



English Language Learning Tool

Project by Anantha C. P.

Guided by Prof. Ravi Poovaiah

Abstract

Children learn best through play and exploration.

A learning aid or a device, which supports and re-enforces language learning that happens in school is being explored.

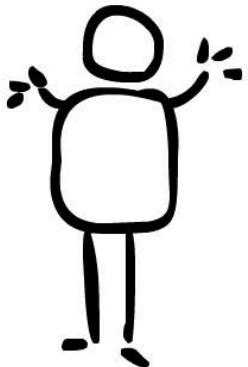
The project aims at making learning language fun and effective through games and various media for children via interactive and hands-on learning methods.



Secondary Research



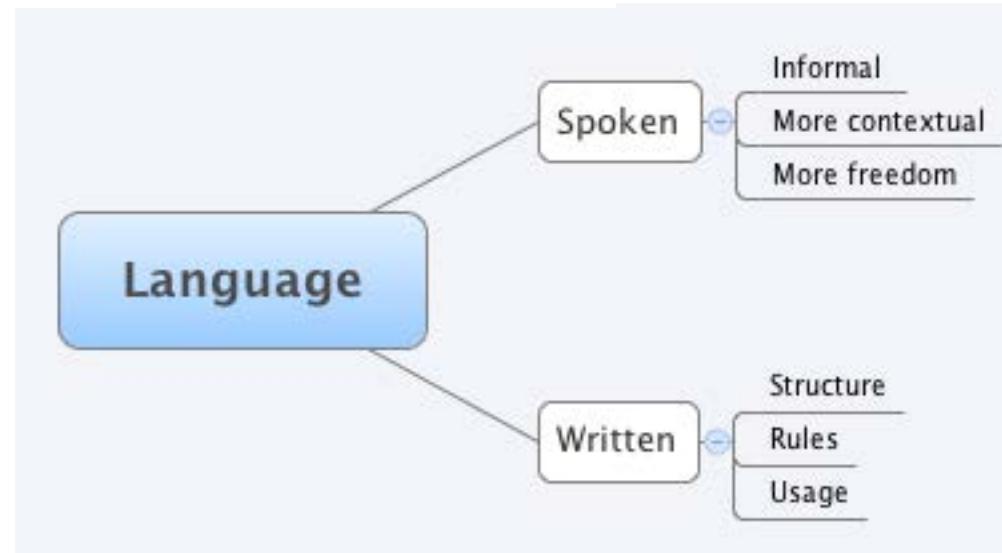
Language ?



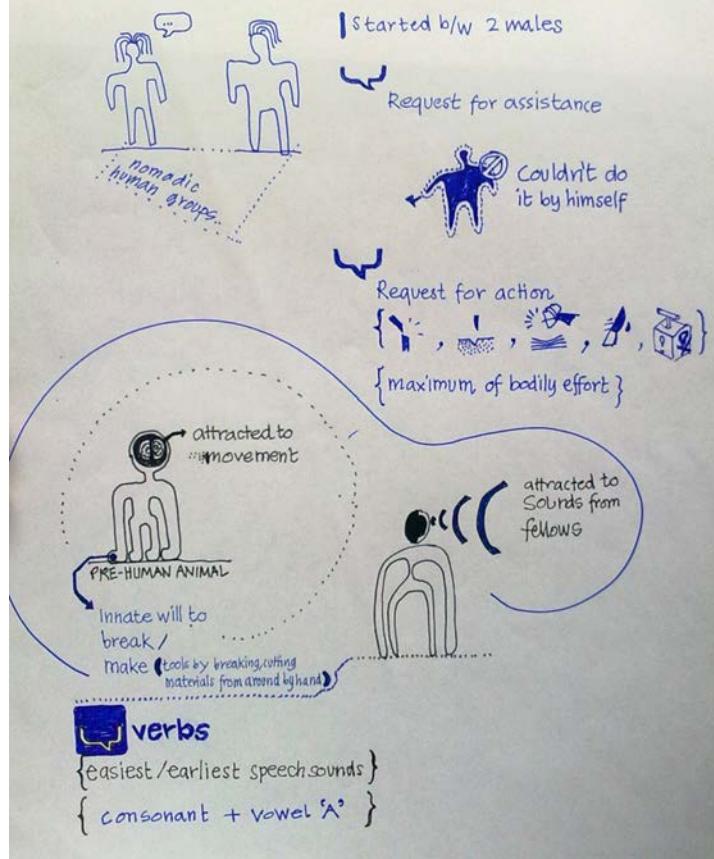
- Bodily activity
- A means of extension of man's bodily activity
- the method of human communication, either spoken or written,
consisting of the use of words in a structured and conventional way



"structure and routine of use of words"



ORIGIN OF LANGUAGE



ALL LANGUAGES HAVE COMMON FEATURE:

{ consonant + vowel }
predominantly A

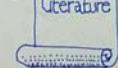
PROSE
VERSE

CV
CVC
CVCV
primitive was CVCCV

Unilateral

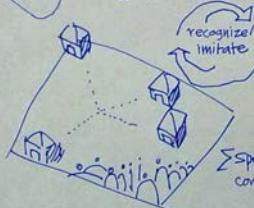


Most advanced literature



is Unilateral speech

Language is based on Man's ability to make sounds

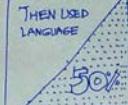


recognize/imitate

Speech sounds employed in a community = Language..

