

**The Role of Language in Reducing Climatic Vulnerabilities: A
Social Constructivist Approach to Small-Scale Fishers in Coastal
Sundarbans, Bangladesh**



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Spring 2025

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Approach to Small-Scale Fishers in Coastal Sundarbans, Bangladesh**

A Thesis Submitted to
The Department of English and Humanities
University of Liberal Arts Bangladesh

In Partial Fulfillment
of the Requirements for the Degree of
MA in Applied Linguistics and TESOL

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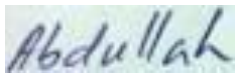
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Spring 2025

CERTIFICATE OF APPROVAL

I hereby declare that this thesis is the student's own work and effort. All sources of information incorporated here have been duly acknowledged. This thesis has been submitted with my approval.

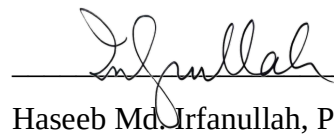


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DECLARATION

This thesis is a presentation of my original research work. Wherever contributions of others are involved, every effort is made to indicate this clearly, with due reference to the literature, and acknowledgement of collaborative research and discussions.



26.05.2025

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Acknowledgements

I would like to express my heartfelt gratitude to my supervisor Abdullah Al Mahmud, PhD, Associate Professor, at the Department of English and Humanities, ULAB and co-supervisor Haseeb Irfanullah, PhD, Visiting Research Fellow, Center for Sustainable Development (CSD), ULAB, for their constant guidance, invaluable support, and encouragement throughout the entire journey of this thesis. Their mentorship has been contributory at every stage of this journey, and none of this would have been possible without their dedicated involvement.

I am also deeply thankful to V2V Global Partnership at the University of Waterloo for selecting me as one of their scholars and for providing the necessary financial support to complete my Master's degree at the University of Liberal Arts Bangladesh (ULAB). Their generous support has been crucial for me to pursue this academic milestone.

My heartfelt appreciation goes to my workplace, the Centre for Sustainable Development (CSD), ULAB, for allowing me the opportunity to conduct fieldwork in the Sundarbans. Their financial assistance, which covered travel and research expenses, made it possible for me to gather essential data for this thesis.

A special note of thanks is extended to Samiya Selim, PhD, Professor & Director, Center for Sustainable Development (CSD), ULAB and Ms. Tahura Farbin, Lecturer-Cum-Research Associate, Center for Sustainable Development (CSD), ULAB whose support played a significant role in my selection for the V2V scholarship. Their guidance has had a lasting impact on both my academic and personal journey.

This thesis is a testament to the collective generosity, guidance, and encouragement of all those who have contributed to its completion.

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Abstract

The role of language transcends beyond just a medium of communication. It is a powerful sociocultural tool that shapes identities, worldviews and lived experiences of individuals or communities. This research identifies language as a means of resilience and collective problem-solving strategies among the small-scale fishers (SSF) in the Jelepalli community of Sundarbans, a region highly vulnerable to climatic events such as cyclones, storms, floods, extreme rainfall, etc. Using Lev Vygotsky's social constructivism theory, this study explored specific words, phrases, and linguistic patterns among the SSF in the Jelepalli community and investigated the role of language in reducing climatic vulnerabilities through community-based dialogue sharing and information exchanging. This study applied a qualitative research method, incorporating 4 focused group discussions (FGD), each containing 4 participants, 4 key informant interviews (KII), and a transect walk around the Jelepalli community to collect necessary data for this research. Findings of this research reveal that despite the increased access to technological sources of early warnings, SSF of the Jelepalli community relies heavily on interpersonal communication and shares local terminologies, phrases and words to communicate risks related to climatic events. The local words, idioms and phrases that they use to share information related to climatic events differ significantly from standard Bangla. The SSF in Jelepalli have constructed meaning around certain words based on their personal and lived experiences, which depicts that the role of language is multidimensional.

Keywords: Effective Language, Language and Problem Solving, Social Interactions, Small-scale fisheries, Vulnerability Reduction, Sundarbans, Bangladesh.

Chapter 1: Introduction

“A language is not just words. It’s a culture, a tradition, a unification of a community, a whole history that creates what a community is”

- Noam Chomsky, as cited in various sources, n.d.

Language, as easy as it seems, is more than just a means of communication. It holds an individual or community’s identities, memories, and shared understandings. It carries an individual’s or community’s lived experiences, values, and worldviews. It is through language that a human being interacts, communicates (Banga, 2015), and constructs the meaning of the world around them. As Noam Chomsky stated, language embodies culture, tradition, and collective consciousness (Youvan, 2024); it binds people together and shapes how communities make sense of the world around them.

However, language is neither fixed nor universal in its meaning. It shifts from person to person, community to community. It is shaped by differences in culture, context, and lived experiences. The way a coastal fisherman in the Sundarbans interprets the term “*Jhor*” (storm) might differ significantly from how an urban office worker in Dhaka understands the same word. It is because the meaning of words cannot only be explained or analyzed through a unidimensional lens, such as semantics, but also needs to be understood through the pragmatic, contextual, environmental, and social meanings and influences. Moreover, language changes and evolves. New collocations, idioms, or expressions emerge within communities, and these often take root through repeated use in social context and get their particular meaning (Vula & Tyfekci, 2024). Over time, these collocations and idioms are used locally and get their contextual meaning. Therefore, the role of language is dynamic, multimodal, and situational, and is deeply tied to one’s geography,

livelihood, and environment; and the nature of language is very much social. Words, phrases and their meanings are not fixed but are co-constructed through interaction, negotiation and cultural and contextual relevance within a community. Communities around the world use different symbols, phrases, and gestures (Imelda & Harisal, 2024) and oral traditions that might seem unusual or irrelevant to an individual who does not belong to that community, but make perfect sense within the community itself.

In vulnerable and climate-affected communities like the small-scale fishers in the Sundarbans of Bangladesh, the multidimensional role of language is very important. The Sundarbans, one of the largest mangrove forests in the world, is home to unique fauna, including but not limited to 260 bird species, the Bengal tiger, estuarine crocodile, and Indian python (UNESCO, n.d). The mighty forest not only sustains and provides for the wildlife but also supports the livelihood of millions of people across the borders of Bangladesh and the Indian subcontinent through livelihood options such as fishing, tourism, honey collecting, wood collecting, and non-wood products (Islam & Bhuiyan, 2018). However, this coastal region of Bangladesh is facing constant threats from climatic events and is very vulnerable to natural disasters, particularly to cyclones and storm surges due to the low-lying landscape of the country (Sarkar et al., 2024).

Small-scale fishers (SSF) in Bangladesh are one such community that often lives near the coastal areas and is highly dependent on marine resources. The SSF can be defined as both inland and sea level fishers— traditional/ generational— that operate with small vessels, mostly wooden boats, traditional boats, and use traditional gears such as nets, traps, and hooks to catch fish. Usually, they go out for fishing in groups or pairs, sometimes individually, early in the morning and come back home the following day (Diba et al., 2022) and usually fish in the shallow waters with a depth of less than 40 meters (Islam, 2023). They are one of the most vulnerable and marginalised

populations that have or receive minimal help, support, and resources from the government (Sunny et al., 2020). Even though the SSF contributes to the country's GDP, most of the SSF families belong to socially marginalized classes and are traditionally considered as a low-class occupation (Diba et al., 2022). Therefore, even any minor changes in their environment, for instance, heavy rainfall, sudden storms, sea-level rise, or cyclones, expose these communities to a great extent of vulnerabilities.

To reduce the impact of these climatic events, early warning systems (EWS) have been implemented worldwide to alert communities and enable timely preparation. According to the Sendai Framework of UNDDR (2015-2030), an EWS is an integrated system designed to monitor hazards, forecast and predict climatic events, and enable individuals or communities to take action in a timely and effective manner to help in reducing disasters in advance of hazardous events breaking out. However, there are several incidents in Bangladesh when weather prediction failed to provide accurate information, for example, in the 2020 monsoon flood citation where the flooding started in late June (earlier than predicted) with a “triple peak” resulting in second highest level of flooding since 1989 and second since 1998 (BRAC, 2020).

