

**ENHANCEMENT OF ENGLISH FLUENCY AND READING
COMPREHENSION AMONG INFORMATION TECHNOLOGY
STUDENTS OF MAHAPURUSHA SRIMANTA SANKARADEVA
VISWAVIDYALAYA (MSSV)**

**A DISSERTATION SUBMITTED TO THE DEPARTMENT OF ENGLISH
IN PARTIAL FULFILLMENT FOR THE AWARD OF THE DEGREE OF
M.A.**



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মহাপুরুষ শ্রীমন্ত শঙ্কৰদেৱ বিশ্ববিদ্যালয়
MAHAPURUSHA SRIMANTA SANKARADEVA VISWAVIDYALAYA

...জাতীয় চেতনাৰ আলোকত প্ৰজ্জ্বল সাধনা

**Enhancement of English Fluency and Reading Comprehension Among
Information Technology Students of Mahapurusha Srimanta Sankaradeva
Viswavidyalaya**

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Dr. Madhulina Choudhury

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GUIDE'S CERTIFICATE

This is to certify that the dissertation entitled “**Enhancement of English Fluency and Reading Comprehension Among Information Technology Students of Mahapurusha Srimanta Sankaradeva Viswavidyalaya**”, submitted by Violeena Nath (ENG-08/23), Atifa Zannat (ENG-21/23), Sofiuz Zaman (ENG-22/23), Priya Gogoi (ENG-23/23), Trisha Nath (ENG-41/23) is the result of their own investigation carried on under my supervision in the Department of English, Mahapurusha Srimanta Sankaradeva Vishwavidyalaya. The students have fulfilled all the requirements for the award of the degree of Masters of English.

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DECLARATION

The researchers- **Violeena Nath, Atifa Zannat, Sofiuz Zaman, Priya Gogoi, Trisha Nath** the students of the Department of English, **Mahapurusha Srimanta Sankaradeva Viswavidyalaya**, Guwahati unit. do hereby declare that this project report entitled, ***Enhancement of English Fluency and Reading Comprehension Among Information Technology Students of Mahapurusha Srimanta Sankaradeva Viswavidyalaya***, is an original work carried out by the researchers and is the result of their own intellectual efforts, completed under the guidance of **Dr. Madhulina Chaudhury**, Department of English, MSSV, Guwahati Unit. This project is the result of our own research, observations, and analysis. The researchers affirm that all of the material, data, and interpretations contained in this report are based on our own fieldwork and research. Wherever other sources have been used or referenced, they have been fully acknowledged and cited according to academic norms. The researchers affirm that this project has not been submitted by them, individually or jointly, for the award of any degree, diploma, or certificate to any other institution.

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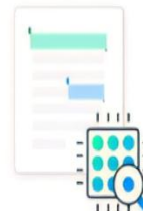
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Project Overview

In our current globalizing society, the importance of English as a unifying language of communication has become quite crucial, particularly in areas where international cooperation and technological innovation have become primary factors. Information Technology (IT) is one of those areas in which the professionals use English as the language of primary importance when reading a technical documentation, participating in webinars and international conferences, working within a team with a mix of countries represented and receiving the latest updates on world events. In this regard, the knowledge of the English language and its understanding do not relate to any additional abilities but represent crucial means towards academic and professional success. Nevertheless, the problems with the acquisition of functional English proficiency are still very prevalent among the students of the regional Indian universities, including Mahapurusha Srimanta Sankaradeva Viswavidyalaya (MSSV) in Guwahati. The main issue is that, many IT students are not effective in writing or in understanding or expressing themselves in their own words in the English language or comprehending technical recreational reading.

This research is inspired by the close observation of linguistic challenges during the course work of IT students at MSSV. These students are intelligent, motivated, and well prepared in their course subjects, but most of them have trouble expressing themselves in English, discussing issues in the classroom, or understanding technical literature. One such reason is the educational level that most of them have acquired in Assamese medium schools where English was taught as a subject to be memorized than as a practical language for communication. As a result, some students know grammar rules or word meanings, they still hesitate to speak in English, they struggle to understand spoken lectures. These lapses in language abilities are both academic and professional. Academically, the students might fail to study research literature or clearly state their perception. At work, soft abilities such as communication, teamwork, and presentation are also valued more in the high technology sector, and students without mastering of it may fall behind.

The dissertation is an examination of how a more focused and activity-oriented ESL (English as a Second Language) instruction can be used to fill the gap. The idea was to avoid the passive learning approaches and replace them with active tasks (more student-centred) and in them there must be dynamic real-life communication examples. Activities such as role-plays,

debates, storytelling, jigsaw reading, and vocabulary games were designed to improve both fluency and comprehension, with the hope that students would begin to use English more naturally and confidently.

This research was done in the Department of Computer Science and Information Technology of MSSV that accommodates students of different parts of Assam. This project was attended by 13 students of 2nd and 4th semester from both B.Sc. and M.Sc. programs, who joined it voluntarily. As it involved postgraduate and undergraduate degree seeking students and this is why the research was able to present a wider description of issues affecting students at various dimensions.

There are some general problems demonstrated in an initial needs analysis. Many postgraduate students found it hard to understand academic texts or research papers, often due to limited exposure to technical vocabulary. In some cases, they just did not grasp hidden meanings or contexts even when they knew the content. Fluency was another key concern as some students were hesitant to speak, frequently pausing or relying on filler words because of poor word recall. Literal translation from their native language often led to awkward or incorrect sentence structures. Common discourse markers such as “however,” “in contrast,” or “meanwhile” were rarely used or misused, affecting the coherence of their spoken English. Additionally, a fear of making mistakes often kept them from participating in discussions, despite having basic language competence.

Practically, it was an unproblematic process to conduct a study, since the researcher was knowledgeable about the university. We have got all the required authorisations by the one concerned and the ethical issues were duly considered. With no effect on grades of the student, participation was voluntary, and everyone knew well the purpose and merits of studying the research. Dr. Bibha Devi, an assistant professor of the University, who conducts a course on “Functional English II” to the undergraduate students also provided some valuable input in the undertaking of the project. Her advice also contributed to the quality of linking the activities to the linguistic objectives as well as academic material.

The research is based on a qualitative approach, emphasizing classroom observation, feedback, and task-based performance rather than traditional tests. These included “Native to Natural,” which addressed mother-tongue interference; “Discourse Marker Debate,” aimed at improving logical flow in speech; “Jigsaw Reading,” to build collaborative comprehension; “Vocabulary Maze,” which encouraged contextual use of technical terms; and a “Tech Support

Simulation” role-play to mimic real-world professional scenarios. Each activity targeted specific language skills development while keeping the IT context in focus. For example, in the Jigsaw Reading task, students are asked to break down and explain sections of an academic article related to their syllabus. This encouraged peer-to-peer learning and helped improve their understanding of both vocabulary and technical content. The debate activity trained them to use logical connectors in spontaneous speech, while the vocabulary game helped them explore interrelated technical terms in an engaging way. The role-play, designed as a mock interview, challenged them to think quickly, retrieve vocabulary under pressure, and communicate with clarity to what they might face in real job interviews.

