Mean	Std. Deviation	95% Confidence Interval for Mean		Repeated measures ANOVA -p value			
				Lower Bound	Upper Bound				
F0	> 20 Y	/a/	12	164.00	15.13	154.39	173.61	0.714	NS
		/i/	12	167.08	13.49	158.51	175.65		
		/u/	13	161.31	22.13	147.93	174.68		
	<= 20 Y	/a/	12	131.00	24.61	115.36	146.64	0.793	NS
		/i/	12	134.08	26.99	116.93	151.23		
		/u/	11	138.27	24.80	121.61	154.93		
	Total	/a/	24	147.50	26.14	136.46	158.54	0.890	NS
		/i/	24	150.58	26.82	139.26	161.91		
		/u/	24	150.75	25.70	139.90	161.60		

Jitter	> 20 Y	/a/	12	0.78	0.41	0.52	1.04	0.835	NS
		/i/	12	0.88	0.46	0.59	1.17		
		/u/	13	0.80	0.45	0.53	1.07		
	<= 20 Y	/a/	12	0.65	0.50	0.33	0.96	0.440	NS
		/i/	12	0.61	0.43	0.34	0.89		
		/u/	11	0.44	0.25	0.27	0.61		
	Total	/a/	24	0.71	0.45	0.52	0.90	0.664	NS
		/i/	24	0.75	0.46	0.55	0.94		
		/u/	24	0.63	0.41	0.46	0.81		
Shimmer	> 20 Y	/a/	12	0.95	0.40	0.69	1.20	0.919	NS
		/i/	12	1.02	0.39	0.77	1.26		
		/u/	13	0.97	0.50	0.67	1.28		
	<=20 Y	/a/	12	1.18	0.36	0.95	1.41	0.253	NS
		/i/	12	1.20	0.46	0.91	1.49		
		/u/	11	0.95	0.31	0.75	1.16		
	Total	/a/	24	1.06	0.39	0.90	1.23	0.466	NS
		/i/	24	1.11	0.43	0.93	1.29		
		/u/	24	0.97	0.42	0.79	1.14		
HNR	>20 Y	/a/	12	14.67	2.10	13.33	16.00	0.664	NS
		/i/	12	15.25	1.14	14.53	15.97		
		/u/	13	15.23	1.96	14.04	16.42		
	<= 20 Y	/a/	12	13.75	1.29	12.93	14.57	0.580	NS
		/i/	12	13.83	1.80	12.69	14.98		
		/u/	11	14.36	1.36	13.45	15.28		
	Total	/a/	24	14.21	1.77	13.46	14.96	0.455	NS
		/i/	24	14.54	1.64	13.85	15.23		
		/u/	24	14.83	1.74	14.10	15.57		

The above table 1 shows no significant differences in all parameters (FO, jitter, shimmer and HNR) of /a/, /i/ and /u/.

### Comparison with Experience

Table 2: Showing comparison of /a/, /i/ and /u/ of fundamental frequency, jitter, shimmer and HNR of male khatibs based on the below and above 20years of experience.

Vowel sound		N	Mean	Std. Deviation	95% Confidence Interval for Mean		t test p value		
					Lower Bound	Upper Bound			
FO	/a/	> 20 Y	12	164.00	15.13	154.39	173.61	0.001	Sig
		<= 20 Y	12	131.00	24.61	115.36	146.64		

		Total	24	147.50	26.14	136.46	158.54		
	/i/	> 20 Y	12	167.08	13.49	158.51	175.65	0.001	Sig
		<= 20 Y	12	134.08	26.99	116.93	151.23		
		Total	24	150.58	26.82	139.26	161.91		
	/u/	> 20 Y	13	161.31	22.13	147.93	174.68	0.025	Sig
		<= 20 Y	11	138.27	24.80	121.61	154.93		
		Total	24	150.75	25.70	139.90	161.60		
Jitter	/a/	> 20 Y	12	0.78	0.41	0.52	1.04	0.483	NS
		<= 20 Y	12	0.65	0.50	0.33	0.96		
		Total	24	0.71	0.45	0.52	0.90		
	/i/	> 20 Y	12	0.88	0.46	0.59	1.17	0.153	NS
		<=20 Y	12	0.61	0.43	0.34	0.89		
		Total	24	0.75	0.46	0.55	0.94		
	/u/	> 20 Y	13	0.80	0.45	0.53	1.07	0.026	Sig
		<=20 Y	11	0.44	0.25	0.27	0.61		
		Total	24	0.63	0.41	0.46	0.81		
Shimmer	/a/	> 20 Y	12	0.95	0.40	0.69	1.20	0.139	NS
		<= 20 Y	12	1.18	0.36	0.95	1.41		
		Total	24	1.06	0.39	0.90	1.23		
	/i/	> 20 Y	12	1.02	0.39	0.77	1.26	0.307	NS
		<= 20 Y	12	1.20	0.46	0.91	1.49		
		Total	24	1.11	0.43	0.93	1.29		
	/u/	> 20 Y	13	0.97	0.50	0.67	1.28	0.913	NS
		<= 20 Y	11	0.95	0.31	0.75	1.16		
		Total	24	0.97	0.42	0.79	1.14		
HNR	/a/	>20 Y	12	14.67	2.10	13.33	16.00	0.211	NS

	<=20 Y	12	13.75	1.29	12.93	14.57		
	Total	24	14.21	1.77	13.46	14.96		
/i/	>20 Y	12	15.25	1.14	14.53	15.97	0.031	Sig
	<=20 Y	12	13.83	1.80	12.69	14.98		
	Total	24	14.54	1.64	13.85	15.23		
/u/	>20 Y	13	15.23	1.96	14.04	16.42	0.231	NS
	<= 20 Y	11	14.36	1.36	13.45	15.28		
	Total	24	14.83	1.74	14.10	15.57		

The above table shows that significant differences were obtained in fundamental frequency (P=0.001). Also, significant differences were observed in jitter of /u/ and HNR of /i/.

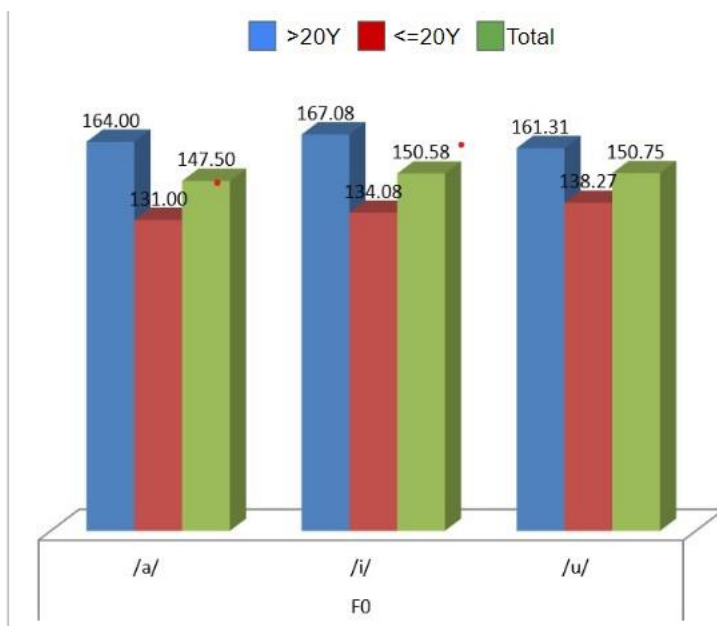
#### Fundamental frequency

Table 3: *Showing fundamental frequency of /a/, /i/ and /u/ of male khatibs based on the year of experience.*

		<20 Y	<=20 Y	Total
F0	/a/	164.00	131.00	147.50
	/i/	167.08	134.08	150.58
	/u/	161.31	138.27	150.75

The above table 3 shows the mean value of fundamental frequency for /a/ is 164 for above 20 years of experience and 131 for below 20 years of experience which means that the total value is 147. The parameter /i/ shows value of 167 for above 20 years of experience whereas 134 for below 20 years of experience and the total value is 150.58. At the same time, the fundamental frequency value of /u/ is 161 for participants above 20 years of experience and 138 for below 20 years of experience, with the total value of 150.75.

Fig 1: *This figure represents the graphical representation showing fundamental frequency of /a/, /i/ and /u/ of male khatibs based on the year of experience.*



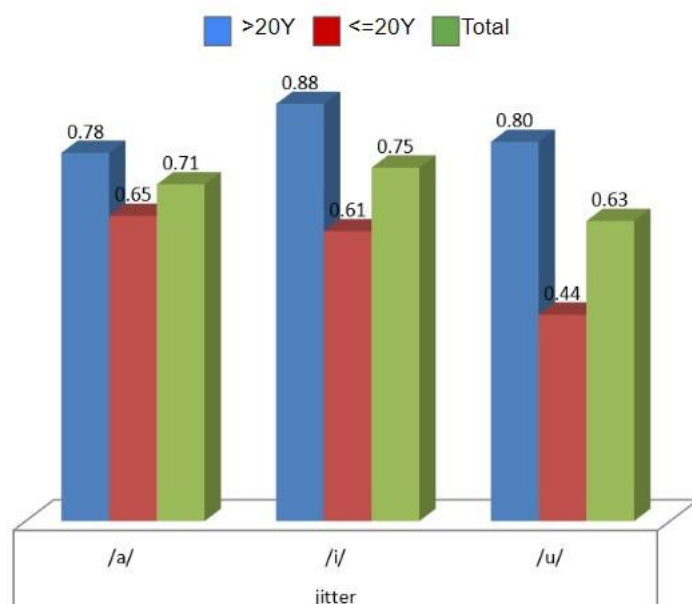
Jitter:

Table 4: Showing jitter of /a/,/i/ and /u/ of male khatibs based on the year of experience.

		<20 Y	<=20 Y	Total
Jitter	/a/	0.78	0.65	0.71
	/i/	0.88	0.61	0.75
	/u/	0.80	0.44	0.63

The above table 4 shows the mean value of jitter for /a/ is 0.78 among the participants above 20 years of experience and .65 for below 20years of experience. The table also shows that the value of parameter /i/ is .88 for above 20years of experience and .61 for below 20years of experience. The value of /u/ is 0.80 for participants with above 20years of experience and 0.44 for below 20 years of experience.

Figure 2: Showing graphical representation of jitter of /a/,/i/ and /u/ of male khatibs based on the year of experience.



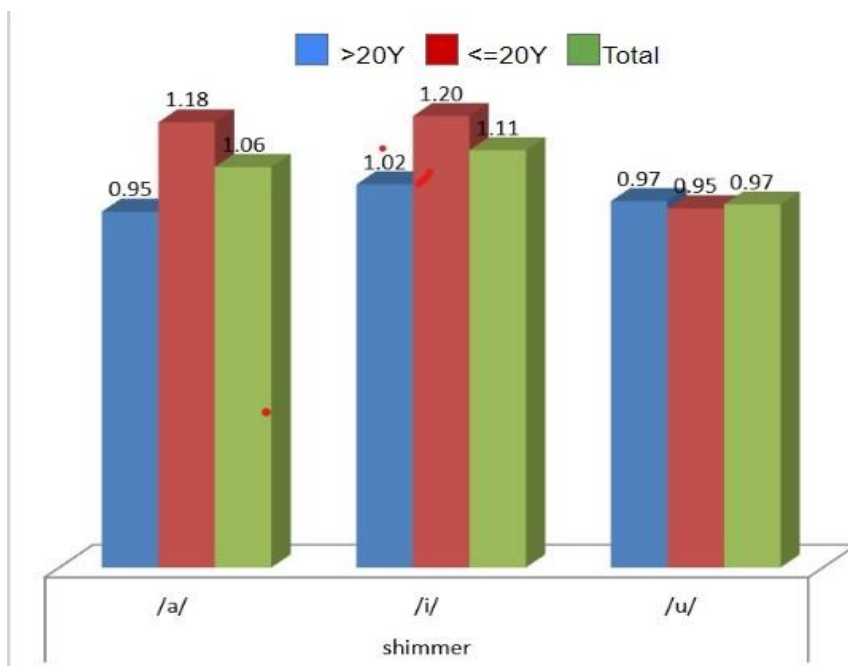
**Shimmer:**

Table 5: Showing shimmer of /a/,/i/ and /u/ of male khatibs based on the year of experience.

		<=20 Y	> 20 Y	Total
shimmer	/a/	0.95	1.18	1.06
	/i/	1.02	1.20	1.11
	/u/	0.97	0.95	0.97

The above table 5 shows the value of shimmer shows 0.95 for /a/ parameter in participants below 20 years of experience and 1.18 for participants above 20 years of experience with the total value of 1.06. The value for /i/ is 1.02 for below 20 years of experience and value is 1.2 for above 20 years of experience. With the total mean 1.11. It also shows that /u/ parameter provides value of .97 for below 20 years of experience and .95 for above 20 years of experience with total value of .97.

Figure 3: Showing graphical representation of shimmer of /a/,/i/ and /u/ of male khatibs based on the year of experience.



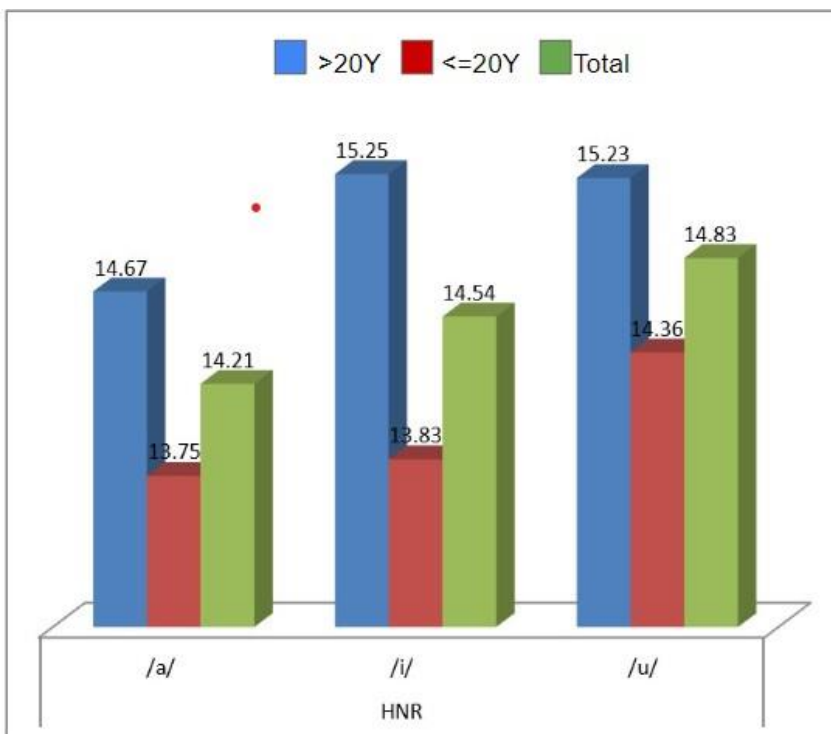
HNR:

Table 6: Shows the graphical representation of HNR of /a/, /i/ and /u/ of male khatibs based on the year of experience.

		<=20 Y	> 20 Y	Total
HNR	/a/	14.67	13.75	14.21
	/i/	15.25	13.83	14.54
	/u/	15.23	14.36	14.83

The above table 6 shows that the mean frequency of HNR value for the vowel /a/ in subjects with 20 years of experience or less is 14.67, and in those with more than 20 years of experience is 13.75 for the same. For the vowel /i/, the HNR value for subjects with 20 years or less experience is 15.25, and that of subjects with more than 20 years of experience is 13.83. Similarly, the HNR value of vowel /u/ in subjects with 20 years or less experience is 15.23. In the same way, participants having more than 20 years of experience, obtained HNR value of 14.36 for the same vowel /u/.

Fig 4 Showing graphical representation of HNR of /a/, /i/ and /u/ of male khatibs based on the year of experience.



## DISCUSSION

The result of the present study indicated no differences among the acoustic parameters on phonation of /a/, /i/ and /u/. Philip & Kumaraswamy (2013) reported that there were no differences observed in any of the parameters (fundamental frequency, jitter, shimmer, HNR and SNR) after continuous hours of preaching.

