Reading comprehension within a translanguaging perspective, teacher education & multilingual-multimodal assessment: What do recent projects from India tell us?

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Overview

1. Indian multilingual classrooms: resources & challenges
2. Evidence-based findings on reading comprehension difficulties

   2.1. First project: MultiLiLa (2016-2020):

   2.2. Follow-up intervention projects (2021-till present):
   Telangana, Delhi

3. Multilingual reading pedagogy: Teacher training
4. Multilingual assessment
5. Conclusion: Implications & future directions

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Preface

UNESCO GEM reports 2014 & 2016

- A majority of multilingual (ML) children across the globe, especially from low SES families, **do not enjoy home language** to **language of instruction overlap** especially when the latter is English, and in contexts where it is not a language spoken at home and has limited use outside the classroom.

- This creates a huge learning disadvantage for multilingual children globally.

- Investing wisely in teachers, and other reforms aimed at strengthening equitable learning, can transform the long-term prospects of people and societies.

→ *need for teacher education in ML practices in EMI setups*

Indian policy on language education (2020)

Multilingualism and the power of language

4.11.It is well understood that **young children learn and grasp nontrivial concepts more quickly in their home language/mother tongue**. Home language is usually the same language as the mother tongue or that which is spoken by local communities. However, at times in multi-lingual families, there can be a home language spoken by other family members which may sometimes be different from mother tongue or local language. Wherever possible, **the medium of instruction until at least Grade 5, but preferably till Grade 8 and beyond, will be the home language/mother tongue/local language/regional language.** Thereafter, the home/local language shall continue to be taught as a language wherever possible.

Indian multilingual classrooms: resources

- Children from low SES families come with multilingual resources as they live and grow up in multilingual neighborhoods (Mohanty, 2019).

- They are highly proficient in multilingual oracy (Tsimpli et al., 2020) as they use multiple languages for social communication (BICS, Cummins, 1984).

- Teachers frequently use multiple home languages (or spontaneous translanguaging) and code-switch to support the learning of content (Lightfoot et al., 2021).

Indian multilingual classrooms: challenges

- Children with different home languages (mother tongues) and cultures find **monolingual pedagogy of English Medium Instruction (EMI) challenging** .

- In the class, **the academic register of English** is expected to be used and learnt for future success (Bailey, 2007; Schleppegrell, 2004)

- Frequently teacher and children's home language(s) **do not overlap** making it difficult for teachers to include home language resources of all the learners in class.

- Teachers **are not trained** to handle language teaching and teaching academic language (Cummins, CALP, 1984) in a multilingual manner.

- They resort to **translation** and **code-switching** as **coping strategies**; use multilingual inputs in a fragmented and unstructured manner (Lightfoot et al. 2021).

- Lack of school support to use multiple language in English classrooms gives rise **guilt** and **conflict** in teachers (Chimirala, 2017).
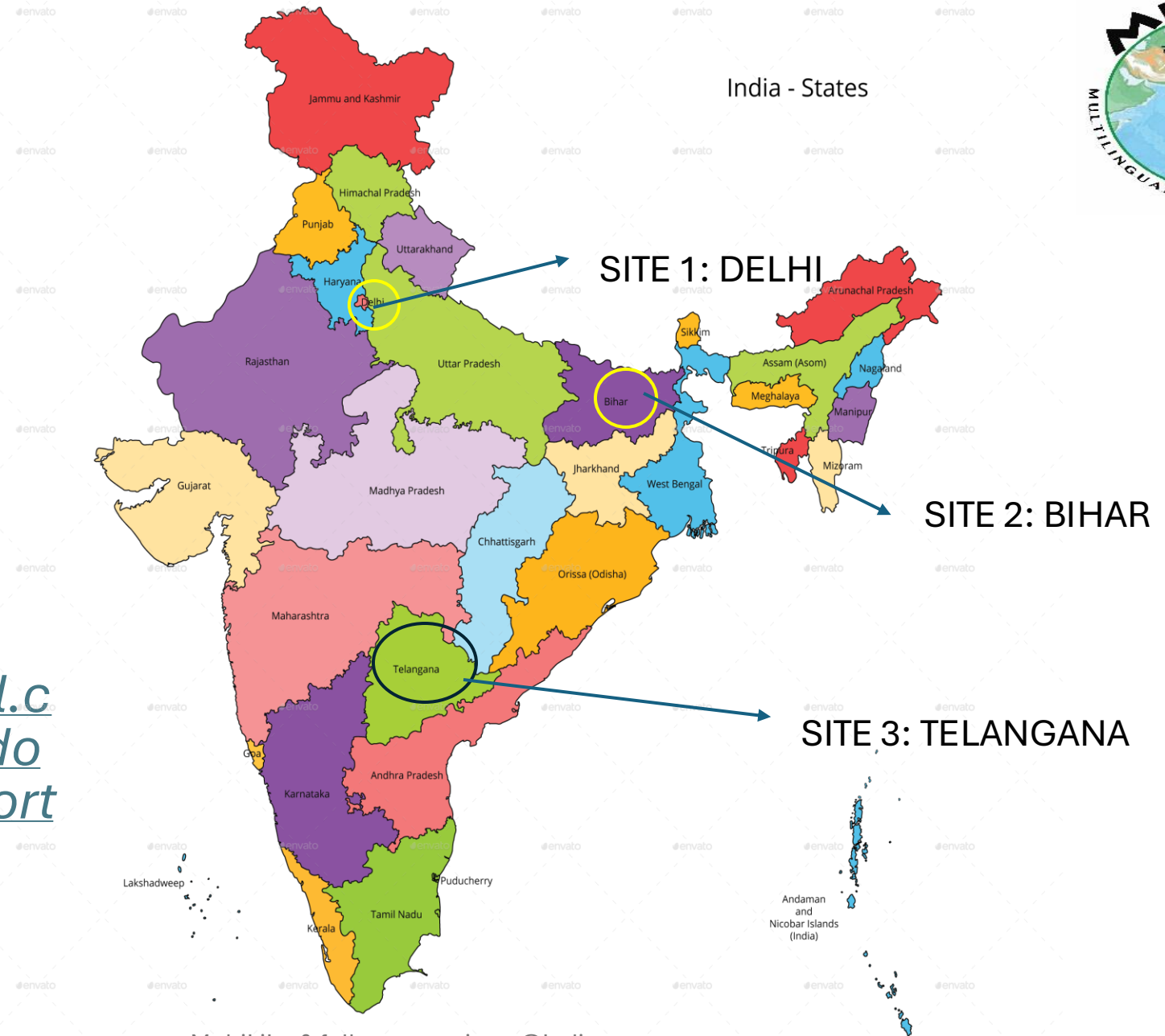
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First project

Multilingualism and Multiliteracy: Raising learning outcomes in challenging contexts in primary schools across India

(MULTILiLa)

https://www.mam.mmll.cam.ac.uk/system/files/documents/Projectfullreport.pdf

India - States

SITE 1: DELHI

SITE 2: BIHAR

SITE 3: TELANGANA

MultiLiLa Project Investigators (2016-2020)

Theo Marinis   Jeanine Treffers-Daller   **Ianthi Tsimpli (PI)**

University of Reading   Cambridge University

Suvarna Alladi, NIMHANS, Minati Panda, JNU   Lina Mukhopadhyay, EFL-U

The MultiLila project (2016-2020)

- **2,500** learners in Bihar (Patna), Delhi and Telangana (Hyderabad) enrolled in 90 plus government primary schools and assessed in:

- English, Hindi and Telugu **literacy (reading)**

- **oral** language skills (storytelling);

- numeracy;

- problem-solving (maths);

- IQ and cognitive abilities

- Teacher qualifications; languages known; attitudes & beliefs on language practices;

- Classroom observations to identify language use in the classrooms

Multilingual reading tasks (ASER 2014, MultiLiLa, 2017)

LANGUAGE READING TEST: Story

Note to Enumerator: Let the child familiarise herself/himself with the story. Please remember that here we will be calculating the number of sentences read correctly out of the total 8 sentences of the test, and the total number of errors made. An error would be one or more words in a sentence that have been read incorrectly. Each incorrect word will be counted as an error but if the child self-corrects, it will not be considered an error. Once the child has finished reading the story, ask the 2 comprehension questions given below, and ask child to select the correct answer. At the end of the test, please remember to upload a photo of the original task (with all 4 pages) and the audio file tagging/labelling these with the child's ID number.

4.1 Comprehension questions:

Q.1 How did the small plant grow near the tree?

Q. 2 Why was the big tree happy?

Propositional inference

4.2 No. of sentences read correctly by the child: _____

Total no. of sentences in the task: 8

4.3 Total no. of errors: _____

Total no. of words: _51_

Story

A big tree stood in a garden. It was alone and lonely. One day a bird came and sat on it. The bird held a seed in its beak. It dropped the seed near the tree. A small plant grew there. Soon there was another tree. The big tree was happy.

भाषा की जाँच - कहानी

सर्वेक्षक के लिये कार्य अनुदेश: बच्चे को आमंत्रित करें कि वह अपने आप को कहानी से परिचित कर ले। कृपया ध्यान दें कि यहाँ हम यह गणना कर रहें हैं कि बच्चा जाँच पत्र के दिये गये ९ वाक्यों में से कितने वाक्य सही पढ़ता है और पढ़ने के दौरान मूल कितनी ग़लतियाँ बनाता है। इन वाक्यों में हर शब्द जो बच्चा गलत पढ़ता है उसे आप त्रुटि मान सकते हैं। एक वाक्य में एक या अधिक शब्द गलत हो साकते हैं। अगर बच्चा आत्म-सुधार करने की कोशिश करे तो उसे त्रुटि या ग़लती ना मानें। जब बच्चा कहानी पढ़ना पूर्ण कर ले तो उस से नीचे दिये गये प्रश्न पूछे एवं रिकॉर्ड करें। फिर दिये गये स्थान मे मूल अंकों को भरें। कृपया बच्चे के आँडियो रिकॅरडिंग और जाँच पत्र के वास्तविक कॉपी (स्कैन या पोन पर फोटो ले कर) को निश्चित से अपलोड करें। इन फ़ाइलों को बच्चे के पहचान अंक का नाम दें।

४.१ प्रश्न-उत्तर:

Q.1 नगमा अपने छोटे भाई के साथ कहाँ घूम रही थी?