The outcomes of these activities were good. Students started talking much fluently, committing less structural mistakes and felt more confident speaking about technical issues in English. They were also more conscious of the way they use their language, and were more able to cope with self-correction. Although this was not an overnight experience and a total change, there was a difference. The classroom environment was one of the most outstanding differences as students began to interact with one another, provide feedback, and learn together in a more inclusive and non-judgmental environment. That said, not all students improved at the same pace. Some continued to struggle, others were still nervous about speaking in front of authority figures. However, even in these cases, their willingness to participate and ask for help had significantly improved.

The most notable thing was the change in relationship of students which began to rethink their relationship with English. After completing the activity many of them told that this was the first time that they were having such an experiential language learning experience. They appreciated that the activities were directly related to their field and helped them apply English in practical contexts whether it was discussing about artificial intelligence or cloud computing. This connection between language and content reshaped their attitude toward English.

Though limited in scope, this study provides valuable insights into how ESL instruction can be made more effective for technical students in regional institutions. It emphasizes the need to create context-specific, interactive, and learner friendly tasks with the focus not on rote memorization. Above all, it confirms there is not much truth to the notion of fluency and understanding being inborn factors whose level cannot be changed since they are skills that can be applied under the favourable disposal and attitude.

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Introduction

In today's global world, the English language plays a vital role in all the fields like education, technology and job. For students who are from Information Technology (IT) field, English is not just helpful for exams but also very important to learn from the global sources. It helps them to work with people from different countries and getting jobs in the future. Despite the need, many IT students who are from regional or non-English medium institutions, struggles a lot with the essential sub-skills of English like fluency and comprehension. It is because they do not get enough chance to speak English in real life or have not got such environments. In India, English is still often taught in a traditional way. That is English is taught with more focus on the grammar and not on speaking or actually understanding the language.

At Mahapurusha Srimanta Sankaradeva Viswavidyalaya (MSSV), many of the IT students come from the Assamese medium background, so their problems regarding the English language is seen clearly. They often struggle to understand spoken English, take part in conversation or speak fluently and confidently. And because of this, they not only face problems in their studies but also in preparing for their career goals. This study focuses on how fun and activity based English learning methods can help on understanding the skills in English. Our research involved 13 number of IT students from MSSV. The researchers used activities like role playing, debates, reading vocabulary games and listening exercises. All these activities were designed in the way so that the students find it interesting and practical. These are also very beneficial for their real-life communication. Thus, by connecting English learning with technical subjects and real-life situations, this research shows how students can improve their English in a more meaningful way. The main aim is to show how student friendly and interactive methods can really help the IT students to become their better version and more confident while using English.

Rationale

In today's academic career, English speaking proficiency is no longer just an optional skill, but has become essential, especially in the field of Information Technology (IT). As the IT industry growing on global communication and shared knowledge resources, the ability to speak and understand English fluently plays a crucial role. While many IT graduates students possess strong technical expertise, but among them a common challenge they face is lack of fluency and comprehension in English. This two language sub-skills fluency and comprehension are critical, not only for success in academic career but also for being productive in group projects, delivering presentations, reading technical materials. Although English is included in many universities' disciplinary course, especially in countries where it is not the first language and their classroom teaching instruction often focuses heavily on grammar, reading, and writing. With this conventional method people frequently neglects the improvement of listening comprehension and speaking fluency. Still, even if many students receive outstanding results on their tests, they may still find it difficult to fully understand spoken English or express their thoughts well in situations like academic lectures, interviews, or professional interactions. As a result of this gap between theoretical learning and practical communication, they may become less confident, less employable, and less qualified to participate in global professional settings. The purpose of this dissertation is to fill the gap by presenting and analysing multiple types of student-centered classroom activities which are designed to improve comprehension and fluency. The idea is to train students to interact in real ways and work on tasks that resemble professional and academic situations. The main goal of this study is to show how effectively English language skills can help students outside of the classroom setting. Students who are fluent in English language, are more capable to communicate confidently, work with classmates from different cultural backgrounds, and take advantage of more academic and career opportunities. Developing these skills is important for helping students in meeting the demands of a worldwide workforce. Through this dissertation, the main aim is to bridge the gap between language education and the practical requirements of IT learners by giving ESL instructors research-based, practical solutions that they can apply in similar educational contexts.

Project Objectives

The primary objective of this dissertation is to improve Mahapurusha Srimanta Sankaradeva Viswavidyalaya's 2nd and 4th semester undergraduate and post-graduate students from the Information Technology (IT) department with essential classroom activities that can help improve fluency and comprehension skills in English. Here are the objectives to overcome their weakness in English fluency and understanding:

- 1) **To find out the major challenges that students are facing in fluent speaking and comprehension in the English language:** Students face difficulties in spoken English and reading skills due to several linguistic, psychological, and environmental factors. This objective aims to identify and analyze the barriers that hamper IT students' progress, the barriers may include limited exposure to spoken English, lack of confidence or fear of making mistakes, insufficient vocabulary, unfamiliarity with different accents or speech rates, and an overreliance on their native language.
- 2) **Learn the students' current level of English fluency, comprehension and the level of improvement required:** the goal is to find out how fluently and accurately students can express themselves in spoken English, as well as their ability to understand English in both academic and real-world scenarios. It also identifies the required improvement from their current level to the expected level for academic and professional success.
- 3) **To recognize the learners' goals, interests, and expectations in English language learning:** To design effective activities and strategies for students to improve their fluency in speaking English and comprehension, it is essential to know their goals, interests and expectations. By learning each individual's interests such as becoming PhD scholar, teacher, doing job in corporate fields, the activities are designed to improve them to achieve their dream in both academic and professional aspects.
- 4) **Implementation of responsive, supportive strategies in order to enhance the English fluency and comprehension abilities of learners:** With this identification of the challenges, this dissertation wishes to make several reasonable steps including giving personal feedback, confidence-building activities- to help students develop a new language gradually and in a sustainable meaningful way.

Methodology

The approach taken in this study is to analyse and improve English speaking fluency and comprehension among Information Technology (IT) students of Mahapurusha Srimanta Sanakaradeva Viswavidyalaya. Since the study focuses on language use and what learners experience, the approach has been designed using qualitative methods mainly. Approaching teaching in this way helps understand the outcomes and how learners feel about what is taking place.

Research Design

This dissertation was conducted in classroom environment, which is ideal for educational purposes and the tutors (our members) are actively involved in planning, performing, observing and judging ways to teach. The process is cyclical, planning, acting, observing the results to see what needs to be done next. Because of this framework, the research adjusts to what students actually experience and learn in class. Observation, student feedback and talking with them are part of qualitative data. Quantitative data can be found in assessments that test how much the students' ability to talk and understand has progressed.

Participants

The participants were 13 out of 21, voluntarily participated from undergraduate and postgraduate programme from the Computer Application department (IT), MSSV. Everyone participating is a non-native English speaker who has little chance to use English in everyday life.

Data Collection Tools and Instruments

To collect information for the study, the following tools and instruments were put to use:

- **Diagnostic Assessment:** To find out their initial ability, students were given oral and listening tasks to assess how fluently and well they could understand. This includes some questionnaire, students had to speak spontaneously and they took comprehension tests by watching to a YouTube video.
- **Classroom Activities:** • A series of five activities, tasks were created and carried out over a week from 21 May 2025 to 26 May 2025. These included:
 - Native to Natural: Sentence Reshaping

- Discourse Marker Debate
- Jigsaw Reading of Research Articles
- Vocabulary Puzzle: Fill and Construct
- Role Play: Real life Simulation

Data Analysis

In the analysis stage, the method chosen was qualitative and the themes were done by following an inductive strategy. Topics such as how confident the students are, how active they are, how relevant and valuable the tasks seem to them and the various difficulties they face were all looked at and explored further.