LANGUAGE VOCABULARY:

verbs



PALAEOTHIC AGE



TODAY

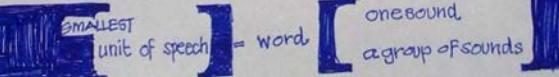
Verbs are reducing as language is refining/complex.

Verbs → NOUNS → ADJECTIVES → ADVERBS

MILKINNESS



MEANING = vibrations + context



LANGUAGE = Means of expression of human thought

Speech-sounds
(outward manifestation of inward working of mind)

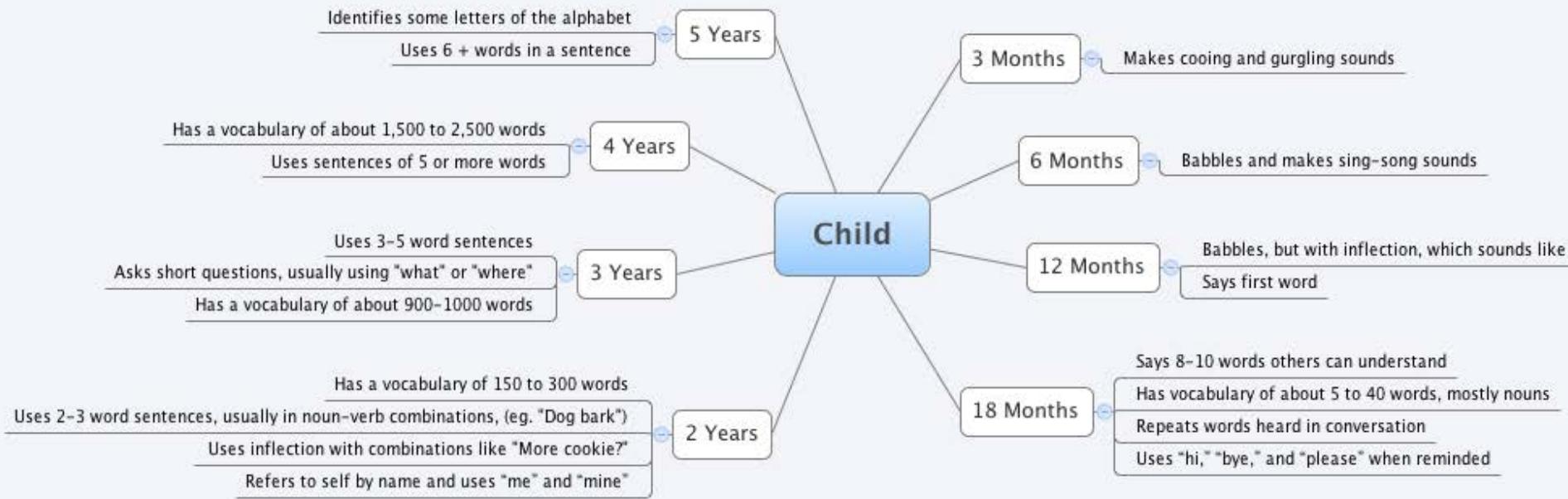
English Language

English Language gets refined over time because it has scope of modification (inclusion of new words). There is adoption and integration from other languages and is changing with time.

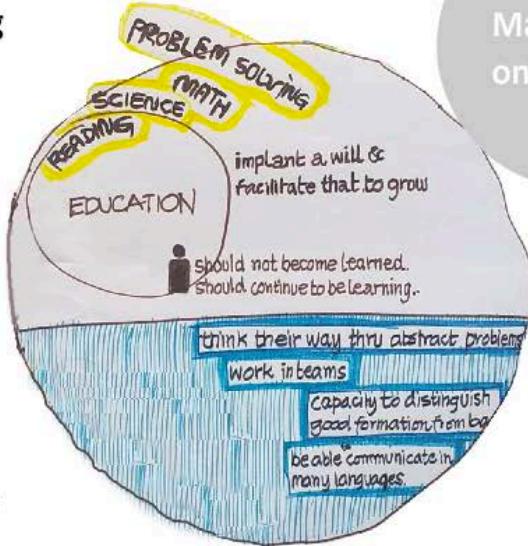
There is a commonly accepted structure of English Language that exists across the globe and remains unaffected irrespective of geographic location and culture (especially in terms of spoken languages).