In the face of these various issues, the SSFs in Sundarbans have developed a deep resilience to the information that they hear or receive from their community members (Barua et al., 2020). Humans, being the social butterflies, have always relied on communication and in exchange of information with significant individuals. It is almost an instinct (natural) among humans to discuss issues and problems with other individuals, especially close relatives, friends, and family members, when issues or problems arise. Discussion has proven to be a very effective way of solving problems (Ravenscraft, 2020) and reducing vulnerabilities. For example, discussing a math problem with a friend might help a student solve a mathematical problem way faster than if he tries to solve it by

himself. A similar theme has been observed in research carried out by Islam et al. (2021), which highlights that when the SSFs discuss the climatic events among themselves they come up with solutions and decision that will help them to seek safety measures which includes refraining from fishing in the sea, taking extra precaution while going out or relocating from imminent danger etc.

Even though in Bangladesh there are various ways e.g. localized voice messages (Practical Action, 2022) and text messages via mobile phones (Care Climate Change, 2023), local announcing, Community Disaster Management Committee (CDMC) volunteers, Unit Disaster Response Team (UDRT), Community Organizer (CO), and Upazila and District Water Development Board (IFRC, 2020) – through which the SSFs receive early warnings; according to the report of the International Centre for Integrated Mountain Development (2019) and Global Disaster Preparedness Center (2022), effective communication is one of the most important components of early warning systems which reduces the risk of climate hazards with sufficient lead time (Al-Zaabi & Al-Zadjali, 2022). Moreover, previous studies have shown that in local communities, when people discuss problems with community members, they can effectively adapt to disaster-prone environments, demonstrate strong resilience, and reduce their vulnerability (Joseph et al., 2020; Napsiah & Gunawan, 2019; Sharma, 2021). Simina & Hamel (2005) have stated in their research that “Language is crucial as knowledge is mediated by language.” This signifies the fact that the role of language is not just communication but also to disseminate information and knowledge, which can help people in making decisions, and in the context of the SSFs that live in the coastal region, such as the Sundarbans, is to help them in reducing their vulnerabilities that are caused by sudden and extreme climatic events.

Despite the role of language in reducing climatic vulnerabilities and enhancing community resilience, current studies tend to focus on the technological and institutional aspects of handling

or reducing natural climatic events. Moreover, very few research studies have adopted a sociolinguistics lens to examine the specific words, phrases, or linguistic patterns used within a specific community to understand how and if language and language exchange can contribute to community-based problem solving.

Therefore, this research uses Lev Vygotsky's (1968) theory of "social constructivism" to understand how language functions as a tool for knowledge-sharing, meaning-making, and collective resilience within the small-scale fish community in the Sundarbans. It highlights that locally grounded linguistics practices, such as specific words and phrases, play a huge role in reducing climatic vulnerabilities and problem-solving among the SSF in Sundarbans. Even though Vygotsky's theory of social constructivism is a well-known theory in English Language Teaching, its application was highly relevant in community-level problem solving as well.

1.1 Research Objectives

This research aims to identify the specific words, phrases, and linguistic patterns used by small-scale fishers in the Sundarbans, specifically in the Jelepalli community of the Sundarbans of Bangladesh, to discuss natural climatic events. Additionally, this research also aims to explore how collective discussions and purposeful language (language exchange) contribute to community-based problem solving.

1.2 Research Questions

1. How do social interactions regarding climatic events happen among the small-scale fishers of the Jelepalli community?

2. What specific words, phrases, or linguistic patterns are used by SSFs to discuss and interpret climatic vulnerabilities?
3. What role does language play in reducing climatic vulnerabilities among the SSF of the Jelepalli community?

Chapter 2: Literature Review

2.1 Small-Scale Fishers in Bangladesh

Bangladesh is an agricultural country where 12 million people are associated with the fisheries sector, both inland and sea, and out of these, around 1.6 million are fishers, and approximately 0.5 million fishers operate in the sea (Diba et al., 2022). According to the FAO Global Assessment (2018), small-scale fishers, also known as non-industrial fishers, are a group of people who have been fishing for generations and use traditional fishing methods. The small-scale fishers use relatively small amounts of capital and energy, have access to limited resources and carry out short trips close to shores and coasts for mainly local and day-to-day consumption. Small-scale fishers usually have the following characteristics: (i) low capital investment, (ii) high labour activities, (iii) no vessels or small-sized vessels, (iv) low production and income, (v) operate close to the shoreline on a single-day basis (Xiong et al., 2022).

The majority of these fishing families belong to socially neglected categories and are marginalised in terms of education, income and resources. Around 14% of the fishing population in Bangladesh is literate, and less than 1% of the small-scale fishers have secondary or tertiary level education (Diba et al., 2022). Their work requires extreme physical labour, and they do not have any fixed hours of work, nor do they receive any formal or fixed remuneration. Their daily income or salary depends on the fish that they can catch and the amount of fish that they can sell in the market. However, during the fishing ban period, when fishers are prohibited from carrying out fishing activities in the rivers or sea, implemented by the government to protect marine species and biodiversity, many of the fishers suffer from further economic instability. Due to this, a lot of the

fishermen, along with fishing as their primary source of income, get involved in other activities such as seasonal labour work, wood collecting from the forest.

Climate change has become a global phenomenon, and Bangladesh, being a riverine country and being surrounded by the Bay of Bengal, is exposed to various natural disasters that are unannounced and unpredictable, such as cyclones, floods and tropical storms. In fact, the Bay of Bengal– the Sundarbans– is the most disaster-prone region in the world (Diba et al., 2020). Since the livelihood of these marginalised small-scale fishers are connected with the mangrove forest and its resources, any natural disasters or sudden changes in its environment make the small-scale fishers one of the most vulnerable groups.

2.2 Role of Language in Reducing Vulnerability

Language, for humans, is a significant communication tool that allows an individual to interact with other human beings in social groups, convey messages and build their identity in the society that they live in (Alejandro, 2024). Language is not just a mere tool for communication but also allows an individual to explore and understand others and spread ideas quickly (UoPeople, 2024). In social life, language, which contains a series of sounds in the form of symbols (Alejandro, 2024), collocations, and metaphors, works as a tool that represents one's perspective and group identity (Alejandro, 2024). It reflects an individual's or community's mental representations, beliefs and values (Alejandro, 2024). and how a person or as society views certain things and how meanings are constructed. Scholars across disciplines have acknowledged that vulnerability is not just one's physical exposure to danger or risks, but is multi-layered and multidimensional (Islam & Chuenpagdee, 2022). To define vulnerabilities, one needs to consider the social space and the determinate, political, economic and institutional capabilities of people in a specific place at a specific time (Bohle et al., 1994). Within this frame, language and the role of language can emerge

as not just simply as a medium of communication and passing of information, but as a critical tool through which individuals or communities can negotiate risks and reduce vulnerabilities.

Federici (2019) in his paper highlighted the role of language in a multilingual disaster setting. His suggestions included language and translation as a method of disaster prevention and management for both local and global communities. Communities that are already exposed to vulnerabilities are often very resilient to natural events due to their past experiences (Guadagno et al., 2017; Khan & McNamara, 2017; MICIC, 2016); however, they can be exposed to great vulnerabilities if they have limited information (Puthoopparambil and Parente, 2018). In Sundarbans, over the last years, communities have been facing uncertain and unpredictable natural climatic events. Communication has been proven as one of the most effective ways of risk reduction (Federici, 2020) in communities and among people, as it can increase resilience and preparedness among communities. It might not have the power to control the severity of a disaster caused by natural hazards, but it plays a huge role in risk reduction strategies, coordinating and disseminating information (Federici, 2020).

2.3 Language Effectiveness and Social Interactions as Problem-Solving Strategies

Social interaction can be defined as a problem-solving strategy that is facilitated by collaboration, brainstorming and sharing of divergent perspectives to find solutions to social challenges (Chiu, 2000). Similarly, effective communication also plays a significant role in solving social problems and dealing with difficult situations (Erozkan, 2013, as cited in Balogh-Pecsi et al., 2024). Social interaction and effective communication, therefore, have been a significant tool that helps humans to solve problems in various contexts. During a crisis, may it be in the form of physical or

emotional, humans tend to share or discuss their concerns or problems with someone who is close to them or someone who is trustworthy to them or shares the same knowledge.