Also, when acoustic parameters were observed on the basis of years of experience, it showed that there were variations only in fundamental frequency, jitter and HNR. The result obtained showed an increase in fundamental frequency, jitter and HNR as the years of experience increased which correlated with the results obtained from the investigations by Elangovan, Paul & Kumaraswamy (2022) and Sebastian, Babu, Oommen & Ballraj (2012). Priyadharshini, Vasupradaa & Yeshoda (2020) found that temple priests had considerably larger mean frequency ranges and perturbations than other groups of professional voice users.

All these changes were significantly greater in older adults than in younger adults. Even though the acoustic measures are typical when compared to the pathological measures might be because of appropriate voice rest and adequate amount of intake of water taken into consideration by all Khatibs. The informal analysis of phonation also showed voice breaks and inadequate breath while phonating. These kinds of estimations were not found in the acoustic characteristics.

The end result provides a brief conclusion that a higher number of variations are observed in fundamental frequency, jitter and HNR on the basis of years of experience whereas no differences were observed on the phonation of /a/, /i/ and /u/. These acoustic measures were maintained with appropriate voice rest as well as hydration among the khatibs.



## Summary & Conclusion

Voice is a strong, useful and creative communication instrument. Voice helps in detecting subtle emotional undertones and complex scholarly concepts. However, the voice is the main tool via which a person's personality is portrayed and their fellow countrymen are impacted (Sataloff, 2006). Voice has been of major use by all professionals including the Khatib. Khatibs are the one who frequently use their voice for prayers as well as for religious classes.

The study was to analysis the acoustic characteristics among male Khatibs. The study was carried out among 22 male khatibs in which 11 of them had experience of less than 20 years and 11 of them with experience of more than 20 years. The participants were asked to relax in-order to take a deep breath. They were asked to phonate /a/, /i/, /u/ for about 5 seconds. The recording was carried out using PRAAT software and the analysis was done on features including fundamental frequency, jitter, shimmer and HNR. The statistical analyses for the obtained recordings were carried out using ANOVA and t test. The result shows slight variation in fundamental frequency, jitter and shimmer when analysed between the Khatib with more than 20 years of experience and also with less than 20 years of experience. All acoustic parameters did not show any differences whereas on the basis of year sof experience, differences were observed in the parameters like fundamental frequency, jitter and HNR.

When comparing the acoustic characteristic of khatibs with other professionals, it was found that all these professionals including teachers, singers and even khatibs face problems in vocal variation showing changes in voice characteristics and less vocal strain was observed even though there is more use of voice. Therefore, it's important for all these professionals to be aware of the vocal hygiene tips that help in the voice variation and to accelerate these tips as a management once they are in their working age.

## Implication of the Study

1. This gives an idea for the khatibs to seek intervention for their voice using different options including vocal hygiene tips.
2. This study provides an awareness to reduce the vocal strain for the khatibs.

## Limitations of the Study

1. Limited sample size.
2. Limited acoustic parameters (only FO, jitter, shimmer and HNR).
3. The effect of smoking and alcohol consumption in the khatibs is not taken into consideration.
4. The study was limited based on age and years of experience.

## Further Recommendations

1. More acoustic parameters can be included in the study.
2. Comparison of acoustic characteristics with perceptual characteristics can be analysed. Analysis of MPD and S/Z ratio can be considered for further studies.

3. Further study can be emphasised based on the working hours.

---

## References

- Ambreen, S., Bashir, N., Tarar, S. A., & Kausar, R. (2019). Acoustic analysis of normal voice patterns in pakistani adults. *Official Journal of the Voice Foundation and the International Association of Phonosurgery*, 33(1), 124-e49.
- AlBustan, S. A., Marie, B., Darawsheh, W., & Natour, Y. (2022). A Study of Voice Handicap and Acoustic Measures in Arab Kuwaiti Prospective Professional Singers. *International Journal of Phoniatics, Speech Therapy and Communication Pathology*.
- Balasubramaniam, R. K., Dsouza, S. B., Rao, A., Saldanha, S. J., Jahan, N., Thomas, E., & Gunjawate, D. R. (2020). Voice Complaints, Vocal and Non-vocal Behaviours Among Beatboxers—A Preliminary Study. *Official Journal of the Voice Foundation and the International Association of Phonosurgery*
- Balasubramaniam, R. K., Jacob, A. S., & Krishnamurthy, R. (2022). A cross-sectional study of acoustic and perceptual changes in voice during pregnancy. *Current Women's Health Reviews*, 18(2), 115-119.
- Brkic, , Liu, Campion and Leonhard, 2022), Changes in acoustic aspects of vocal function in children after adenotonsillectomy- *Official Journal of the Voice Foundation and the International Association of Phonosurgery* ,36(3)
- Büyükatalay, Z. C., Gökmen, M. F., Yıldırım, S., & Dursun, G. (2020). Voice disorders in Islamic religious officials: Is it any different than those of the teachers, another well-known professional voice users *Official Journal of the Voice Foundation and the International Association of Phonosurgery* ,34(5), 738-742.
- Colton, R.H., and Casper, J. K.(1996). Understanding Voice problems: *A physiological perspective for Diagnosis and Treatment*. Baltimore, MD: Williams and Wilkins. published 2006.
- Dhanshree R. Gunjawate, Rohit Ravi and Rajashekhar Bellur- Acoustic Analysis of Voice in Singers: A systematic review. Journal of Speech, Language, and Hearing Research, 61(1), 40-51
- Elsherbeny, M., Baz, H., & Afsah, O. (2022). Acoustic characteristics of voice and speech in Arabic-speaking stuttering children. *The Egyptian Journal of Otolaryngology*, 38(1), 1-9.
- Elangovan, Paul & Kumaraswamy (2022) – Aerodynamic and acoustical analysis of adults and geriatrics. *International Journal of Current Advanced Research*. 11(07),1348- 1355.
- Femia M. Philip & Satish Kumaraswamy (2016) Acoustic analysis of voice on male pastors- *unpublished dissertation*
- Farahat, M., & Mesallam, T. A. (2016). Psychosocial assessment of voice problems among Saudi imams. *British Journal of Medicine and Medical Research*, 11(12), 1.
- Fernández-García, S., Dumitrache, C. G., & González-López, J. A. (2021). Acoustic analysis of the voice in patients with Parkinson's disease and hypokinetic dysarthria *official journal of the Spanish and Latin American Association of Speech and Language Therapy and Audiology* 41(3), 142-150.

- Gorris, C., Maccarini, A. R., Vanoni, F., Poggioli, M., Vaschetto, R., Garzaro, M., & Valletti, P. A. (2020). Acoustic analysis of normal voice patterns in Italian adults by using Praat. *Official Journal of the Voice Foundation and the International Association of Phonosurgery*, 34(6), 961-e9
- Graham, Williamson (2014)- voice production- Retrieved: <https://www.sltinfo.com/voice-production/>.
- Koufmann, J., & Isaacson, G. (1991). *Clinical voice pathology: Theory and management*. (2<sup>nd</sup> edition), CA: Singular Publishing Group.
- Lathadevi, H. T., & Guggarigoudar, S. P. (2018). Objective Acoustic Analysis and Comparison of Normal and Abnormal Voices. *Journal of Clinical & Diagnostic Research*, 12(12).
- McRoberts, G. W., Studdert-Kennedy, M., & Shankweiler, D. P. (1995). The role of fundamental frequency in signaling linguistic stress and affect: Evidence for a dissociation. *official journal of the Psychonomic Society*.57(2), 159-174.
- Mahato, N. B., Regmi, D., Bista, M., & Sherpa, P. (2018). Acoustic analysis of voice in school teachers. *JNMA; Journal of the Nepal Medical Association*, 56(211), 658-661.
- Munjal, S., Sharma, A., Chhabra, N., & Panda, N. (2021). Perceptual, aerodynamic and acoustic evaluation of vocal characteristics in subjects with obesity. *Official Journal of the Voice Foundation and the International Association of Phonosurgery* Vol.36, Issue 4.
- Nussbaum, C., Schirmer, A., & Schweinberger, S. R. (2022). Contributions of fundamental frequency and timbre to vocal emotion perception and their electrophysiological correlates. *Social Cognitive and Affective Neuroscience*.
- Narasimhan, S. V., & Gowda, B. (2022). Multiparametric analysis of voice following prolonged voice use and voice rest in teachers: evidence from discriminant analysis. *European Archives of Oto-Rhino-Laryngology*, 279(3), 1397-1404.
- Pestana, P. M., Vaz-Freitas, S., & Manso, M. C. (2017). Prevalence of voice disorders in singers: systematic review and meta-analysis. *Official Journal of the Voice Foundation and the International Association of Phonosurgery*, 31(6), 722-727.
- Phyland, D., & Miles, A. (2019). Occupational voice is a work in progress: active risk management, habilitation and rehabilitation. *Current Opinion in Otolaryngology & Head and Neck Surgery*, 27(6), 439.
- Priyadarshini, V., Vasupradaa, M., & Yeshoda, K. (2021). Acoustic analysis of voice of temple priests. In *Recent Developments in Acoustics* (pp. 67-73). Springer, Singapore.
- Robieux, C., Galant, C., Lagier, A., Legou, T., & Giovanni, A. (2015). Direct measurement of pressures involved in vocal exercises using semi-occluded vocal tracts. *Journals Scandinavian Journal of Logopedics & Phoniatics and VOICE*.40(3), 106-112.
- Sorensen, D., & Horii, Y. (1982). Cigarette smoking and voice fundamental frequency. *Journal of communication disorders*, 15(2), 135-144.
- Sataloff, R.T(2006). *Vocal Health and Pedagogy*.2<sup>nd</sup> Edition, San Diego: Plural Publishing.
- Soltani, M., Ashayeri, H., Modarresi, Y., Salavati, M., & Ghomashchi, H. (2014). Fundamental frequency changes of persian speakers across the life span *Official Journal of the Voice Foundation and the International Association of Phonosurgery*, 28(3), 274-281.
- Sebastian, S., Babu, S., Oommen, N. E., & Ballraj, A. (2012). Acoustic measurements of

geriatric voice. *Journal of Laryngology and Voice*, 2(2), 81.

Teixeira, J. P., Oliveira, C., & Lopes, C. (2013). Vocal acoustic analysis–jitter, shimmer and hnr parameters. *Procedia Technology*, 9, 1112-1122.

---

## Western Aphasia Battery – Arabic

**Mrs. Nazia A Manaf, MASLP** ([naziamanaf@gmail.com](mailto:naziamanaf@gmail.com))

Contact No: 8594076316, 9995361986

**Dr. Rohila Shetty, Ph.D.** ([shettyro@gmail.com](mailto:shettyro@gmail.com))

Dr. M V Shetty College of Speech and Hearing, Mangalore, 575015

---

---

### Abstract

Aphasia is an acquired language impairment resulting from a focal brain lesion in the absence of other cognitive, motor, or sensory impairments. This language impairment can be present in all language components (phonology, morphology, syntax, semantics, pragmatics), across all modalities (speaking, reading, writing, signing), and in the output (expression) and input (comprehension) modes. Since almost a century ago, clinicians have evaluated people with aphasia using Aphasia test batteries. The Western Aphasia Battery (Kertesz, 1982) provides the diagnostic goals of classifying aphasia subtypes and rating the severity of aphasic impairment. When dealing with the issue of the increasing number of aphasics in various regions of the world speaking their own native language and the standardised assessment tool being available only in English, the variables impacting the outcome expand. This not only affects the diagnostic scenario but also reveals a major flaw in the method of service delivery. The Western Aphasia Battery (WAB), developed by Shewan and Kertesz in 1982, is one of the most often utilized complete test batteries to determine the type, degree, and severity of aphasia and to categorize aphasia subtypes. As of now, WAB has been developed and translated into several languages, there are currently no standardized measures available for assessing the rising number of Arabic-speaking individuals who are stricken by aphasia in communities around the world. The objective of this study is to develop and standardize the Arabic version of the Western Aphasia Battery (WAB-A).

### Introduction

Aphasia is an acquired language impairment resulting from a focal brain lesion in the absence of other cognitive, motor, or sensory impairments. This language impairment can be present in all language components (phonology, morphology, syntax, semantics, pragmatics), across all modalities (speaking, reading, writing, signing), and in the output (expression) and input (comprehension) modes. From a neurolinguistic perspective, aphasia is a breakdown in specific language domains resulting from a focal lesion (Lesser, 1987).

What is critical to an adequate definition is the mention of four primary facts: it is neurogenic; it is acquired; it affects language; and it excludes general sensory and mental deficits.

**Aphasia is neurogenic.** Aphasia always results from some form of damage to the brain. The specific structures affected vary among cases, as do the means by which the damage may occur. Still, the underlying cause of aphasia is always neurologic. Aphasia is most often caused by stroke, but may also arise from head trauma, surgical removal of brain tissue, growth of brain tumours, or infections.

**Aphasia is acquired.** Aphasia is not characterized as a developmental disorder; an individual is not born with it. Rather, it is characterized by the partial or complete loss of language function in a person who had previously developed some language ability. It is important to note that most people with aphasia retain many linguistic abilities; many experience problems of reduced efficiency of formulation and/or production, reduced access to linguistic information still stored in the brain, and reduced retention of new linguistic information, not necessarily a complete lack of ability in any given area of language processing in life.

**Aphasia involves language problems.** Aphasia is often described as symbolic processing disorders, a multimodal problem of formulation and interpretation of linguistic symbols. In defining aphasia, it is important to recognize that any or all modalities of symbolic communication may be affected: speaking, listening, reading, writing, and receptive and expressive use of sign language. Most cases involve at least some impairment in all language modalities.

**Aphasia is not a problem of sensation, motor function, or intellect.** Aphasia excludes general sensory and mental deficits. By definition, aphasia does not involve a problem of sight, touch, smell, hearing, or taste. Although aphasia may be accompanied by any number of other deficits in perceptual acuity, its definition excludes such deficits. Further, aphasia is not a result of general intellectual deterioration, mental slowing, or psychiatric disturbance. Aphasia is also not due to motor impairment. The exclusionary characteristics of the definition of aphasia are especially critical in the differential diagnosis of a wide array of neurogenic language, speech, cognitive, motor, and perceptual disorders.

The aspects of language impaired depends on the site of the lesion on the brain. Modalities that may be affected (in various combinations) are:

- Expressive Language (putting thoughts into words)
- Receptive Language
- Word Retrieval
- Reading

- Writing
- Swallowing problems

The level of frustration exhibited by a person with aphasia will vary depending on how aware they are of their deficit. According to the National Aphasia Association, more than 100,000 Americans acquire some form of aphasia each year.

Researchers have shown a great deal of interest in categorising aphasia based on its wide range of symptoms, leading to the existence of many classification systems that, from the early 19th century to the present, represent diverse concepts reflecting a difference in perspective. However, the classification scheme of Goodglass and Kaplan (1972) is currently used (Sarno, 2002; McNeil & Copland;2011). Goodglass and Kaplan (1972) provided the following major categorization for evaluating people with aphasia, including pure word deafness, Wernicke's aphasia, anomic aphasia, global aphasia, conduction aphasia, transcortical sensory aphasia, and mixed nonfluent aphasia.

Since almost a century ago, clinicians have evaluated people with aphasia using Aphasia test batteries. Between 1960 and 1982, as interest in aphasia rehabilitation increased and objective assessments of the effects of treatment were necessary, numerous test batteries that are used globally today were established (Byng, Kay, Edmundson, & Scott ,1990). Among them are the Boston Diagnostic Aphasia Examination (BDAE; Goodglass & Kaplan, 1983), the Porch Index of Communicative Ability (PICA; Porch, 1981), the Minnesota Test for Differential Diagnosis of Aphasia (MTDDA; Schuell, 1972), and the Western Aphasia Battery (WAB; Kertesz, 1982). The Western Aphasia Battery (Kertesz, 1982) provides the diagnostic goals of classifying aphasia subtypes and rating the severity of aphasic impairment. The test has been used in taxonomic classification studies (Kertesz, 1976; Kertesz & Phipps, 1977, 1980) and in the description of recovery from aphasia (Lomas & Kertesz, 1978). The test presents itself as a comprehensive aphasia battery which provides highly structured observations to arrive at a diagnosis.