**Q. 2** अमन के आँखों से आँसू क्यूं निकलने लगे?

Factual, propositional

४.२ बच्चे के सही पढ़े गये वाक्यों का मूल अंक: _____ / जाँच पत्र के वाक्यों का मूल अंक: _९_

४.३ बच्चे के गलत उत्तरों का मूल अंक: _____ / कहानी के शब्दों का मूल अंक: _५९_

कहानी

नगमा समझदार लड़की थी। मगर उसका छोटा भाई अमन बहुत नटखट था। एक दिन दोनों बाज़ार में घूम रहे थे। अमन ने रास्ते में पकौड़े देखे। उसे पकौड़े बहुत पसंद थे। माँ उसके लिए पकौड़े बनाती थी। नगमा ने कहा यह पकौड़े तीखे होंगे। मगर अमन नहीं माना। अमन ने पकौड़े खाए और उसकी आँखों से आँसू निकलने लगे।

up

Reading levels in Hindi, Telugu and English in schools with different medium of instruction

Literacy performance in the regional language and in English
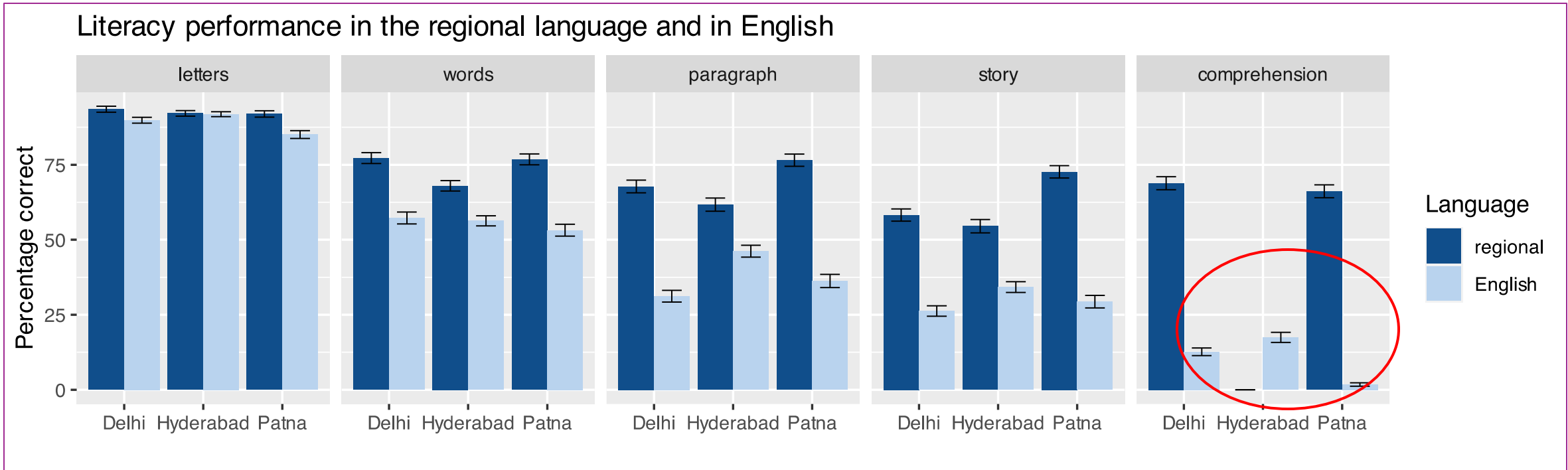
- Average percentage of correct responses on the ASER (2017) subtasks and **comprehension** questions in the regional language (Hindi or Telugu) and in English at each site.
- Comprehension scores (factual and inferential skills) are very low for English texts but high for Hindi texts.

Overview

Overview of Telangana Projects (2021-2024)

MultiLila 2016- 2019

- Classroom observations +
- Teacher Training February 2019, observations, 3 videos

Findings from MultiLiLa 2019-2020

- Reading comprehension is the most challenging skill & needs intervention.

A short follow-up project on training teachers to use ML strategies for classroom use: 2019

Objectives for ELTRA + British Academy project 2020-2021

- Training teachers for comprehension strategies with structured use of home languages to enhance vocabulary + comprehension in 4th and 5th graders.
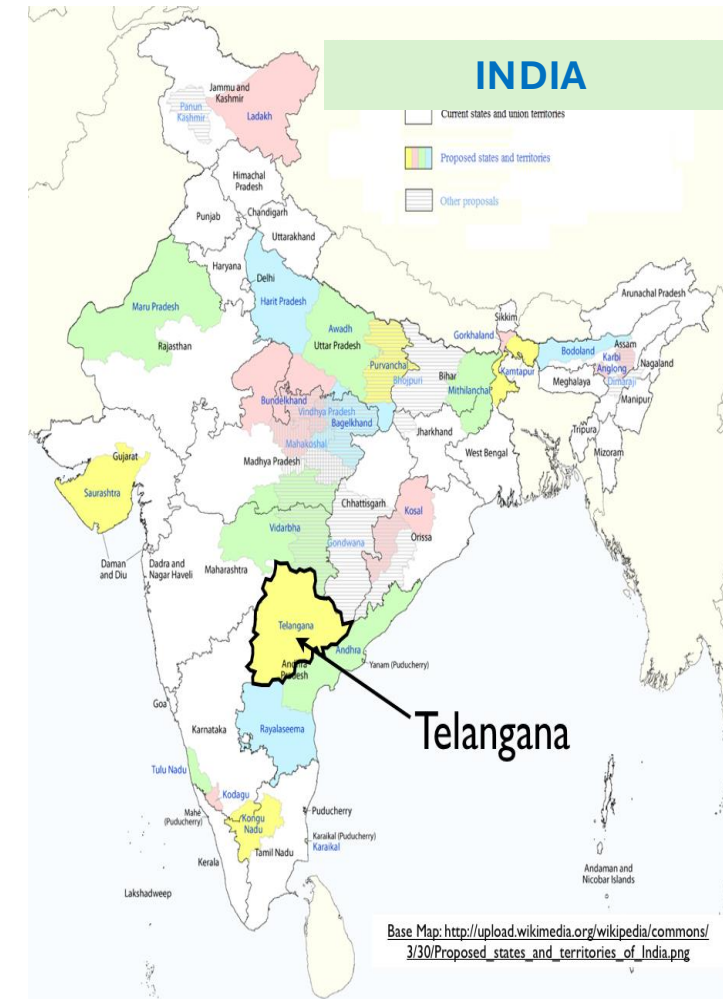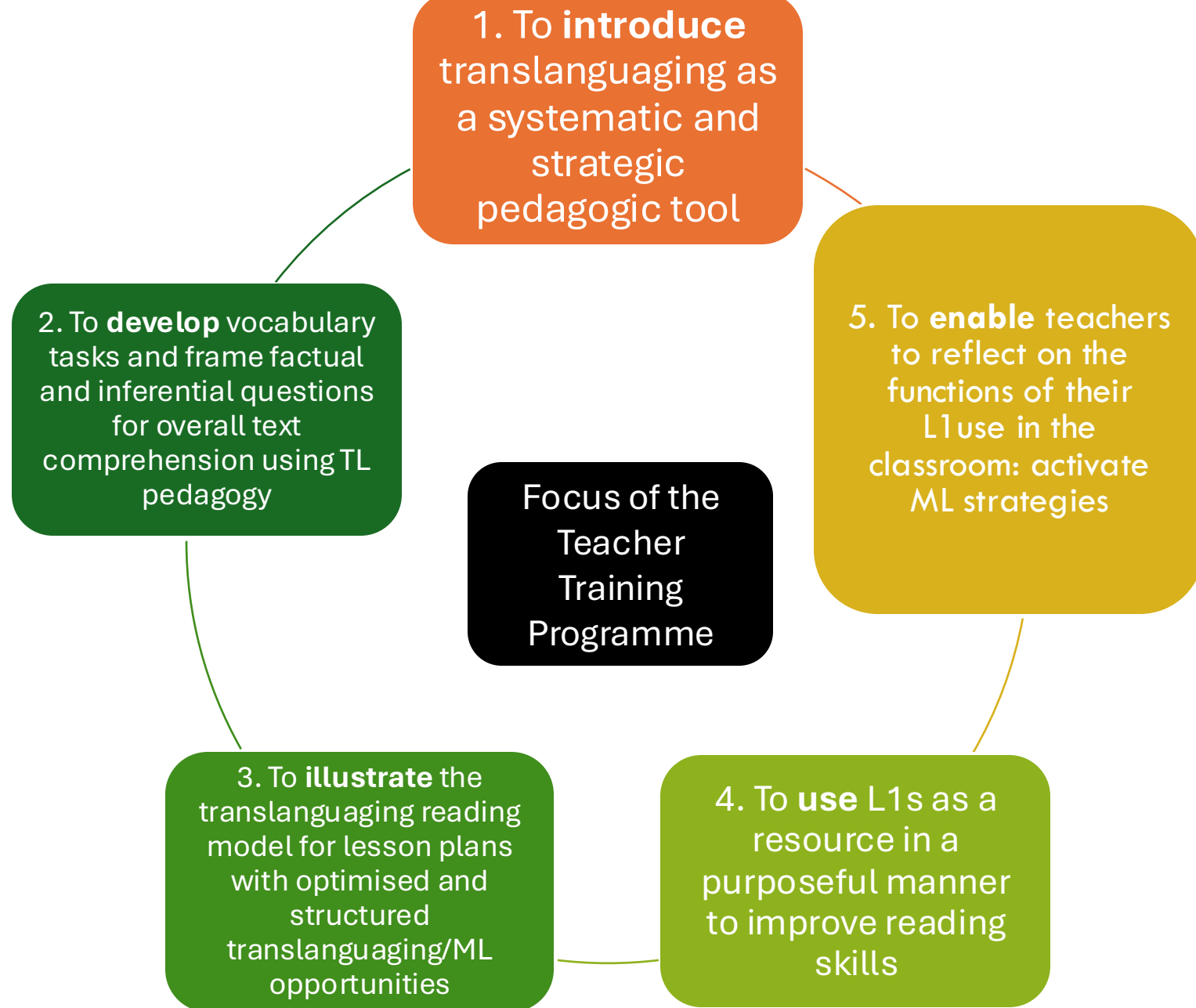
Teacher Training Project (ELTRA) +BA project 2022-2024

- Team selection
- Timeline of the project
- Workshops (1,2, 3)
- Classroom visits
- Dissemination workshop photos

2 follow up multilingual-multimodal reading assessment projects: 2023

TELANGANA PROJECTS (2021-2024)

Two multilingual education projects ran in India (Telangana):

1. to train teachers use multilingual pedagogy to teach reading to grade five learners in 10 low-cost government run EMI schools; and

2. to assess the learners' reading comprehension skills in narrative and expository texts in a multilingual and multimodal manner.

INDIA

Telangana

Base Map: http://upload.wikimedia.org/wikipedia/commons/3/30/Proposed_states_and_territories_of_India.png

1. To **introduce** translanguaging as a systematic and strategic pedagogic tool

2. To **develop** vocabulary tasks and frame factual and inferential questions for overall text comprehension using TL pedagogy

3. To **illustrate** the translanguaging reading model for lesson plans with optimised and structured translanguaging/ML opportunities

4. To **use** L1s as a resource in a purposeful manner to improve reading skills

5. To **enable** teachers to reflect on the functions of their L1 use in the classroom: activate ML strategies

Focus of the Teacher Training Programme

The Study

Design

An intervention (with teacher training) study of 9 months where English textbook units were taught using English, Telugu, and Hindi.

RQ: *Is multilingual reading pedagogy intervention effective in improving Indian children's reading comprehension?*

Participants

248 children from 10 government schools (intervention group)

69 children from 3 private low-cost EMI schools (control group)

Grade 5

Mean age of **10.38** (SD = 1.01; range = [15 - 8]).

SES of control group is significantly higher than that of intervention group ($p<0.05$).

Reading assessments [3 times: **pre, mid** (4 months), **post** (9 months) intervention]

Do you know that an adult elephant can eat more than 100 kilograms of leaves and twigs in one day? Elephants do not rest very much. They sleep for only two to four hours in a day. Elephants love to play with mud and water. The mud keeps their skin cool. Their big ears also work like fans. The elephants flap these to keep themselves cool.