Child and Language



Offline Learning



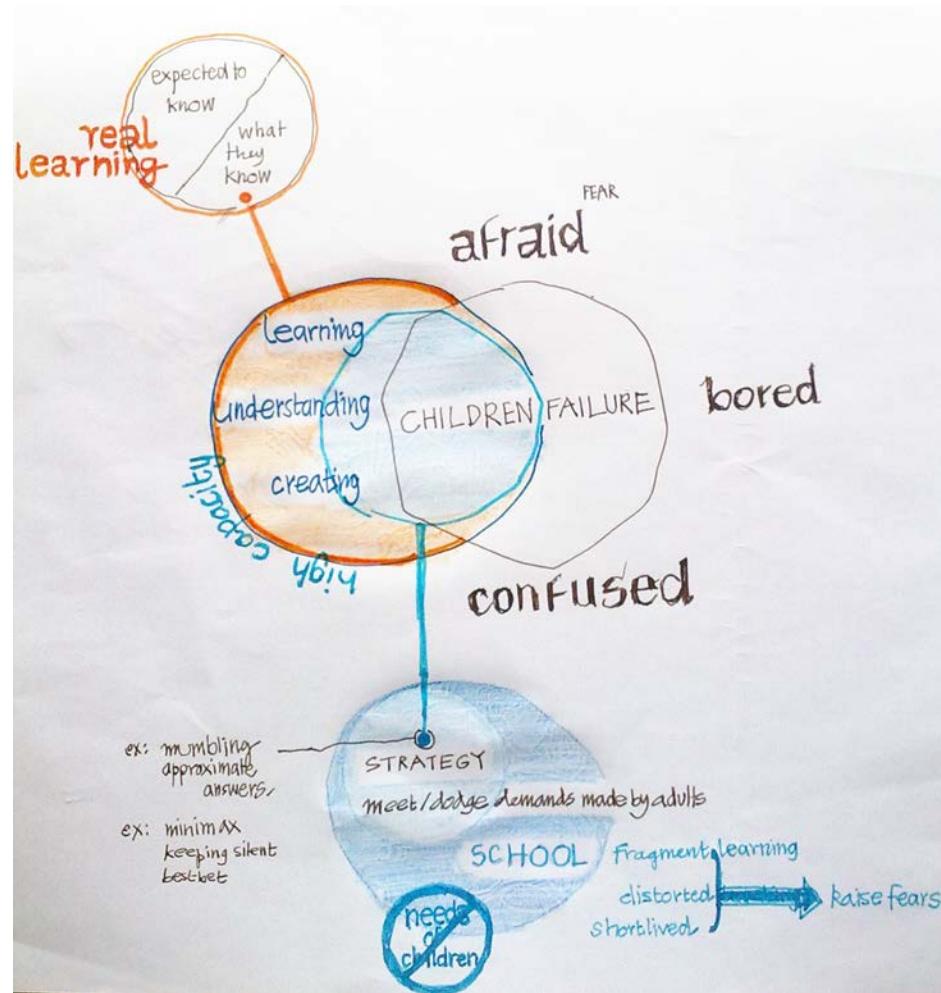
Mastery of one subject

Mastery of languages

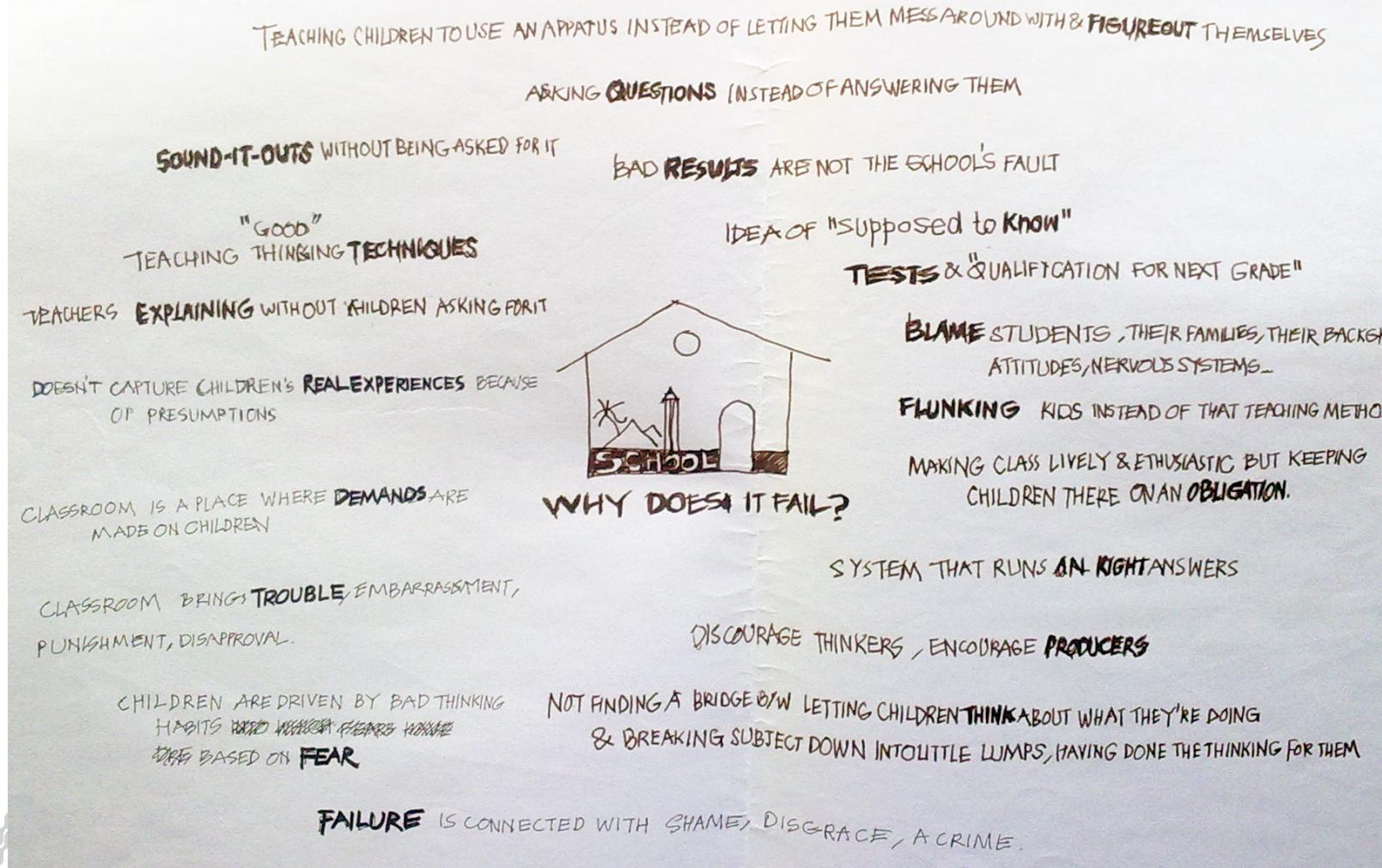
Life skills

Critical thinker & innovator
Effective communicator / People skills
Collaborator & Enterprising
Self-motivated learner
Media literate
Updated & information rich
Globally aware
Civically engaged
leader with integrity
Accountable and Adaptable
Ethical & socially responsible
Productive and personally responsible