Even among normal people, language skills might vary depending on factors including gender, age, education level, and other factors. For instance, it has been documented that literacy has an impact on cognitive processes, including language (Manly, Jacobs, Sano, Bell, Merchant, Small & Stern, 1999). Age also has a significant influence on language abilities such as vocabulary diversity, sentence complexity, subordinating conjunctions, and possibly sentence length (Bromley, 1991). In light of the fact that aphasia is an acquired language problem, careful consideration during linguistic assessment is essential from a diagnostics perspective. The results of the tests also are influenced by a variety of various circumstances. When dealing with the issue of the increasing number of aphasics in various regions of the world speaking their own native language and the standardised assessment tool being available only in English, the variables impacting the outcome expand. This not only affects the diagnostic scenario but also reveals a major flaw in the method of service delivery.

The Western Aphasia Battery (WAB), developed by Shewan and Kertesz in 1982, is one of the most often utilized complete test batteries to determine the type, degree, and severity of aphasia and to categorize aphasia subtypes. The WAB is intended to evaluate clinical language function in aphasic individuals and to offer the information required to determine a treatment outlook. The WAB is made to assess linguistic and nonlinguistic abilities. Content, fluency, auditory comprehension, repetition, reading, writing, calculation, and naming are all examples of linguistic skills. Drawing, block designing, and practice are examples of nonlinguistic skills. The scoring system offers the following general severity measures: The oral portion of the language assessment is used to calculate the Aphasia Quotient (AQ), which includes Spontaneous Speech (S), Auditory Verbal Comprehension (C), Repetition (R), and Naming (N), and the Cortical Quotient (CQ), which includes Nonverbal scores on reading, writing, apraxia, and constructional tasks, produces the Performance Quotient (PQ). The WAB has been translated into several languages, including Japanese (WAB Aphasia Test Construction Committee, 1986), Hebrew (Kasher, Batori, Soroker, Graves, & Zaidel, 1999), Korean (Kim & Na, 2004). A few Indian languages have their own versions of the WAB that have been modified, such as the test of aphasia in Malayalam (Jenny, 1992), the Telugu version of the Western Aphasia Battery (Pallavi, 2010), the Kannada version of the WAB (Chengappa & Kumar, 2008), the Bangla version of the Western Aphasia Battery (Keshree, Kumar, Basu, Chakrabarty & Kishore, 2013), and Western Aphasia Battery in Nepali (Shah, Karna & Verma, 2020).

The epidemiology and associated risk factors of stroke is high in the Middle Eastern countries. This could be due to higher level of stress due to various factors such as changes in lifestyle, especially in younger population, or exposure to prolonged political turbulence. Such factors could lead to an increase in the prevalence of non-communicable diseases such as stroke. While more studies are still required to understand the effects of each of the factors in contributing to a high number of stroke cases in the Middle East, from a therapeutic point of view, early and accurate diagnosis of aphasia assumes critical significance in providing effective care for stroke patients.

As of now, WAB has been developed and translated into several languages, there are currently no standardized measures available for assessing the rising number of Arabic-speaking individuals who are stricken by aphasia in communities around the world. Arabic is a Semitic language that first emerged in the 1st to 4th centuries common era. It is the native language of the Arab world. Arabic, in its Modern Standard Arabic form, is an official language of 26 states and 1 disputed territory, the third most after English and French. Arabic is the liturgical language of more than 2 billion people, and Arabic is one of six official languages of the United Nations. All varieties of Arabic combined are spoken by perhaps as many as 422 million speakers (native and non-native) in the Arab world, making it the fifth most spoken language in the world, and the fourth most used language on the internet in terms of users. The objective of this study is to develop and standardize the Arabic version of the Western Aphasia Battery (WAB-A).



## Review of Literature

Language is all around us. Our waking life hardly ever have a minute without words, and even in our dreams, we talk and are talked to. Perhaps more than any other characteristic, language is what sets humans apart from other animals. Knowing a language allows you to communicate with others and be understood by them. This indicates that you have the ability to both create sounds that have specific meanings and to comprehend or interpret the sounds made by others.

Aphasia is an acquired selective impairment of language modalities and functions resulting from a focal brain lesion in the language dominant hemisphere that affects the person's communicative and social functioning, quality of life, and the quality of life of his or her relatives and caregivers. (Papathanasiou, Coppens, & Potagas, 2011)

Aphasia is caused by acquired disease processes rather than congenital ones, such as cerebral infarction, tumours, and contusions. The former happens to those who could previously use language effectively.

Aphasia can make it difficult for a patient to understand language that they read, hear, spoken, or both. It may also damage the ability to understand visuomotor signs produced by a sign language. Writing and oral language output can both be impacted by aphasia. It has an impact on the user's capacity to communicate in a linguistically appropriate way. Aphasia often disturbs both reception and expression of language, in both visual (written) & auditory (spoken) modes.

Aphasics have trouble comprehending verbal messages, that is, understanding their meaning as opposed to hearing or seeing those messages. A person who is deaf or blind cannot understand language when processed through their perceptual impairment mode, but they can understand the same verbal communication normally when processed through an intact sensory modality, such as tactile Braille reading in the case of blindness. Aphasics also struggle with verbal message formulation, such as choosing the lexical and syntactic components required to transmit meaning and placing them in a relational framework to ensure that the recipient of the message really receives that meaning.

## Language Deviations in Aphasia

- Agrammatism
- Paragrammatism
- Phonetic deviations
- Phonological (literal) paraphasias
- Verbal paraphasias
- Semantic paraphasias
- Syntagmatic paraphasias

- Circumlocutions
- Neologism
- Jargon
- Impaired repetition ability
- Word finding difficulty

### Causes of Aphasia

1) **Traumatic Brain Injury (TBI)** happens when the brain is damaged by an abrupt trauma. Males typically have a 50% larger chance of sustaining a TBI than females do, across all age groups and everywhere. Depending on whether the skull was cracked as a result of the head trauma, TBIs are typically categorised as open or closed-head injuries. In closed head injury (CHI), the head suddenly hits an object, or an object hits the head, without breaking through the skull. CHIs are sometimes referred to as acceleration-deceleration injuries. This is because the head is in motion and is suddenly stopped on contact (e.g., when a passenger's head hits the windshield during a car accidents) or the object is in motion & is suddenly stopped by the head (e.g., when a brick falls from a building and lands on a person's head). An open head injury (OHI) involves breakage or penetration of the skull. Examples are falls that lead to skull fracture, gunshot wounds to the head, & lacerations by sharp objects, such as a knife, or axe.

2) **Cerebrovascular Accidents (CVA)** are caused by blood clots & broken blood vessels in the brain. Symptoms include dizziness, numbness, weakness on one side of the body, and problems with talking, writing, or understanding language. The risk of cerebrovascular accident is increased by high blood pressure, older age, smoking, diabetes, high cholesterol, heart disease, atherosclerosis (a build-up of fatty material and plaque inside the coronary arteries), & a family history of cerebrovascular accident. It is the medical term for a [stroke](#). There are two main types of cerebrovascular accident, or stroke: an **ischemic stroke** is caused by a blockage; a **hemorrhagic stroke** is caused by the rupture of a blood vessel. Both types of strokes deprive part of the brain of blood and oxygen, causing brain cells to die.

### The Signs of Aphasia

#### Naming Disturbances and the Production of Paraphasias

The ability to choose a word from the verbal lexicon that accurately expresses a concept is at the heart of language formation. Even though we may consciously search for the exact lexical item, a process known as word finding, the selection process is frequently automated. When word choice is unsuccessful, the desired thing is either left out or a wrong and unintended word is substituted. The latter is known as paraphasia and is most likely the primary aphasia indicator. It is referred to as verbal or global paraphasia if a whole word is substituted. It is known as a semantic paraphasia if the improperly chosen item falls under the same semantic field (for example, choosing a chair instead of a table). Jargon speech develops when verbal paraphasias occur too frequently and repeatedly in sentences. Words that are completely new

& not included in the dictionary of a given language can be considered as paraphasias (Neologistic paraphasias). The mechanism for the formulation of the new word may be a succession of phoneme substitutions. A single phoneme replacement or addition, such as when table becomes trable or fable, is referred to as a Phonemic or Literal paraphasia. When reading aloud or repeating spoken words, performing naming activities, or writing, paraphasias can occur; however, they are typically not present in automatic speech (emotional exclamations, series of numbers, calendar sequences).

### **Disturbance of Fluency**

It might be difficult to categorise the overall qualities of speech in aphasic patients, although they frequently fall into one of two categories: Fluent or Nonfluent. Fluent speech is close to normal speech in terms of the rate at which words are produced, the length of each sentence, the melodic contour of the sentences, & the general ease of the speaking act. In practical terms, it is usually measured by the longest continuous string of words that the patient produces in conversation. Fluent aphasic speech may be actually more abundant than normal speech. Nonfluent speech is the opposite: the rate is low, sentence length is short, the melodic contour is lost, the production is effortful, & there may be more pauses than actual words in a given time unit. Although some patients may have slight issues, most people with fluent speech have normal articulation. Although some do not, many patients with nonfluent speech also have flawless articulation. A fluency measurement can help with clinical classification & give an approximate idea of where the lesion is located. The posterior side of the perisylvian area is where lesions are most commonly found in patients with fluent aphasias. The anterior aspect of the perisylvian area is where lesions are most commonly found in patients with nonfluent aphasias (Benson, 1967).

### **Disturbances of Repetition**

Another sign of aphasia is the inability to repeat words or sentences. Repetition skills may be completely lost, impaired by phonemic paraphasias, or missing sounds and words. Most aphasias affect repetition, which really predominates the clinical presentation of conduction aphasia in large part due to the absence of other obvious deficits. The lesion is clearly located in the perisylvian region of the dominant hemisphere due to its existence. In the transcortical aphasias and the so-called anomic aphasias, whose corresponding lesion is located outside the perisylvian ring, repetition faults are noticeably missing. Transcortical aphasia patients may actually repeat too well, mimicking the examiner's statements as soon as they are spoken, frequently with little to no understanding of what they are parroting. Such a defect is called echolalia.

### **Disturbances of Auditory Comprehension**

Auditory comprehension can be impaired to variable degrees. Some patients are able to take part in a casual conversation, responding appropriately in words or by nodding, pointing, making facial expressions, or using gestures to show that they understand the messages being sent. Yet, confronted with laboratory tests, they may fail many items, especially when the

question aims at specifics rather than generalities, & when the linguistic structure is complex rather than transparent. Other patients may be quite impaired even in a simple conversation, let alone in the laboratory tests.

### **Disturbance of Grammatical Processing**

Agrammatism is another important sign of aphasia. It refers to difficulty with generating the syntactic frames into which lexical selections must be placed, and to a defective utilization of grammatical morphemes. It was previously believed that only Broca type patients were agrammatic, but it is now known that individuals with other aphasia types, including the frequently occurring Wernicke's aphasia, can also be agrammatic.

### **Disturbance of Reading and Writing**

Although the two defects don't always go together, reading comprehension & auditory comprehension can both be affected in similar ways. For instance, people with auditory comprehension defects typically have some reading difficulty, but the percentage of patients with both impairments is low. On the other hand, a reading disability might manifest in its purest form without affecting writing or aural comprehension. However, reading, writing, & auditory comprehension are typically all affected simultaneously by aphasia, although rarely to the same degree.

### **Apraxia**

Many aphasic individuals also exhibit apraxia, which can be seen as yet another symptom of aphasia from a practical and clinical perspective. Apraxia may be defined as a disorder of the execution of learned movement that cannot be accounted for by weakness, incoordination, sensory loss, or impaired comprehension or attention to commands. It is important to check for apraxia in all aphasic patients since it can make it difficult for them to carry out verbally ordered actions.

### **Classification of Aphasia**

Language disorders have been classified in several different ways, often based on different theoretical frameworks. The most typical classification is the so called neoassociationist classification, which is based on the anatomic disconnection model (Geschwind, 1967). According to this model, a lesion in a specific brain area result in a more or less well-defined aphasic syndrome.

### **Broca's Aphasia**

In Broca's aphasia, speech is effortful, nonfluent, consisting of short phrases or single words. However, the clinical picture can range from a total loss of speech to a minor deficiency that is only marked by problems with word finding. For instance, in telegraphic speech (also known as agrammatism), all short, function words (such as prepositions) are absent, and the patient primarily uses nouns & verbs to communicate. This pattern may also extend to written language. Automated verbal sequences, such as reciting the days of the week or counting, &

occasionally cursing or emotional speech, are usually preserved. Comprehension is relatively spared. However, a careful investigation reveals distinct deficiencies in understanding complicated syntactic structures. Reading aloud, writing, naming, & repetition of words or sentences are also impaired. Sometimes, phonemic paraphasias are seen. In addition to right hemiplegia of varying degrees, people with Broca's aphasia generally experience ideomotor apraxia (Benson, 1993), apraxia of speech (Basso, 2003), and apraxia of speech. Broca's aphasia is classically associated with a lesion in the posterior part of the inferior frontal gyrus, the insula, & the frontal operculum (the most posterior portion of the inferior frontal gyrus [i.e., of Broca's area] is part of the operculum). Premotor & prefrontal areas of the cortex, subcortical regions, and parts of the basal ganglia may also be affected.

### **Wernicke's Aphasia**

Wernicke's aphasia is described as a condition that is almost the opposite of normal language comprehension & verbal communication. The extent of comprehension problems may vary among patients & moderate comprehension deficits are not uncommon (Basso, 2003). Verbal output is fluent, & it is characterized by the presence of phonemic and semantic paraphasias, neologisms, & empty speech, while rich content words are reduced in frequency. When severe, this condition is called jargon aphasia. Because the persons with aphasia are unable to monitor their own verbal output because of the comprehension deficit, such patients are often unaware of their language disorder (anosognosia) and this further affects communication difficulties & often hinders rehabilitation. Repetition, naming, reading aloud, & writing are impaired. Ideomotor apraxia and hemianopia (Basso, 2003) or superior right quadrantanopia (Adams, Victor, & Ropper, 1997) are common in Wernicke's aphasia, while motor disorders are rare. Wernicke's aphasia is usually associated with lesions of the posterior left perisylvian region, localized in particular at the posterior part of the superior temporal region traditionally referred to as Wernicke's area, and occasionally extending to the adjacent parietal and temporal areas.

### **Conduction Aphasia**

The speech of conduction aphasics is fluent although usually less abundant than that of Wernicke's. Commonly there are minor defects in aural comprehension, although understanding of everyday conversation is intact. The impairment in repetition of words & sentences is commonly seen. The defect takes many forms. Most commonly, patients repeat words with phonemic paraphasias, but often they will omit or substitute words. Comprehension of the defectively repeated sentences is good. Deficits in naming & writing are common. Reading aloud is impaired & contains semantic & phonemic paralexias. Similarly, patients comprehend the sentences that they read aloud with numerous paraphasias. Conduction aphasics often have some accompanying motor signs (paresis of the right side of the face and of the right upper extremity), but recovery is good. The lesion associated with this aphasic syndrome is typically located in the left temporal-parietal junction. However, it has been proposed that conduction aphasia is the result of a more extensive lesion including other

structures, such as the insula, the primary auditory cortex, & the supramarginal gyrus (Damasio, 1998).

### **Transcortical Sensory Aphasia (TSA)**

In transcortical sensory aphasia, speech is fluent but, in many cases, meaningless or unintelligible (i.e., jargon), with many paraphasias & neologisms. Comprehension of oral & written language, naming, reading, & writing are severely impaired, while the most prominent characteristic is again the preserved ability of the patient to repeat words & sentences. Echolalia is present in some cases. This type of aphasia is associated with lesions posterior to the perisylvian region, in the parietaloccipital region (Adams, Vargha Khadem, Carr, Issacs, Brett & Mishkin 1997).