Similarly, small-scale fishers often rely on informal networks and social interaction to make decisions in hard situations (Bhowmik et al., 2021). During natural disasters, when community members get their warnings from trustworthy elders, neighbors or peers, they tend to pay more attention and give importance to the words of the people from their community. Practical Action, in collaboration with The Daily Star, hosted a roundtable on October 31, 2022, where stakeholders discussed areas for improvement in Bangladesh's early warning systems. Kazi Rabeya Ame, Consortium Coordinator at Care Bangladesh, pointed out that contextualization and localization of early warnings are needed to enhance community resilience. Similarly, a program specialist at UN WOMEN addressed that when warnings are delivered through the local language, it is very effective in terms of relocating people to safe places, especially women (The Daily Star, 2022). North (2017) in his research pointed out that people are more likely to pay attention to warnings that are delivered in familiar language, tone, accents, and dialects and incorporate cultural references that they can relate to. Therefore, if language is used appropriately and disseminated among social groups, it can create knowledge and eventually help in reducing vulnerabilities.

Several case studies in Bangladesh highlight the effectiveness of social interaction in problem solving and as a coping mechanism strategy. For instance, research in the coastal regions of Khulna showcased that fishers use their local knowledge to predict disasters and they discuss these among themselves to prepare better for their conditions (Rahman et al., 2014). Talk in interactions, community-based communication, and awareness building has led to improved disaster responses and preparedness among communities significantly (Rahman et al., 2015).

Bangladesh, being a country that is heavily dependent on fishing for its GDP and fishing and agriculture being an integral part of our traditions and culture, it is very much necessary for us to keep alive the local practices and strategies that are used by the communities that work for this country. The strategies followed by Bangladeshi small-scale fishers, despite having limited resources and help from outside and yet surviving generation after generation with extreme, unpredictable climatic events, required great exploration of their local techniques and tools that they have been using to survive and reduce their vulnerabilities from extreme events. In this coping mechanism or problem-solving strategies, the role of language is a field that needs more exploration. Most often than not, we limit the role of language to just talking and sharing information.

However, language itself can be used as a tool, and it can be used to analyse how different communities or groups or individuals around the world use it as an adaptive measurement. How language and interactions can act as a tool that reduces one's vulnerabilities and can build strong resilience against dangers. Understanding risk assessment and risk reduction from an interdisciplinary perspective and through the frame of language effectiveness is a new, unexplored area that needs more attention among scholars and researchers in the field of both linguistics and social sciences. Even though there is research that highlighted the importance of effective communication and language translation as a medium of risk reduction strategies in multicultural communities, the role of language in reducing vulnerability, particularly in Bangladeshi vulnerable communities, are one such area that has not gained much attention. Therefore, this area requires more research and exploration from various perspectives and points of view.

Chapter 3: Methodology

3.1 Theoretical Framework

This study applied social constructivism theory, which highlights the relationship between knowledge and understanding are co-constructed through interaction, language and shared human experience (Leeds-Hurwitz, 2009; Kim, 2001, as cited in Amineh & Asl, 2015). Although social constructivism is commonly applied within language learning classroom settings to explain how learners develop knowledge through collaborative learning and how children acquire language through social interaction, environment and external factors, this research recontextualises the theory to explore its application at the community level. Instead of having students as participants and the classroom as the setting, this research applied a similar theory to small-scale fishers in the climatically vulnerable Sundarbans region to explore how collaborative meaning-making can create solutions within the community. Therefore, language, for this research, is not viewed just as a medium of communication, but has been used as a tool for meaning-making, collaborative problem solving and construction of local adaptive strategies in the time of climatic disasters.

This framework is derived from the work of Lev Vygotsky (1978, 1986), who argues that human cognitive development originates from social interactions and later becomes internalized (Amineh & Asl, 2015). The theory focuses on the Zone of Proximal Development (ZPD), which depicts that higher-order thinking and problem solving occur through guidance and peer learning. This ideology is very much applicable in classroom learning, which suggests that students can solve a problem more easily once they are provided with support from teachers or their peers. However, this concept is also highly relevant outside of the classroom and is vital in community-based resilience practices. In Sundarbans, where the locals continuously face climatic threats without any

prior warnings, informal peer learning, exchanging information, storytelling and verbal communication allow the community to come up with collective strategies (solutions) and make decisions that will help them to take precautions before, during or after climatic disasters. Vygotsky (1986-1934) highly stressed on knowledge and stated that “knowledge is mediated by culture, community and historical context” which is highly relevant to this study’s aim, which is to understand how social interaction and language exchange, i.e., particular words, idioms, phrases happens within the Jejepolli community, particularly among the the small-scale fishers to create and transmit knowledge in situated and social contexts.

Social constructivism assumes that reality is not pre-given, but is constructed through human activity (Kukla, 2000; Kim, 2002, as cited in Amineh & Asl, 2015). This assumption has been particularly relevant in this study’s context of climatic vulnerabilities, where perception of “risk” and “responses” to “uncertainties” and “vulnerabilities” are understood among the small-scale fishers through discourses and collective sense-making of their lived experiences, history and environment. For example, in vulnerable communities, such as in Sundarbans, local knowledge and information related to storms, sea tides, and cyclones are often dismissed through verbal cues, special metaphors, communal talk, rather than formal early warning systems. The effectiveness of this language exchange also becomes highly relevant to the people of the community when they receive this information from social networks (peers/ neighbors) and interactions rather than external sources. As Roth (2000) and Derry (1999) highlight, knowledge construction is rooted in one’s social surroundings and occurs first between individuals before it gets internalised. This social nature of language exchange and knowledge discrimination highlights the role of language in reducing climatic vulnerabilities among small-scale fishers in Sundarbans through their

everyday communication and shared cognitive understanding of their environment and experiences.

According to Brown et al. (1995), much of what individuals learn is filtered through special negotiation or distributed cognition. It happens when knowledge is not the product of isolated minds but is co-constructed through discussion, dialogue exchange, experiences, and shared understanding of the community and its people. These understandings are evident in the group discussions, cooperative learning and informal problem-solving activities that take place among the fisher communities in Sundarbans during, before and after the times of climatic stress. By employing the tools of scaffolding, cognitive apprenticeship and community dialogue (Brown, 1994; Rogoff, 1998), communities collaboratively build problem-solving strategies that highlight how learning and survival are collective acts rather than individual achievements.

Social constructivism also argues that learners develop conceptions of knowledge by reflecting on and interpreting their lived experiences (Mududu & Thiel-Burgess, 2021). Within this concept, small-scale fishers in the Sundarbans region are not just passive receivers of knowledge from state institutions or NGOs; rather, they are also active participants in constructing their own realities and knowledge about their environment that has been changing and this knowledge helps these communities to adapt to climatic changes and understand climatic vulnerabilities. Their interpretations, risk assessments and strategies are derived from their direct involvement and engagements with their ecological realities and social language exchange with peers, elders, neighbours and family members. This matches with the view of Belenky et al. (1986), as cited in Gray (1997), who argue that knowledge construction involves continuous re-evaluation of assumptions, high tolerance of ambiguity and a participatory approach to truth-seeking.

One of the central themes of this study is to explore how language serves as a strategic tool for reducing climatic vulnerabilities among small-scale fishers. According to Leeds-Hurwitz (2009), language is central to social constructivism because it is through language that humans create shared models of the world. In the Sundarbans, localised linguistic patterns, shared metaphors, idioms and collocations are all linguistic strategies that the small-scale fishers use to construct their reality, communicate their risks and organise community responses. For instance, in a classroom setting, the word “cyclones” might not have any significant meaning to the students; however, the words “quiz” and “assessment” do. It is because the students have experience in the classroom settings, and words like “quiz” and “assessments” carry significant meaning. Moreover, these words might not even make sense if one tries to evaluate them individually. For instance, tests are taken to evaluate and compare one student’s performance with another. It not only helps a teacher to understand the overall class performance of his students, but also helps students to compare their performance with others to understand where they stand among the crowd. Therefore, these communicative practices and shared word meanings justify what Meter and Stevens (2000) call “collaborative elaboration”, where they have highlighted those shared perspectives among individuals produce new understanding which could not be achieved individually.

Therefore, this study proposes social constructivism as not only a theory of learning and teaching or pedagogy, but also as a theory of community resilience. While much of constructivist literature focuses on classroom-based instructions and learning (Woolfolk, 2010; Ackerman, 1996), this research extends these insights to real-world, community-level settings where language, social interaction and collaboration are not used as academic exercises but are used as community-based strategies to reduce vulnerabilities related to climatic events. The theoretical lens, hence, provides a basis for analyzing how small-scale fishers engage in peer learning, scaffold or construct one

another's knowledge and build adaptive capabilities through social interactions and situated knowledge.