Existing Schooling System



John Holt [19] in his book, How Children Fail, tells us that it is the schools that fail and not the children. After reading it, the way I perceive the schooling system today changed completely. I could sit and think back the strategies I had used to escape from that painful math teacher of mine in my school days and also how I happened to get into doodling as a result of my infinitely boring biology classes.



User Studies



Talking to teachers and fly on the wall studies at two English medium primary schools and one Marathi medium primary school helped connect a lot dots of how English is taught as a first and second language.

Guidelines for questionnaire

I went to school with not a questionnaire but a set of topics to get introduced to and learn the existing conditions.

- Tools used for teaching
- The experience of being in a taught in class
- Areas in English Language to intervene and study further
- Identifying what age of children learn what
- Identify what age group of children will benefit from existing multitude of technologies
- The shared collaborative activities present in schools
- Does interconnected multiplayer learning happen in schools?
- Demography of english speaking and non-english speaking children in English medium schools



Environment

Tools teachers use in their classes to keep the discourse from heading anywhere towards zero were

- continuous acknowledgement,
- regulated nodding,
- making it a point to give all the children turns for answering,
- application of a previously understood rule in the new context.

ACKNOWLEDGEMENT & FEEDBACK, NODDING.

Even for getting parts of answer right 'Good' helps.

GIVING CHILDREN TURNS FOR ANSWERING

Increase child any child takes initiative to give answer.

ARTICULATION WITH FREEDOM

Immediate correction may not help.

Problems can be laid out like

Story board.

Sequence would be clear

APPLYING A PREVIOUSLY UNDERSTOOD RULE IN A NEW CONTEXT.

ONLY SPEAKING
STANDARD

BREAKING UP NEW WORDS.
'en - vi - ron - ment' Getting children to participate, repeat many times

STANDARD
→ SENTENCE FRAMING
PICTURE COMPOSITION
(Identify & connect elements)

ALWAYS KEEPING CHILDREN IN CONVERSATION stories.

[SONGS, RHYMES, MESSAGE] THROUGH AN ENJOYABLE PROCESS = SINGING, ROLE PLAY (ACTING OUT)

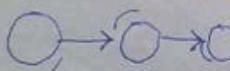


REPETITION IS GOOD

IMMEDIATE VISUALIZATION HELPS

- ▶ like showing pictures
- ▶ If solving a problem of a triangle, it should be on the board or front of their in their notebooks

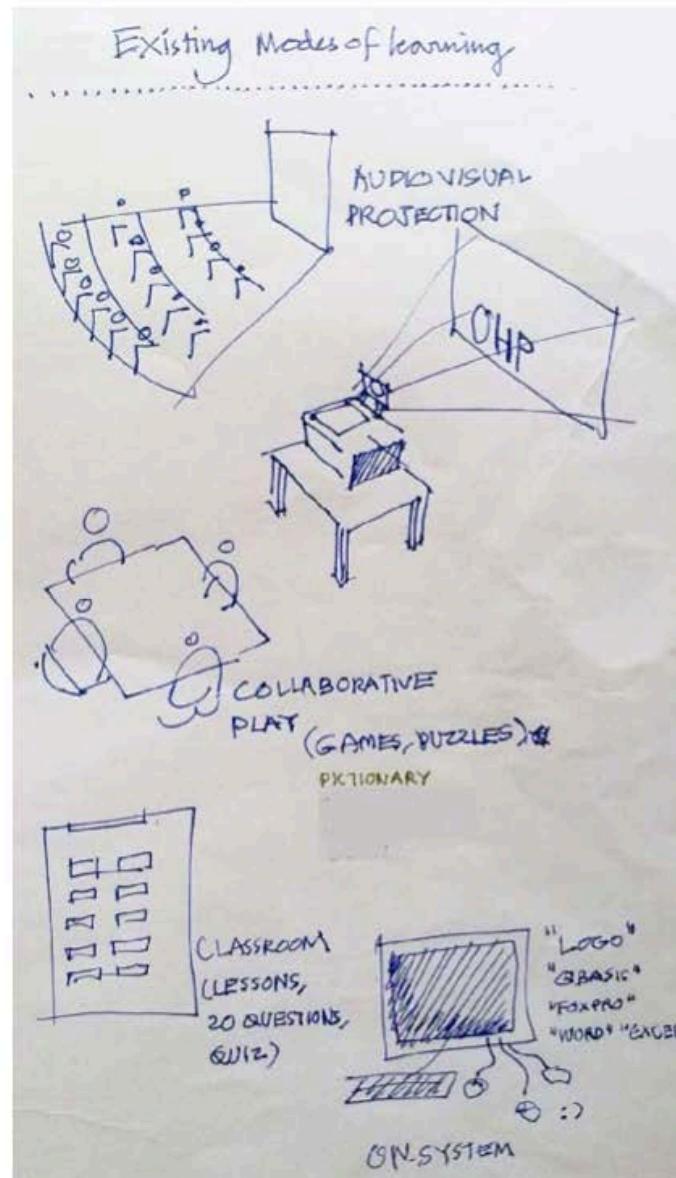
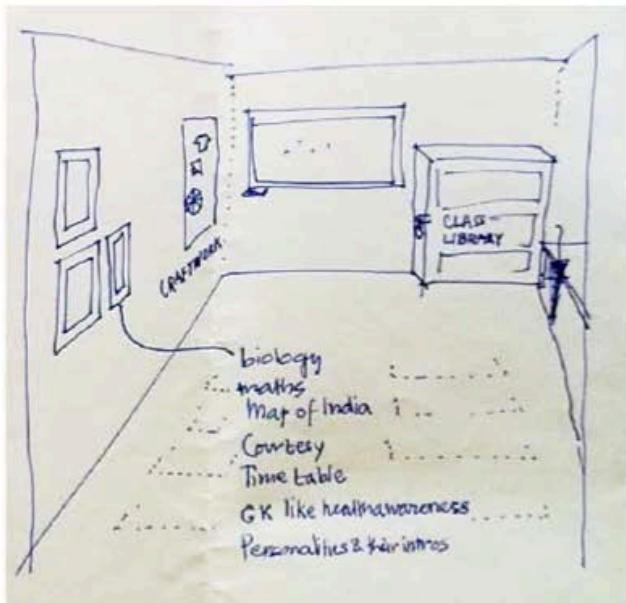
SEQUENCES IN EXPLAINING