Validity and Reliability

The investigation is made more valid by using a number of sources such as observations, feedback from teachers, feedback from students and test results. Tutors' member-checking was applied in the interviews so that they could confirm the participants answers were correct.

Methodology Limitations

Even though this approach gives detailed analysis, it is not without limitations. Because there are only a few cases included and the study is set in one particular context, the results may not apply to larger populations. Extra elements, like how motivated students are, their past dealings with English and how anxious they feel while speaking can affect their results.

Participants of University

The study for this dissertation took place at Mahapurusha Srimanta Sankaradeva Viswavidyala (MSSV) which was founded in 2013 and it is located in Rupnagar, Guwahati (Assam). The participants of this study were from the students of 2nd and 4th semesters of the B.Sc. and M.Sc. programs of the Informational Technology. Out of all 21 students in the department, 13 volunteer to participate in our skills activities to improve their English. As the researchers and the learners are the students of MSSV, it was easier to get the essential permission from the authorities. First, the Head of the Department (HOD) of English approved our request for this dissertation study, then the Assistant Registrar of the university gave further authorization. Also, the HOD of the IT Department was supportive and allowed students to access departmental resources. There are six faculty members in the Department of IT and in addition, Dr. Bibha Devi, assistant professor of department of English helps out by teaching B.Sc. students in the function-based English course titled “Functional English II.” Since her responsibility was language training, she helped the department open more opportunities for English learning activities.

Literature Review

The rise of English on an international scale has made it important to focus on language skills when it comes to learn English as a second language (L2). Among Information Technology students, English language skills are important as well as helpful in technical education. For this study, the researchers rely on research and literature on learning a second language (SLA), being fluent, understanding new information and using activity-based methods in ESL classrooms.

English has become the dominant medium of communication in science, technology, and international business (Crystal, 2003). For IT students, the majority of learning materials, programming documentation, online courses, and global job markets operate primarily in English. Graddol (2006) emphasizes that in the 21st century, English functions as a basic skill rather than a foreign language, particularly in higher education. However, in non-native contexts, English is often taught in a limited capacity, focusing on grammar and writing rather than communication. As a result, students may struggle to use the language fluently and comprehend spoken English effectively in real-world situations. The terms *fluency* and *comprehension* represent crucial components of oral communication. Fluency generally refers to the ability to speak smoothly, coherently, and with minimal hesitation (Lennon, 1990). It involves not only speed but also confidence, spontaneity, and the ability to sustain conversations. Comprehension, particularly listening comprehension, involves the capacity to decode spoken input, understand meanings in context, and respond appropriately (Rost, 2002). Studies by Vandergrift (2007) suggest that comprehension is the foundation of language acquisition, as listening provides rich input from which learners absorb vocabulary, syntax, and pronunciation. However, many ESL classrooms under-emphasize these skills, especially for technical students who are used to written over spoken interaction (Sivakumar & Rao, 2020).

Technical students often struggle with speaking confidence, unfamiliar accents, fast speech, and limited vocabulary (Khan & Shaikh, 2017). Additionally, learners from technical streams often view English classes as secondary to their core subjects, which reduces engagement and limits language practice. According to Rao (2014), IT students may have strong reading comprehension but poor speaking and listening skills because their interaction with English is largely passive and academic. Researches show that interactive, task-based activities can greatly improve fluency and comprehension. According to Nunan (2004), meaningful communication tasks allow learners to use the target language in realistic contexts,

thereby enhancing both their confidence and competence. Willis (1996) advocates for task-based language teaching (TBLT), which places communicative tasks at the center of instruction. Such tasks are said to mirror real-world language use and increase learners' motivation. Empirical studies (e.g., Richards & Rodgers, 2014) confirm that ESL learners exposed to such tasks show noticeable improvement in fluency, vocabulary acquisition, and listening comprehension. Learner motivation increases when content feels relevant and student voices are valued. According to Deci & Ryan (1985), student centered instruction supports autonomy and lowers anxiety. Dornyei (2001) also argues that linking ESL activities with students' own fields such as AI, cybersecurity, or software engineering can improve engagement and outcomes.

Language Needs Analysis

A language needs analysis is a crucial component to design and implementation of effective activities and instructions. It requires figuring out the students' necessary language skills, evaluating each person's language levels and knowing what skills they need for academic, work or real-life situations. A Language Needs Analysis was used in this study to learn about the specific needs, expectations and hardships faced by both M.Sc. and B.Sc. Information Technology (IT) the students, whose academic achievements and future careers depend greatly on their English language skills. A survey was performed in the Computer Application department of the Guwahati Unit of Mahapurusha Srimanta Sankaradeva Viswavidyalaya, Rupnagar on the days April 4 and April 7, 2025. The aim of the study was to find out how fluent and how well students could understand English. The researchers carried out questionnaires, surveys and gave out specific assignments to collect proper data.

The questions the researchers asked to the students in our surveys are:

- What do you want to become after your graduation?
 - The answers the researchers got from the students are stunning and also inspiring. Every student has different dreams from another, but commonly found that they want to become a teacher, PhD scholar, corporate sector worker, some even think of becoming professor.
- To what extent do you believe fluency in English impacts your professional opportunities?
 - Their answers were pretty much similar to each other. Being fluent in English is important for advancing in one's career because English is the most recognized and commonly used language for efficient communication and information exchange. Also, in oral communication during practical field work, job interview as well as in IT sector's coding & programming requires a proper knowledge of the functioning and grammar of the English language.
- Have you ever felt difficulties in understanding English?
 - The majority of B.Sc. students completed their prior education from English-medium institutions, and therefore, their proficiency in English is relatively strong. However, some of M.Sc. students, who primarily come from Assamese medium backgrounds and have studied in their graduation in English medium but with limited exposure-struggle to adapt to the use of English, particularly in academic

contexts. For these reasons they face difficulties in understanding research articles, texts due to a limited vocabulary and insufficient knowledge of word meanings.

- How do you approach your studies? Do you focus on memorization or you go for a deeper understanding that allows you to explain the concepts in your own words during exam?
 - Majority of the students prefer a deep understanding of topics over focusing on memorization. A clear grasp of the material lets them explain things using their own words in the exam, helping them form better answers and also it is a effective way to remember the knowledge for long period.
- What recommendation can you offer to enhance English language acquisition within your course?
 - In order to improve English language learning in their course they suggest some interactive and engaging activities and also recommending to make English the primary language in their conversations among the students.

Following on from the discussion, the researchers have started on the next part by giving students some tasks to test their knowledge, fluency and comprehension.