In sum, this research proposes a hypothesis based on the social constructivism theory, that is, when a problem or external climatic challenges occur, it often calls for social interactions and collaborative efforts among the small-scale fishers in Sundarbans. Language over here is not just a means of communication but acts as a way to construct knowledge and disseminate information. Specific words and phrases related to climatic events are used among the people in the community, which contain significant meanings and reality of their shared environment, situation and experiences. The small-scale fishers then, as a group or peers, exchange purposeful language, and through social interaction, less knowledgeable members learn about the situation and take adaptive measurements which highlights the concept of Zone of Proximal Development and Vygotsky's idea of learning occurring first on a social level before it becomes internalized or individual level. Finally, problem solving or solutions are found through collective discussions that happen within a community, which demonstrates language has the power to co-construct solutions, negotiate meanings and help with developing strategies, ultimately leading to community resilience and solutions.

3.2 Study Approach

This study followed a qualitative research approach as its methodological framework. Given the nature of the research questions, which aim to understand the role of language in reducing climatic vulnerabilities among the small-scale fishers in Sundarbans, Bangladesh, the qualitative method was the best option for collecting rich, detailed and in-depth data of the lived experiences, collective interactions and linguistic patterns among the SSF in Sundarbans, Bangladesh.

Qualitative methods help researchers to collect deep insights and understanding of complex phenomena about certain topics (Lim, 2024). While the role of quantitative research is to help a researcher to collect numerical data and perform statistical analysis, qualitative research focuses more on human experiences, perspectives, and documenting ideologies, feelings and emotions that are often very hard to capture through quantitative research (Lim, 2024). Qualitative research also allows researchers to connect more with the participants and understand their social contexts. Since this research focuses on language use, collective discourse, cultural meanings and community-based action, it required methods that can connect with the subjective experience of the subjects (Lim, 2024), something that a quantitative research approach might not be able to capture.

Moreover, this study used an interdisciplinary approach and used social constructivism as its theoretical framework, which denotes the interconnectedness between knowledge and meanings, and how they are constructed through human interactions and social activities. Therefore, to analyze how language is used as a tool in community-based problem solving and communication, a qualitative approach was more applicable as it could complement the study's theoretical framework. Additionally, this research requires an open-ended and semi-structured questionnaire approach, which can create room for both researchers and participants to participate openly and freely and engage in in-depth conversation, which could be collected through Focused Group Discussion (FGD) and Key Informant Interviews (KII). Furthermore, flexible and interactive data collection techniques such as participant observation, and transect walk were another two essential qualitative methods that were very much required for this research, as this research worked with a marginalized community whose knowledge and medium of communication are mostly oral and relational, and needed an understanding of the geographic dimension to understand the climatic vulnerabilities of the participants. Therefore, considering the nature, aims and objectives of this

research and the type of participants and settings of this research, this study opted for a qualitative research approach.

3.3 Methods

A qualitative method was used to collect data for this research. Conducting FDGs and KII interviews following the purposive sampling with the participants was the most appropriate approach for this research as it helped me to collect information through stories of resilience, document and identify the effectiveness of social interaction. The questions were semi-structured and open-ended, which allowed both the participants and the researcher to have flexibility while giving answers and asking questions. It was very much evident that participants were responding more in FDGs compared to when I conducted KIIs with individuals personally.

There were a total of 11 interview questions (primary) in this research that were derived from breaking down the research objectives and research questions that tried to explore (i) climatic vulnerabilities (ii) linguistic patterns (iii) the role of language (iv) social interactions and problem solving (v) purposive language and problem solving. For the FGD, the data collection was done through storytelling and a narrative approach. As a researcher, I tried to have a conversation with them without following any particular question order to understand their community dynamics, vulnerabilities and livelihood options. Moreover, I tried to observe how and if, as a group, they construe meaning or help each other even when they were trying to answer back to my questions.

For KII, on the other hand, I tried to keep the questions in order. The initial questions were designed as ice-breaking questions asking for the participant's profession, age, and lifestyle, followed by questions that helped me to understand the geographical dynamics and the climatic events that the community is exposed to, such as "can you name the climatic events that your

community witnesses, such as cyclones, storm surges etc.” Additionally, questions such as “what specific words/ idioms/phrases do you use to describe the climatic events in your community?”, “Do you think discussing or exchanging words or information in times of climatic events makes the situation better?” was asked to understand the role of language in reducing climatic vulnerabilities. These questions followed a semi-structured method to understand the linguistic patterns and adaptive measures that are taken by individuals within the Jelepolti community. Along with FGDs and KII, I carried out a transect walk throughout the village first by myself and the second time with one of the participants (Participant ID: K2) to observe and explore the community dynamics, study location and lifestyle of the people. The collected data from the FGDs and KII were analyzed and interpreted thematically through Vygotsky’s social constructivism lens.

3.4 Study Area and Study Period

The study area of this research was Jelepolti, a small village that is located near the edge of the Sundarbans in southwestern Bangladesh. Geographically, the village lies very close to a tidal river, and its proximity to the Bay of Bengal and its low-lying topography make the village highly vulnerable to natural disasters such as river erosion, tidal surges, strong winds, heavy rainfall and cyclones.

There are approximately 120 families in Jelepolti, primarily from Hindu backgrounds, with a smaller number of Muslim households. Each and every household of the village is primarily associated with fishing and is largely dependent on the natural resources of the Sundarbans. Therefore, fishing is the primary livelihood option, and this includes both men and women. While the men deal with going into the mangrove forest with wooden boats, sometimes for days at a time,

the women often engage in nearshore fishing activities such as collecting juvenile crabs, shrimps and small-scale river fishing with nets and hooks to sustain themselves and their families.

The data collection of this study was carried out from January 2025 to February 2025 during the post-winter and early summer season, making it a peak time for collecting juvenile shrimp and crab from the river. The water of the river and the weather in general stay more stable and calm during this particular period, which makes it ideal for the fish to breed. The months of January - February are also the two months when crab catching is banned in the Sundarbans.

Depending on the location, travel availability and with the time limitation of the thesis, this study took two months to complete data collection and data entry and another month to finish the overall analysis and writing of the paper.

3.5 Participants and Sampling

The main objective of this study was to identify the effectiveness of language and social interaction in reducing vulnerabilities among the small-scale fishers in Sundarbans, Bangladesh. To understand this, this study also aimed to document the unique words, phrases and linguistic patterns used by the SSF of the Jelepalli community how they discuss climatic events among themselves. Moreover, this research tried to explore if these specific words used by the community people contextually make sense in their environment, have any significant meaning in their community and eventually help or have helped the small-scale fishers in the Jelepalli to come up with solutions in the time of adverse climatic events.

Participants of this research were selected carefully using purposive sampling. The number of participants in this research was 20, which includes both male and female traditional small-scale

fisherfolk. The age limit of the participants ranges from 20 to 60, to understand the general perspective of climate change among younger and older generations and/or change of linguistic pattern, if any, that has occurred in this community.

3.6 Participants Demographic

All 20 participants of this research are traditional, ancestral, and generational small-scale fisherfolk (-both male and female) from the Jelepalli village of the Sundarbans, Bangladesh. Data collection through FGD contained 16 participants, and KII was conducted with 4 individuals. Given below are the FGD and KII participants' demographics for this research:

Focused Group Discussion (FDG) Demographics

FGD 1	Participant ID	Gender	Age	Occupation
	F1	Female	42	SSF and housewife
	F2	Female	39	SSF and housewife
	F3	Female	82	Occasional fisher
	F4	Female	47	SSF and housewife
FGD 2	Participant ID	Gender	Age	Occupation
	F5	Female	61	SSF and fish seller
	F6	Female	50	SSF and housewife
	F7	Female	55	SSF and housewife
	F8	Female	33	SSF and housewife

FGD 3	Participant ID	Gender	Age	Occupation
	F9	Male	75	SSF and wood collector
	F10	Female	40	SSF and housewife
	F11	Male	37	SSF and fish seller
	F12	Male	45	SSF and tea stall owner
FGD 4	Participant ID	Gender	Age	Occupation
	F13	Female	29	Seasonal fisher
	F14	Male	42	SSF and wood collector
	F15	Male	48	SSF and fish seller
	F16	Male	35	SSF and fish seller

Key Informant Interviews (KII) Demographics

Participant ID	Gender	Age	Occupation
K1	Male	20	Student and seasonal fisher
K2	Male	48	SSF and fish seller
K3	Female	84	Occasional fisher (former SSF)
K4	Female	56	Seasonal fisher and housewife

3.7 Interview and Documentation Method

The interview questions for this research, both FGD and KII, were designed by breaking down the research objectives into different components, such as climatic events, community interaction,

language effectiveness, vulnerability reduction, etc. The data collected from the interviews were transcribed and analysed to understand the similar trends among the SSFs in terms of risk reduction, group work, problem solving, and use of linguistic patterns. The names of the participants were kept anonymous by using coding names.