- ▶ concepts taught in steps in sequences
- ▶ For adding two numbers, consider one number counting with fingers, etc.

Artefacts

Learning the context included studying the existing artefacts used by school for creating the necessary environment for learning for children and also the modes of discourses present.



Insights

It struck me that if problems were to be laid out like a storyboard, it would help connect the unconnected dots, meaning, it would bring everyone on the same page.

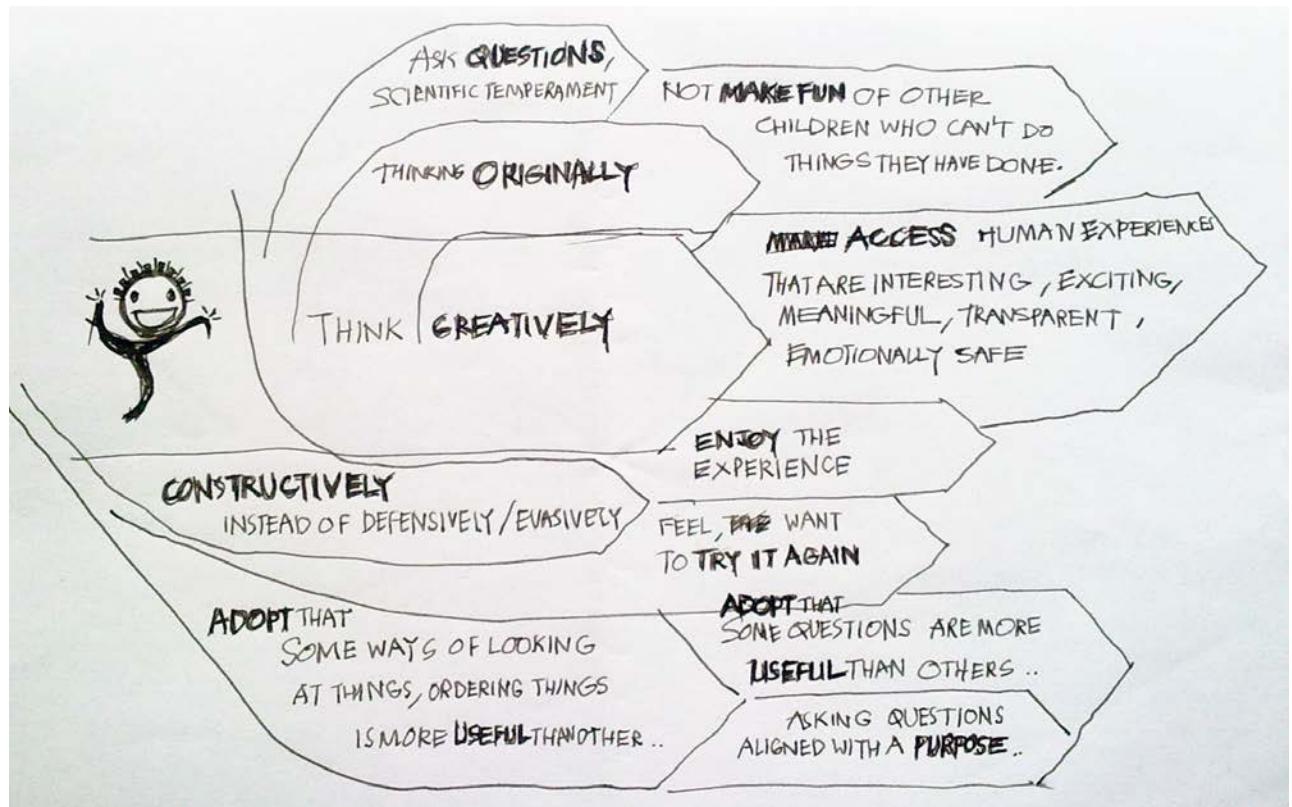
By using more means of reaching out to children for the same topic can help the students who are lost and need that extra time to catch up with the discourse.