Qs. How much does an adult elephant eat in a day?
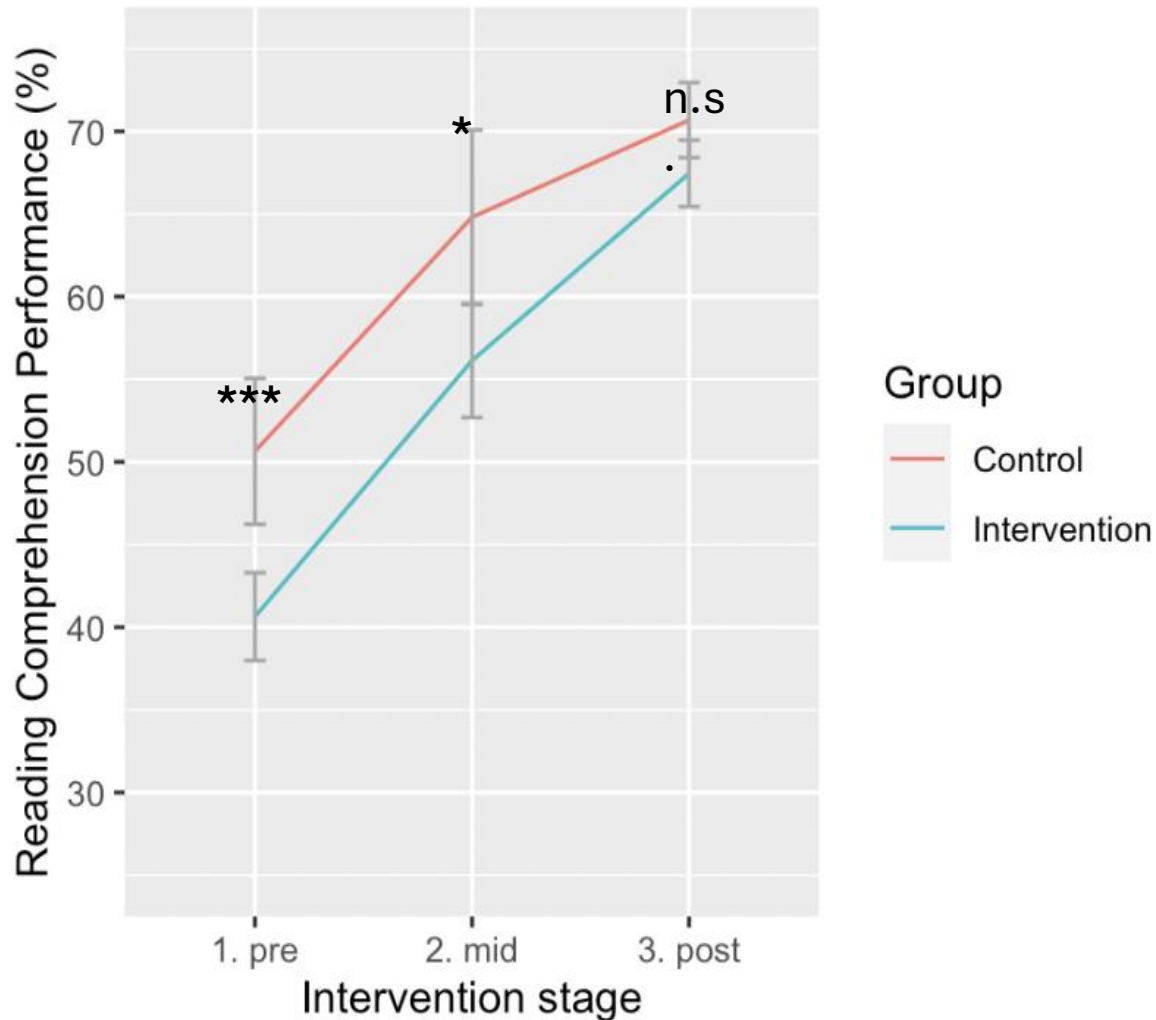
Answer (English/Telugu/Hindi):

a. An adult elephant eats more than 100 kilograms of leaves and twigs in a day.
2 points

b. '100 kilograms' (partially correct),
1 point

Findings: Comprehension of expository text

Error bars indicate 95% confidence intervals.
# SES of control group is significantly higher than that of intervention group (p<0.05).

25/03/25

Intervention group (govt.) n1=248
Control group (private) n2=69

Time	Control	Intervention	t	P value
PRE	50.7%	46.8%	3.60	0.001**
MID	64.8%	56.1%	2.42	0.016*
POST	70.7%	67.5%	1.68	0.095

Within 9 months:
→ Intervention group improved by **22%; no difference in performance between boys and girls**
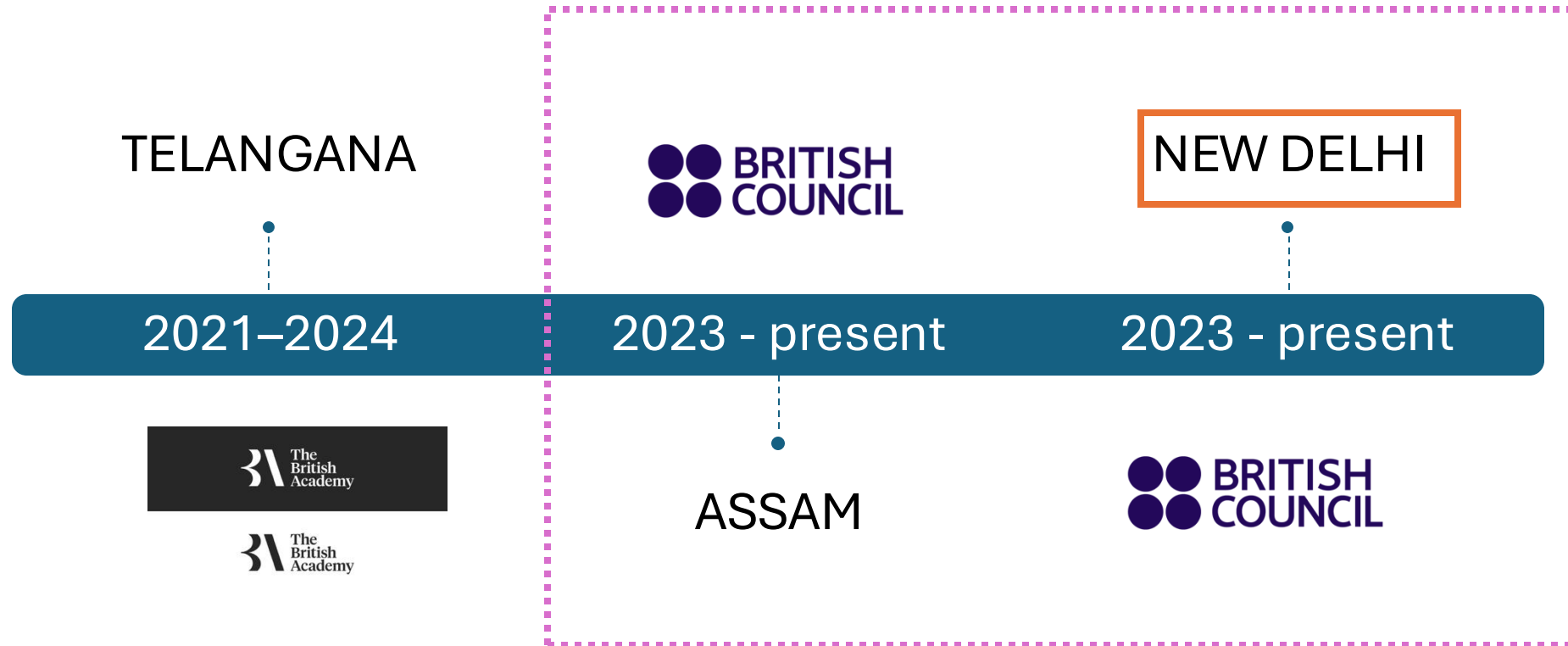→ caught up with peers from private schools

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Teacher Perceptions:
How useful were TL Strategies in Classrooms?
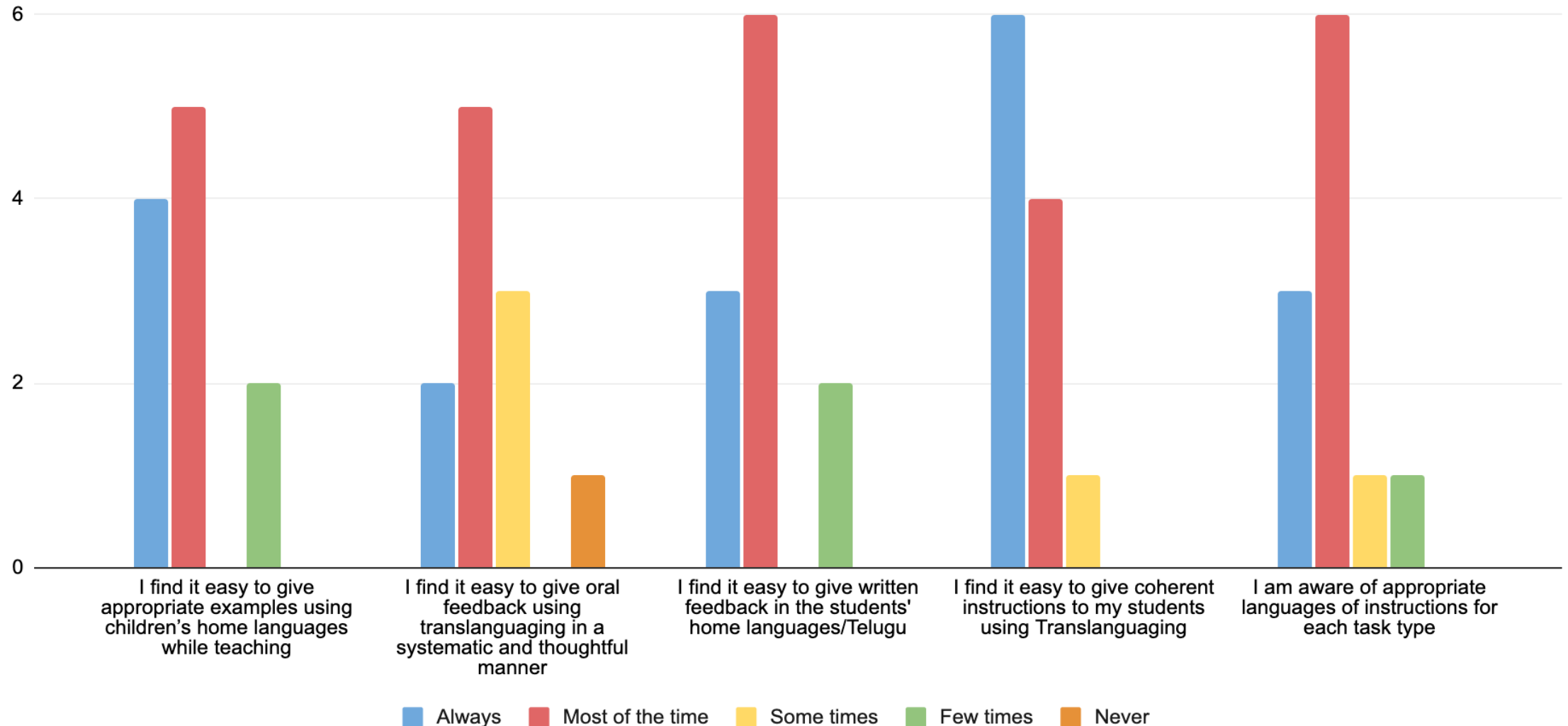
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Current follow-up projects

TELANGANA

BRITISH COUNCIL

NEW DELHI

| 2021–2024 | 2023 - present | 2023 - present |

The British Academy

ASSAM

BRITISH COUNCIL

Multilingual Education (MultiEd): Learning, Assessment, and Teaching (2023-2026)

Funded by

ASSAM, DELHI: sites

Ianthi Tsimpli, Cambridge

In collaboration with **Lina Mukhopadhyay**, EFL-U; **Ayesha Kidwai**, JNU;

Padmini Boruah, Gauhati U, **Jacopo Torregrossa**, Frankfurt

Multilingual Education (MultiEd): Learning,, Assessment, and Teaching (2023-2026)

DELHI TEAM

ASSAM TEAM

Bipanchi Bhattacharya

Prof. Padmini Boruah (Co-I) Gauhati University

Tanhaj Rahman

Prof. Ayesha Kidwai (Co-I) JNU

Dr Vrishali Patil

Smiti

Soumyatarini Mishra

Ruderaksh Bagira

UK and Germany team

Prof. Ianthi Tsimpli
**Principal Investigator**,
Cambridge University, UK

Prof. Jacopo Torregrossa, (Co-I) Frankfurt University, Germany

The Study (Delhi)

- Reading comprehension skills of Delhi Tamil Education Association (DTEA) School children in grades four and five (n=250+)

- Experimental group: teachers have received training in ML reading pedagogy (like in Telangana) and collaborated with researchers to use the pedagogy in class.

- Control group: teachers used ML pedagogy according to their understanding.