The interviews and conversations related to this research topic were conducted in Bangla. A few of the interviews were recorded for transcription, and this was done with proper permission from the participants. Before each of the interviews, participants were enlightened about the purpose of this research and their involvement in the paper and were clearly informed that they are not obligated to answer any of the questions that they feel uncomfortable with or have the right to leave at any point of the interview.

Chapter 4: Results and Discussion

The Jelepolti community, a small-scale fishing community in the coastal regions of Bangladesh, faces a range of climatic events. Cyclones, high tides, river erosion and extreme rainfall are among the most significant natural threats to their location and livelihood. However, beyond these natural events, the community also faces man-made challenges such as sea piracy and fishing ban periods, which further complicate their effort to secure a stable income and livelihood.

The people in the Jelepolti receive climatic information from multiple sources such as television, mobile phones and community announcements, however, discussion with the local people depicts that SSFs in Jelepolti rely heavily on the peer networks for climate-related decisions and for critical decision-making. Their trust in local knowledge and collective judgement often outweighs external influences. When they hear about a storm that is approaching or rising tides, they gather in familiar social spaces like tea stalls or beside the local temples to share news, assess the situation and plan their next steps collectively. The table below shows the most common climatic events that the Jelepolti community has been witnessing over the past years, and the sources from there they hear about this news:

Climatic Events	Cyclones	Sources	TV News
	Extreme Rainfall		Phone / Internet • Youtube • Facebook
	River Erosion		Local announcement

	Stormy Wind			Neighbor
	Flood			

4.1 Local Knowledge as Linguistic Resources

The Jelepolti small-scale fishing community demonstrates a rich usage of localised linguistic expressions that highlight their lived experience and deep ecological awareness. Through field interviews, it was evident that the small-scale fishers of this community do not solely rely on standard Bangla terminologies to describe climatic events; instead, they use linguistic expressions that are drawn from context-specific vocabularies to communicate environmental changes, many of which differ from formal or standardised Bangla. The term *Ayla* alone holds symbolic meaning associated with devastation, loss, grief, and displacement. Similarly, environmental changes like high tides are described using terms such as গণ (*gon*) or phrases like পানি উঠেছে (*paani uthechey*) or স্রোত বয় (*shrot boye*), which depict a more vivid and visual understanding of the climatic phenomenon. These words and vocabulary reflect the community's close, observable relationship with their environment. Moreover, these terms not just hold lexical meaning but have pragmatic and symbolic meaning as well, and highlight not just how the community communicates and interacts with each other but also how they experience climatic risks. The table below shows details of the local words or specific phrases that the Jelepolti community uses to describe climatic events in comparison to Standard Bangla terminologies:

English	Standard	Local Terminology (Jelepolti)	English Translations of the Local
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Word	Bangla		Terminology
Cyclones	ঘূর্ণিঝড় (<i>Ghurni jhor</i>)	- ঝড় (<i>Jhor</i>) - আমফান (<i>Amphan</i>) - আয়লা (<i>Ayla</i>) - বুলবুল (<i>Bulbul</i>) - সিডর (<i>Sidr</i>) - ১৯৮৮ সালের ঝড় (<i>Unissho athsho ashi shal er jhor</i>) - ২০০৯ সালের ঝড় (<i>Dui hazar noy shal er jhor</i>)	● ঝড় – Storm ● আমফান – Cyclone name ● আয়লা – Cyclone name ● বুলবুল – Cyclone name ● সিডর – Cyclone name ● ১৯৮৮ সালের ঝড় – The storm of 1988 ● ২০০৯ সালের ঝড় – The storm of 2009
Extreme Rainfall	অতি বৃষ্টিপাত (<i>Aati Brishtipat</i>)	- বর্ষা হচ্ছে (<i>borsha hocche</i>)	● বর্ষা হচ্ছে – It is raining
High Tides	জোয়ার (<i>Jowar</i>)	- জোয়ার (<i>Jowar</i>) - গণ (<i>Gon</i>) - পানি উঠেছে (<i>Pani uthecey</i>) - স্রোত বয় (<i>Short boye</i>)	● জোয়ার – High tide ● গণ – Local term of high tide ● পানি উঠেছে – Water has risen ● স্রোত বয় – The current flows
Low Tides	ভাটা (<i>Bhata</i>)	- ভাটা (<i>Bhata</i>) - ভাটা লেগেছে (<i>Bhata</i>	● ভাটা – Low tide ● ভাটা লেগেছে – It is low tide

		<i>legechey</i>) - জল সরে গেছে (<i>Jol shore geche</i>)	● জল সরে গেছে – The water has receded
Light Breeze	মৃদু বাতাস (<i>Mridu Batash</i>)	- ফিরফির বাতাস (<i>Fir-fir batash</i>)	● ফিরফির বাতাস – local dialects of light breeze
Stormy Wind	ঝড়ো হাওয়া (<i>Jhoro Hawa</i>)	- ঝড়ের বাতাস (<i>Jhorer batash</i>)	● ঝড়ের বাতাস – Wind that happens due to a storm
River	নদী (<i>Nodi</i>)	- নদী (<i>Nodi</i>) - গাঙ (<i>Gang</i>)	● নদী – River ● গাঙ – River (local dialect, often used for large rivers)

Social constructivism suggests that knowledge is constructed through human interaction and is shaped by cultural and social context (Kim, 2001; Zydney et al., 2012). Applying this theoretical framework to Jelepalli's findings, we can see that language in this community is not just used as a passive system for describing reality but as an active medium for constructing it. Climatic events like cyclones, tides or rains are not just environmental factors, they are constructed, named and emotionally charged through shared language and collective memory. The term *Ayla*, for example, signifies more than a cyclone; it has become a culturally constricted signifier of loss and grief. An experience that the community do not wish to witness ever again. One of the participants mentioned:

“We did not know about climate change. We had no idea what a cyclone was. I have heard from my father that there was a devastating flood in 1988, but I have no memory of that event. It is after Ayla that now, we now know what a cyclone looks like, what climate change feels like”. (K15, February 2025)

This powerful statement highlights that the concept of “cyclone” was not meaningful to the people until they experienced Cyclone Ayla by themselves. The words “cyclone” and “climate change”, even though they existed before, did not hold any significance or symbolism in the Jelepalli community in the Sundarbans. The participant also mentioned hearing about the 1988 flood, a tropical cyclone that hit Bangladesh and caused catastrophic damage and is considered as one of the worst floods in the nation, that he heard from his father. However, since he has no memory of that event, he only began to understand the weight of the word “cyclone” once he personally experienced Ayla and the following cyclones that hit the region, such as Amphan, Bulbul, etc. This evidence matches with the idea of Vygotsky and the framework of this research, which stated that learning and meaning-making occur in a person through experiences and interactions within a cultural or social context.

Apart from cyclones, other words such as “সুন্দরবন (Sundarbans), “সাবধান হও (be careful)” সচেতন হও (stay alert), বিপদ সংকেত (danger signal), নিম্নচাপ (low pressure: usually refers to weather conditions that can lead to storms), দুর্যোগ (disasters), ভয়ানক আকার ধারণ (becoming severe: usually reflecting to extreme climatic events) holds significant value and cultural meaning into the Jelepalli community and among the small-scale fishers. Sundarbans (সুন্দরবন) (does not simply mean a mangrove forest to the small-scale fishers of Jelepalli. The community denotes Sundarbans as মা (Ma), which translates to “mother” in English. Similarly, words such

as “সাবধান হও” (*be careful*), “সচেতন হও” (*stay alert*), “বিপদ সংকেত” (*danger signal*) symbolise upcoming danger. These words are highly relevant to their community as they have been facing extreme climatic events, which directly affect their livelihood and survival. In a classroom setting, the word “সাবধান হও” (*be careful*) might be used by a teacher to instruct a student to be more careful from next time while writing or reading or in general, making mistakes. However, in the Jelepalli community and among small-scale fishers, the same word is used to warn the community members of the upcoming cyclones or storms, and thus it carries different meanings and realities.