The tasks include:

- Providing a video, Ted-talk, podcast related to IT and ask them to summaries the content and speak their thoughts on it. To measure if they really can follow by the main idea from the YouTube video- “What is Cloud Computing? | Amazon Web Services”.
- To evaluate their speaking fluency, the researchers have asked them to do a role play, as an IT specialist; they explain or speak on any technical concept (difference between RAM and ROM, personal computer, super computer, minicomputer)
 - Both tasks showed us that a number of students performed well in speaking, showing better fluency in English. However, the majority of the learners lacked in fluency, regardless of their English-medium background in their prior education. During performing these tasks, the researchers could point out the several key challenges: lack of confidence, limited vocabulary, performance pressure, and frequent grammatical errors. The main reason for the performance pressure is that non-proficient students find themselves next to students who can speak English more fluently which can make non-proficient students nervous when trying to

communicate. The overall feeling of lacking confidence and stress over how they perform is highlighted as the major factors among students which are why they make grammar mistakes, forget basic vocabulary words, do not properly structure the subject of their speech and end up phrasing things weirdly.

To learn more about students' current fluency and comprehension levels, the researchers interviewed professors from the IT department. During the interview, these questions were discussed:

- According to you, how our survey could be beneficial for the students of the IT department?
 - This is a great step you have taken for the IT department students. Since English is spoken globally, it helps to improve the students' communication skills and to be prepare for future goals. It is also necessary for writing presentations, articles, logs and research papers requires using English to communicate with others.
- Do all the students are fluent in spoken English, or do some of them face difficulties with speaking and comprehension?
 - Most M.Sc. students are generally better at fluency and comprehension in English compared to the B.Sc. students. However, some M.Sc. students who have done their prior education in Assamese-medium backgrounds still struggle with English fluency and understanding. Difficulties also exist for B.Sc. students, but it is observed that those in the 2nd semester do better than those in the 4th semester.

Project Findings

Based on the need analysis, the researchers are able to understand the language skills, obstacles and ambitions of both undergraduate and postgraduate students in the IT department, MSSV. From the analysis, the researchers saw various levels of knowledge and especially from oral fluency and interpretation as well. Some students spoke English very well, but others found it very difficult to use the language openly and effectively in their academics. The analysis turned up the following major points:

1. Differences in speaking ability among Students

Many students had strong fluency which means they had clear, smooth speech, sufficient vocabulary and could express themselves well. However, majority of the students had difficulties with speaking without preparation. Many pauses and hesitations (such as “uh,” “um,” “like”) could be noticed in their speech as well as doubts in words they chose. This happened because they depend too heavily on a limited number of language picking techniques which means they should do more practice in English speaking in their everyday conversations.

2. Mispronunciation and Improper Phrase Usage:

A lot of students often mispronounced common and technical terms, which makes their conversation unclear. This occurs because they mostly relied on their textbooks and lack understanding of real-world English in their subjects.

3. Influence of Mother Tongue and Translation Issues

Many learners sentence structure was heavily affected by the grammar rules of their native language, specifically Assamese. This literal translation from the mother tongue into English led them to awkward phrasing and disrupted sentence flow. Often, they made mistakes such as wrong word order, forgetting articles or prepositions and using language that kept their speech from being fluent. These translation-based patterns showed us that the researchers need to use English in our everyday conversations habitually.

4. Less use of Discourse Markers in Spoken and Written English

From the analysis, it is clear that discourse markers such as “in addition,” “however,” and “on the other hand” were rarely used by the students in both their speech and writing. Lacking

such connectors leads to communication confusing and make it hard for listeners or readers to understand and follow.

5. Issues in Reading Comprehension due to Language Background

Many students completing their prior education in Assamese-medium institutions had major difficulty in reading academic texts, especially scholarly articles. Students often felt stressed because of the many challenging texts, unknown vocabulary and difficult abstract ideas. It was mostly their limited range of words and not knowing academic terms that prevented them from understanding the text. It means while students can read simple texts, they have to work on improving their reading so that they are not confused by more complex texts. It is necessary for them to achieve success or in higher education.

6. Psychological Barriers: Confidence, Anxiety, and Fear of Judgment

Many students from IT department lacked confidence in their English-speaking skill, feelings nervous about speaking or presenting in the class. Students feared of being judged by the peers or teachers, especially in groups, which led to hesitation. This fear stopped them from practicing English regularly. For that reason, their progress is slow. Many capable students struggled due to these emotional barriers. Overcoming their fears is essential for their improvement in English speaking skills. Solely through regular practice and use they can build their confidence and fluency, which needed to talk properly with others.

Language Teaching

As our students are studying in undergraduate and post-graduate at Mahapurusha Srimnata Sankaradeva Viswavidyala's Informational Technology (IT) department, so teaching language to them requires a special and responsive framework, since it must also must help them improve their academic and professional work-related communication skills. By centering the students' needs, goals the researchers have designed some activities and instructions that helped them to overcome the particular areas of fluency in English speaking and reading comprehension. In these sub-skills they have been lacking during need analysis.

Curricular Context and Syllabus Disparities

It was observed that postgraduate (M.Sc.) students in the IT department have fewer language education opportunities than the undergraduate (B.Sc.) students there. Students studying for a BSc must take the compulsory English language course "Functional English II", this course on Functional English aims to enable the students of undergraduate level to use English effectively and successfully for various communicative purposes in their day-to-day situations including their language needs in their academic life as well. This course will enable the target learners to: (a) Develop proficiency in different language skills like- listening, speaking, reading, writing, vocabulary and grammar (b) Communicate efficiently in various situations (c) Understand, write and talk about the topics of other content subjects.

Whereas, the M.Sc. program for postgraduate students do not have any English language class as required on its syllabus and these students do not get formal teaching to shape their English-speaking skills, however they do have a disciplinary course "Academic Writing" which objectives is to introduce students to the art of writing research article and reviewing books, and at the same time train them how to develop critical thinking and cultivate academic prose style. Students shall also be introduced to elements that lead to research malpractices. This course mainly focuses on academic writing, rules and format rather than focuses on developing any speaking or comprehension skill among students. For these reasons, they having difficulty to handle more language-heavy tasks like research reading, talking however they know about their academic work or writing a thesis as they had a disciplinary course "Academic Writing". This difference in curricular assistance creates a tough situation for those M.Sc. students with non-English backgrounds, as they are commonly pushed to handle tough academic tasks with little language support. For this reason, an approach to language teaching was adopted in this

study that could accommodate and help both M.Sc. and undergraduate students with developing their fluency and comprehension. Activities offered to both B.Sc. and M.Sc. students were additional skills development that helped them with the language and communication needed for their studies and work. Teaching objectives focused on these main skill areas:

- **Speaking Fluency:** Students were encouraged to speak in real-life conversations such as in role-plays, unrehearsed talks, peer interviews and during their project presentations which helped them become more fluent speakers.
- **Reading Comprehension:** By exploring the research article, students were able to get better at understanding, identifying important points and thinking about new ideas. Learning academic terms and practicing the format of academic articles was emphasized.
- **Vocabulary and Usage:** The students were taught not only what a word means, but also how to use it, especially focused on IT terminology and proper use of discourse markers.
- **Confidence Building and Interactive Learning:** To tackle the psychological challenges found in the ‘Needs Analysis’ such as being scared of others’ judgment and not feeling good about oneself, the classes were kept encouraging and friendly.

On the basis of the areas described above, the researchers have developed the main five activities used in this study to boost fluency and comprehension. The activities were conducted and performed by both undergraduate and post graduate students of IT department, MSSV from 21 May 2025 to 26 May 2025.