- Impact of conscious training to use the ML reading pedagogy was investigated through reading assessments that were (a) multimodal and (b) multilingual and in two text types (narrative and expository).
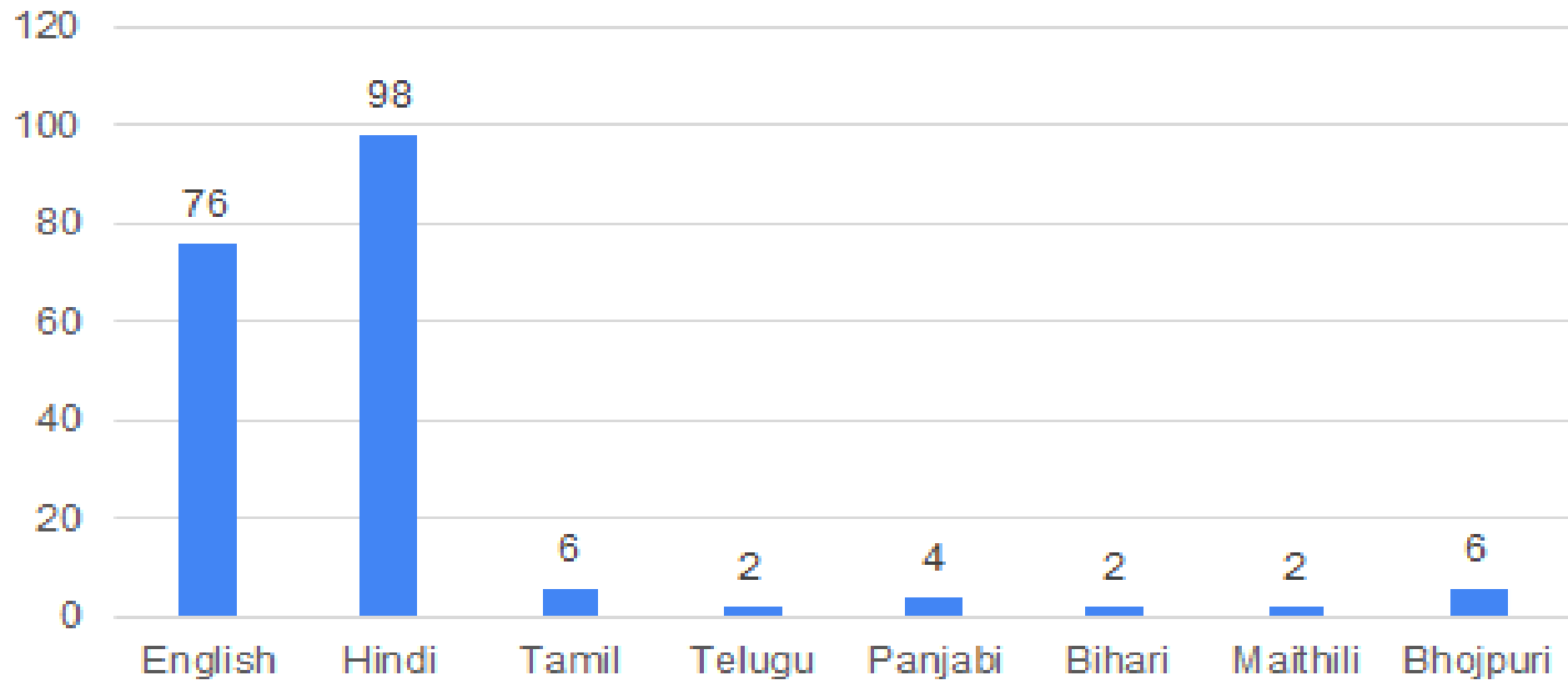
Participants

Male female ratio
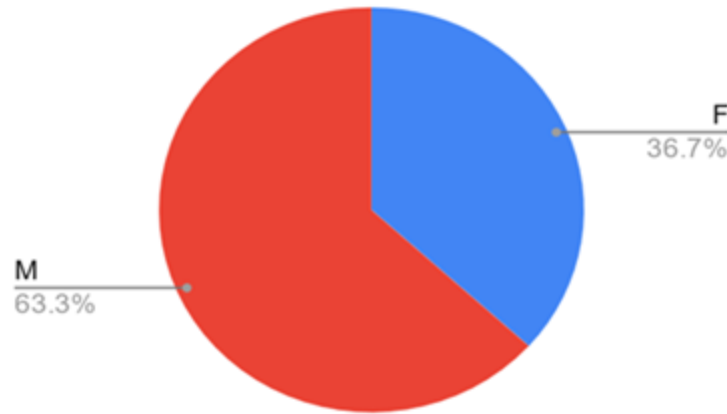
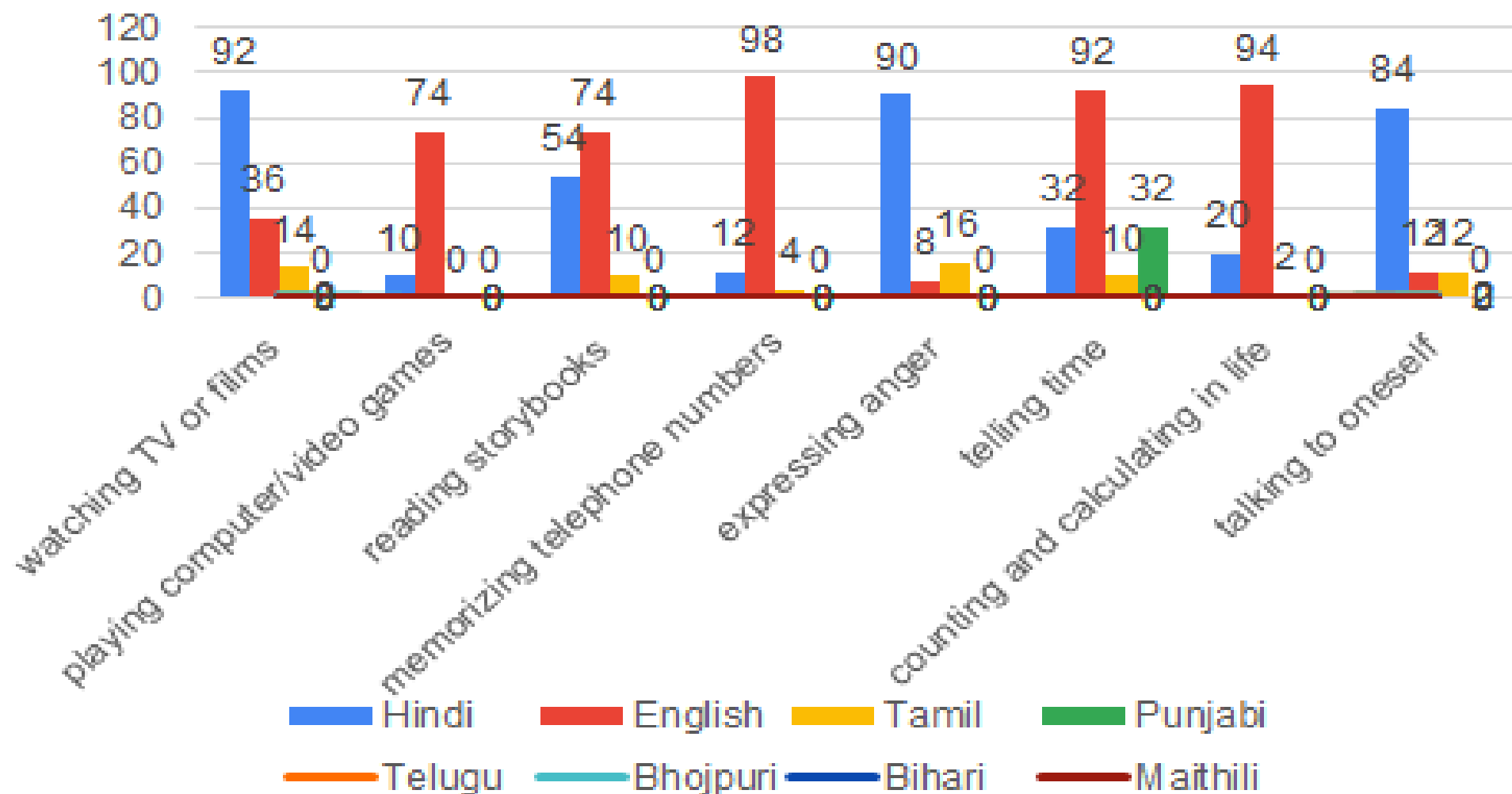Number: **50** (30 experimental group; 20 control group)

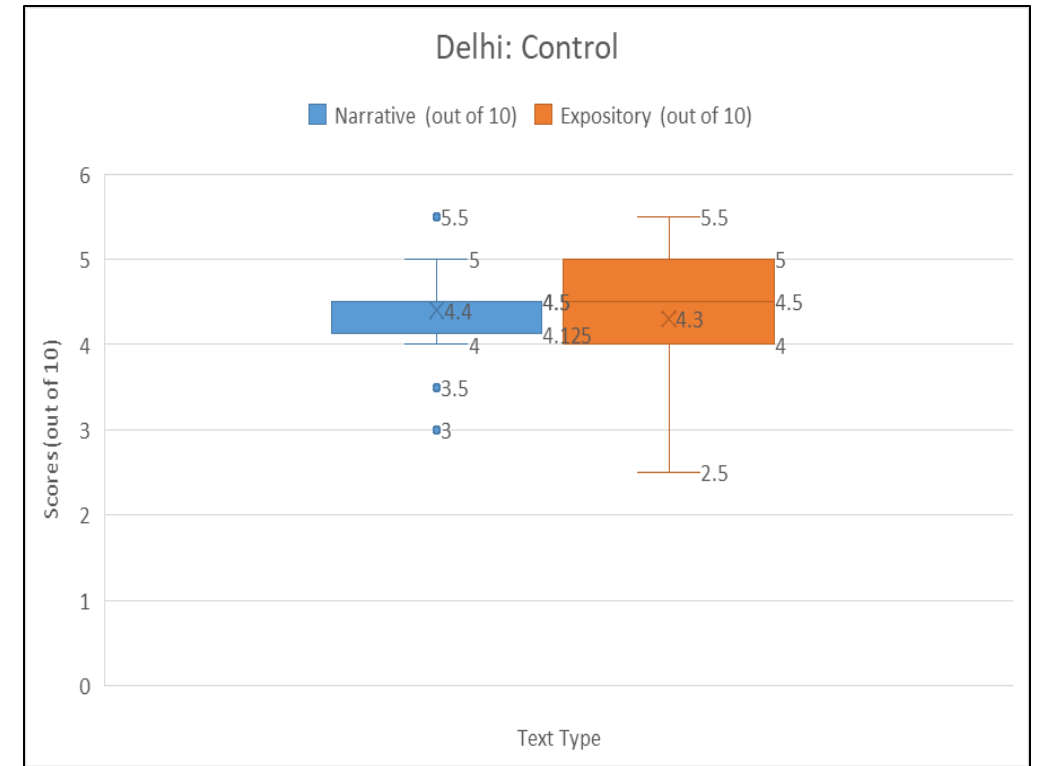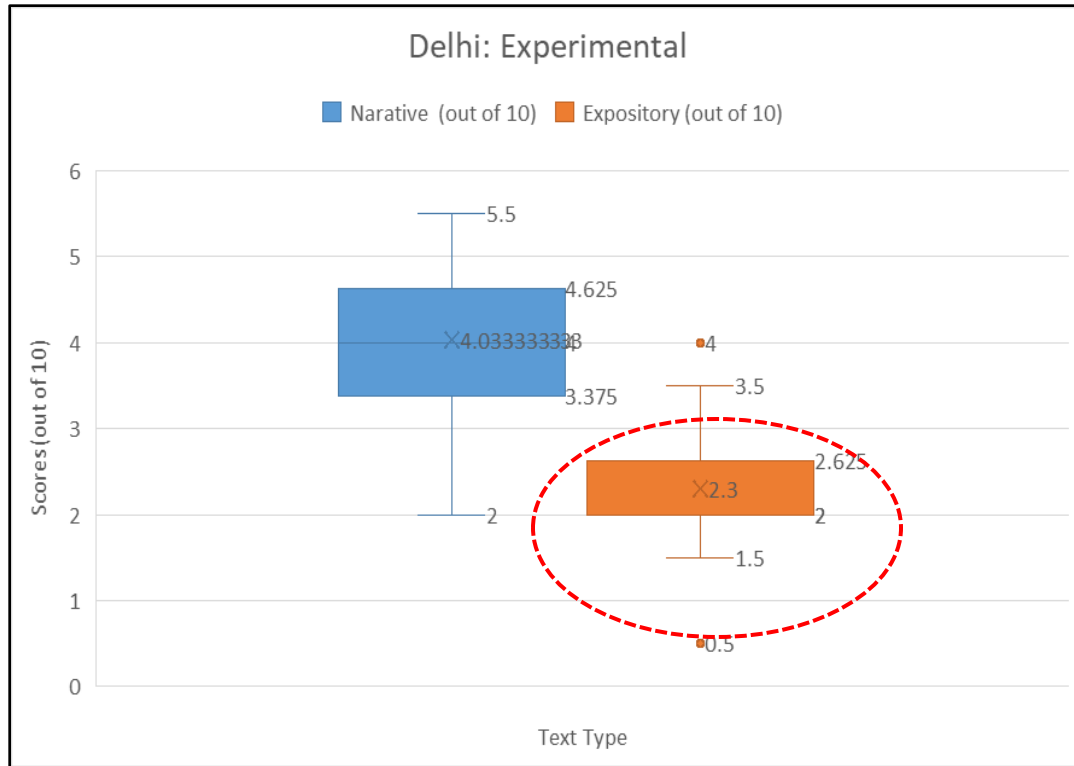Average Age : 12 years 5 months