### **Transcortical Motor Aphasia (TMA)**

Patients with transcortical motor aphasia (TMA) have intact repetition. They can have echolalia as well. But the speech is nonfluent, troubled by phonemic & global paraphasias, perseveration, & loss of connective words. Auditory comprehension is also impaired when tested formally, although patients can often carry on a simple conversation at bedside. Reading aloud and writing are impaired. There is a striking preservation of the repetition capacity. Overall, the lesions that cause it to have been found in various sites: in the frontal region anterior or superior to Broca's area (Benson, 1993), at the supplementary motor area, or at the cingulate gyrus (Cummings & Mega, 2003). In some cases, the lesion is subcortical, affecting white matter beneath the frontal lobe (Damasio & Geschwind, 1984)

### **Global Aphasia**

Global aphasia includes severe deficits in all aspects of language. Speech is not fluent & often limited to stereotypic utterances. However, overlearned, automatized sequences (reciting the days of the week, for example) are sometimes preserved. Comprehension, naming, repetition, reading, & writing are severely impaired (Alexander, 2000). Such a condition is the result of a lesion covering a large portion of the perisylvian area, often caused by total occlusion of the left middle cerebral artery, therefore causing severe motor and sensory deficits involving the right half of the body & occasionally visual field defects, as well as oral, ideomotor, and ideational apraxias (Cummings & Mega, 2003).

### **Anomic Aphasia**

Anomic aphasia is often referred to as amnesic, amnesic, or nominal aphasia. Anomia refers to the patient's inability to find names of people or objects. The patient, although aware of the nature of an object, is unable to name it upon request. Verbal output is fluent, characterized by word-finding difficulties, frequent pauses, & circumlocutions, while phonemic & semantic paraphasias are rare. Repetition, comprehension, & reading aloud are spared. Anomic aphasia may be associated with lesions affecting posterior language areas, including the angular gyrus (in the parietal lobe, near the superior edge of the temporal lobe) or the middle temporal gyrus. However, it is frequently observed as the outcome of many

recovered aphasics. Moreover, several brain regions are involved in confrontation naming, depending on the type and modality of the stimulus. Thus, anomia is considered to have little or no localization value (Basso, 2003).

### **Assessment of Aphasia**

Purposes of assessment & testing assessment procedures vary greatly, depending on the examiner's goal. When assessing & selecting particular instruments, it is crucial to keep the aim in mind. A flexible & educated approach to assessment and testing is necessary to match the assessment technique to the patient. Screening, diagnostic assessment, descriptive testing for rehabilitation & counselling, & progress evaluation are the four main categories of evaluation purposes that can be identified.

Assessment procedure would help to propagate the management goals, monitor the progress in the intervention. The assessment protocols are the predictors of the prognosis. There are several extensive test batteries that include almost all the speech & language aspects, such as Boston Diagnostic Aphasia Examination (BDAE), the Western Aphasia Battery (WAB), the Multilingual Aphasia Examination (MAE), the Minnesota Test for Differential Diagnosis of Aphasia (MTDDA) etc. Tests mainly includes six domains namely, spontaneous speech, auditory verbal comprehension, repetition, naming, reading and writing.

The Western Aphasia Battery (WAB) (Kertesz, 1979, 1982) is a close relative of the BDAE and shares with it the diagnostic goal of classifying aphasia subtypes & rating the severity of the aphasic impairment. Four linguistic and three performance domains make up the test. The pattern of performance on the four language subtests, which rate name, repetition, comprehension, & spontaneous speech, is used to categorise syndromes. The Aphasia Quotient (AQ), which is based on weighted performance on various language subtests, provides an overall assessment of the severity of aphasia. A second summary measure, the Performance Quotient (PQ), is produced from the three performance categories of reading and writing, praxis, construction, & the Raven's Coloured Progressive Matrices. Finally, the Cortical Quotient (CQ) is calculated by adding the AQ & the PQ. Based on the results of the language subtest performed by 375 aphasic patients with varied etiologies and 162 healthy people, criteria for the classification of eight classic aphasic syndromes were described.

WAB might require at least two 2-hr sessions to complete. The main subtypes obtained with the WAB are Global, Broca's, Wernicke's, Conduction, Anomia, Transcortical motor, Transcortical sensory and Isolation aphasia's (Shewan & Kertesz, 1980). In summary, the primary purpose of the WAB, is diagnostic: the classification of aphasic performances into traditional aphasic syndrome subtypes.

**Table 2.1***Shows the Interpretation of WAB test material*

Aphasia type	Fluency	Auditory verbal Comprehension	Repetition	Naming and Word finding
Global	<5	0-3.9	0-4.9	<7
Broca's	<5	4-10	0-7.9	<9
Isolation	<5	0-3.9	5-10	<7
Transcortical motor	<5	4-10	8-10	<9
Wernicke 's	>4	0-6.9	0-7.9	<10
Transcortical sensory	>4	0-6.9	8-10	
Conduction	>4	7-10	0-6.9	
Anomic	>4	7-10	7-10	

**Western Studies**

Shewan and Kertesz (2002) studied on reliability and validity characteristics of the western aphasia battery (WAB). The findings indicated that the WAB is standardised on a sizable representative sample of aphasics & covers all severity levels and all forms of aphasia. The WAB has strong internal consistency and temporal stability reliability qualities.

Bakheit, Carrington, Griffiths and Searle (2009) explored the correlation between an impairment level and a functional level assessment scale of aphasia in Sixty-seven aphasic acute stroke patients who were undergoing conventional speech & language therapy (SLT). The Western Aphasia Battery (WAB) was used to evaluate language impairment, & the Communicative Effectiveness Index (CETI) was used to evaluate the communicative functional limitation brought on by aphasia. For each evaluation period, there was a statistically significant link between the two measures. According to the study, the WAB and CETI scores can be inferred from one another in the acute & subacute stages of stroke.

Dekhtyar, Braun, Billot, Foo, and Kiran's (2020) examined the validity of administering the Western Aphasia Battery via videoconference (WAB). Twenty adults with chronic aphasia completed the assessment both in person & via videoconference with the order counterbalanced across administrations. Specific adjustments were made to a few WAB subtests to allow for



computer and Internet engagement. Results showed that there was no difference in the domain scores between the two administration methods, which were closely associated. According to these results, administering the WAB in person or by videoconference may be equally effective for this patient population.

Peach, Ellis and Rothermich (2020) examine the individual contributions of the four major components (Spontaneous Speech, Auditory Verbal Comprehension, Repetition, Naming) & the 10 subtests of the Western Aphasia Battery (WAB) to the WAB AQ (Western Aphasia Battery Aphasia Quotient) using relative weight analysis. They concluded that Spontaneous Speech contributes 30%, Auditory Verbal Comprehension 20%, Repetition 25%, & Naming/Word Finding 25% to the Aphasia. Relative weight analysis for the 10 Western Aphasia Battery subtests revealed the major contributors to be Fluency (14.4%), Repetition (14.1%), Information Content (13.1%), and Object Naming (10.5%).

Rao, Roberts, Schafer, Rademaker, Blaze, Esparza, Salley, Coventry, Weintraub, Mesulam & Rogalski (2022) examined the Reliability of Telepractice Administration of the Western Aphasia Battery–Revised (WAB-R) in persons With Primary Progressive Aphasia (PPA). The WAB-R was given in person and through videoconference to 19 participants with mild to moderate PPA. This led to significant concordance between in-person and telehealth scores for the WAB-AQ (Western Aphasia Battery-Aphasia Quotient), Auditory Verbal Comprehension subtest, & Naming-Word Finding subtest. They concluded that it is important to use caution when comparing these scores across administration types because the Spontaneous Speech test summary score exhibited slightly worse concordance. Given the necessary modifications to the testing technique, these findings justify extending the use of telehealth administration of the WAB-R through videoconferencing to persons with mild to moderate PPA.

### **Indian Studies**

Keshree, Kumar, Basu, Chakrabarty, Kishore & Thomas in 2013 adapted the original WAB in Bengali to give the Bengali WAB (B-WAB), as no formal language assessment tool was available to date and out of all the tools available for aphasia diagnosis, the Western Aphasia Battery (WAB; Kertesz,) has proved to be one of the most comprehensive test batteries for describing the aphasia symptom.

Swati Bajpai and Nehra (2017) studied on the development & standardization of the Indian aphasia battery (IAB) & the results revealed that IAB is a quick and easy to administer measure for assessment of aphasia in Hindi-speaking population with high reliability and validity.

### **Need of the Study**

Prevalence of aphasia is increasing in Arab population, & it has a significant impact on clinical outcomes. It is clear that identifying language problems early on is crucial for

optimising the benefits of therapy. The created & standardised tool will aid in the early detection of communication difficulties in people with aphasia brought on by neuropathological diseases as well as the proper implementation of management programmes. However, there are currently no conventional measurements available for assessing the increased number of Arabic speaking individuals who are impacted by aphasia around the world. Arabic language is spoken in a large area including North Africa, most of the Arabian Peninsula, & other parts of the Middle East. Hence the need arises to create & standardise the Arabic version of the WAB (WAB-A).

### **Aim of the Study**

The aim of the present study was to develop & standardize Western Aphasia Battery in Arabic (WAB-A) based on the principles of Western Aphasia Battery (Kertesz, 1982) to assess the language abilities of aphasic patient.

### **Methodology**

#### **Aim**

The aim of the present study is to develop and standardize Western Aphasia Battery in Arabic (WAB-A) based on the principles of Western Aphasia Battery (Kertesz, 1982) to assess the language abilities of aphasic patient.

The study consisted of two phases:

- 1) Translation & Validation
- 2) Administration

#### **Phase 1:**

The Western Aphasia Battery given by (Kertesz in 1982) was adapted and the same was translated and modified by Mr. Muhammed Shafi, an Arabic Tutor at Hayatul Islam College in Aluva, Kochi. The translated material was then given to 5 speech language pathologists who have been working in the Middle East for 5 years. The SLP's rated the translated material for appropriateness using three-point rating scale. i.e., "Most appropriate", "appropriate with modification" and "not appropriate". The suggestions and the corrections advised by evaluators were incorporated and the final translated & validated material was ready (Appendix) for the next stage of the testing.

Forty individuals were further grouped in two categories (typical individuals & individuals with aphasia). Group 1 typical individuals were 10 males, 10 females and the age range of 18-60 with the mean age 31. All individuals were native speakers of Arabic language with no history of sensory, speech, language and cognitive impairment which was ensured during the testing.

Group 2 consisted of 20 individuals with aphasia in the age range of 30-75 with the mean age of 57. Table 3.1 following provides information on those who have aphasia. The group 2 patients with aphasia were those who underwent a stroke, and were admitted to the hospital, and received a diagnosis from a neurologist and a speech-language pathologist.

The purpose of the study, procedure and duration of testing was explained to the individuals, or the care giver and prior written consent was taken from the participants or the caregiver for participating in the study. The test was administered in a well illuminated quiet room with minimal obstacles and the individual's responses were documented. Scoring was given for each item.

**Table 3.1**

*Details of the individuals with Aphasia*

S. no	Age/Sex	Period post onset	Diagnosis
1	56/M	6 months	Left ACA/MCA Ischemic stroke
2	34/M	10 months	TBI
3	68/M	11 months	TBI
4	31/M	8 months	TBI
5	46/M	1 months	Right MCA Ischemic stroke
6	66/F	8 months	Acute left MCA Ischemic stroke
7	48/M	1 month	Right MCA Ischemic stroke
8	41/M	2 months	TBI
9	35/M	2 months	Ischemic stroke
10	55/M	7 months	TBI
11	48/M	10 months	TBI
12	55/M	1 month	Hemorrhagic stroke
13	50/M	1 month	Hemorrhagic stroke
14	59/M	3 months	Cerebrovascular accident
15	39/F	5 months	TBI

16	60/M	6 months	Ischemic stroke
17	28/F	2 months	Ischemic stroke left frontal lesion
18	71/M	1 month	Temporal thalamic infarct
19	68/M	3 months	Ischemic stroke
20	37/M	2 months	Hemorrhagic stroke

## Phase 2:

### Administration

The test was initially administered on typical individuals which were considered as normative for the developed test and the test was administered on individuals with aphasia to know the differences in their performances. Depending on the comfort of each person the test was administered in different seating position. Verbal and nonverbal instructions were given to perform each task. Presentation of objects and picture cards were varied with respect to tasks for typical individuals and individuals with aphasia. The seating position which was comfortable for them were considered. Initially, the clinician explained the task to be performed by the individuals. Instructions were repeated only if the participant did not perform any part of test trial correctly. The examiner gave pre-test instructions to the individuals to make sure whether the person has understood the task to be performed. They were instructed in Arabic to answer the questions appropriately and or point to picture cards or objects and to perform actions with objects paced on the table.

### Analysis

The statistical analysis showed that the mean and standard deviation for both the groups i.e., typical individuals and the aphasics were tabulated and the performance of both the groups were compared using nonparametric test (Mann Whitney U test) to analyze significant difference across various domains and subsections.

### Results and Discussion

The aim of the present study was to develop and standardize Western Aphasia Battery in Arabic (WAB-A) based on the principles of Western Aphasia Battery (Kertesz, 1979) to assess the language abilities of aphasic patient. The analysis of the obtained responses was administered with statistical procedures and the same has been discussed below.

#### 1. Spontaneous Speech

The spontaneous speech section assessed participant's fluency and content. Conversational questions and picture description tasks were used to assess this domain. The measurement of fluency factors such as effort to produce speech phrase length, word finding pauses, hesitations or circumlocutions, rate of speech, any melody and intonation problems were recorded.

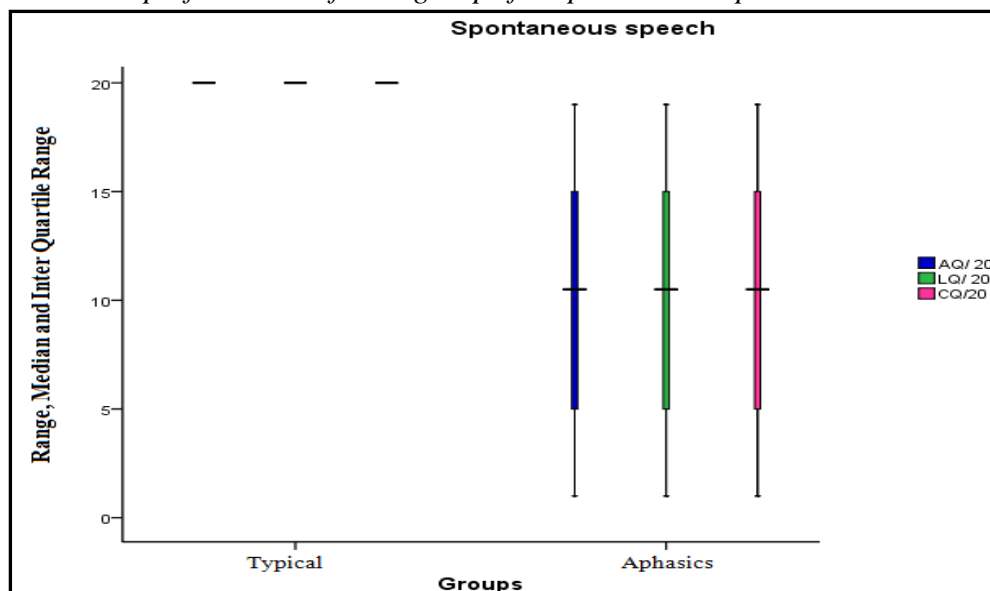
**Table 4.1**

Shows the Mean, Standard deviation (SD) and Significant difference of each group for spontaneous speech tasks

			Mean	S. D	Median	IQR	Mann Whitney "U"	p value
Spontaneous speech	AQ/20	Typical	20	0	20	20 to 20	0	< 0.001*
		Aphasics	9.75	5.61	10.5	4.5 to 15		
	LQ/20	Typical	20	0	20	20 to 20	0	< 0.001*
		Aphasics	9.75	5.61	10.5	4.5 to 15		
	CQ/20	Typical	20	0	20	20 to 20	0	< 0.001*
		Aphasics	9.75	5.61	10.5	4.5 to 15		

**Fig.4.1**

Shows the performance of both groups for spontaneous speech tasks



AQ= Aphasic Quotient, CQ= Cortical Quotient, LQ= Language Quotient

The content was evaluated for the spontaneous speech. The content parameters like paraphasias (phonemic/literal, neologism, semantic) syntactic or semantic errors, were recorded and the results were obtained for both the sections. From the Table 4.1 and Fig 4.1, it can be inferred that high significant scores were obtained when data was compared between typical and individuals with aphasia. Mann Whitney test was used for the comparison, there was a difference ( $p < 0.001$ ). From the table and figure it's clear that individuals with aphasia performed poorly compared to that of the typical population.