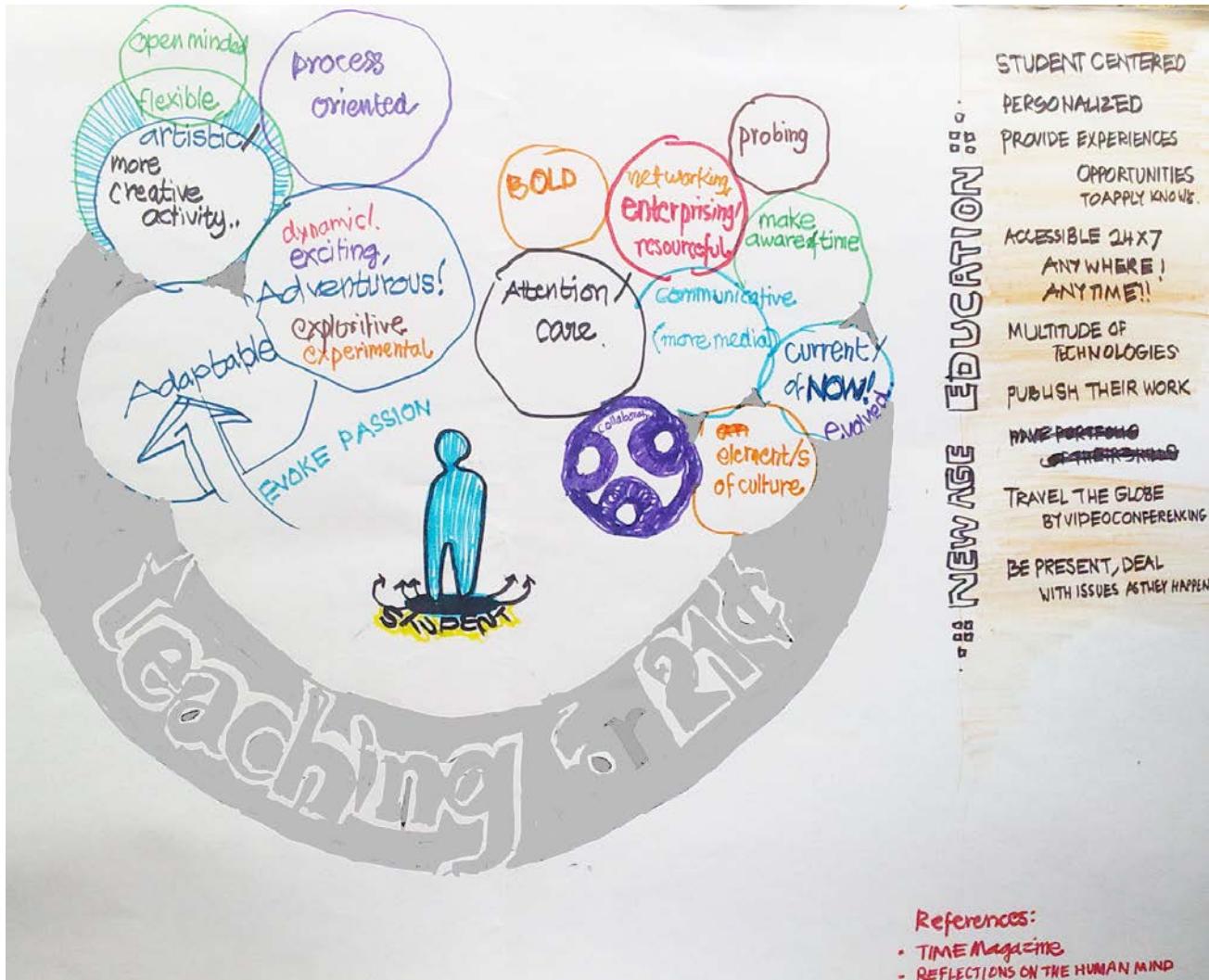


Design Goals

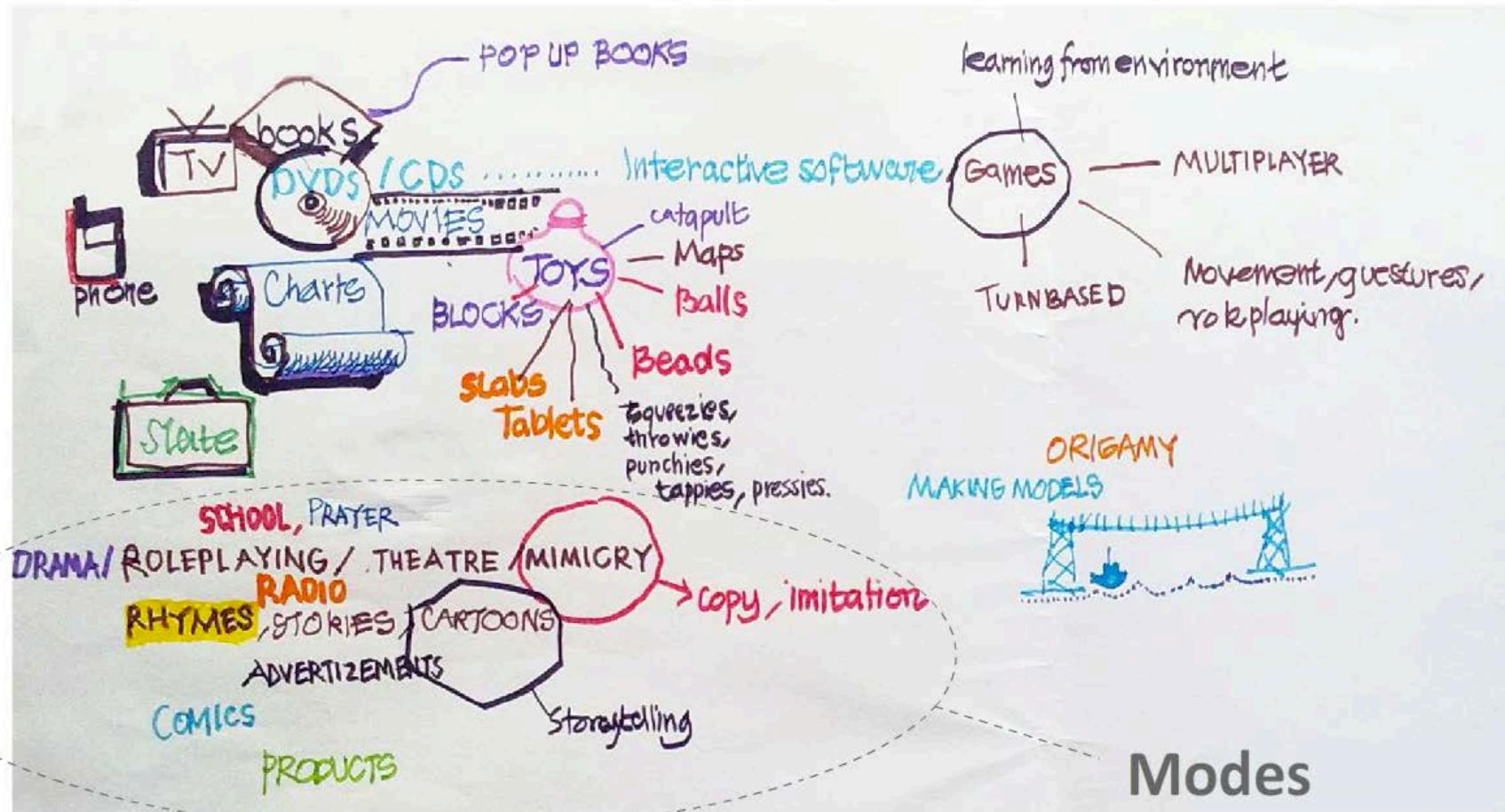