Grades: Four and Five

Percentage of DTEA learners knowing various languages

DTEA learners' language use in day to day life

Performance on reading assessment: group, text-type

1. Narrative comprehension is at **45%** and comparable across both the groups.
2. Reading issue: Expository text comprehension is at **25%** to **30%** in Experimental group < **45%** in Control group.

What is the reason for the dip in expository text comprehension?
More academic language??

Performance by group, text-type & language of assessment

Whisker Box Plot for Scores by Group, Text Type, and Language of Assessment (Delhi)

1 = English
2 = Hindi (Home Language)
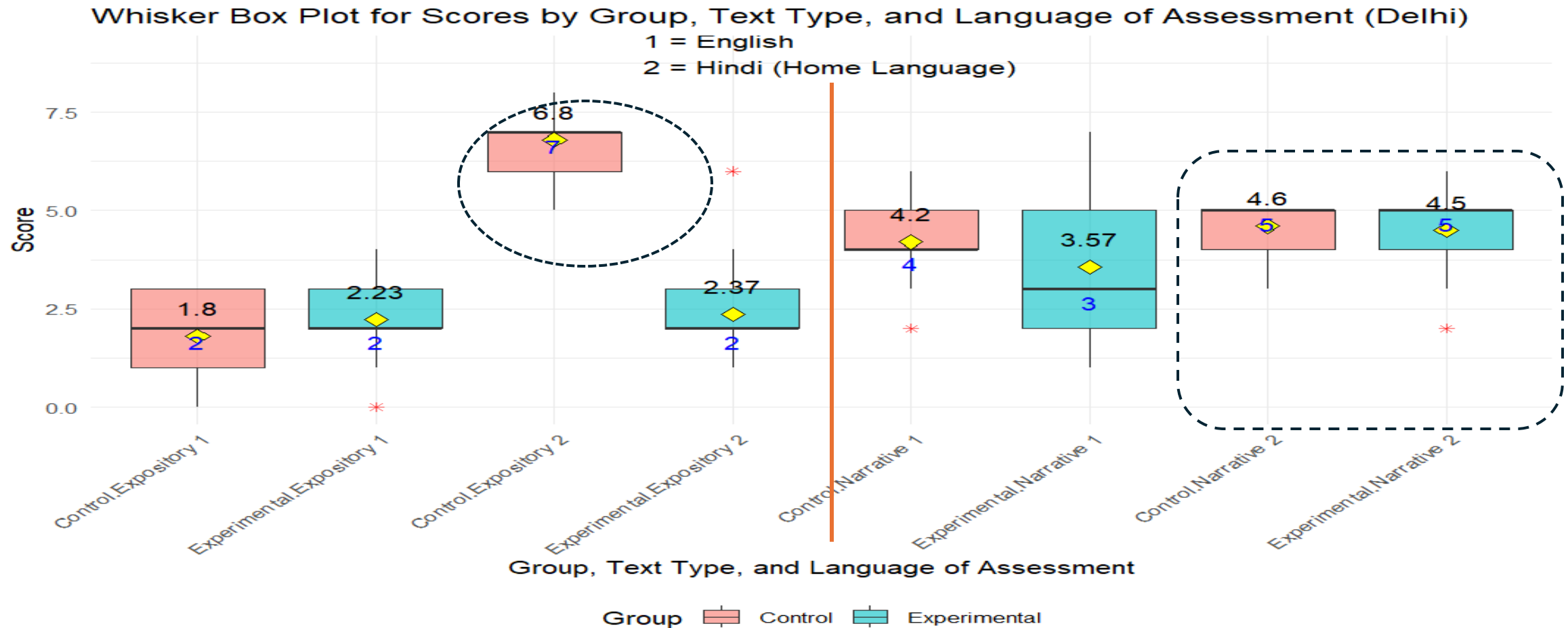
3. Hindi items expository text performance is high in the control group.

4. Hindi items narrative text performance is high in both the groups.

**Hindi advantage in English comprehension

Example of Multilingual Reading Assessment: Expository (Hindi items)

Plastic plates and tumblers are being used during picnics and functions. Though in minute quantity, some plastic enters our body, which is very harmful for us. The plastic takes lakhs of years to decompose and thus adds to soil pollution. It even block the micro organisms which make soil fertile. Plastic glasses and plates when burnt release harmful gases into the atmosphere and thus cause air pollution.

Leaves of Butea(moduga) and banyan tree are used as plates. Since ancient times, we have been using leaf plates for eating. They decompose in less time. Thus, they protect our environment. Plastic plates are harmful to health and also lead to soil pollution.

Multilingual comprehension→ plastic is **harmful** and **how**

3. प्लास्टिक पर्यावरण के लिए हानिकारक क्यों है?

A. क्योंकि जानवरों को इससे एलर्जी होती है।

B. क्योंकि इसकी गंध बहुत खराब होती है।

C. क्योंकि यह हज़ारों सालों में सड़ता है।

D. क्योंकि यह आमतौर पर बहुत गंदा होता है।

4. "अपघटन" (decompose) का क्या मतलब है?

A. टूटना।

B. विघटित होना।

C. प्रदूषित करना।

D. जलना।

Lexical; inference

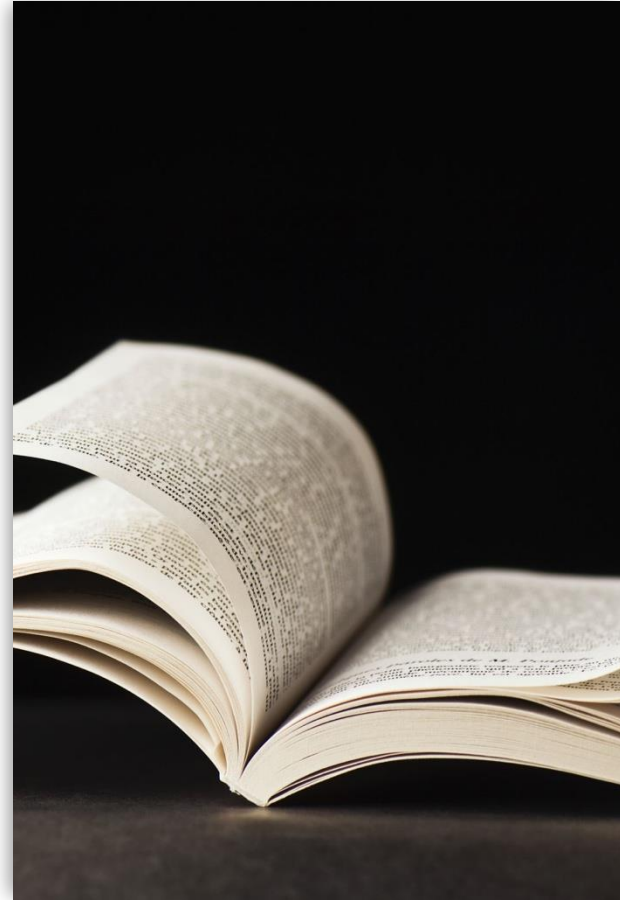# Expository text comprehension: why is it essential?

- As a genre it has academic language as it explains links between ideas (Cao & Hu, 2014, Lei, 2012)

- As text organization it is different from narrative texts (which have an internal structure of episodes with Goal-Action-Outcome) (Gagarina et al. 2016, 2020).

- Text internal structure of expository texts is **more varied** with a combination of ideas/constructs, [+/- examples], [+/- argumentation] unlike narratives [+setting, + episodes <GOAL-ACTION-OUTCOME>]

- Comprehending the academic language and structure of expository texts is crucial for school success (Bailey, 2007; Schleppegrell, 2004)

Overview
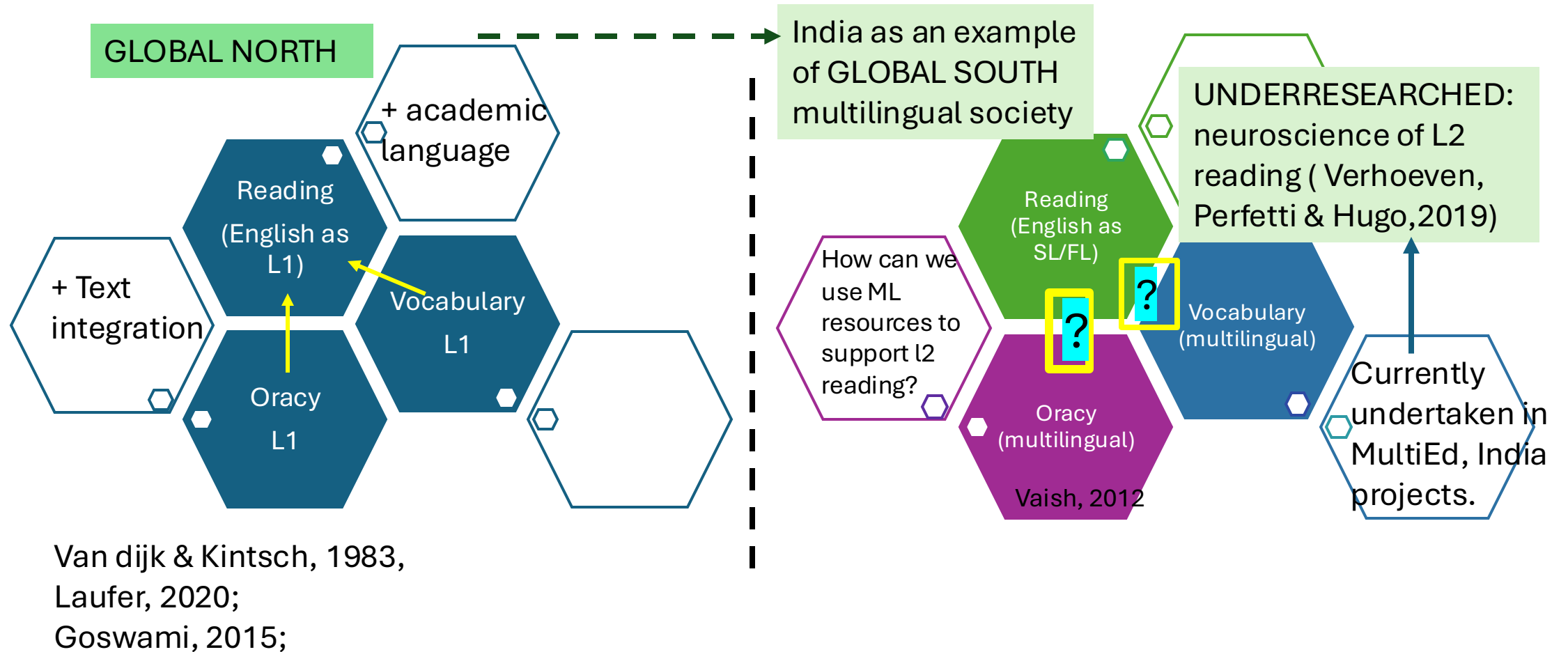
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The building stones of reading comprehension (RC)

- **RC** builds on **spoken language** skills and on **decoding**, i.e. being able to recognize words when reading [the *Simple View of Reading;* Gough and Tunmer, 1986 + the text-integration (*Reading Systems Framework*, Perfetti, 1999)].