The way same words can have different meanings in different situations and different contexts, geographical location, socioeconomic status aligns with the fact is the nature and role of language is multidimensional, and language does not only have semiotic meaning but also contains pragmatic meanings. It also supports Berger and Luckmann’s (1996) foundational theory that reality is socially constructed through repeated interactions and shared symbols. Moreover, these also resonate with Vygotsky’s emphasis on the sociocultural context of language acquisition. This indicates that the way one understands and learn language is dependent on their social and cultural environment. According to Vygotsky (1978), language is not a unidimensional tool for communication; rather, it is how we, humans, build realities and meanings of words among ourselves. The words use, how we use and in the context that we use are shaped by our daily life experiences, environment and people around us.

4.2 Community-centred Risk Interpretation and Decision-Making

In the Jelepalli community, small-scale fishers respond to climatic risks not as isolated individuals but as a community. In terms of rough and uncertain times, they make decisions as groups or as

communities. Participants mentioned that when an announcement or warning is received, for instance, they hear about any upcoming cyclones or any natural disasters on TV, radio, mobile phones, YouTube, or Facebook; they come together to a common space most likely a tea stall or temple and discuss the news with fellow community members. Upon discussion with community members, as a group, they decide what action to take, whether the community will evacuate to a cyclone shelter or stay in homes, whether they will pause their fishing activities or take extra precautions, etc. This community-centered approach to decision-making was also evident during the data collection process. Since this research incorporated both Focused Group Discussions (FGD) and Key Informant Interviews (KII), it was very much visible that during the FGD, participants were more comfortable in providing and talking about their past experiences and how they make meaning of certain words.

For instance, when the participants were asked to provide examples of some words that have changed or evolved over the past 10 years, or any new words that have emerged within the community due to extreme climatic events, they started to discuss in groups and gave their answers. One participant would bring up a word, and the rest of the FGD participants would nod, approve, or clarify or extend upon it. They discussed about their past experiences, reminded each other about events and even transcribed the questions to each other for those who were unsure and were struggling to participate. During FGD, participants even reframed a few of the questions and used local words, metaphors and linguistic expressions to explain the question to the other participants. The role of community engagement and local linguistic phrases played an important role here. Even though I, as a researcher, explained the questions in as easy words and phrases as possible, it only became easy and relevant to the participants once one of the participants voluntarily took the lead and explained the questions to the rest of the participants. This

collaborative process highlights the importance of knowledge-making within a community. In contrast, participants of KII were seen to struggle in answering a few of the questions, which were very easily answered in FGD through group discussion and communication. In one-to-one question-answer and discussion sessions, some participants struggled to recall specific information, details or words without the help and support of peer interaction. These differences denote the importance of social context in knowledge creation and production, and support Palit's (2020) and Akpan et al.'s (2020) suggestions that decision making often results from collective logic, rather than individual ideas or rationalities. Therefore, it can be stated that knowledge, particularly in high-risk sites, such as those in Sundarbans, is socially scaffolded (Meter & Stevens, 2000).

Nevertheless, both the Interviewees from FGD and KII consistently highlighted the importance of community discussions and collective decision-making. One of the participants stated:

“When we hear announcements or news about upcoming disasters, we talk with each other and come to a decision. If people say we are staying, we all stay back. If people say, we should go to the cyclone shelter, we all go to the cyclone shelter. We make decisions together. If we die, we will die together, and if we live, we will all live together.” (F3, February 2025)

These sentiments reflect a deep community and social bond. Even if the community receives the news from trusted external sources such as the NGO officials or TV, the actual decisions, such as moving to a cyclone shelter, staying back at home, or going out to sea, are made after group agreement and discussion with community members. These acts of solidarity are prime examples

that not only show how survival takes place within a community and how groups work, but also how emotional support and reassurance during crisis can act as coping mechanisms.

These findings closely align with the research's theoretical framework and its application in a classroom setting (Palit, 2020; Akpan et al., 2020; Davis et al., 2017). In a social constructivist classroom setting, students solve problems through collaborative efforts. They engage in discussions and, through peer learning, they build upon existing knowledge to create new knowledge (Saleem et al., 2021). Social constructivist approach to teaching and learning stresses on the fact that students learn through interpersonal relationships, interactions and observations (Davis et al., 2017) and they tend to remember or resonate with ideas or realities that they experience or constructed by themselves rather than external influences such as teachers or parents (Saleem et al., 2021). This is very much similar to the findings of this research, where it is shown that the small-scale fishers of the Jelepolti community tend to trust their local knowledge and community people's opinion more than what they receive from external sources such as the TV, news or NGO members.

4.3 Language as a Tool for Vulnerability Reduction

Language plays a critical role in how small-scale fishers in Jelepolti interpret and respond to climatic threats. The findings from the interview suggest that verbal communication, specifically informal language, usage of local idioms and phrases, acts as both early warning signals and collective adaptation strategies among the community members. Certain linguistic phrases carry certain meanings. Moreover, the participants also highlighted that over the past years, there has been an emergence of many new words and vocabulary within the community that were not very predominantly used before the year 2009, the cyclone *Ayla* incident. After *Ayla*, many words

related to climate change, such as *নিম্নচাপ* (*low pressure: usually refers to weather conditions that can lead to storms*), *দুর্যোগ* (*disasters*), are used very frequently among the small-scale fishers in Jelepalli and also act as a symbol that triggers their consciousness of climatic danger. These words work as a symbol of danger or taking safety measures. Before Ayla, they did not have to worry about these kinds of words or use these words frequently. But now, due to climatic events, these words have become very frequent in their vocabulary, which helps them to construct meaning (danger) among themselves.

Further findings revealed that the language used by the Jelepalli community to describe early warning signals varies depending on the severity of the threat. The community people have their individual way of analysing the official early warning signals that are implemented by the governments. In Bangladesh, storm severity is announced through signal numbers running from 1-11 as designated by the Bangladesh Meteorological Department (BMD). These signal numbers are used to describe and understand the severity of the upcoming climatic events and also help fishers and others who are related to the waterbodies. The signal helps people to know about the severity of the storm, assess risk levels and make informed decisions. Given below is a table that is derived from The Daily Star (2023), which describes the severity of each signal and the meanings associated with them:

Signal 1 (Distant Cautionary Signal)	There is a region of squally weather (wind speed of 61kmph) in the distant sea where a storm may form.
Signal 2 (Distant Warning Signal)	A storm (wind speed of 62-88kmph) has formed in the distant deep sea. Ships may face danger if they leave harbour.

Signal 3 (Local Cautionary Signal)	The port is threatened by squally weather (wind speed of 40-50 kmph).
Signal 4 (Local Warning Signal)	The port is threatened by a storm (wind speed of 51-61kmph) but it doesn't appear that the danger is as yet sufficiently great to justify extreme precautionary measures.
Signal 5 (Danger Signal)	The port will experience severe weather from a storm of slight or moderate intensity (wind speed of 62-88kmph) that is expected to cross the coast.
Signal 6 (Danger Signal)	The port will experience severe weather from a storm of slight or moderate intensity (wind speed of 62-88kmph) that is expected to cross the coast.
Signal 7 (Danger Signal)	The port will experience severe weather from a storm of light or moderate intensity (wind speed of 62-88kmph) that is expected to cross over or near the port.
Signal 8 (Great Danger Signal)	The port will experience severe weather from a storm of great intensity (wind speed of 89kmph or more) that is expected to cross the coast
Signal 9 (Great Danger Signal)	The port will experience severe weather from a storm of great intensity (wind speed of 89kmph or more) that is expected to cross the coast.

Signal 10 (Great Danger Signal)	The port will experience severe weather from a storm of great intensity (wind speed of 89kmph or more) that is expected to cross over or near the port.
Signal 11 (Failure of Communication)	Communications with the Storm Warning Centre have broken down and local officers consider that a devastating cyclone is following.