What Schools can adopt?





Media for children



technology

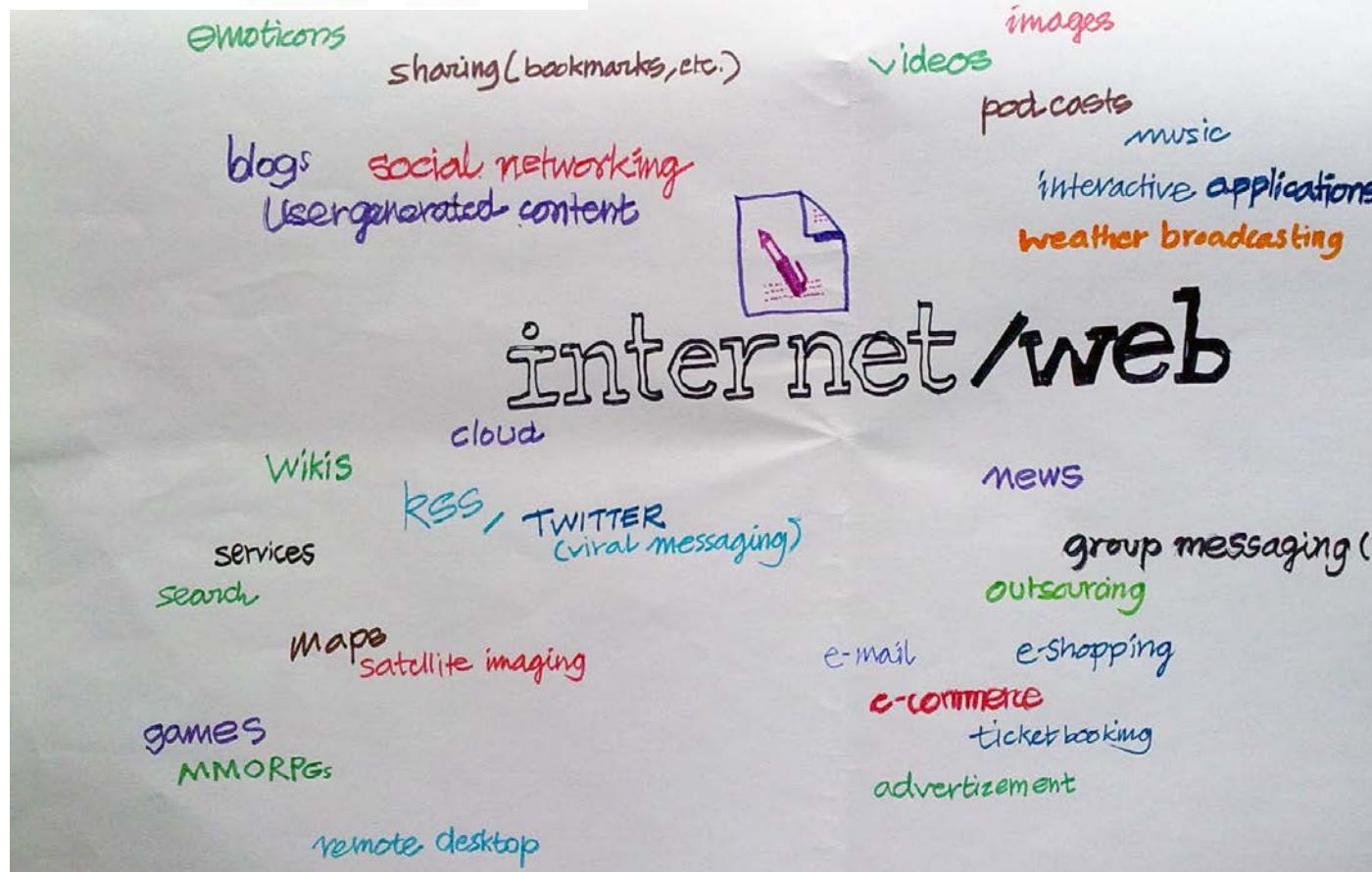
doesn't restrict!