- However, RC **strategies** need to be **taught** so that the text can be understood and the content learned (*inferencing, questioning, vocabulary development:* Phillips, 2009; Geva & Farnia, 2012; Basma & Savage, 2023)

→ **RC problems could lead to very little learning, particularly when the language of education is not familiar to the child** (UNESCO GEM Reports 2014, 2016) and **critical thinking while reading** is not encouraged.

Understanding the science of reading & it's precursors

GLOBAL NORTH

India as an example of GLOBAL SOUTH multilingual society

UNDERRESEARCHED: neuroscience of L2 reading (Verhoeven, Perfetti & Hugo,2019)

+ academic language

Reading (English as L1)

+ Text integration

Vocabulary L1

Oracy L1

Reading (English as SL/FL)

How can we use ML resources to support l2 reading?

Vocabulary (multilingual)

Oracy (multilingual)

Vaish, 2012

Currently undertaken in MultiEd, India projects.

Van dijk & Kintsch, 1983,
Laufer, 2020;
Goswami, 2015;

OUR Interventions for improving RC and reasoning skills

A series of funded projects to address developing RC skills, initially in Hyderabad (2019-2023) and now in Assam & Delhi (2023-2026):

The **building blocks** of our interventions:

a) **Multilingualism** (an essential resource for developing metacognition and critical thinking) to support L2 (English) reading pedagogy

b) **Orality** (an unparalleled strength in India's primary school learners – mostly due to multilingualism being an oral skill and *storytelling* as a cultural and linguistic resource)

c) **Learner** agency: peer meet interactions in multiple home languages & English

d) **Teacher** training to encourage the systematic use of multiple language resources
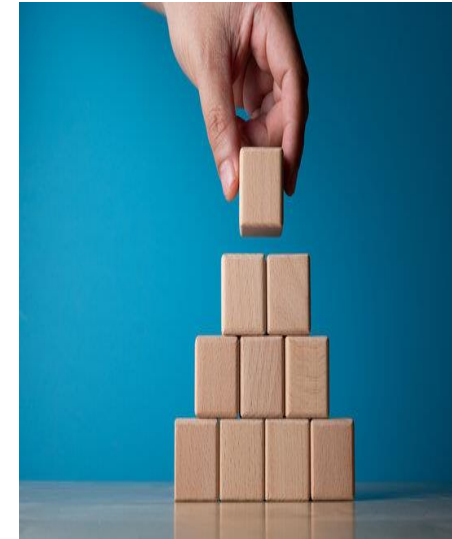
Reading comprehension skills considered in the follow-up intervention projects

- Vocabulary in context

- Schema/background knowledge

- Chunking and reading aloud with meaning

- Comprehension sub-skills:

  factual details

  propositional inferencing

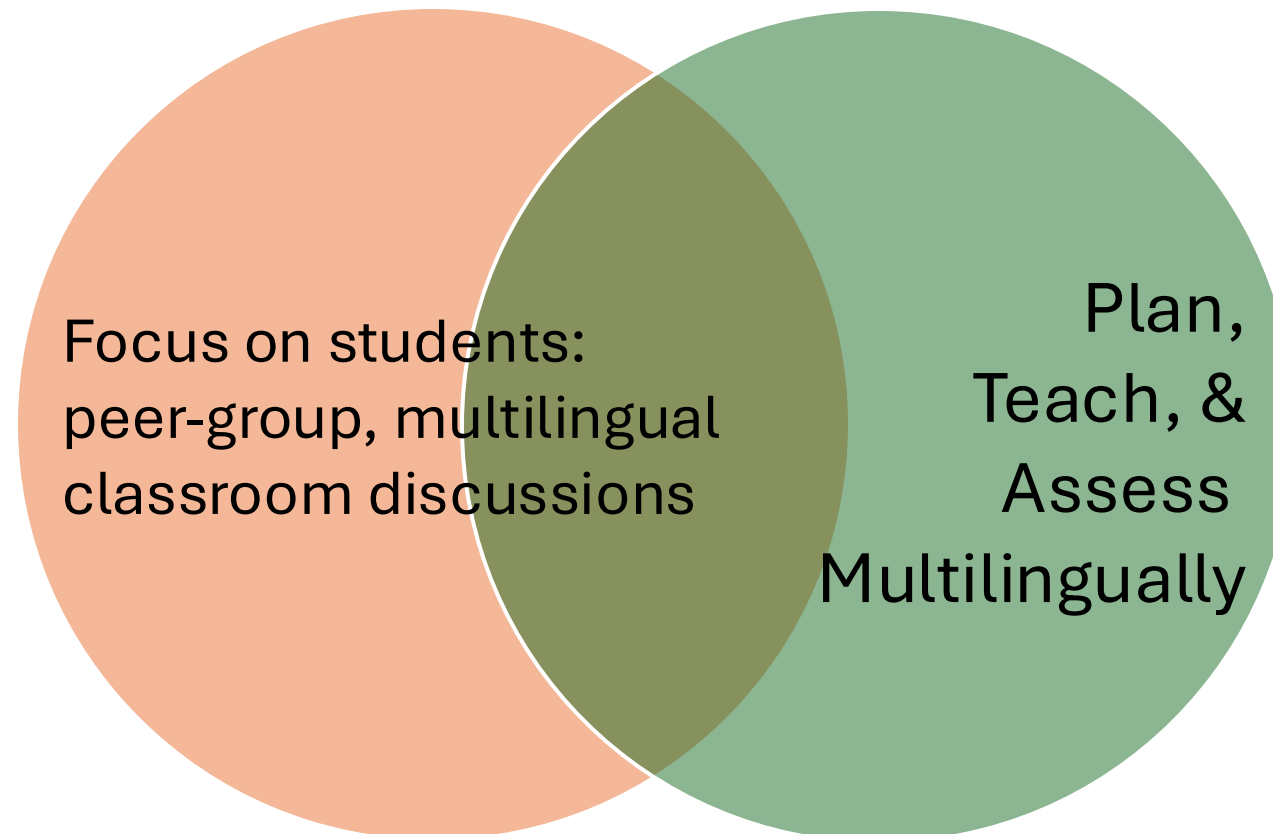 pragmatic inferencing

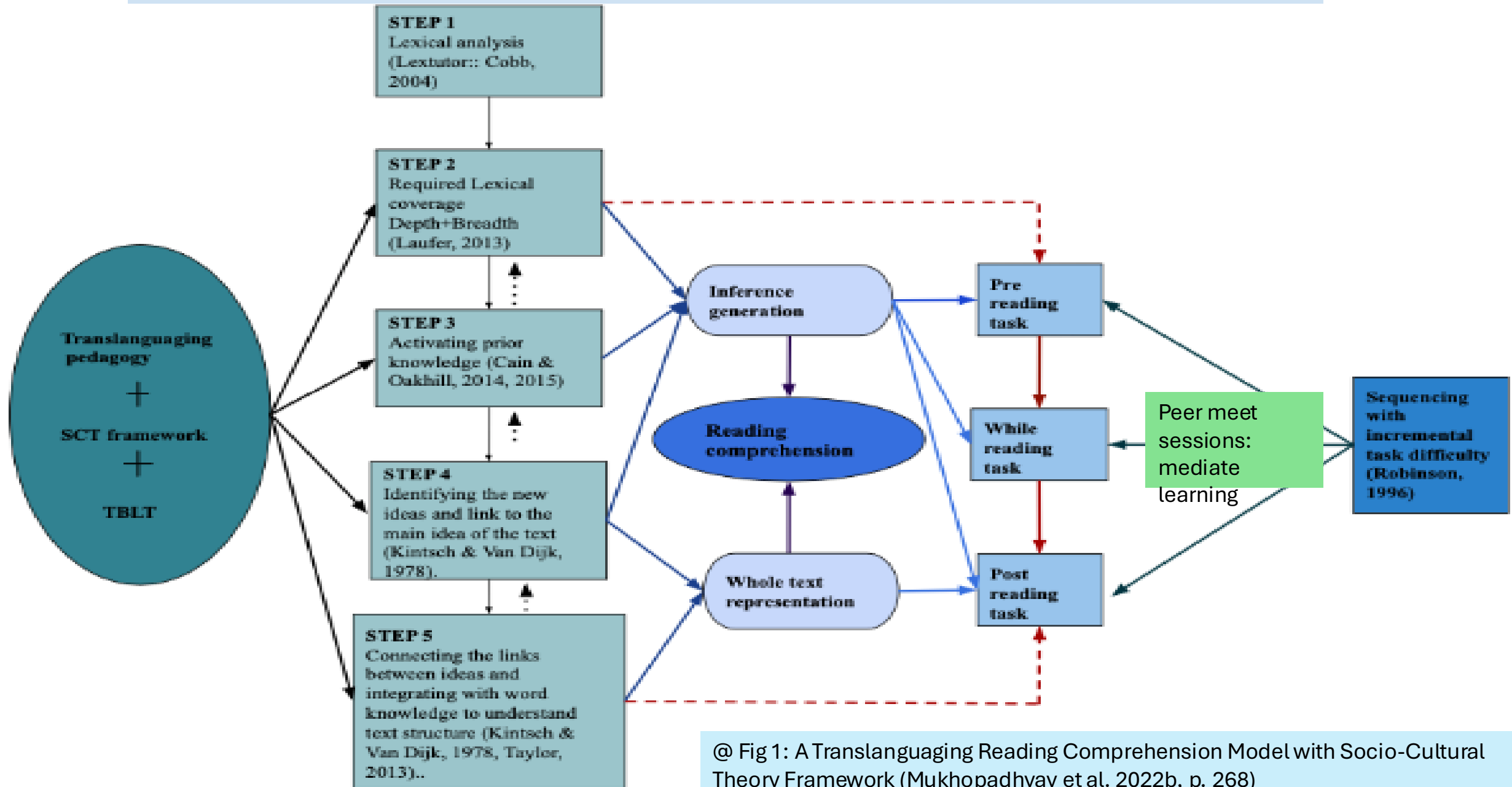 internal state terms (theory of mind)

TEXT TYPES

1. NARRATIVES

2. EXPOSITORY

Multilingual
Lesson Plans

A Translanguaging Reading Model

STEP 1
Lexical analysis
(Lextutor:: Cobb,
2004)

STEP 2
Required Lexical
coverage
Depth+Breadth
(Laufer, 2013)

STEP 3
Activating prior
knowledge (Cain &
Oakhill, 2014, 2015)

STEP 4
Identifying the new
ideas and link to the
main idea of the text
(Kintsch & Van Dijk,
1978).

STEP 5
Connecting the links
between ideas and
integrating with word
knowledge to understand
text structure (Kintsch &
Van Dijk, 1978, Taylor,
2013)..