## 2. Auditory Verbal Comprehension

This domain covers three subtests which are yes/no question, auditory word recognition, and sequential commands.

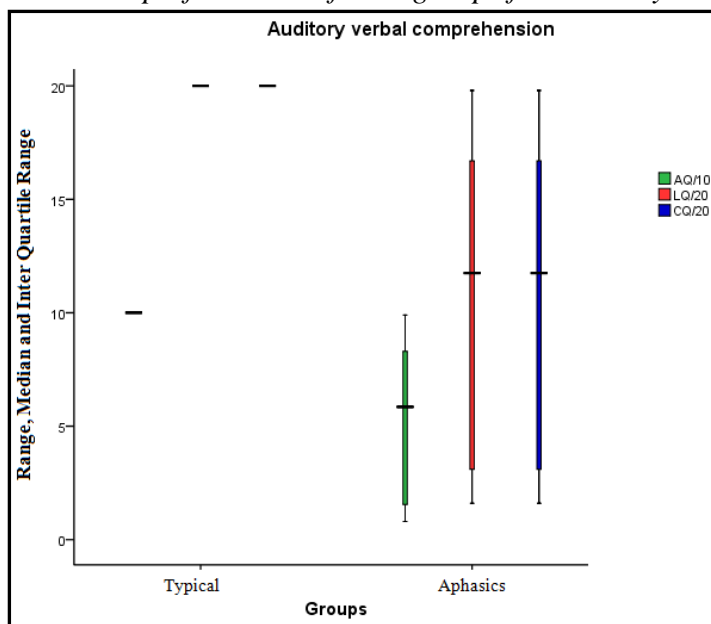
**Table 4.2**

*Shows the Mean, Standard deviation (SD) and Significant difference of each group for Auditory Verbal Comprehension tasks*

			Mean	S. D	Median	IQR	Mann Whitney "U"	p value
Auditory verbal comprehension	AQ/10	Typical	10	0	10	10 to 10	0	< 0.001*
		Aphasics	5.30	3.40	5.85	1.53 to 8.35		
	LQ/20	Typical	20	0	20	20 to 20	0	< 0.001*
		Aphasics	10.67	6.81	11.75	3.05 to 16.8		
	CQ/20	Typical	20	0	20	20 to 20	0	< 0.001*
		Aphasics	10.67	6.81	11.75	3.05 to 16.8		

**Fig.4.2**

*Shows the performance of both groups for Auditory Verbal Comprehension tasks*



The mean scores for AQ, LQ, and CQ in aphasics were 5.35, 10.67, and 10.67, respectively, whereas the mean scores for normals were 10, 20, and 20. This indicates clearly that individuals with aphasia performed worse than the normal community. It is evident from Fig. 4.2 above that the performance of the typical individuals was significantly superior than that of the aphasic individuals. The results of the statistical analysis revealed that there was a big difference between the two groups.

### 3. Repetition

In this domain the patient was asked to repeat words, phrases, and sentences of increasing length and complexity. Phonemic substitution, instances of stuttering, repetitions, segmentations, dysprosody and other features of verbal apraxia were noted.

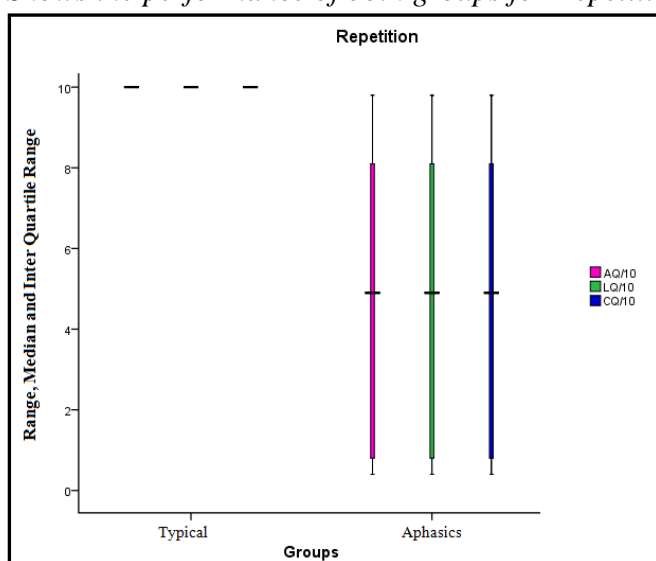
**Table 4.3**

*Shows the Mean, Standard deviation (SD) and Significant difference of each group for Repetition tasks*

			Mean	S. D	Median	IQR	Mann Whitney "U"	p value
Repetition	AQ/10	Typical	10	0	10	10 to 10	0	< 0.001*
		Aphasics	4.70	3.55	4.9	0.8 to 8.15		
	LQ/10	Typical	10	0	10	10 to 10	0	< 0.001*
		Aphasics	4.70	3.55	4.9	0.8 to 8.15		
	CQ/10	Typical	10	0	10	10 to 10	0	< 0.001*
		Aphasics	4.70	3.55	4.9	0.8 to 8.15		

**Fig.4.3**

*Shows the performance of both groups for Repetition tasks*



In this task, the normal subjects had no trouble understanding, indicating that this population's speech and language traits were clinically normal. The patients with aphasia who had their brain lesions investigated at various sites revealed a great variation, as seen in Table 4.3 and in Fig 4.3. There was a difference ( $p < 0.001$ ) in the scores of repetition tasks between aphasics and typical.

### 4. Naming and Word Finding

This domain consisted of three subtests, object naming, word fluency, responsive speech, and sentence completion.

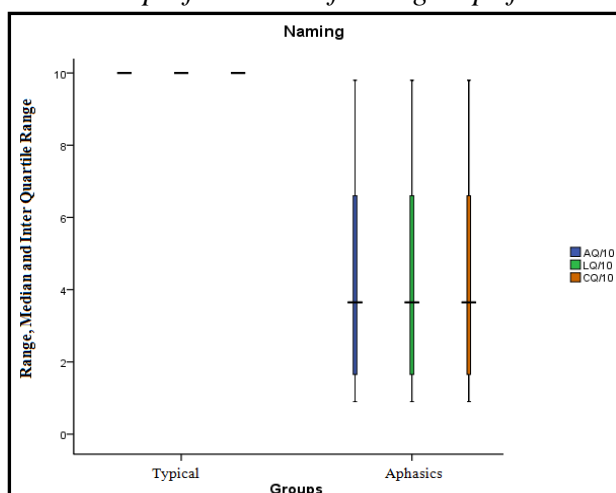
**Table 4.4**

*Shows the Mean, Standard deviation (SD) and Significant difference of each group for Naming and Word finding tasks*

			Mean	S. D	Median	IQR	Mann Whitney "U"	p value
Naming and word finding	AQ/10	Typical	10	0	10	10 to 10	0	< 0.001*
		Aphasics	4.32	3.12	3.65	1.48 to 6.9		
	LQ/10	Typical	10	0	10	10 to 10	0	< 0.001*
		Aphasics	4.32	3.12	3.65	1.48 to 6.9		
	CQ/10	Typical	10	0	10	10 to 10	0	< 0.001*
		Aphasics	4.32	3.12	3.65	1.48 to 6.9		

**Fig. 4.4**

*Shows the performance of both groups for naming and word finding tasks*



According to the results shown in Table 4.4 when compared to the aphasic population, normal individuals earned high significant scores, and according to Fig. 4.4, the group of people with aphasia performed worse than the average group of people.

## 5. Reading

Reading task carries different tasks like comprehension of sentences, reading commands, written word- object choice matching, written word-picture choice matching, picture-written word choice matching, spoken word-written word choice matching, letter discrimination, spelled word recognition, and spelling. The response mode for these reading tasks was verbal.



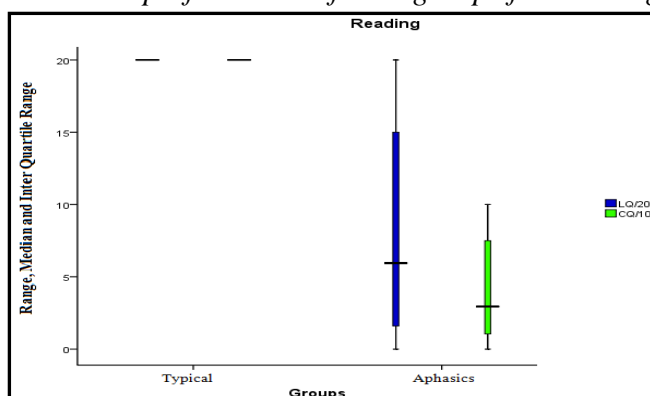
**Table 4.5**

Shows the Mean, Standard deviation (SD) and Significant difference of each group for Reading tasks

			Mean	S.D	Median	IQR	Mann Whitney "U"	p value
Reading	LQ/20	Typical	20	0	20	20 to 20	10	< 0.001*
		Aphasics	8.18	7.17	5.95	1.6 to 15.3		
	CQ/10	Typical	18	4.10	20	20 to 20	2	< 0.001*
		Aphasics	4.14	3.54	2.95	0.93 to 7.65		

**Fig. 4.5**

Shows the performance of both groups for Reading tasks



In reading tasks, normals had higher mean and median LQ and CQ scores than aphasics. It is evident that those who have aphasia performed worse than the normal group.

## 6. Writing

There are 7 different tasks evaluated to explore the performance of writing. The tasks were, writing upon request, writing output, writing to dictation, writing dictated words, writing alphabets and numbers, dictated letters and numbers and copying a sentence.

**Table 4. 6**

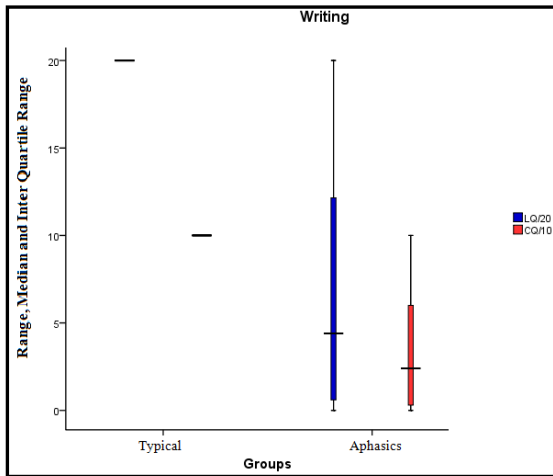
Shows the Mean, Standard deviation (SD) and Significant difference of each group for Writing tasks

			Mean	S. D	Median	IQR	Mann Whitney "U"	p value
Writing	LQ/20	Typical	20	0	20	20 to 20	10	< 0.001*
		Aphasics	6.44	6.67	4.4	0.4 to 12.18		
	CQ/10	Typical	10	0	10	10 to 10	10	< 0.001*

		Aphasics	3.32	3.28	2.4	0.2 to 6		
--	--	----------	------	------	-----	----------	--	--

**Fig. 4.6**

Shows the performance of both groups for Writing tasks



When data between typical and aphasic individuals were compared, scores for the typical population were found to be extremely significant, as shown in Table 4.6. Additionally, it is evident from Fig. 4.6 that the aphasic people underperformed compared to the normal group. According to the Mann Whitney test, there are quite substantial differences between the groups.

### 7. Apraxia

In this domain the patient was asked to perform certain actions based on the instructions.

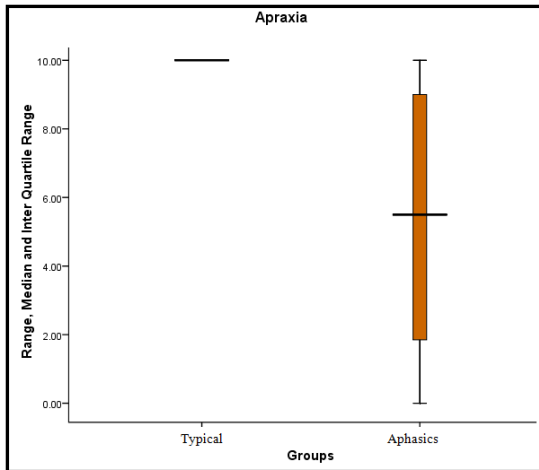
**Table 4.7**

Shows the Mean, Standard deviation (SD) and Significant difference of each group for Apraxia

		Mean	S. D	Median	IQR	Mann Whitney "U"	p value
Apraxia	CQ/10	10	0	10	10 to 10	10	< 0.001*
		5.59	3.44	5.5	1.73 to 9		

**Fig. 4.7**

Shows the performance of both groups for Apraxia



The CQ for apraxia in aphasics is lesser than typical, which clearly says that the individuals with aphasia performed poorly compared to that of the typical group with high significant difference among the groups. The mean and median scores were 5.59 and 5.5, whereas normals scored 10 and 10.

### 8. Constructional, Visuospatial and Calculation Tasks

In this domain the patient was instructed to draw based on the clinician’s command. They were also presented with block designs and calculation tasks.

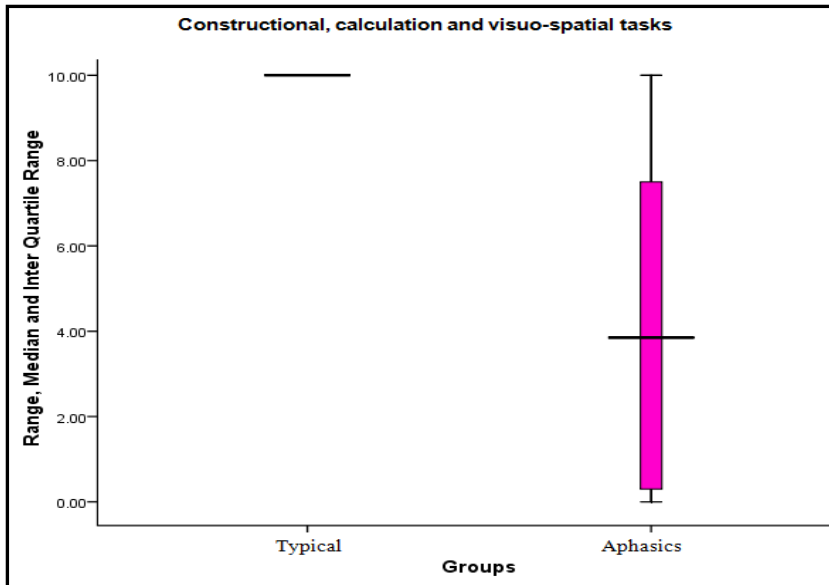
**Table 4.8**

*Shows the Mean, Standard deviation (SD), and Significant difference of each group for Constructional, visuospatial and calculation tasks*

			Mean	S. D	Median	IQR	Mann Whitney "U"	p value
Constructional, visuospatial & calculation tasks	CQ/10	Typical	10	0	10	10 to 10	10	< 0.001*
		Aphasics	4.23	3.67	3.85	0.3 to 7.65		

**Fig.4.8**

*Shows the performance of both groups for Constructional, visuospatial and calculation tasks*



It is clear from the aforementioned Tables 4.8 as well as Fig. 4.8, that people with aphasia were unable to perform constructional, visuospatial, and calculational tasks. They exhibited difficulty in performing these tasks as compared to normal with scores 4.23.

## Discussion

### 1. Spontaneous Speech

Conversational questions and a description of the image were included in spontaneous speech tasks. The aphasics and the normal people were asked common, straightforward questions in this domain. As shown in the results, the individuals with aphasia could not perform well compared to normal, due to the lesions in their brain, and there was a highly significant difference among the two groups.