Activity 1: Native to Natural – Sentence Reshaping

To deal with the issue of literal translation from Assamese to English, the researchers implemented a task titled *Native to Natural – Sentence Reshaping*. The researchers carried out a task called Native to Natural – Sentence Reshaping. The aim was to support students in internalizing correct English sentence patterns and prevent their native grammar, words from getting in the way. The researchers asked students to first describe any random basic topic in their local language. Then changed their answers to English and it became clear that their phrases were direct and sometimes seemed a bit off. Our group worked through some sentences, aiming to highlight the structure, their rhythm and how they sounded. Working on practice sentences helped the students see where their immediate translation would not flow

right and they were able to reduce the number of errors. This opened the door for assessing how certain concepts are conveyed differently in each language, giving both technical abilities and a sense of language awareness.

Objective: To limit the effect of students' mother tongues (e.g., Assamese, Bangla) on English sentence formation and encourage proper and fluent use of English language.

Rationale: The analysis of needs showed that lots of students often translate sentences word by word from their native language which leads to strange and inaccurate English. Doing this activity helps you notice how rhythm and flow work in natural English.

Process:

- Students initiate by talking about any random concepts in their own language.
- They translate those lines into English.
- The group members review a selection of responses and talks about how they were improved.

Skills Developed:

- Building the structure of a sentence
- Being aware of the real time translation process
- Peer reviews and thinking about language

Expected Results:

- A lower possibility for literal translation problems
- Improved ability to make sentences that sound more natural and fluent

Activity 2: Discourse Marker Debate

As the researchers have noticed during need analysis that students very rarely include discourse markers like “however,” “in addition,” and “on the other hand” in their sentences. As a result, the researchers designed a speaking task named “Discourse Marker Debate”. This was designed to make their arguments stronger, improve confidence to speak in crowd, their discussions more organized and their overall thinking more consistent.

The researchers introduced several commonly used connectors through examples and sentence starters. The researchers also explain how, in which circumstances the discourse marker are use. The researchers then assigned each individual in discussion topics ranging from informal to technical, the topics are- role of an IT students in technological world, use of modern technology, role of AI in this generation etc. All students had to use at least three discourse markers in their speeches. The researchers kept an eye on students during the debates and provided suggestions about connecting their ideas.

By doing this activity, students improved their argument structure and became more comfortable using academic English. Assessments from peers encouraged students to work together and provide support.

Objective: The goal is to improve how people use logical connectors and discourse markers in both daily and scholarly speech.

Rationale: Students were observed to employ discourse markers “however,” “in contrast,” and “on the other hand” infrequently which made their speech less organized, less persuasive and professional.

Process:

- Introduced the basic discourse markers with examples and how to use them.
- Picked a debate subject that are interesting and easy to discuss.
- Ensured every student uses at least three connectors during the discussion.
- Students were assessed and given feedback by their peers and teachers about how well they used and spoke the language.

Skills Developed:

- Organized way of putting forward an argument
- Confidence building
- The ability to use functions in different situations

Expected Results:

- More discourse markers being used by students.
- More orderly speech flow
- Feeling confident in contributing to formal discussions

Activity 3: Jigsaw Reading of Research Articles

In order to help post-graduate student from an Assamese-medium background and their difficulties with studying technical research papers, the researchers used the Jigsaw Reading method and encouraging them to cooperate in groups. The researchers went picked out IT-related journal named- “Cloud Computing: Today and Tomorrow” which was moderately challenging. The researchers asked them to pay close attention to the main concepts, vocabulary and sentences. Following their initial reading, they joined groups to explore and discuss in more detail. Later, our teaching group randomly asked any random students about ideas of the journal, such as “What is cloud computing? What are the major disadvantages of cloud computing as mentioned in this journal? What kind of technical issues might be faced in

cloud computing?” which helped them learn and remember the information. Consequently, students became better at analysing and discussing difficult reading material. It made it possible for students to support one another’s learning and it benefited those less confident in speaking before crowd.

Objective: The purpose is to help students understand text, learn new words by participating in technical discussions and also gain more confidence for public speaking.

Rationale: Many postgraduate students from Assamese-medium education faces challenges with unpacking complex research papers. This way, strong readers help and motivate other weak students who are less secure in their reading skills.

Process:

- The researchers picked up an IT-related research article “Cloud Computing: Today and Tomorrow”.
- Then the researchers asked the students to go through the journal and points out the main ideas, special terms and technical vocabulary.
- After internal discussions, students reassemble into mixed groups and teach their section to peers.
- Teachers asked some questionnaire based on the journal and the students tell back what they have learned to see if they understood.

Skills Developed:

- Analytical study
- Vocabulary building
- Making a summary and paraphrasing material
- Confident Speaking with much accuracy

Expected Results:

- Improved understanding of research related texts
- Became better retention of academic vocabulary
- Better communication skills in English

Activity 4: Vocabulary Maze/ Puzzle – Fill and Construct

To build deeper vocabulary knowledge and strengthen domain-specific language use, the researchers introduced a game-like task called *Vocabulary Maze – Connect and Construct*. The

researchers designed a question paper containing 15 discourse markers which was randomly arranged.

Students were asked to fill up the blank spaces logically by linking sentences that they had to use those discourse markers to build grammatically correct and meaningful sentences. As the researchers had given them a proper lesson on use of discourse markers, so this task gave them a rehearsal of appropriate use the discourse marker by comprehending the sentences, especially for the students who has weak lexical knowledge.

Objective: To expand the students' English vocabulary and improve the semantic connections between sentences.

Rationale: Many students show weak conceptual linking between two sentences by using discourse markers, resulting in oversimplified and weak communication.

Process:

- Create a puzzle containing 15 academic discourse markers.
- Students must fill the empty spaces by constructing logical and meaningful sentence chains.
- The researchers group members check their task results and provided them a review based on their performance.

Skills Developed:

- Vocabulary integration
- Sentence construction
- Cognitive mapping of concepts

Expected Results:

- Better recall of specialized vocabulary
- Increased command of academic discourse markers

Activity 5: Role-Play –Real life Simulation

As a highly impactful activity, the researchers conducted a real-life role-play simulation that supports the students' both academic career and future professional support life. This activity highly focused on the students who have been facing difficulties such as hesitation, performance anxiety, or limited confidence in speaking English fluently. The researchers have conducted a mock interview and troubleshooting session, where students responded to real life job interview questions, IT concepts and conversational manners. Questions were related to

their field of study, career aspirations, or emerging technologies. By doing this task, the students were able to act and think like professionals and speak on the spot, without having the pressure of being “perfect.” It also improved their ability to think the correct vocabulary more easily, say fewer hesitation fillers and communicate with more confidence even under stress.

Objective: To practice communication that mimics real workplaces and exercise on-the-spot speaking.

Rationale: Hesitation, low confidence was seen commonly by students. It mimics interview gain experience under pressure.

Process:

- Conduct a mock interview and troubleshooting sessions.
- Ask students IT-related or job-relevant questions.
- Encourage unscripted, real-time responses.