Translanguaging
pedagogy
+
SCT framework
+
TBLT

Inference
generation

Reading
comprehension

Whole text
representation

Pre
reading
task

While
reading
task

Post
reading
task

Peer meet
sessions:
mediate
learning

Sequencing
with
incremental
task difficulty
(Robinson,
1996)

@ Fig 1: A Translanguaging Reading Comprehension Model with Socio-Cultural Theory Framework (Mukhopadhyay et al. 2022b, p. 268)

Step 1: Lexical Analysis of the Text to create ML vocabulary bank (words → phrases)

Step 2: Creating Bi /multilingual Instructions

Step 3: Creating Pre-reading Tasks
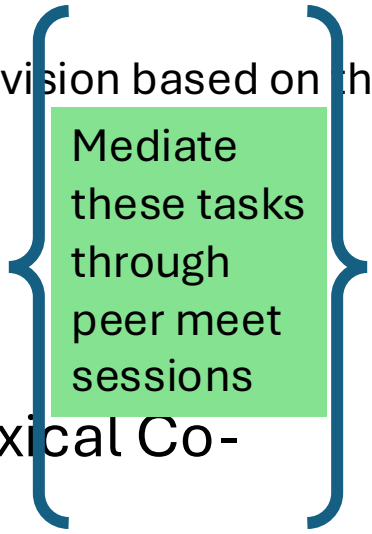Step 3a: Pre-reading Task 1: Picture Recognition and Discussion, Revision based on the previous class,
Step 3b: Pre-reading Task 2: Enhancing Lexical Coverage

Mediate these tasks through peer meet sessions

Step 4: Creating While-Reading Tasks
Step 4a: While-Reading Task1: Enhancing lexical depth
Step 4b: While- Reading Task 2: Comprehension Questions
Step 4c: While Reading Task 3: Enhancing Lexical Depth through Lexical Co-Referencing

Step 5: Creating a Post-reading Task
Step 5a: Bilingual Sequential Summary/Translation writing task

While planning a teacher has the freedom to change the sequence of tasks given under pre-, while-, and post- reading sections and the alternation in use of home languages.

(*Mukhopadhyay et al. 2023*)

Use of [multilingual lesson plans](#)

✓To develop comprehension skills in language and content (EVS) classes.

✓To improve vocabulary knowledge (acquire more number of new words/phrases that are comparable in children's home languages and English).

✓To participate in class during peer meet sessions and negotiate for meaning, solve tasks, and summarise key ideas.

✓To encourage teachers to use their metalinguistic awareness to exploit language resources of children's home languages in EMI classes.

MultiED: **Lesson Plan**

Aim: to <u>scaffold</u> comprehension in the target language using <u>multilingual</u> spoken language support

Teaching Unit

Text

Alice in Wonderland

The rabbit started running/ and Alice followed the rabbit./ The rabbit suddenly / popped down/ a large rabbit hole./ Alice jumped into/ the rabbit hole too!/ The rabbit went down/ and down and down/ and down into the rabbit hole./ Alice said aloud,/ "Where am I?/ How many miles down/ have I fallen?/ I must be getting somewhere/ near the centre of the earth./" She wondered,/ "Will I slip through the earth/ to the other side?/

'to pop' and
'to jump'
कूदना *koodhna*
குதிப்பது
gudhipadhu

HINDI
नीचे कूद गया
Neeche koodh gaya

TAMIL
கீழே குதித்தான்
Keele gudhithaan

HINDI
अन्दर कूद गई
Andhar koodh gayi

TAMIL
உள்ளே குதித்தாள்
Ulle gudhithaal

MultiED: Lesson Plan

Aim: to <u>scaffold</u> comprehension (CALP) in the target language using <u>multilingual</u> **spoken** language (BICS) support

சென்ற வாரம் ஒரு புதிய கட்டுரை படித்தேன். இது மிகவும் கடினமாக இருந்தாலும், மிகவும் சுவாரஸ்யமாக இருந்தது.

ENGLISH

I read a new article last week. It was very interesting, although it was quite difficult as well.

HINDI

मैंने ꠰पछले सप्ताह एक नया लेख पढ़ा। वह बहुत ꠰दलचस्प था, हालाँ꠰क काफी कठन भी था।

MultiED: Lesson Plan (Multilingual Word Bank)
Aim: to <u>scaffold</u> comprehension in the target language using <u>multilingual</u> **spoken** language support

Multi Words Verbs	Meaning / Pictures	Meaning / Usage in English	Meaning and Usage in Home Language
Phrases with actions (Verb + Preposition)			
Chunk 1			
popped down	to pass through something	<u>Can you pop down</u> to the store and get me the newspaper ?	
Jumped into	get into (L), without (PV) considering taking an action	The cat <u>jumped into </u>the garden pit.	

Practicing multi-word phrases cross-linguistically using AI generated pictures

A

B

1. He <u>jumped into</u> the water before he knew that it was freezing cold.
2. mujhe doodh lene ke lie dukaan par jaana hai - kya hamen kuchh aur chaahie?

3. I need <u>to pop down</u> to the store for some milk—do we need anything else?
4. isse pahale ki use pata chale ki bahut thand hai, vah paanee mein kood pada.

Sentence to picture matching task

- bilingual sentences with sense equivalents [e.g., to pop down = to go (in Hindi)]

Practicing multilingual vocabulary-in-context

MultiED: Teach
Peer-group discussion of comprehension questions in <u>translanguaging</u> mode

- Oral negotiations of meaning of words and text to read better.

- Thinking aloud and communicating

- Teacher takes the back seat in the process.
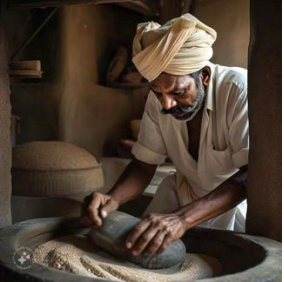
Worksheet for peer meet
objective: to use cross-linguistic multi word verbs

Multi Words Verbs	Meaning / Usage in English	Meaning and Usage in HL
Phrases with actions (Verb + Preposition)		Learners need to use phrases/sentences with similar meaning in their home language. विद्यार्थियों को अपनी भाषा में समान अर्थ वाले वाक्यांशों/वाक्यों का उपयोग करना है।
found out	to discover or learn something new 1. They *found out* the box of treasure that was hidden in the forest. 2. They *found out* that there is a hidden box of treasure.	

ground into	to reduce something to fine powder by crushing or grinding it 1. The man *ground* the wheat *into* flour.	
made into	to transform or convert something into something entirely different in a process of creation. 1. The flour was *made into* a ball of dough. 2. The dough was then *made into* a loaf of bread.	

Peer meet interactions have been coded & analysed for

- CROSS_LINGUISTIC VARIETY

- SEMANTIC MOVES aligned with reading comprehension

Language functions from the peer meet interactions	CODE
Factual Inference	FTI
Lexical Inference	LXI
Propositional Inference	PPI
Pragmatic Inference	PRI
Confirming	CF
Confirmation check	CFC
Clarification Request	CLR
Comprehension check	CHC
Peer Sociability	PS
Peer Conflict	PC
Researcher's Scaffolding	RS
Suggesting	SUG
Encouraging	ENC
Instructing	INS
Explaining	EXP
Translating	TRS
Answering Prompt Question	APQ
Comparing	COM
Identifying answer from text	IAT
Correcting	COR

Overview

1. Indian multilingual classrooms: resources & challenges
2. Evidence-based findings on reading comprehension difficulties
   2.1. First project: MultiLiLa (2016-2020):
   2.2. Follow-up intervention projects (2021-till present):
   Telangana, Delhi
3. Multilingual reading pedagogy: Teacher training
4. **Multilingual assessment**
5. Conclusion: Implications & future directions

MULTILINGUAL ASSESSMENT

If children are encouraged to **learn** through their whole language repertoire, they should be able to **rely on multiple languages also when being assessed** (continuity between learning and assessment)
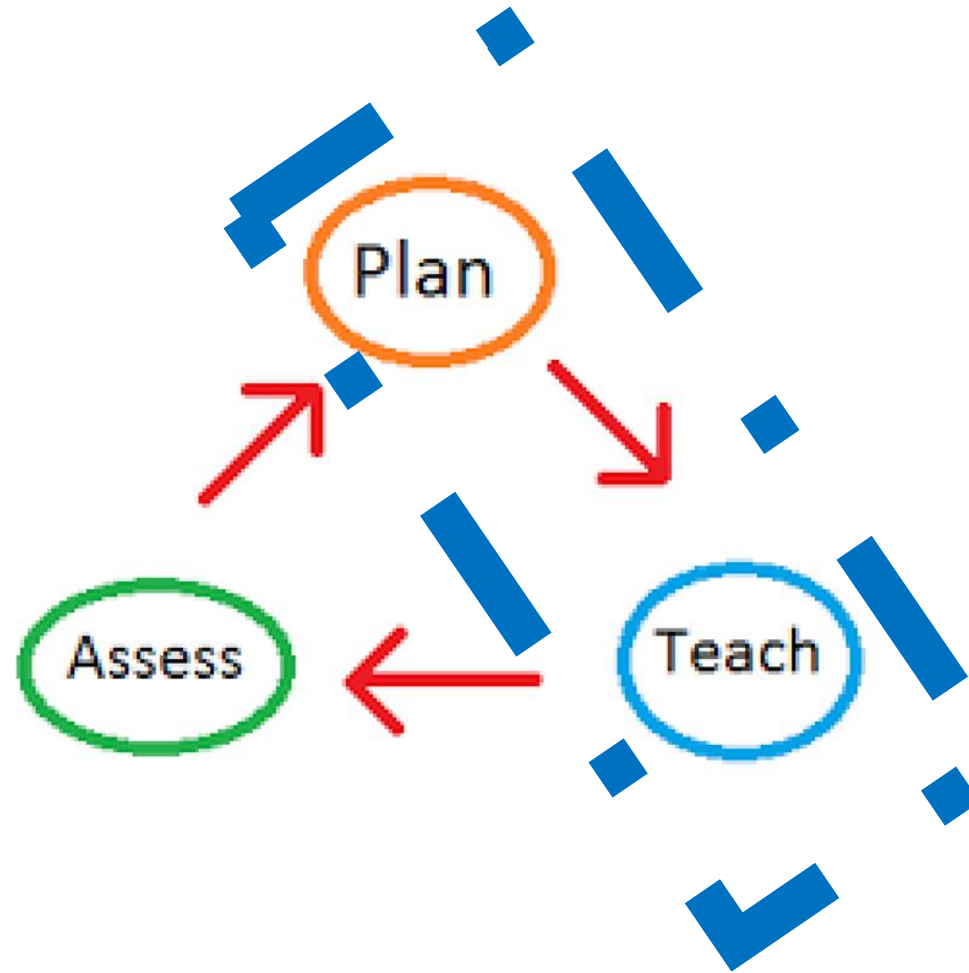
MULTILINGUAL ASSESSMENT: Advantages

- **Scaffold** understanding, especially if children's *content knowledge* is assessed (Lopez *et al.*, 2017; MacSwan *et al.*, 2017; Shohamy, 2011)

- Greater **ecological validity** (no language suppression is required; Cenoz & Gorter, 2022), also found in multilingual learning

MultiED: Assess

- If teaching and learning are **Multilingual and Multimodal (oral and written)**, assessment should follow the same principles.

- We propose **bilingual/multilingual and multimodal assessment** throughout primary school grades and strengthen formative assessment.

- In secondary grades and summative assessments, unilingual assessment would be possible.

Plastic plates and tumblers are being used during picnics and functions. Though in minute quantity, some plastic enters our body, which is very harmful for us. The plastic takes lakhs of years to decompose and thus adds to soil pollution. It even block the micro organisms which make soil fertile. Plastic glasses and plates when burnt release harmful gases into the atmosphere and thus cause air pollution.