### 2. Auditory Verbal Comprehension

This domain covers the five subtests namely yes/no question, pointing task, auditory word recognition, verification task and sequential command. The auditory verbal comprehension is understanding what one hears through listening. Individuals with aphasia showed poorer response compared to that of the typical group because of the different sites of lesions.

Mansur, Radanovic, Taquemori, Greco and Araujo ( 2005) analyzed the performance of 162 normal subjects, subdivided into groups according to age and schooling, in the oral comprehension tasks of the Boston Diagnostic Aphasia Examination translated and adapted to Brazilian Portuguese to obtain a profile of performance for the Brazilian population, as well as cut-off scores for each task, and to determine the best combination of tasks that distinguish normal from aphasic subjects, as a guide for clinicians. The normal subjects were compared to 69 aphasics. Age alone influenced the performance in the designation of actions (subjects above 70 years showing the worst performance); schooling alone influenced the

comprehension of forms, colours and numbers (subjects with less than four years of education showing a poorer performance). Both age and schooling influenced the performance.

### **3. Repetition**

Repetition has possibly become the most important language feature in aphasia classification. As shown in the results the individuals with aphasia had difficulty in repetition. The possible explanation could be the site of lesions occurring at the areas responsible for the same work (repetition). Broca's, Wernicke's, and conduction aphasias all have a substantial correlation with repetition difficulties, but these deficits vary both quantitatively and qualitatively.

### **4. Naming**

One of the most crucial skills in linguistic processing is naming. It requires the retrieval of synchronised phonological and semantic data from a memory system that may be evaluated in response to a stimulus. When compared to normal people, aphasic populations have less of this capacity.

### **5. Reading**

The reading deficits may occur in oral reading or in comprehension of printed material, and at the single word or text level. The possible cause of reading deficits could be the result of a phonological, lexical, semantic, and /or cognitive impairment. As shown in the results the aphasic individuals exhibited huge difficulty compared to that of the typical group.

### **6. Writing**

Writing is a skill where the other movements of the body is involved like eye gaze, focused visual attention and visual movements etc. When the obtained data was compared between the typical and individuals with aphasia, individuals with aphasia performed poorly compared to that of the typical group.

### **7. Apraxia**

Apraxia is regularly associated with aphasia, but there is controversy whether their co-occurrence is the expression of common basic deficit or results from anatomical proximity of their neural substrates. However, neither aphasia nor apraxia is an indivisible entity.

### **8. Constructional, Visuospatial and Calculation Tasks**

Right focal brain damage (RBD) and left focal brain damage (LBD) shows defective performances on the constructional task with respect to normal subjects. The aphasic population scored lower than typical subjects in judging angle width and mentally assembling abstract geometrical figures. Overall, the results were poor in all the components in Aphasic individuals as compared to that of the typical individuals.

Overall, the results were poor in all components in Aphasic individuals as compared to that of the typical individuals.

### **Summary and Conclusion**

Aphasia is a language impairment caused by brain injury that affects phonological, morphological, lexical, semantic, or syntactic levels of language processing (Code & Petheram, 2011). It is a recently acquired condition of the central nervous system that affects the process of understanding and formulating verbal messages (CNS). Aphasia is caused by acquired disease processes rather than congenital ones, such as cerebral infarction, tumours, and contusions. The former happens to those who could previously use language effectively.

The epidemiology and associated risk factors of stroke is high in the Middle Eastern countries. This could be due to higher level of stress due to various factors such as changes in lifestyle, especially in younger population, or exposure to prolonged political turbulence. Such factors could lead to an increase in the prevalence of non-communicable diseases such as stroke. While more studies are still required to understand the effects of each of the factors in contributing to a high number of stroke cases in the Middle East, from a therapeutic point of view, early and accurate diagnosis of aphasia assumes critical significance in providing effective care for stroke patients.

As of now, WAB has been developed and translated into several languages, there are currently no standardized measures available for assessing the rising number of Arabic-speaking individuals who are stricken by aphasia in communities around the world. Arabic is a Semitic language that first emerged in the 1st to 4th centuries common era. It is the native language of the Arab world. Arabic, in its Modern Standard Arabic form, is an official language of 26 states and 1 disputed territory, the third most after English and French. Arabic is the liturgical language of more than 2 billion people, and Arabic is one of six official languages of the United Nations. All varieties of Arabic combined are spoken by perhaps as many as 422 million speakers (native and non-native) in the Arab world, making it the fifth most spoken language in the world, and the fourth most used language on the internet in terms of users. The objective of this study was to develop and standardize the Arabic version of the Western Aphasia Battery (WAB-A).

The study was carried out in two phases, 1) translation and validation and 2) administration. The Western Aphasia Battery was customized and the same was translated into Arabic language by an Arabic tutor. The translated material was given to 5 speech language therapists who were working in Middle East for the last five years. The test material contains 8 components which are, 1) Spontaneous speech 2) Auditory verbal comprehension 3) Naming 4) Repetition 5) Reading 6) Writing 7) Apraxia 8) Constructional, visuospatial skills.

Administration of the test was depending on the comfort of each person the test was administered in different seating position. Verbal and non-verbal instructions were given to

perform each task. Presentation of objects and picture cards were varied with respect to tasks for typical individuals and individuals with aphasia. The seating position which was comfortable for them were considered. Initially, the clinician explained the task to be performed to the individuals. Instructions were repeated only if the participant did not perform any part of test trial correctly. This test was carried out on 20 typical adults and twenty individuals with aphasia. The sensitivity of the test was also done by comparing the typical group with aphasics.

The obtained data were tabulated, and the statistical analysis were also done. For aphasics and the typical group, the scores like mean, standard deviation were calculated separately. Mann Whitney test was used to find the significant difference between the groups and to compare the performance of typical and aphasics.

Results of the study revealed that the individuals with aphasia performed poorly compared to that of the typical group and there was a significant difference seen for all the subtests (Spontaneous speech, auditory verbal comprehension, repetition, naming. reading writing, apraxia and visuospatial skill).

The current study clearly shows that aphasic patients can be identified and classified into the types of aphasia and also the severity of the linguistic and non-linguistic deficits can be obtained in terms of the AQ, LQ and CQ using WAB-A(Western Aphasia Battery-Arabic). The test gives detailed information about oral language abilities which further provides the baseline for therapy plan and recovery. It can be concluded that there is a consistency in performance and the WAB-A is a reliable tool to be used among Arabic population around the world. It is proved beyond doubt that the WAB-A differentiates between normal and aphasic performance. Thus, it can be inferred from this research that the WAB-A can be a useful instrument for assessing aphasic individuals between the ages of 18 and 75.

---

---

### References

- Adams, R. D., Victor, M., Ropper, A. H., & Daroff, R. B. (1997). *Principles of neurology*.
- Alexander, M. P. (2000). Aphasia I: Clinical and anatomic issues. *Patientbased approaches to cognitive neuroscience*, 165-181.
- Aphasia syndromes. *Psychological Research*, 41, 179-198.
- Ardila, A. (2014). Aphasia handbook. *Miami, FL: Florida International University*, 102(35), 75-112.
- Bakheit, A. M. O., Carrington, S., Griffiths, S., & Searle, K. (2005). High scores on the Western Aphasia Battery correlate with good functional communication skills (as measured with the Communicative Effectiveness Index) in aphasic stroke patients. *Disability and Rehabilitation*, 27(6), 287-291.
- Basso, A. (2003). *Aphasia and its therapy*. Oxford University Press.

- Basso, A., Capitani, E., & Moraschini, S. (1982). *Sex differences in recovery from aphasia. Cortex, 18*(3), 469-475.
- Benson, D. F. (1967). Fluency in aphasia: correlation with radioactive scan localization. *Cortex, 3*(4), 373-394.
- Benson, D. F. (1993). Aphasia. *Clinical neuropsychology, 28-30*.
- Borod, J. C., Goodglass, H., & Kaplan, E. (1980). Normative data on the Boston diagnostic aphasia examination, parietal lobe battery, and the Boston naming test. *Journal of Clinical and Experimental Neuropsychology, 2*(3), 209-215.
- Bromley, D.B. (1991). Aspects of written language production over adult life. *Psychology & Aging, 6* (2), 296-308.
- Byng, S., Kay, J., Edmundson, A., & Scott, C. (1990). Aphasia tests reconsidered. *Aphasiology, 4*(1), 67-91.
- Chengappa, S.K. & Kumar, R. (2008). Normative & clinical data on the Kannada version of Western Aphasia Battery (WAB-K). *Language in India, 8*.
- Code, C., & Petheram, B. (2011). Delivering for aphasia. *International Journal of Speech-Language Pathology, 13*(1), 3-10.
- Cummings, J. L., & Mega, M. S. (2003). *Neuropsychiatry and behavioral neuroscience*. Oxford University Press.
- Damasio, A. R. (1998). Signs of aphasia. *Acquired aphasia, 2*, 27-43.
- Damasio, A. R., & Geschwind, N. (1984). The neural basis of language. *Annual review of neuroscience, 7*(1), 127-147.
- Dekhtyar, M., Braun, E. J., Billot, A., Foo, L., & Kiran, S. (2020). Videoconference administration of the Western Aphasia Battery–Revised: Feasibility and validity. *American Journal of Speech-Language Pathology, 29*(2), 673-687.
- Ellis, C., Peach, R. K., & Rothermich, K. (2021). Relative weight analysis of the Western Aphasia Battery. *Aphasiology, 35*(10), 1281-1292.
- Fromkin, V., Rodman, R., & Hyams, N. (2013). *An introduction to language*. Cengage Learning.
- Geschwind, N. (1967). *Wernicke's contribution to the study of aphasia. Cortex, 3*(4), 449-463.
- Goodglass, H. & Kaplan, E. (1983). *The Boston Diagnostic Aphasia Examination*. Philadelphia, PA: Lea & Febiger.
- Jenny, E.P. (1992). *A Test of Aphasia in Malayalam*. Unpublished master's dissertation, University of Mysore, India.
- Kasher, A., Batori, G., Soroker, N., Graves, D., & Zaidel, E. (1999). *Effects of right and left-hemisphere damage on understanding conversational implicatures. Brain and Language, 68* (3), 566-590.
- Kaur, H., Bajpai, S., Pershad, D., Sreenivas, V., & Nehra, A. (2017). Development and standardization of Indian aphasia battery. *Journal of Mental Health and Human Behaviour, 22*(2), 116.
- Kertesz, A. & Phipps, J. (1977). Numerical taxonomy of aphasia. *Brain and Language, 4*, 1-10.



- Kertesz, A. & Phipps, J. (1980). The numerical taxonomy of acute and chronic aphasia syndromes. *Psychological Research*, 41 , 179-198.
- Kertesz, A. (1982). *Western Aphasia Battery*. Orlando, FL: Grune & Stratton.
- Kertesz, A., & Hooper, P. (1982). Praxis and language: The extent and variety of apraxia in aphasia. *Neuropsychologia*, 20(3), 275-286.
- Keshree, N. K., Kumar, S., Basu, S., Chakrabarty, M., & Kishore, T. (2013). Adaptation of the western aphasia battery in Bangla. *Psychology of Language and Communication*, 17(2), 189.
- Kim, H. & Na, D.L. (2004). Normative data on the Korean version of the Western Aphasia Battery. *Journal of Clinical and Experimental Neuropsychology*, 26 (8), 1011-1020.
- LaPointe, L. L. (2005). *Aphasia and related neurogenic language disorders*. Thieme Medical Pub.
- Lesser, R. (1987). Cognitive neuropsychological influences on aphasia therapy. *Aphasiology*, 1(3), 189-200.
- Lomas, J., & Kertesz, A. (1978). Patterns of spontaneous recovery in aphasic groups: A study of adult stroke patients. *Brain and Language*, 5(3), 388-401.
- Manly, J.J., Jacobs, D.M., Sano, M., Bell, K., Merchant, C.A., Small, S.A., & Stern, Y. (1999). Effect of literacy on neuropsychological test performance in nondemented, education-matched elders. *Journal of the International Neuropsychological Society*, 5, (3), 191-202.
- Mansur, L. L., Radanovic, M., Taquemori, L., Greco, L., & Araújo, G. C. (2005). A study of the abilities in oral language comprehension of the Boston Diagnostic Aphasia Examination-Portuguese version: a reference guide for the Brazilian population. *Brazilian Journal of Medical and Biological Research*, 38, 277-292.
- McNeil, M.R. & Copland, D.A. (2011). *Aphasia theory, models, and classification*.
- Pallavi, M. (2010). *Development of Western Aphasia Battery in Telugu*. Unpublished master dissertation, University of Mysore, India.
- Papathanasiou, I., & Coppens, P. (2013). Aphasia and related neurogenic communication disorders: basic concepts and operational definitions. *Aphasia and related neurogenic communication disorders*, xix-xxiii.
- Papathanasiou, I., Coppens, P., & Potagas, C. (2011). *Aphasia and related neurogenic communication disorders* (Malloy).
- Porch, B.E. (1981). *Porch Index of Communicative Ability*. Palo Alto, CA: Consulting Psychologists Press.
- Rao, L. A., Roberts, A. C., Schafer, R., Rademaker, A., Blaze, E., Esparza, M., & Rogalski, E. (2022). The Reliability of Telepractice Administration of the Western Aphasia Battery–Revised in Persons With Primary Progressive Aphasia. *American journal of speech-language pathology*, 31(2), 881-895.
- Roberta, C. *Language Intervention Strategies in Aphasia and Related Neurogenic Communication Disorders*. 5th.
- Sarno, M. T. (2002). *Aphasia*.

- Sarno, M. T. (Ed.). (1998). *Acquired aphasia*. Elsevier.
- Schuell, H. (1972). *The Minnesota Test for Differential Diagnosis of Aphasia*. Minneapolis:University of Minnesota Press.
- Shah, J., Karna, S. L., & Verma, H. (2020). Construction of western aphasia battery in Nepali: A pilot study. *The Journal of Neurobehavioral Sciences*,7(2), 47.
- Shewan, C. M., & Kertesz, A. (1980). Reliability and validity characteristics of the Western Aphasia Battery (WAB). *Journal of Speech and Hearing Disorders*, 45(3), 308-324.
- Shewan, C. M., & Kertesz, A. (1984). Effects of speech and language treatment on recovery from aphasia. *Brain and language*, 23(2), 272-299.
- Vargha-Khadem, F., Carr, L. J., Isaacs, E., Brett, E., Adams, C., & Mishkin, M. (1997). Onset of speech after left hemispherectomy in a nine-year-old boy. *Brain: a journal of neurology*, 120(1), 159-182.
- WAB Aphasia Test Construction Committee (1986). *The Japanese Version of the Western Aphasia Battery*. Tokyo: Igaku-Shoin.
- Wagenaar, E., Snow, C., & Prins, R. (1975). Spontaneous speech of aphasic patients: A psycholinguistic analysis. *Brain and language*, 2, 281-303.
- Zaidel, E., Kasher, A., Soroker, N., Batori, G., Giora, R., & Graves, D. (2000). Hemispheric contributions to pragmatics. *Brain and Cognition*,43 (1/3),438-443.

**Retrieved from;**

<https://www.healthline.com/health/cerebrovascular-accident>

<https://www.cancer.gov/publications/dictionaries/cancer-terms/def/cerebrovascular-accident>

<http://www.languageindia.com>

=====

## The Problem of Slavery in Toni Morrison's *Beloved*

**Amakcham Opendro Meitei**

Assistant Professor

Department of English

Shree Shree Gourgobind Girls' College

Khurai Sajor Leikai, Imphal East -795010 Manipur

[openamakcham@gmail.com](mailto:openamakcham@gmail.com)

---



Courtesy: [www.amazon.com](http://www.amazon.com)

In her 79<sup>th</sup> year, Toni Morrison is today, one of the greatest living literary icons of the contemporary world. As an African American, she has been able to achieve the status of distinction in the mainstream American literary tradition. In her works, Morrison deals with major contemporary social issues like racism, class exploitation and sexism. Toni Morrison offers a fresh perspective on black life, their history and genealogy. The socio-history found in her novels is the history of daily assault by a world, which denies minimum dignity to the blacks. The overriding theme of her novel is, therefore, the sense of identity of a black person trying to recover his/her history and culture, which had so far been suppressed due to white narcissism.