Skills Developed:

- Spontaneous communication
- Listening comprehension
- Contextual use of terminology

Expected Results:

- Increased confidence under real-time pressure
- Better ability to speak smoothly and quickly
- Preparing to deal with business situations more effectively

With the help of these activities, the researchers managed to the needs of both undergraduate and postgraduate IT students of MSSV. All of these activities matched the needs that were discovered in needs analysis and unlike older teaching methods which usually taught grammar or vocabulary apart, this combined approach gave learners the skills and confidence to use English for studying and at work.

Project Impact

Following a set of activities to English language activities at Mahapurusha Srimanta Sankaradeva Viswavidyalaya's (MSSV) Informational Technology students tremendously improve their English skills, especially in terms fluency and comprehension. A detailed needs analysis was conducted and this showed many language barriers in the organization especially for postgraduate students who had studied earlier in Assamese. Some of the major difficulties noted were literal translation from native language, poor vocabulary retention, less use of discourse markers, and experiencing anxiety and nervousness when speaking English. Following the use and application of these activities in the classroom, it was found that language learning had significantly improved on many levels.

1. Natural Sentence Flow and Reduction of Literal Translation

The students saw a clear improvement in forming natural sounding English sentences after doing this activity. A lot of students depended on translations of Assamese at first, so their sentences were unnatural and did not follow proper grammar rules. Through guided practices, the students to find and resolve these translation errors on their own. Yet, it is worth pointing out that progress in this area is happening little by little. Being mainly Assamese speakers, the students' native ways of speaking still appear, especially when there is a lot to do or when they are talking informally. Changing language structures on a grand scale requires regular practice, a lot of time and consistent use. Although students are doing well, if they want to be truly fluent and create sentences naturally, they will require enough time and specialized help.

2. Use of Discourse Markers and Improved Cohesion in Speech:

It was discovered through the need analysis that logical connectors and discourse markers such as "however" and "in contrast," were being used much less often than expected. The Discourse Marker Debate was very useful in solving the issue. In classes, learners were instructed to try to include these linking words in their group discussions and debates. To begin with, adding the markers seemed difficult for students. By getting help from sentence starters and from watching other students work, they eventually got used to using those transitions. As a result, their speech became smoother and they were able to talk about their ideas more naturally in any discussion.

3. Academic Reading Comprehension and Vocabulary Development

As a lot of postgraduate students, especially those who learned prior education in Assamese, found it hard to understand research articles. Making use of the “Jigsaw Reading of Research Articles” really helped to improve our understanding of the information provided. By dividing each article into several parts and letting the students work on just one part at a time. Vocabulary tools were also given to them so they could get by in new and complex vocabulary. At the end of the period, each student was able to share their section with the class, helping them go over it and aiding the less able students. With this approach, the students developed more confidence in working with textbooks and obtained additional academic vocabulary.

4. Semantic Understanding and Lexical Recall

The “Vocabulary Maze – Connect and Construct” was made to develop students’ understanding of vocabulary and the use of discourse markers. Many students only knew the basic definition of such vocabulary without understanding their interconnections. By using the activity and test, the learners had to logically connect words and form sentences with a meaning. Through this process, learners could better define words, more easily remember them and use the vocabulary in the right situations. In addition, they got to use language connectors to link their thoughts which supported their ability to remember and use new words correctly.

5. Real-Time Communication and Confidence Building

Lack of confidence stood out as a major psychological barrier among the students. By doing “Role-Play – Tech Support Simulation,” students were able to practice dealing with actual situations that required fast responses. It was found that those who were hesitant initially would join in and speak up during these activities once they got comfortable with the subject-related vocabulary. Simulating the real-world environment made students feel more at ease and helped them become involved. Those who usually avoided speaking started to display more confidence, use a better range of words and be effective in conversing with real people.

In general, all these activities promoted learning by guiding students, letting them make decisions and involving skills training. Even though they already understood English, taking on these tasks really improved their skills and polished their language. As for the postgraduate students, the transition was considerable, as they needed to use academic language for their work and study. In addition, these activities made the classroom a place where all students

cooperated with each other. The chance to get help and team up helped students take a larger part in learning the language. They developed the ability to talk about difficult IT topics in English which gives them an advantage in their future careers.

Feedback from Students

Collecting feedback from the students was very important for our teaching. As it provided the effectiveness of the language teaching activities and their impact on students learning experience. The researchers collected responses from the students through several informal conversation, reflective feedback form and class discussions. After conducting each major activity, the researchers have gathered their feedback's and also their thoughts regarding the activities. Many students have shared that the native to natural: sentence re-shaping activity helped them to realize how direct translation from Assamese language to English language often sounded unnatural and awkward. One of the post graduate students mentioned that earlier he didn't notice some English sentences sound when translated directly. But while working together with us, it helped him to fix them. And it helped him to understand how actually English should flow. All the students found this task very enjoyable. They also said that it made them more aware of the grammar along with the structure of the sentences. The discourse marker debate was one of the favorites among the students. They mentioned that it helped them to speak in a more confident way. One of the students explained that when he used words like 'however' or 'in contrast', his arguments felt more clearer as well as professional. The jigsaw reading of articles was especially valuable for the M.Sc. students. As many students hesitated to get engage with the complex research texts, especially those students who wrote in formal academic English. But by the second and third sessions, the students reported a boost in their ability to understand the main ideas and also the technical vocabulary. All of the above the role play activity served as a confidence booster for many. In the beginning some students were scared to participate. They were fearing mistakes and awkwardness. But later they were able to express that speaking spontaneously in a realistic context gave them a sense of achievement. One MSc student told us that it was his first time that he spoke so much in English that too without preparing. And he shared his experience that he has realized that he can actually explain things pretty well. That is only if he worries less.

Much of the feedback shows that students like the interactive and student centered approach taken in the courses. All students were at ease with the activities because they did not involve competition but rather teamwork. Since errors were accepted as helpful in learning, the students enjoyed the process. Louisa discovered that the majority of pupils felt happy and offered. Therefore, the researchers can see that the activities they chose were successful at

improving language skills and also made the students feel better about themselves. What helped them the most was building the will power to speak in English. Becoming interested and active instead of anxious and shy was one of the most important achievements during the sessions.

Recommendations

Based on the findings of this study, along with students' feedback and our observations throughout the classroom interventions, several key recommendations emerge that can be implemented to improve their English language fluency and comprehension. One of the most significant observations from this study was the absence of a structured English language component in the MSc curriculum. While BSc students benefited from a formal English course, MSc students had no such provision. Therefore, it is recommended that universities introduce a speaking skill oriented English course at the postgraduate level. This course should focus not only on academic writing, but also on oral fluency and presentation skills relevant to the IT field. Many students showed significant improvement when working in pairs or small groups. Peer discussions not only reduced anxiety but also encouraged self-correction and reflection. Therefore, pair and group-based learning tasks should be more widely used in English language classrooms, especially in higher education contexts where learners often bring varying levels of proficiency.

Confidence was one of the most common challenges reported by learners. Many students experienced hesitation and fear of being judged when speaking in English. Teachers and language trainers should therefore strive to create a low-pressure, student-friendly environment where errors are treated as part of the learning process. Role-plays, informal discussions, and encouragement of risk-taking in language use can greatly enhance learners' willingness to participate. Incorporating real-life situations and authentic texts, particularly from the IT domain, makes language learning more relevant and engaging. Materials such as tech support dialogues, project presentations, and research abstracts can help learners develop the kind of English they are likely to encounter in academic or professional settings. Assignments based on such texts should be regularly used in class to increase students' familiarity and comfort with technical content in English. Lastly, it is recommended that English language instructors working with discipline specific learners, such as those in IT, receive training in English for Specific Purposes (ESP). Familiarity with the technical content and communication norms of the field will allow instructors to design more relevant, effective, and engaging lessons.