Leaves of Butea(moduga) and banyan tree are used as plates. Since ancient times, we have been using leaf plates for eating. They decompose in less time. Thus, they protect our environment. Plastic plates are harmful to health and also lead to soil pollution.

. ప్లాస్టిక్ పర్యావరణానికి ఎందుకు హానికరం?
A. జంతువులకు దాని వలన అలెర్జీ రావొచ్చు కాబట్టి.
B. అది చాలా దుర్వాసన వస్తుంది కాబట్టి.
C. అది కుళ్ళిపోవడానికి వేల సంవత్సరాలు పడుతుంది కాబట్టి.
D. అది సాధారణంగా చాలా మురికిగా ఉంటుంది కాబట్టి.

. What does "decompose" mean?
A. To break.
B. To disintegrate.
C. To pollute.
D. To burn.

Expository text (extracted from textbooks of environmental science used in Std IV)

READING COMPREHENSION: INFERENCE-MAKING

- **Lexical inference:** guess meaning of lexis in context (Laufer, 2020)
- **Local/propositional inferences:** integration of different pieces of information from within the text (Chikalanga, 1992);
- **Global/pragmatic inferences:** integrate information from the text with prior or general knowledge (Chikalanga, 1992).

- Certain abilities may be shared between the two types of inference, such as the ability to select **the relevant information** for making the inference (see Cain *et al.*, 2001).

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OLD information ←→ NEW information
(Van djik, 1989: Text integration model)

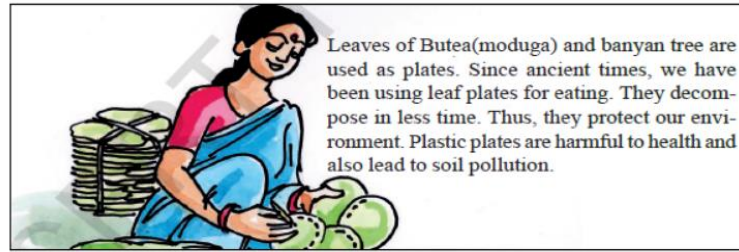**INFERENCE-MAKING AND MULTILINGUAL ASSESSMENT**

Better reasoning abilities (not restricted by proficiency in one or the other language)

This is reflected in a **deeper processing of information** and a greater engagement of **higher-order thinking skills** than in tests conducted in only one language (Carbonara et al., 2024; Torregrossa et al., 2023; Torregrossa et al., 2024).

EXPOSITORY TEXT (EVS – school language)
Some questions were in the **same language (English)** across the two tasks

Plastic plates and tumblers are being used during picnics and functions. Though in minute quantity, some plastic enters our body, which is very harmful for us. The plastic takes lakhs of years to decompose and thus adds to soil pollution. It even block the micro organisms which make soil fertile. Plastic glasses and plates when burnt release harmful gases into the atmosphere and thus cause air pollution.

Leaves of Butea(moduga) and banyan tree are used as plates. Since ancient times, we have been using leaf plates for eating. They decompose in less time. Thus, they protect our environment. Plastic plates are harmful to health and also lead to soil pollution.

3. Why is plastic harmful for the environment?
   A. Because animals are allergic to it.
   B. Because it smells very bad.
   C. Because it decomposes in thousands of years.
   D. Because it is usually very dirty.

4. What does "decompose" mean?
   A. To break.
   B. To disintegrate.
   C. To pollute.
   D. To burn.

5. Why is plastic bad for the soil?
   A. Because it makes trees grow.
   B. Because animals cannot feed themselves.
   C. Because it causes air pollution.
   D. Because it kills microorganisms in the soil.

Plastic plates and tumblers are being used during picnics and functions. Though in minute quantity, some plastic enters our body, which is very harmful for us. The plastic takes lakhs of years to decompose and thus adds to soil pollution. It even block the micro organisms which make soil fertile. Plastic glasses and plates when burnt release harmful gases into the atmosphere and thus cause air pollution.

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3. ప్లాస్టిక్ పర్యావరణానికి ఎందుకు హానికరం?
   A. జంతువులకు దాని వలన అలెర్జీ రావొచ్చు కాబట్టి.
   B. అది చాలా దుర్వాసన వస్తుంది కాబట్టి.
   C. అది కుళ్ళిపోవడానికి వేల సంవత్సరాలు పడుతుంది కాబట్టి.
   D. అది సాధారణంగా చాలా మురికిగా ఉంటుంది కాబట్టి.

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   A. చెట్లను పెంచేలా చేస్తుంది కాబట్టి.
   B. ఎందుకంటే జంతువులు తమను తాము పోషించుకోలేవు కాబట్టి.
   C. వాయు కాలుష్యానికి కారణమవుతుంది కాబట్టి.
   D. నేలలోని సూక్ష్మజీవులను చంపుతుంది కాబట్టి.

EXPOSITORY TEXT (EVS)
Some questions were in **different languages** across the two tasks

Plastic plates and tumblers are being used during picnics and functions. Though in minute quantity, some plastic enters our body, which is very harmful for us. The plastic takes lakhs of years to decompose and thus adds to soil pollution. It even block the micro organisms which make soil fertile. Plastic glasses and plates when burnt release harmful gases into the atmosphere and thus cause air pollution.

Leaves of Butea(moduga) and banyan tree are used as plates. Since ancient times, we have been using leaf plates for eating. They decompose in less time. Thus, they protect our environment. Plastic plates are harmful to health and also lead to soil pollution.

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    B.   అది చాలా దుర్వాసన వస్తుంది కాబట్టి.
    C.   అది కుళ్ళిపోవడానికి వేల సంవత్సరాలు పడుతుంది కాబట్టి.
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4. What does "decompose" mean?
    A.   To break.
    B.   To disintegrate.
    C.   To pollute.
    D.   To bur

5. ప్లాస్టిక్ మట్టికి ఎందుకు మంచిది కాదు?
    A.   చెట్లను పెంచేలా చేస్తుంది కాబట్టి.
    B.   ఎందుకంటే జంతువులు తమను తాము పోషించుకోలేవు కాబట్టి.
    C.   వాయు కాలుష్యానికి కారణమవుతుంది కాబట్టి.
    D.   నేలలోని సూక్ష్మజీవులను చంపుతుంది కాబట్టి.

TYPES OF COMPREHENSION QUESTIONS (EXPOSITORY TEXT)

- **Local/propositional inference** (integration of information from within a chunk of text)
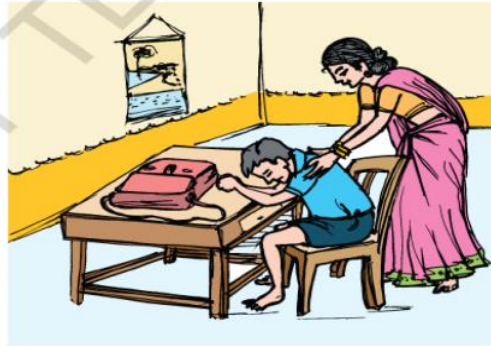
    Text: […] causing decay and damage to them. Hence to avoid this, neem leaves are placed in the storage bags […]

Question: What helps maintain food?
    A. Not cooking in excess.
    B. Hunting rats and ants.
    C. Putting food in storage bags.
    D. Storing food with neem leaves.

MATERIALS (2): NARRATIVE TEXT (English language textbook)

Kamala, who has been watching all this, came to Chinna. She asked, "What happened Chinna?" Kamala laid her hands gently on his shoulders. At once, Chinna hugged his mother and started crying. After a while, he wiped his tears and told her about the missing money.

"Very sorry dear. It's ok, don't cry. I'll give you money to buy the bells. But, be careful with money hereafter," said Kamala.

"Sure *Amma*," said Chinna smiling.

"That's like my boy! Cheer up! Now, let's go to the market to buy some fruits and vegetables," said Kamala.

4. How do you think Chinna's mother feels about the fact that Chinna lost his money?
   A. She is disappointed because Chinna should have been more careful.
   B. She is very happy because Chinna is hugging her.
   C. She is sorry because she sees that Chinna is very sad.
   D. She does not care because she wants to do the grocery.

5. How does Chinna's mother cheer him up?
   A. She goes with Chinna to Chacha's shop.
   B. She promises Chinna money to get bells.
   C. She buys the bells for Chinna.
   D. She prepares a nice lunch for Chinna.

Kamala, who has been watching all this, came to Chinna. She asked, "What happened Chinna?" Kamala laid her hands gently on his shoulders. At once, Chinna hugged his mother and started crying. After a while, he wiped his tears and told her about the missing money.

"Very sorry dear. It's ok, don't cry. I'll give you money to buy the bells. But, be careful with money hereafter," said Kamala.

"Sure *Amma*," said Chinna smiling.

"That's like my boy! Cheer up! Now, let's go to the market to buy some fruits and vegetables," said Kamala.

4. చిన్న తన డబ్బు పోగొట్టుకున్నందుకు గురించి చిన్నా వాళ్ళ అమ్మ ఎలా భావిస్తుందని మీరు అనుకుంటున్నారు?
   A. చిన్న మరింత జాగ్రత్తగా ఉండవలసింది కాబట్టి ఆమె నిరాశ చెందింది.
   B. చిన్న తనని కౌగిలించుకోవడం వలన ఆమె చాలా సంతోషంగా ఉంది.
   C. చిన్న చాలా బాధగా ఉండటం చూసి ఆమె జాలిపడింది.
   D. ఆమె కిరాణా వస్తువులు కొనుక్కోవాలి కాబట్టి పట్టించుకోదు.

5. How does Chinna's mother cheer him up?
   A. She goes with Chinna to Chacha's shop.
   B. She promises Chinna money to get bells.
   C. She buys the bells for Chinna.
   D. She prepares a nice lunch for Chinna.

TYPES OF QUESTIONS (NARRATIVE TEXT)

- **Factual** (retrieval of information from the text)

  Why can Chinna not buy bells for his puppy?
  A. Because his grandfather has not given Chinna any money.
  B. Because the bells are too expensive.
  C. Because Chinna cannot find his money.
  D. Because he had to come back home.

- **Local inference** (integration of information from within a chunk)

  Why is Chinna sad?
  A. Because he lost his money.
  B. Because he got a bad mark at school.
  C. Because he made his mother sad.
  D. Because he liked the bells a lot.

RESULTS
Bilingual Assessment Mode

- Assessment in English and Telugu facilitates **comprehension of the expository text (EVS) significantly**

- It helps students **understand vocabulary** and **retrieve information**

- The use of Telugu in the answers **scaffolds** the comprehension of English

- The presence of Telugu **boosts accuracy** in English

Overview

1. Indian multilingual classrooms: resources & challenges
2. Evidence-based findings on reading comprehension difficulties
    2.1. First project: MultiLiLa (2016-2020):
    2.2. Follow-up intervention projects (2021-till present): *Telangana, Delhi*
3. Multilingual reading pedagogy: Teacher training
4. Multilingual assessment
5. **Conclusion: Implications & future directions**

Conclusion

In our interventions, so far:

- We have used English as the **target** language because:

A. it is the official medium of instruction
B. it is the language least supported by orality (BICS)
C. it is not the language of the community

- **Supporting** languages: *Telugu, Hindi (Dakkhini) in* Hyderabad; *Assamese and Bengali in* Assam; *Tamil and Hindi in* Delhi

Implications & future directions

- Positive impact of the novel multilingual scaffold intervention study on reading skills of multilingual Indian learners in primary grades found across sites in India.

- Teachers can replicate the multilingual approach in class, especially in EMI contexts as the target language is not available at home; the approach would make learning more inclusive.

- Multilingual pedagogies and their scope for creating inclusivity in education can inform policy makers and curricular changes can be initiated.

- Further research needs to be conducted to better understand the benefits of multilingual pedagogy, cognitive activation and flexibility of young multilingual learners in English classrooms in India and in the Global South.

- Further work on the impact of multilingual assessment to track reading development of young Indian learners is currently underway in our current projects.

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Thank you for your attention!

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