Figure: Cyclone signal system by the Bangladesh Meteorological Department (BMD); source: The Daily Star, 2023

If we compare the findings of this research, we can observe that the language used by the small-scale fishers of the Jelepolti community to describe the severity of the climatic events significantly differs from the way the Bangladesh Meteorological Department (BMD) describes the severity of the events. Signal 1 is associated, understood and communicated through phrases like “ঘরে থাকা যাবে” (we can stay at home) or বৃষ্টি হবে (it will rain), which denotes that the upcoming storm is not that powerful and regular activities can be carried out. However, signals 4 to 5 are recognised or described with words such as দুর্ঘটনা (disasters), ভয়ানক (dangerous/ terrifying), and সাবধান হতে হবে (we have to be careful). From signal 7 onwards, the signals represent the most urgent level of danger and need for immediate action among the small-scale fishers of the Jelepolti community. Community members react to these warnings with phrases such as “সাইক্লোন শেলটারে চলে যেতে হবে” (we must go to the cyclone shelter).

These layered and context-sensitive uses of language reflect the community's understanding of climatic danger. Although the official signals consider signal 8 and onwards as a great signal of danger, the Jelepolti community considers signal 4 to 5 as a matter of concern and signal 7 onwards as immediate relocation options, such as moving to the cyclone shelter.

The language of crisis communication also differs among the SSF in the Jelepolti community compared to how officials or NGO members address certain terminologies. Participants mentioned that the language that are used in these announcements by officials or NGO workers is very sophisticated and very different from their local way of speaking. Given below are two samples of how officials/ NGO members and local community members announce climate emergencies, which were demonstrated and acted out by one of the participants:

হ্যালো গ্রামবাসী। আগামী ৩ তারিখ ঝড় হতে পারে। আপনারা সতর্ক থাকুন। আশ্রয় কেন্দ্রে অবস্থান করুন। নিরাপদে থাকুন। সাথে শুকনো খাবার রাখুন।

“Hello, villagers. There may be a storm on the upcoming 3rd. Please stay alert. Relocate to the cyclone shelter. Keep dry foods with you.” (NGO Announcement Demo)

এ শোনো, ঝড় আসছে, আমরা সাবধান হই। শুকনো খাবার, ও প্রয়োজনীয় জিনিসপত্র গুচ্ছি গাচ্ছি রাখো।

“Hey everyone, listen, a storm is coming. We all should be careful. We should pack dry foods and other essential items properly”. (Local Announcement Demo)

From the examples above, it can be seen that the linguistic expression, idioms and phrases used by the Jelepolti community significantly differ from the formal way of announcement regarding

the climatic dangers by the NGO/ officials. These local linguistic expressions have significant meaning, and they help in preparedness among the SSF of Jelepalli and help them to make proper decisions. For example, a simple phrase like “শুকনো খাবার, গুছি গাছি রাখো” (*pack and prepare dry food*) carries a sense of urgency that mobilizes entire communities into action.

These findings resonate with the ideology of social constructivism that depicts language as a central medium through which social realities are constructed. Language, in this framework, does not only describe realities but also produces and reproduces them. As Alenjandro (2024) states, language reflects not only communication but also mental representations, beliefs, values and a community’s lived reality. The repeated usage of specific phrases, words and idioms in the Jelepalli community does not simply reflect danger or climatic vulnerabilities; it displays a shared understanding of the community’s perception of danger, risks and how, as a group, they prepare in certain times.

The findings also resonate with Islam & Chuenpagdee’s (2022) concept of vulnerability, which is not only about physical exposure to risks but also about one’s social and access to information. In this lens, language acts as a powerful source for constructing meanings. Words such as “danger” “safety” “dry food” “low pressure” carry their unique realities that are shaped by the collective past experiences of the Jelepalli community.

The findings from this research highlight that language plays an important role in vulnerability reduction, which supports the findings of Federici (2019) and Federici (2020). Both Federici (2019, 2020) argued the importance of linguistics and translation as a strategy in disaster preparedness and risk reduction. In case of the Jelepalli community, the SSF translates the storm announcements from standard Bangla to local dialects to discuss them with their peers and

neighbors further. This indicates that when language is contextualized and locally relevant, it helps people to understand certain terminologies better and therefore helps them to make the right decision.

4. 4 Social Interactions as Climate Adaptation Strategies

Social interaction can be defined as a communication act and an act of information exchange through purposeful language between two or more people. In the Jelepolti community, social interaction acts as a problem-solving and climatic adaptation strategy, especially during climatic events. When the community is challenged with threats like cyclones or high tides, the SSFs instinctively gather to discuss these problems. These informal gatherings, or sharing problems or seeking alternatives and solutions from other peers, highlight the collective thinking that happens within the community and ensure that community members are not left to make decisions in isolation.

All the participants of this research, in both FGD and KII, were asked if they think social interactions help them with problem solving, to which all of them responded agreed. All the participants stated social interactions as a coming mechanism and as a form of adaptation strategies that helps them to make decisions. Participants mentioned times when social interactions acted as adaptation strategies. For instance, one participant mentioned that after discussing or exchanging information with fellow fishermen, he decided not to go to the sea; rather, he relocated his wooden boat to a safer place. This strategy not only kept him away from danger but also saved him economically, as there was a strong storm and keeping his boat in the sea could have destroyed it. This highlights those social interactions, in the form of knowledge exchange and information sharing, help small-scale fishers in the Jelepolti community to take appropriate measurements.

Additionally, participants also highlighted their socioeconomic status and compared it in terms of strategy availability. Participants mentioned that since they are socially and economically disadvantaged, social interactions, exchanging information and talking to each other about their problems are the only feasible and effective solutions. They cannot afford to rebuild their mud house with brick buildings, as in the face of climatic events, this seems the best adaptation strategy. Similarly, they also cannot switch from small wooden boats to electronic boats that are safer and can travel long distances. Therefore, they have adapted social interaction and language exchange as a medium of preparedness, risk reduction and adaptation strategies among themselves.

Participants mentioned that problem-solving often emerges through storytelling and reflecting on past events and experiences. Since the SSF in the Jelepolti community has been associated with the village for generations, they understand the environment better than anyone else. During discussions, community members recall past events and what could have been done differently to reduce damage or take accurate measurements. For instance, if one SSF avoided going into deep water during high tides and it saved him from extreme danger, other members reflect on this act and adjust their strategies accordingly. This interactive learning process through feedback helps them to understand and make uniform decisions regarding the uncertainties of climatic threats while reinforcing community bonds.

Social interactions in the Jelepolti community act as both practical survival methods as well a knowledge-sharing system, which supports the idea of Chiu (2000). During climatic emergencies, as Erozkán (2013, as cited in Balogh-Pecasi et al., 2024) stated, effective communication leads to crisis solving and this was very much evident in the Jelepolti community and small-scale fishers' response strategy. The Jelepolti community's dependency on social interactions and peer-to-peer communication can be further explained by Rahman et al. (2014; 2015), whose studies indicated

that talk-in-interaction and community-based knowledge exchange acted and improved disaster responses among community members in the Khulna region.

Moreover, the way the small-scale fishers in the Jelepolti community uses the process of recalling stories, evaluating decisions and collectively decides their strategies resonate with the classroom-based idea of social constructivism, where students together with their peers or as a group discuss and reflect upon their problems and come up with solutions. Overall, the findings of this study indicate that language and social interactions among the SSF in Jelepolti have helped them to adapt significantly to reduce climatic changes. The group work, and feedback approach that was visible among the SSF in Jelepolti is very much similar to a classroom setting where students forms groups to solve problems, and how after every group work students get feedback from each other or from the faculty members so that they can avoid the same mistake for future references. These findings are very much relevant to the concept of social-constructivism in the classroom, where students learn new languages with the help of external factors and solve problems quickly when they are paired in groups.

Chapter 5: Conclusion and Recommendations

This study aimed to understand the role of language in reducing vulnerabilities through a social constructivist approach. Instead of the setting being in a classroom, this study applied a similar framework to a particular group of people, also known as the small-scale fishers in the coastal Sundarbans, Bangladesh. The goal of this research was to explore how social interactions regarding climate event events happen among the small-scale fisheries of the Jelepolti community and document specific words, phrases or linguistic patterns that are used by the small-scale Fisher to discuss and interpret climatic events.