These recommendations are not only grounded in the outcomes of the present study, but also aligned with best practices in language pedagogy and learner-centered education. Their implementation may lead to more confident, competent, and communicative graduates who are

better prepared to navigate both academic and professional environments where English plays a crucial role.

Conclusion

This study aimed to explore what kind of English skills are needed for the IT students. It especially focused on the fluency in English and also the comprehension. These two skills are very important for their academics, as well as future job interviews. So, by designing several activities through a comprehensive needs analysis, practical classroom inventions and students' feedback, the study has found out the problems regarding them. The researchers found out where actually the students struggle the most. The study also revealed that many students possess a basic foundation in English. But a significant number of students faced challenges related to sentence construction, vocabulary, discourse usage and also confidence while communicating. Our designed activities like sentence re-shaping, jigsaw reading, discourse marker debate and role- playing scenarios not only addressed these gaps but also introduced the students to learner centered and collaborative approaches that promoted active engagement with the language. The BSc students who already had taken some English skill development classes, responded to all these exercises very well. On the other hand, the MSc students who lacked formal language training at their level showed quiet improvement through their consistency and practices. The researchers also paid equal attention to the emotional and psychological impact of the activities. Many students felt more confident and less nervous while speaking in English after the sessions.

Project Team

This project has been undertaken by Priya Gogoi, Violeena Nath, Sofiuz Zaman, Trisha Nath, and Atifa Zannat, postgraduate students of the M.A. 4th Semester in the Department of English at Mahapurusha Srimanta Sankaradeva Viswavidyalaya, who commenced their academic journey in the year 2023. As students of literature and language studies, the researchers are constantly encouraged to seek new intersections between our discipline and the evolving dynamics of the contemporary world. Our university, being a multidisciplinary institution, offers a diverse range of academic departments. Among them, the researchers deliberately chose to engage with the Department of Information Technology (IT) for this collaborative initiative.

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Appendices

Appendix 1: Students Questionnaire

The researchers carried out questionnaires in our needs analysis surveys and gave out specific assignments to collect proper data.

- What do you want to become after your graduation?
- To what extent do you believe fluency in English impacts your professional opportunities?
- Have you ever felt difficulties in understanding English?
- How do you approach your studies? Do you focus on memorization or you go for a deeper understanding that allows you to explain the concepts in your own words during exam?
- What recommendation can you offer to enhance English language acquisition within your course?

The researchers have started on the next part by giving students some tasks to test their knowledge, fluency and comprehension.

- Providing a video, Ted-talk, podcast related to IT and ask them to summarize the content and speak their thoughts on it. To measure if they really can follow by the main idea from the YouTube video- “What is Cloud Computing? | Amazon Web Services”.
- To evaluate their speaking fluency, the researchers have asked them to do a role play, as an IT specialist; they explain or speak on any technical concept (difference between RAM and ROM, personal computer, super computer, minicomputer)

Appendix 2: Department Teachers Questionnaire

To learn more about students the researchers interviewed professors from the IT department:

- According to you, how our survey could be beneficial for the students of the IT department?
- Do all the students are fluent in spoken English, or do some of them face difficulties with speaking and comprehension?

Appendix 3: Samples of Students Essay

Cloud Computing: Today and Tomorrow

Won Kim, Sungkyunkwan University, Suwon, S. Korea

Abstract

During the past few years, cloud computing has become a key IT buzzword. Although the definition of cloud computing is still "cloudy", the trade press and bloggers label many vendors as cloud computing vendors, and report on their services and issues. Cloud computing is in its infancy in terms of market adoption. However, it is a key IT megatrend that will take root. This article reviews its definition and status, adoption issues, and provides a glimpse of its future and discusses technical issues that are expected to be addressed.

1 STATUS

Perhaps the simplest working definition of cloud computing is "being able to access files, data, programs and 3rd party services from a Web browser via the Internet that are hosted by a 3rd party provider" [Hodson08] and "paying only for the computing resources and services used".

Often cloud computing is used synonymously, inaccurately in my view, with such terms as utility computing (or on-demand computing), software as a service (SaaS), and grid computing. Of these, as I will show below, utility computing and SaaS are merely two of several forms of service cloud computing can provide. Grid computing is simply one type of underlying technologies for implementing cloud computing.

The term "cloud" in cloud computing is used synonymously with "data center". Today the computing field is able to envision transitioning into the cloud computing era because of the breath-taking advances in computing and information technologies during the past three decades. The advances include the buildup of the Internet backbone, the widespread adoption of broadband access to the Internet, the powerful network of servers and storage in data centers, the advances in high performance and scalable software infrastructure for the data centers and the Web, etc.

The architecture of a cloud includes several key modules [Wikipedia]: user interaction interface, system resource management module with a services catalog, and resource provisioning module. The system resource management module manages a massive network of servers running in parallel. Often it also uses virtualization techniques to dynamically allocate and deallocate computing resources.

Won Kim: "Cloud Computing: 'Status and Prognosis'", in *Journal of Object Technology*, vol. 8, no. 1, January-February 2009, pp. 65-72 http://www.jot.fm/issues/issue_2009_01/column01/

Advantages

Cloud computing offers the following major advantages to the users.

1. The 3rd party provider owns and manages all the computing resources (servers, software, storage, and networking) and electricity needed for the services. The users only need to "plug into" the cloud. The users do not need to make a large upfront investment on computing resources; the space needed to house them; electricity needed to run the computing resources; and the cost of maintaining staff for administering the system, network, and database.
2. The users can increase or decrease the level of use of the computing resources and services flexibly and easily.
3. The users pay most likely much less for the services, because they pay only for the computing resources and services they use, and the subscription-based or pay-per-use charges are likely much lower than the cost of maintaining on-premises computing resources. If the users are to maintain on-premises computing resources, they also need to make the worst-case plan to account for the occasional or seasonal peak needs.
4. The users can in practice access the cloud for services anytime from anywhere.

The above advantages make cloud computing a compelling paradigm for servicing computing needs for both enterprises and end customers. As such, many players, both large and small, are now entering or planning to enter the emerging cloud computing market.

Forms of Service and Players

The forms of service that cloud computing provides today may be broken down into managed services, SaaS, Web services, utility computing, and platform as a service (PaaS) [Grunman08]. The ideas behind these forms of service are not new. The fact that the users can tap into these services from Web browsers via the Internet makes them "cloud" services.

A managed service is aimed at delivering an application to an enterprise, rather than to end customers directly. This form of service has been available for a decade. There are many types of managed services provided via the Internet, including virus-scanning services for email, spam-filtering services (Google Postini, etc.), security services (SecureWorks, IBM, Verizon, etc.), desktop management services (CenterBeam, Everdream, etc.) [Grunman08].