As an author and an educator, Morrison sought to move the works of African Americans from the periphery to the centre, in American culture, through her works. With nine powerful novels, an astounding critical work and a number of essays,

Morrison deals with the efforts of African Americans to survive cultural, economic and social disruption within their communities. Her settings are specific American historical period, while her characters are usually black and female, though not always. Morrison's writings are embedded in her desire to 'bear witness' to the enslavement of African Americans as crucial American cultural fact.



Toni Morrison  
Credit: Timothy Greenfield-Sanders

Courtesy: [www.amazon.com](http://www.amazon.com)

The socio-political and literary history of African Americans is discussed in this novel. The three hundred years of slavery and racism has denied blacks of their history, tradition and culture, in the process eliminating their identity and their self. Slavery is the central fact of black history in America which contributed enormously to the economic growth and the creation of wealth in colonial and nineteenth century America.

Toni Morrison, in her non-fiction, *Playing in the Dark: Whiteness and the Literary Imagination*, have argued that what one accepts as 'Americanness' today is the result of the four hundred years old presence, first of Africans and then African Americans in the United States. She, further, says "the contemplation of this black presence is central to any understanding of our national literature and should not be permitted to hover at the margins of the literary imaginations."<sup>1</sup>

One of the pre-eminent black women writers of the boom period of African American literature, Toni Morrison has highlighted the socio-economic and political

concerns of the African American women. The 60s and 70s are the peak period of black's struggle for equality and liberty from racism. Racism, the remnant and the vestiges of slavery, is responsible for the unequal treatment of blacks in America. Powerful persons such as Malcolm X and Martin Luther King Jr. are responsible for leading the blacks during the Civil Rights Movement, which brought equality and fraternity from racial segregation and discrimination. The movement also sprouted other such movements like the Black Arts Movement that helped in expanding black literary movements by incorporating black studies and women studies programs. It, later, became an important part of university education by late 1970s and early 80s. The movement sought to correct the oppressions suffered by black people in the US but, the suppression of black women was overlooked by the artist of Black Arts Movement.

Morrison, though, influenced by the movement's principles, did not participate in the movement directly. To correct the racial and gender bias of black studies within and outside the academy, black women writers like Morrison, in the Post-Civil Rights era presented a flurry of writings. Black women's writings gradually generated a body of black feminist criticism in the 80s. Noted writer, Alice Walker contrasted black feminism within white's feminism through the term 'womanists'. Her remarkable works include *In Search of Our Mother's Garden* and *The Color Purple*. Morrison, too, develops a new type of novel, one, which represents the hopes, aspiration, and historical memories of black women.

The inspirational story of Margaret Garner from which Morrison based her novel, *Beloved*. Margaret Garner, a fugitive slave who escaped from a plantation in Kentucky, killed her child to prevent it from falling back into slavery. Morrison came across the story of Margaret Garner in *The Black Book*, which she edited. It, thus, became the historical analogue of the plot of *Beloved*.

Morrison explores the psychic damages inflicted upon African American women by sexual abuses drawing on the tradition of slave narrative and creates a neo-slave narrative. Through Sethe, Morrison attempts to examine, especially, the plights of black women – as a slave, as a mother, daughter and as a 'black woman' in American slavery era, as Margaret Garner has gone through. In her interview with Gloria Naylor, Morrison says of Margaret as:

A woman [who] loved something other than herself so much [that] she had placed all of the value of her life in something outside herself. That

the woman who killed her children loved her children so much; they were the best part of her and she would not see them sullied [or]...hurt.<sup>2</sup>

Margaret Garner's act exemplifies that the best thing in us is also the things that makes us sabotage ourselves, sabotage in the sense that our life is not as worthy or our perception of the best part of ourselves. Thus, Morrison is made to question "what is it that really compels a good woman to displace the self, her self?"<sup>3</sup>As a black writer, Toni Morrison is fully aware of the wrongs the blacks and particularly, the black women had to suffer at the hands of white men's hegemony.

The predicaments and problems of blacks during and after slavery are depicted in the novel, *Beloved*. During the days of slavery, blacks were reduced to the status of animals. There were no family structures for black people. Women were just regarded as sexual objects for white men's gratification and as well as to 'breed' slaves for them 'without cost'. Black children had no family and no parents, they were only 'chattel property' and black 'men' were only 'boys' in white men's creed. Hence, such a past makes it difficult for the blacks to forget even though slavery has been abolished. It has become a legacy, a part of their racial memory. Of the American institution of slavery, Morrison had to say:

There couldn't have been another slave society in the world with a Fugitive Slave Law. It could not work with the Greeks and Romans, because they all looked pretty much alike. But with the Black people, skin give them away. You could keep up the remnants and the vestiges of slavery for longer than it ever would have lasted if they had enslaved....<sup>4</sup>

Morrison believed that black people were seen as slaves and subsequently are now seen as 'visible poor' because of the physical differences. Black people are perceived as the lowest of the classes as they are identified that way. What they wore, what neighborhood they lived, would not make any difference. The cause of this prejudice according to Morrison, is that "one can identify the person who was once a slave" or who were in the lower class and this caste system survives longer.<sup>5</sup>

It is observed that Morrison in her narratives put forth disturbing questions before the society. She probes the mind of the readers to examine the socio-economic, political, and cultural problems during and after slavery. Morrison believes that a

work of art should be political as all good arts are and she aspects the same from her works too.<sup>6</sup>

It can be judged from what Morrison has tried to convey through her novel, that black race are the victims of multiple injustices in the American society. This iniquity has been responsible for many of the social and mental problems that the blacks have been subjected to. Unless the white society strive to remove their ‘pride’ that asserts their superiority as a race, it will only thicken the ‘jungle’ that grows among them as Stamp Paid believes.

Exploration on Blacks’ predicaments was one of the foremost themes in Morrison’s fiction, *Beloved* but it would also be thought provoking and challenging to explore on other areas of Toni Morrison’s fictions other than *Beloved*, such as an aspect of post-colonial approach— **Magic Realism**. Morrison employs magic realism in most of her writings. Most African American writers like Morrison have been using myth and magic “to remember, express and account for those experiences that Western notion of history, reality and truth have failed to address”. Hence, it will be interesting to probe how far Morrison uses it to preserve and protect black history, which was neglected.

In *Beloved*, Morrison disturbs as well as enhances our understanding of African American life before and after the Emancipation. Her technique to recapture the past and mingle it with the present and her ability to ‘conjure’ up the hardship borne by blacks in and out of slavery commands our respect and inspires awe of her matchless craft.

---

NOTES:

1. Toni Morrison, *Playing in the Dark: Whiteness and the Literary Imagination* (New York: Vintage Books, 1993) 5.
2. Danille Taylor-Guthrie, ed., *Conversations with Toni Morrison* (Jackson: University Press of Mississippi, 1994) 207.
3. Ibid. 208.
4. Ibid. 117.

5. Ibid.

6. Ibid. 3.

---



## Representing the History through Trauma: A Comparative Study

**Jitendra Kumar Singh, Ph.D.**

Former Research Scholar  
Department of English  
Faculty of Arts  
Banaras Hindu University  
BHU, Varanasi- 221005 (UP), India  
[jeet91singh@gmail.com](mailto:jeet91singh@gmail.com)

---

---

### Abstract

The representation of trauma in the literary hemisphere constitutes the individual and social desires which are to be hard to express. It represents the unconscious output of the emotion which are suppressed due to social structure. The scholars, therefore, try to decode their inner sense through the use of language. Such representation can be seen in Melville and Dostoevsky's simultaneous articulation in *Moby Dick* and *Notes from Underground* respectively. We have seen that both have represented the past through their construction of the linguistic approaches in their works. The reason of such representation was their hidden instincts which they could not initiate in society. Melville and Dostoevsky have undergone the trauma caused by emerging unrest due to growing civilization of their countries respectively. This paper aims to find out how these authors have recalled the past through the representation of the trauma in their literary works. While seeking the objective of the paper, the linguistic approaches of various critics and theorists would be negotiated to develop the hypothesis.

**Keywords:** Trauma, Melville, Dostoevsky, past.

### Introduction and Literature Review

Trauma is supposed to be an extreme condition and an unrepresentable event. Cathy Caruth, who pioneered a psychoanalytic post-structural approach suggests that "trauma is an unsolvable problem of the unconscious that illuminates the inherent contradictions of experience and language (M. Balaev, 2014:1). According to this Lacanian perspective, trauma is conceptualized as a persistent absence that divides knowledge of the traumatic experience, preventing linguistic value other than referential expression. This approach permits a special emphasis on language indeterminacy, ambiguous referentiality, and aporia, particularly for Caruth's deconstructive criticism. Arguments that sought to emphasize the extent of profound suffering from an external source, whether that source is a single perpetrator or collective social practices, were significant in the sense that they relied on the presumptive inherent neurobiological characteristics of trauma that cause dissociation and refuse representation. The depiction of trauma in art is thus at odds with how we currently view art, literature, and

representational techniques. In our efforts to represent, we make an effort to strike a balance between reality and fantasy.

Again, the aesthetic is a contextual presumption, but in order for something to be referred to as art, both the representation of experience and the representation of imagination must be done in an aesthetic way. Trauma is inherently a challenge to such arrangements because the victims of trauma experiences pain and suffer so acutely that language frequently fails to express or is insufficient for achieving that goal. Even if it is sufficient, it can be difficult to arrange in an attractive way. We have tried to address this issue by referencing two pieces of art that seek to navigate these difficulties while challenging perceptions of art, aesthetics, and modes of representation in the process. These two books are Herman Melville's *Moby Dick* and Dostoyevsky's *Notes from Underground* (1864).

We can access through the life of Melville and Dostoyevsky that both authors have experienced horrific events in their own lives, in very different ways. Dostoyevsky was given a prison term of four years in a Siberian labor camp and an extra six years in exile, according to an analysis of their biographies. He has remained in a silent cell that has been closed off from everything. He had no access to any social networks. Even the time when he was composing *Notes from Underground* was challenging for him. He passed through the consumption of killing his wife also. He had epileptic seizures and other unpleasant conditions, and his health was poor. "I am a sick guy," begins *Notes from Underground...*" (2015:1) projects this paradoxical and problematic nature of its 'speaking subject'.

Similarly, Melville had undergone terrible experiences during various poises and professional life and there are records that he used to suffer deeply in psychological dissociation, depression, and manic psychological state.

For both, creative self-expression became the only method to retain their sanity. After his return from Siberia in 1859, Dostoyevsky echoed his thoughts on man's need for creative self-expression in "A Series of Articles on Russian Literature" (1861), where he wrote that the 'need to affirm oneself, to distinguish oneself, to stand out, is a law of nature for every individual; it is his right, his essence, the law of his being' (1861:07). He went on to note that this need 'in the crude unstructured state of society manifests itself in the individual quite crudely and even savagely'. This shows a kind of contradiction that if anybody is not allowed to articulate, represent, or communicate in a valid manner, he would suffer from trauma.

In other words, trauma is an experience which cannot really be expressed or communicated. Such types of challenges have been negotiated in *Notes from Underground*. The author desires to communicate an experience without which he will turn to a pathological state, and it is a state which cannot be articulated easily. The Underground man admits that "...perhaps by writing things down I really shall find relief." But soon he reprimands that "I am bored" (37). Through Dostoevsky's this assumption, we can trace that traumatic experience

pathologically divides identity as a metaphor to depict the severity of the harm which is resulted by individual sense of coherent and the change of consciousness caused by the experience. Thus, Dostoevsky through *Notes from Underground* has expressed an inexpressible experience.

The popular trauma theory which is being rely on the abreactive model of trauma used to argue that traumatic experience results in a “temporal gap” and a dissolution of the self as Kali Tal in *Worlds of Hurt* writes: “Accurate representation of trauma can never be achieved without recreating the event since, by its very definition, trauma lies beyond the bounds of 'normal' conception” (1996:15). The requirement of recreating or acting out through narrative recollection of the trauma is emphasized by this Freudian idea of memory and trauma past. Tal has made it quite obvious that remembering trauma always results in an approximation of the past since trauma prevents knowledge and, thus, representation. According to the literary trauma theory put forward by Kali Tal and critics like Cathy Caruth, traumatic experiences and memories are inherently characterized by the responses they elicit, including cognitive turmoil and possible division of consciousness. We find that the Underground man of Dostoevsky is “oppressed by some very ancient memory”. He finds himself trapped in “hundreds of similar memories (1953:23)”.

Petar Ramadanovic has suggested that narratives resulting from trauma represent efforts to stake out an independent self and that these narratives are therefore narcissistic. Just as, Melville’s novel *Moby Dick* critiques the notion of therapeutic possibility, it poses a discursive ethical proposition that incoherence has its own inherent virtue in an account of trauma. Similarly, the Underground man in Dostoevsky’s *Notes from Underground* rebukes, “Ha, ha, ha! Well, if you like, essentially there’s no such thing as volition!” (24).

Mikhail Bakhtin, in his celebrated work *The Problems of Dostoevsky’s Poetics*, shows that Dostoevsky is one of the first authors to break up the unified “I” by presenting nonintegrated ‘speaking subjects’, such as the narrator in *Notes from Underground*. This decentring of the “I”, which takes into account unconscious as well as linguistic forges, invites us to reconsider our conception of representation. Trauma fails the author’s strategy of spooling the thread of traumatic experiences around a unified and defined character. Because the trauma or traumatic experience, in order to get reported, is bound to operate the carriage of language which according to Paul de Man is “tripartite” in nature. Paul de Man writes in his essay, “The Resistance To Theory”, “the science of language as consisting of grammar, rhetoric and logic (or dialectics), is in fact a set of unresolved tensions powerful enough to have generated an infinitely prolonged discourse of endless frustration” (1982:359).

Man has viewed that rhetorical and figural component of language is unreliable for stating simple truth. He further opines if ‘it is not a priori certain that literature is a reliable source of information about anything but its own language’, then it shows the anxiety of the scholars who subscribe to the false concept of representation as conventional, mimetic

recounting also fails to do justice. Similarly, Tara Robin Fee in her essay, “Irreconcilable Differences: Voice, Trauma, and Melville’s *Moby-Dick*” (2012) establishes that Ishmael’s narration is chaotic and lacks coherence. She argues that the discourse or fictional work itself is inflicting the trauma and therefore any sense of closure or resolution is elusive.

Moreover, Deconstructionists claim that because the self is constituted by language, and does not exist prior to language, the “cogito” of Descartes is basically an illusion. Man falsely imagines that concepts exist prior to language, that we create and control language, and that therefore some reality or “transcendental signified” exists outside of and prior to language, which is the basic fallacy of Western metaphysics. Thus, we find the Underground man pleading: “I don’t want to be restricted in any way in editing my notes. I shan’t introduce any order or system. Whatever I happen to remember I shall write down” (1999: 36). This allusive representation detaches Dostoevsky from present to recall past.

This transcendental signifier “I” has variety of allusions to recall the past. We find that in both ancient Indian scriptures and Jain scriptures, there is a distrust of the words and distrust of the common ordinary languages. The “I” strives to achieve the divine symphony—*Anhad Naad*. If we look at early Indian philosophers, we find that they have compared this inexpressible sense “I” with the realization of Brahma. Since, it is inexpressible, effulgence and mind’s expanding experience that the ordinary human language cannot express it adequately.

Therefore, the early Indian philosophers have talked of various level of speech to experience its different levels of intones which are based on the elevation of our consciousness-- *Para*, *Pashyanti*, *Madhyama* and *Vaikhari* which correspond to our four states of consciousness—*Turiya* (the transcendental state), *Sushupti* (dreamless state), *Swapna* (dreaming state), and *Jagrut* (wakeful state). Thus, *Para* represents the transcendental consciousness, *Pashyanti* represents the intellectual consciousness, *Madhyama* represents the mental consciousness, and *Vaikhari* represents the physical consciousness.