The findings of this research highlight that the Jelepolti community faces several climatic events, and among them, cyclones, high tides, river erosion and extreme rainfall are the major drawbacks to their livelihood. Apart from this, sea pirates and fishing ban periods are the two other major challenges that hinder their income and livelihood. According to them, natural events are part of their daily life, and they are used to them. They receive climatic news from several sources such as TV, Mobile Phones, and community announcements, which were not there before the occurrence of cyclone Ayla in the year 2009. Even though they trust all these sources, when it comes to decision making, they value the opinion of the people of their community. When they hear the news, they share it with their neighbours and warn them. They usually sit together in tea stalls or beside the temple and discuss their strategies. Most of the older participants stated that they have seen changes in the way they communicate and the emergence of new vocabularies in their communities. Words such as সাবধান হও (be careful), সচেতন হও (stay alert), বিপদ সংকেত (danger signal), নিম্নচাপ, (low pressure), জলোবায়ু পরিবর্তন (climate change), দুর্যোগ (disasters)

did not portray any significant meaning in the community before the year 2009, as the community back in the time still did not face any major cyclones.

However, since 2009, the community has been exposed to various natural disasters and these words, which were rarely used before, or used at all, make sense to the community and are used often and acting as a symbol of fear and preparedness. The participants mentioned that since 2009, the involvement of NGOs in their community has also increased, which includes the usage of standard Bangla in their communities. They now receive early warnings through announcements which use polished and standard Bangala that are slightly different from Jelepalli's local way of expressing or speaking. The SSF in Jelepalli are now learning about new ideas and words that are related to the environment, which they have not paid attention to before. They need to know about these words or understand them, as these are related to their livelihood and fishing and going to the Sundarbans is their only source of income and livelihood. Therefore, as a community, they have constructed and reinterpreted the meaning of several words that match with their realities and experiences. Community understanding, social interaction and knowledge exchange play a significant role in their daily life and act as a huge strategy for their problem-solving. Sharing information and discussing their problem with each other not only helps them to come up with solutions but also helps them emotionally. They feel less anxious and tense when they discuss their problem with their fellow community members. It provides them with "hope" and "resilience".

5.1 Implications of this Research

The implications drawn from this research carry significant weight for multiple decision makers, academics, and policy makers within the field of disaster reduction, language policy and community-based early warning systems. This study highlights that language and the role of

language are not just a passive medium of communication but an active tool that shapes community preparedness, understanding perception and response to climatic threats. The linguistic patterns observed by the small-scale fishers in the Jelepolti community are unique and carry their own idioms, emotions and vocabulary. The role of language is often not considered in the formal top-down early warning mechanisms. disaster risk reduction and our warning signals are very much topped down in Bangladesh and are understood through the technological aspects.

A critical implication of this research is the need for early warning communication and crisis communication strategies to be culturally and linguistically appropriate and contextualised. Similarly, linguistics researchers can also look at the role of language and the theory of social constructivism in real-world settings, not just in classroom learning and education.

Furthermore, the intrusion of climate-related vocabulary after cyclone Ayla within the Jelepolti community also highlights the adaptive nature of language itself. It highlights how communities understand and experience certain events and these events can shape their knowledge and resilience through the transformation of their speech and linguistic patterns. Communication and social interactions become a valuable tool for marginalised communities. It acts as a coping mechanism that helps communities to come up with solutions and better prepare for climate events. Recognizing and incorporating these vocabularies and the evolving nature of linguistic patterns, in formal educational training and awareness campaigns, can enhance the effectiveness of climate resilience strategies. Officials and NGO can incorporate local and contextualised announcement practices that resonate with the community that they are announcing to. This can help the community to sympathies with the announcement more and take preparation more actively.

eventually, this research highlights the potential of language as a bottom-up grassroots method for vulnerability reduction. Policies and programs that are focused on climate adaptation and resilience should pay closer attention to local communicative and interaction practices and invest more in participatory approaches. They should incorporate local voices and the way communities prepare for disasters, or the effective way which has proven to be effective in reducing vulnerabilities.

5.2 Recommendations

Based on the findings and the above discussion, this research offers a few recommendations, such as:

- Integrating local language and phrases in early warning messages
- Community awareness and empowerment
- Including local climate vocabulary in the awareness program
- Need for more multidisciplinary and interdisciplinary research

Since small-scale fishers in the Jelepalli community respond more effectively to familiar terms, thus early war systems should include local dialect, idioms, and community-understood words alongside official standard Bangla announcements. For this, the stakeholders should work on particular communities to observe their linguistic patterns, phrases and understand words or phrases that trigger stimulation and preparedness among the community members. Incorporating effective languages within the early warning systems and crisis communication could ensure clear instructions, understanding and faster responses during climatic events among communities and help them to reduce vulnerabilities. It is also evident from this research that local community people trust early warning messages more, especially when they come from within the community.

Therefore, officials and stakeholders can train volunteers within the community to explain official signals in local terms for storms or disasters. This will enhance community resilience and empowerment and help both governments and local communities to take measures during climatic events. The awareness programs should also incorporate local knowledge and local vocabularies that are emerging within communities to discuss risk and vulnerabilities.

Lastly, the role of language in reducing vulnerabilities and the concept of social constructivism theory beyond classroom settings and education have not been explored properly. There is a huge need for interdisciplinary research that incorporates sociolinguistics and social science. The issues related to social sciences should not just be understood through the lens of social science frameworks; they require multidisciplinary approaches and an interdisciplinary framework. Therefore, there is a strong need for multidisciplinary and interdisciplinary research in the field of social science that incorporates more of an applied linguistics point of view.

Language is not just a medium of communication, but is how humans and societies identify themselves. It carries stories, histories and lived experiences of people. The role of language extends beyond just exchanging information, it is evident that language holds the power to construct reality, understand situations and solve problems within communities and at the individual level. Therefore, the role of language in reducing vulnerability among different communities is a topic that requires further investigation.

5.2 Significance of the Study

This research adds to the existing literary works in the field of linguistics and social science, particularly how language can be used as a source of medium to reduce vulnerability among the small-scale fishers in Sundarbans, Bangladesh. Through an interdisciplinary lens, this research

explores the potential of applying “social constructivism” theory outside of language teaching and classroom learning to understand how people in a community interact with each other and how, as a community, they construct meaning of certain climatic phenomena such as storms, cyclones, and heavy rainfall. Moreover, findings of this research highlight that the application of social constructivism goes beyond just trying to address or solve problems of traditional teaching and learning (Amineh, 2015); rather, it can be used as a framework that is applicable in community level to understand the power of group work, collective meaning, purposeful language usage which eventually results in problem solving.

5.2 Limitations

Due to time constraints, this study collected data from only one particular village of Sundarbans, Bangladesh. Moreover, the participant list of this study is highly dominated by female fishers who go out into the Sundarbans to catch fish. Since the interviews were taken in an open space, i.e., under a tree, at a tea stall or beside the river, the KII interviewees were disrupted by other participants, which might influence their answers.

Although this research itself focuses on language, idioms, phrases and social expressions, capturing the authentic dialect of the Jelepolti community was complicated. Some of the local expressions might have lost their depth and actual meaning during the process of analysis, translation and transcription. Moreover, even though the small-scale fishers in the Jelepolti community are used to having visitors, researchers and external members from outside for data collection, the concept of sharing their language or local words with a researcher seemed very unique to them. Although the participants were very enthusiastic in answering the questions, a few questions were very hard for them to understand as they were translated into standard Bangla.

Time restrictions also restricted opportunities to conduct a follow up interview with participants and finally, in terms of secondary data collection (literature review), I had to struggle a lot to find appropriate research papers that align with the overall theme of this paper, which is the role of language in reducing vulnerabilities among small-scale fishers through an interdisciplinary lens and social constructivism theory.

5.3 Scope of Further Research

The potential for further research in this context extends beyond the current framework applied and followed in this research. Further investigation could include more extensive research involving more participants—both male and female—and an extended study location. It can also consider other stakeholders such as NGOs, government officials working in the sector of disaster management, and meteorological departments to understand the role of language in reducing climatic vulnerabilities. Expanding the research and including multiple villages in Sundarbans apart from the study location can help researchers to carry out a comparative analysis between villages and can help in identifying linguistic trends and their significance with particular events.

In terms of methodology, ethnographic research can be one potential research method that I believe will help extract more information and data on this topic. It can help researchers to observe and understand seasons and understand the local dialects a lot better, and this can help with collecting data and also understanding the geopolitical conditions of the study places. Additionally, discourse analysis of the natural conversations collected from the ethnography observation, such as during stormy weather, community meetings and going out to the sea, can enrich the aim of this study, which is to analyze the role and importance of language in problem solving.

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