There are numerous SaaS vendors (formerly known as application service providers). They run a single application in a data center, and deliver the functionality via the Internet to the users. Enterprise SaaS vendors include salesforce.com (for sales force applications), Oracle/Siebel (CRM applications), Workday (for ERP applications), Citrix (meeting applications), and numerous others. SaaS desktop applications for end users, include Google Apps, Zoho Office, Microsoft WindowsLive, etc. Google Apps include Gmail, Google Talk, Google Calendar, Google Docs (documents, spreadsheets,

5. rising subscription fees

The current low subscription fees are likely to go upwards significantly, as vendors harden their clouds (for higher performance, scalability, availability, and security), make their services richer, provide better support, and inevitably become profit-driven.

Technical Issues

To help cloud computing take root, it will be necessary to adapt various mature technologies to the cloud computing paradigm. I list some of them below.

1. cloud computing software platform

As cloud computing software platform is the heart of a cloud computing system, it will require considerable further research. Hadoop is an open source cloud computing software platform, as an alternative to the platforms developed by Google and others. It appears to be a good vehicle as a launching point for research. Yahoo is a major sponsor of the Hadoop project. IBM has adopted Hadoop for its Blue Cloud solution. Facebook uses Hadoop in its data analysis. Google, IBM, and Yahoo have donated cloud computing platforms to 6 US universities. The computing platforms all include Hadoop. Hadoop may become the Linux of cloud computing [Han08].

2. collaboration applications

Such means of collaboration as chat, instant messaging, Internet phone calling, etc. will be added to various popular applications. Google Docs spreadsheets already makes it possible for multiple users to chat while editing a spreadsheet together [Zeman08].

3. application and data integration across clouds

The research on these subjects can leverage the available EAI, EII, and ESB technologies.

4. continuing work on multimedia transmission and data mining

Transmitting the bulky multimedia data across the network will continue to be a challenge, and it needs further research to speed up cloud computing. Further, as more data gets pushed to the clouds, including user-created data, the need to analyze (mine) such data to derive business-useful knowledge will increase. The data mining and machine learning communities will need to address this need.

5. service management

As the clouds proliferate and the users start plugging into multiple clouds, the problems of discovering and composing services that have been subjects of research in the service-oriented architecture context will need to be revisited in the cloud computing context.

Appendix 4:

The researchers introduced to students a game-like task called Vocabulary Maze: Connect and Construct

Discourse Markers Worksheet

Choose words from the box to fill in the spaces in the exercise below.

moreover	firstly
on the other hand	whereas
at least	then
however	actually
besides	though

1. I had a terrible day at work and lost my umbrella too. _____ I spoke that nice guy who works in the coffee shop at last!
2. Television turns people into lazy couch potatoes. _____, there are some educational programmes on.
3. _____, I would like to welcome you all to the conference today.
4. _____ the film was a little boring, we still had a nice evening out.
5. I've always known Caroline as a mean person. _____, she lent me \$10 yesterday without having to ask twice!
6. I got up at 9 o'clock yesterday and had a cold shower. _____, I had breakfast and left for work.
7. My brother works in a large office _____ I work on my own at home.
8. Why don't you think I would want to go out tonight. _____, I would be delighted to get out of the house.
9. You should go to university as it gives you a chance to meet so many new people. _____, it gives you the chance to get important qualifications and get a better job.
10. I don't want to go to the football game. Football bores me and I don't want to pay \$40 for a ticket. _____, look at the weather! All that rain!

Appendix 5:

Questions for interview in the activity no.5, “Role play: Real life simulation”

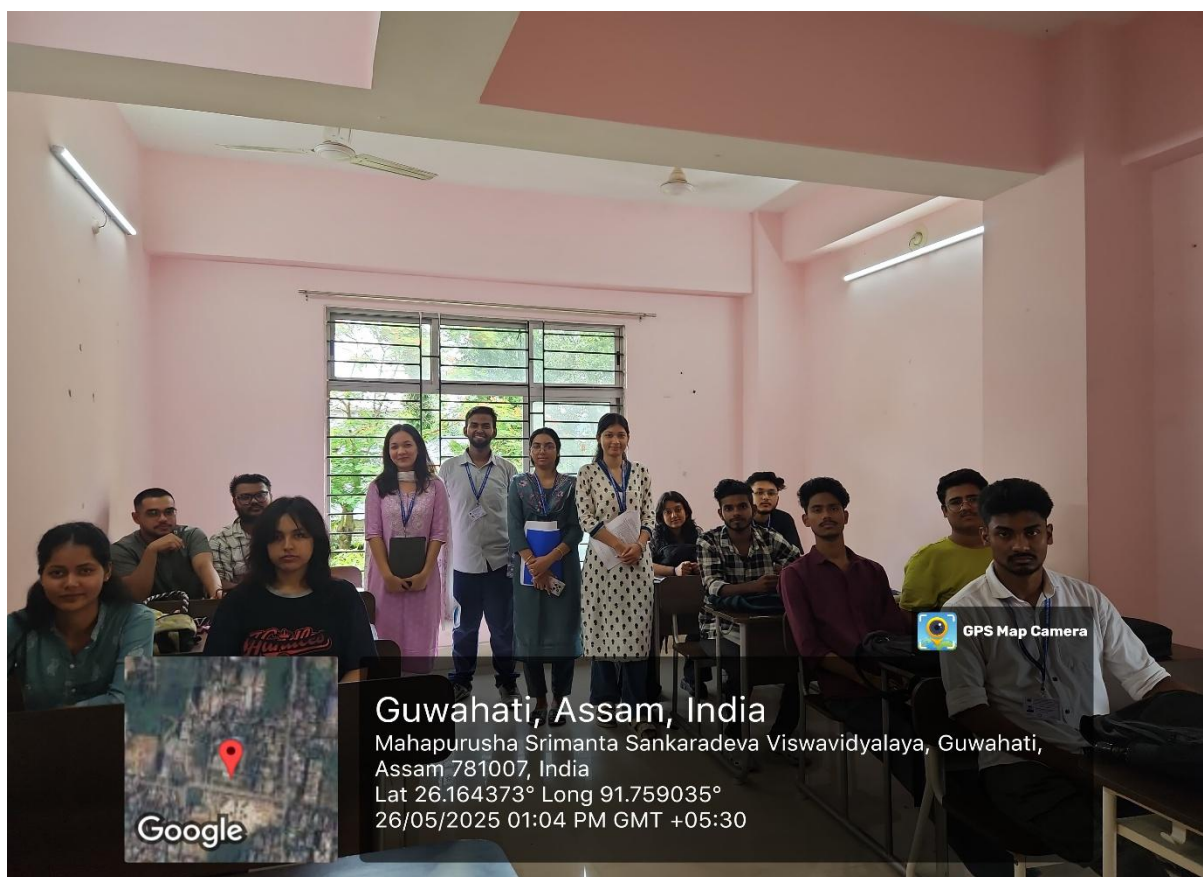
- ❖ Introduce yourself
- ❖ What motivated you to choose a career in IT?
- ❖ Explain a core IT concept in a way that a non-technical person could understand.
- ❖ If technology disappeared for one day, how would your life change?

Appendix 6:

Photo proof of the researchers and the students during dissertation process:



Picture 1: During the needs analysis



Picture 2: During language teaching and activities



Picture 3: During the Activity “Role Play: Real life Simulation”



Picture 4: The researchers teaching instruction for the activities