The *para* experience which is expressed in the Bhakti and spiritual poetry shows how they have tried to bring in apparently contradictory and paradoxical things through which they were able to articulate. Therefore, Jain and Buddhist philosophers retreated to silence. But Dostoyevsky and Melville are trying to represent these inexpressible in human terms and thereby pushing the aesthetic boundaries of various genres in order to articulate the inexpressible in their respective works.

The experience of trauma often fragments identity and forces a separation from the self. The Underground man in Dostoevsky’s *Notes from Underground* avers, “I understand damn all thing about my illness, and I can’t say for certain which part of me is affected” (1999:3). But the crisis of witnessing also involves the idea that, as Jacques Derrida puts it, testimony

‘always goes hand in hand with at least the possibility of fiction, perjury, lie’ (Derrida, 27). As Derrida makes clear that all testimony is fiction, perjury, lie and not used to dissolve the crucial distinction between truth and lie, truth and fiction. But it is used to suggest that they are inextricably linked. Derrida adds another perception to our thinking of testimony that testimony involves a ‘universalizable singularity’ (Derrida 94). He says that a testimony must in the first place be singular, unique. Such recreation we find in Dostoevsky when he in *Notes from Underground* claims, “...to be precise, no one was like me, nor was I like anyone else. ‘I am one persona and they are *everybody* [sic]” (40). Similarly, when in Melville’s *Moby Dick*, Stubb asks Ahab to consider muffling the thudding of his leg as the captain paces the deck night after night, the narrator sighs, “Ah! Stubb, thou did’st not know Ahab then” (1851:111).

In *Notes from Underground*, it is a highly personal trauma which Dostoyevsky tries to represent—the kind of deep trauma which the modern living has imposed on individual psyche whereas Melville talks of a whole modern corporate trauma. While looking at the Melville’s *Moby Dick* various critics talk of the trauma which Ahab underwent because of the dismemberment of his body and the trauma which Ishmael underwent under the monomaniacal leadership of Ahab. These are the two significant traumatic experiences which are the subject matter of *Moby Dick* and to achieve that there is a whole lot of strategic and structural negotiations which the narrator Ishmael has undertaken in *Moby Dick*.

But most of the critics have ignored the trauma which has been identified by Lawrence in *Moby Dick*. Lawrence talks of a trauma brought about by the machine civilization, the mercantile machine civilization, which actually has taken away the soul of the entire civilization. Lawrence sees the tragedy of *Moby Dick* as not just the death of all the sailors or for that matter the death of Captain Ahab or peripheral survival of Ishmael, but he points out toward the larger tragedy—the tragedy of the death of the human soul. Ishmael has survived but he has lost his soul. This kind of traumatic experience, he sees in *Pequod* a miniature version, a metonymy of the western civilization, in which the *Pequod* has actually drawn characters from all strata of society—the Indians, the Negroes, the black and various races as it is the collapse of the western civilization. It seems to be the representation of what really happened a few years later in the Second World War.

Adorno looks at it as the metonymy for the collapse of the western society. It is the triumphalism of the western mercantile and machine-driven society. Lawrence actually calls it a tragedy which is domineering spirit, the desire to dominate others, the desire to enslave others, to perpetuate the hegemony of the West. This is hustling toward the destruction not only of the West, but anything associated with the West.

This kind of trauma Melville had faced, and *Moby Dick* is the articulation of that traumatic experience. He has applied a lot of narrative devices and structural changes in the novel form to represent this. The novel begins with a first-person narrative “Call me Ismael” and subsequently this first person unrealistically is able to enter into the consciousness of the

other major characters like Ahab and others. This is the reason that surviving soul of Ishmael is able to see and apprehend the danger that is going to take place. So, the difference between Melville and Dostoyevsky lies that in *Notes of Underground* and *Moby Dick*. Dostoyevsky focalizes an isolate in which an individual being can go. The extent of the humiliation that persona can inflict upon himself. He goes to deep recess as if going deep down the hell of the consciousness. The amount of self-ridicule one can perpetuate. He is trying to explore the self-deprecation for which an individual human being is capable of.

We can see that difference of the trauma which is explored on an individual level and that one like the Pinda and reflection of humiliation at cosmic level, in the tragedy of *Pequod*. We also see how an entire civilization driven by eccentricity and willfulness could destroy itself and in Dostoyevsky's level how an individual to the same kind of willfulness and eccentricity can destroy oneself. But in both cases, it is the narrative, it's the power of the imagination which actually saves mankind from absolute annihilation. In this sense, both are highly ethical gesture. In the sense that the power of art and the imagination are able to sustain the continuity of life and also by imagining the extent to which perdition can go. It has safeguarded both the individual and the society from the repetition of such traumatic experiences. There are various ways to really negotiate these contradictions.

Right from the ancient spiritual texts to the present time, aestheticians, and philosophers have been trying to resolve this paradox. They have been trying to resolve the puzzle "How to polarize the inexpressible?" Ultimately the art and the imagination are probably the ways to make a tentative raid into the unconscious, and the inexpressible, and try to validate the human life over traumatic experiences that tend to disrupt the continuity of life. The Underground man also becomes suspicious of his desires to express himself and questions, "Why, why exactly do I want to write?" (1999: 37).

As Adorno has said after Auschwitz, "How can one really write poetry or philosophy?" But the fact remains that human being continued to write poetry, life went on and so on and so forth. Griselda Pollock opines in her essay "Art/Trauma/Representation" that "art of a certain kind can become a means of staging of encounter rather than the protected turning away from the fearful limit frontier" (2009:40). Thus, the Underground man also acknowledges that "for some reasons" he believes that "writing things down" could help him in getting "rid" "of it" or "at least there is a chance". So "why not try?"

---

### Works Cited

Balaeu, Michelle. "Literary Trauma Theory reconsidered." *Contemporary Approaches in Literary Trauma Theory*. Palgrave Macmillan, London, 2014. 1-14.

Dostoevsky, Fyodor. *Notes From the Underground, and the gambler*. Oxford Paperbacks, 1999.

Dostoyevsky, F. *Notes from the Underground ...*, The Unit, London, 1986.

Fee, Tara Robbins. "Irreconcilable Differences: Voice, Trauma, and Melville's "Moby-Dick"." *Mosaic: A journal for the interdisciplinary study of literature* (2012): 137-153.

Lawrence, David Herbert. *Studies in Classical American Literature*. Penguin Books, 1924.

Pollock, Griselda. "Art/Trauma/Representation." *Parallax* 15.1 (2009): 40-54.

Tal, Kali. *Worlds of Hurt: Reading the Literatures of Trauma*. New York: Cambridge UP, 1996.

=====

## A Brief Sketch of Interrogative in Sukte (Salhte)

**Dr. Arambam Sadananda Singh**

Assistant Professor, Department of English  
SSGG College

Khurai Imphal East Manipur 795010

[arambamsadanandasingh@gmail.com](mailto:arambamsadanandasingh@gmail.com)

### Abstract

As reported in my earlier article (<http://www.languageinindia.com/may2019/arambamsuktecasepostposition.pdf>), Sukte is one of the unwritten, undocumented, and undescribed languages of Manipur spoken by a tribe in the same name. The Sukte is the name of the language and community.

The term *Sukte* is derived from Sokte in the form of compounding such as sok ‘to go down or southward’ and te ‘the plural suffix roughly indicating persons’ literally ‘people of the southward or low land’. This language is placed under the Kuki-Chin group of Tibeto-Burman sub-family of languages (Grierson, 1903). It is closely related to many other languages or dialects of Kuki- Chin group of languages namely Baite, Chorai, Chiru, Chothe, Gangte, Guite, Kaipeng, Ranglong, Rangkhoh, etc. except Manipuri and are mutually intelligible with Chothe, Gangte, Guite, Simte, etc. They are commonly referred to as Tiddim Chin by neighbouring communities in Manipur; however, they prefer to call themselves as Sukte. The total population of Sukte (Salhte) in Manipur was 1905 according to 2001 Census report of Manipur.

The present paper presents a brief sketch on Interrogative in Sukte language spoken in Churachandpur district of Manipur.

**Keywords:** Sukte language, Interrogative, Manipur, Tibeto-Burman.

### Introduction

Sukte is one of the unwritten, undocumented, and undescribed languages of Manipur spoken by a tribe in the same name. The Sukte is the name of the language and community.

The term *Sukte* is derived from Sokte in the form of compounding such as sok ‘to go down or southward’ and te ‘the plural suffix roughly indicating persons’ literally ‘people of the southward or low land’. This language is placed under the Kuki-Chin group of Tibeto-Burman sub-family of languages (Grierson, 1903). It is closely related to many other languages or dialects of Kuki- Chin group of languages namely Baite, Chorai, Chiru, Chothe, Gangte, Guite, Kaipeng, Ranglong, Rangkhoh, etc. except Manipuri and are mutually intelligible with Chothe, Gangte, Guite, Simte, etc. They are commonly referred to as Tiddim Chin by neighbouring communities in Manipur; however, they prefer to call themselves as Sukte. The total population



of Sukte (Salhte) in Manipur was 1905 according to 2001 Census report of Manipur.

Sukte is primarily spoken in Moreh sub-division of Chandel district and New Lamka-G, Simbuk, Tanglon(T), Tonglon(P), Rakwal, Sum Cheavum, Tangnuam, Pangzwl, Lanka, Singhat, Suangdai, behiang, Behiang(T), Suangphuk and Tingkangphai villages of Churachandpur district of Manipur. They are commonly referred to as Tiddim Chin by neighbouring communities in Manipur; however, they prefer to call themselves as Sukte. The total population of Sukte (Salhte) in Manipur was 1905 according to 2001 Census report of Manipur.

Typologically, Sukte is a tonal language. Gender distinction in Sukte is determined on the natural recognition of sex i.e., gender is not grammatically marked in this language. Sukte exhibits the typical feature of the Kuki-Chin languages as subject-verb agreement is present for different persons. Sukte is a verb final language, with dominant SOV word order.

### Interrogatives

In Sukte, interrogative may be classified into following categories viz., (i) yes-no questions, (ii) Wh-questions, (iii) Alternative questions and (iv) Tag questions.

### Yes-no Question

In Sukte, the yes-no questions are formed by using the question particle *hiam* or *diam* which is postposed to the verb or nouns or adjectivals as can be seen in the following examples:

- (1) *nəŋ nə zoŋ hiam?*  
you 2SG poor QM  
'Are you poor?'
- (2) *nəŋ nə həu? hiam?*  
you 2SG rich QM  
'Are you rich?'
- (3) *ən nə ne ta hiam?*  
rice 2SG eat PST QM  
'Did you take rice?'
- (4) *pak nə hoi?sə hiam?*  
flower 2SG like QM  
'Do you like flower?'
- (5) *nə lam diam?*  
2SG dance FUT.QM  
'Will you dance?'
- (6) *əmə? ə hoŋ pai diam?*  
he 3SG DIR come FUT.QM  
'Will he come?'

- (7) *nəŋ nə sək diam?*  
 you 2SG sing FUT.QM  
 ‘Will you sing?’

### Wh-Question

In Sukte, wh-question is formed by using *wh*-pronouns along with the question particle *hiam/diam*, as can be seen from the following examples:

- (8) *ə kuə hiam?*  
 3SG who QM  
 ‘Who is he?’
- (9) *kuə in t<sup>h</sup>ei hiam?*  
 who NOM know QM  
 ‘Who knows?’
- (10) *kuə don hiam?*  
 who drink QM  
 ‘Who drinks?’
- (11) *kuə pai ta hiam?*  
 who go PST QM  
 ‘Who went?’
- (12) *kuə əmə? to? pai diam?*  
 who he with go FUT.QM  
 ‘Who will go with him?’
- (13) *kuə bol hiam?*  
 who do QM?  
 ‘Who does this?’
- (14) *kuə saŋ ə? kə? ta hiam?*  
 who school LOC go PST QM  
 ‘Who has gone to the school?’
- (15) *kuə nə mudə?? hiam?*  
 who 2SG hate QM  
 ‘Whom do you hate?’
- (16) *kuə to? nə ne nuəm hiam?*  
 who with 2SG eat want QM  
 ‘With whom do you want to eat?’
- (17) *hi? kuə sabuəi hiam?*  
 this who table QM  
 ‘Whose table is this?’
- (18) *huə kuə puənnak hiam?*  
 that who shirt QM  
 ‘Whose shirt is that?’

- (19) *hi? kuə laikun hiam?*  
this who pen QM  
'Whose pen is this?'
- (20) *lolai ə? bəŋ kitu? hiam?*  
field LOC what grow QM  
'What is grown in the field?'
- (21) *əmə?-in bəŋ ə sem hiam?*  
he-NOM what 3SG do QM  
'What does he do?'
- (22) *nəŋ nə min bəŋ hiam?*  
you 2SG name what QM  
'What is your name?'
- (23) *əmau koi-ə? ə om uf hiam?*  
they where 3PL stay PL QM  
'Where do they live?'
- (24) *john koi-ə? ə teŋ hiam?*  
John where 3SG live QM  
'Where does John live?'
- (25) *əmə? koi ləm pən ə hoŋ kipən hiam?*  
he where place from 3SG DIR start QM  
'Where has he come from?'
- (26) *bəŋhunə hoŋ tuŋ hiam?*  
when 3SG DIR reach QM  
'When does he come?'
- (27) *bəŋhunə pai ta hiam?*  
when 3SG go PST QM  
'When did he go?'
- (28) *nə ləivunə cikciəŋ hiam?*  
2SG exam when QM  
'When is your exam?'
- (29) *kum bəŋzə? hiam?*  
year many QM  
'How many years?'
- (30) *sum bəŋzə? dei? nə hiam?*  
money many want 2SG QM  
'How much money do you want?'
- (31) *nə in koi hiam?*  
2SG house which QM  
'Which is your house?'
- (32) *john bəŋ saŋ ə? ə kə? ta hiam?*

John which school LOC 3SG go PST QM  
 ‘Which school did John go to?’

- (33) *tai kidemnə kuə in zo hiam?*  
 race competition who NOM win QM  
 ‘Which boy wins the race?’

### Alternate Question

The alternate question in Sukte is expressed by using disjunctive marker *əhi?keile?*, which is used to form alternate question particularly in the case of clausal construction as can be seen in the following examples:

- (34) *nə don əhi?keile? nə ne diam?*  
 2SG drink or 2SG eat FUT.QM  
 ‘Will you drink or eat?’
- (35) *ən əhi?keile? me? bek nə ne diam?*  
 rice or curry only 2SG eat FUT.QM  
 ‘Will you take rice or curry?’

### Tag Question

In Sukte, tag question is formed by using the tag question particle *mate*. It is worth mentioning here that Sukte is one of the TB languages which has special particle for expressing tag question. It is also observed that the tag question particle occurs sentence final position as can be seen in the following examples:

- (36) *əmə? ə niəm hi, mate?*  
 he 3SG short DECL QM  
 ‘He is short, isn’t it?’
- (37) *əmə? ə mipil hi, mate?*  
 he 3SG learnedCOP QM  
 ‘He is learned man, is not it?’
- (38) *nəŋ mənipuri nə pau t<sup>h</sup>ei hi, mate?*  
 you Manipuri 2SG speak can DECL QM  
 ‘You can speak Manipuri, can’t you?’
- (39) *shyam mi hoi? ə hi, mate?*  
 Shyam man good 3SG COP QM  
 ‘Shyam is a good man, is not he?’
- (40) *huə puən ə hoi? hi, mate?*  
 that cloth 3SG beautiful DECL QM  
 ‘That shirt is beautiful, is not that?’

---



---

### Reference

Language in India [www.languageinindia.com](http://www.languageinindia.com) ISSN 1930-2940 22:10 October 2022

Dr. Arambam Sadananda Singh

A Brief Sketch of Interrogative in Sukte (Salhte)

Arambam Sadananda Singh, 2019. Case and Post-Position in Sukte (Salhte)  
<http://languageinindia.com/may2019/arambamsuktecasepostposition.pdf>

---