a dimension of surprises ...

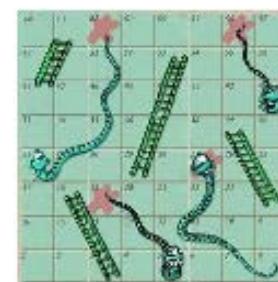
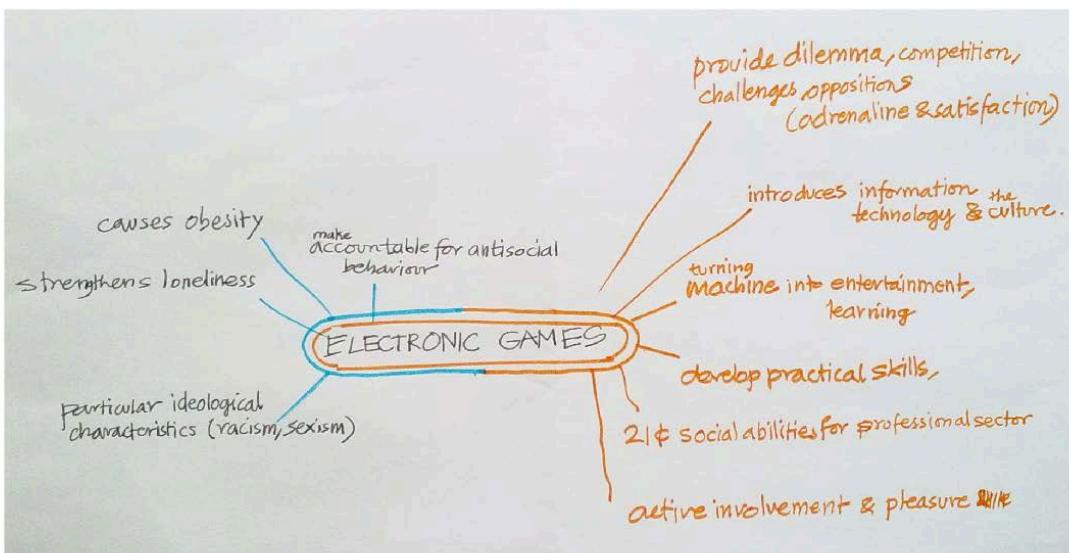
interactivity...

work on things that matter!

cannot be separated from Learning

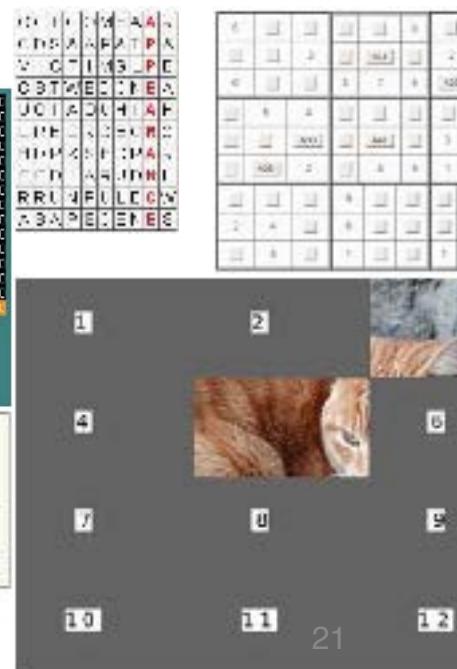
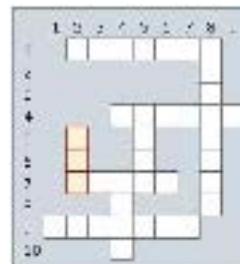
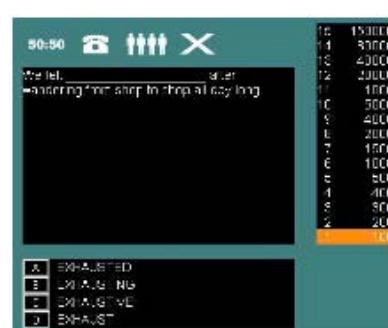


Yes / No ?



Anorexia and bulimia nervosa among disorders

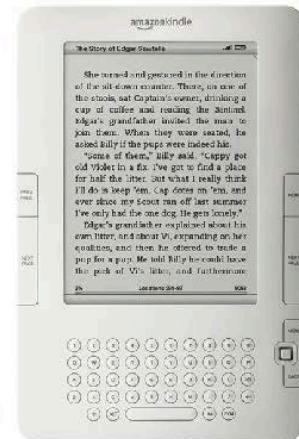
- Please A. WITH
one
answer B. PREFER
 C. VARY
 D. NOT

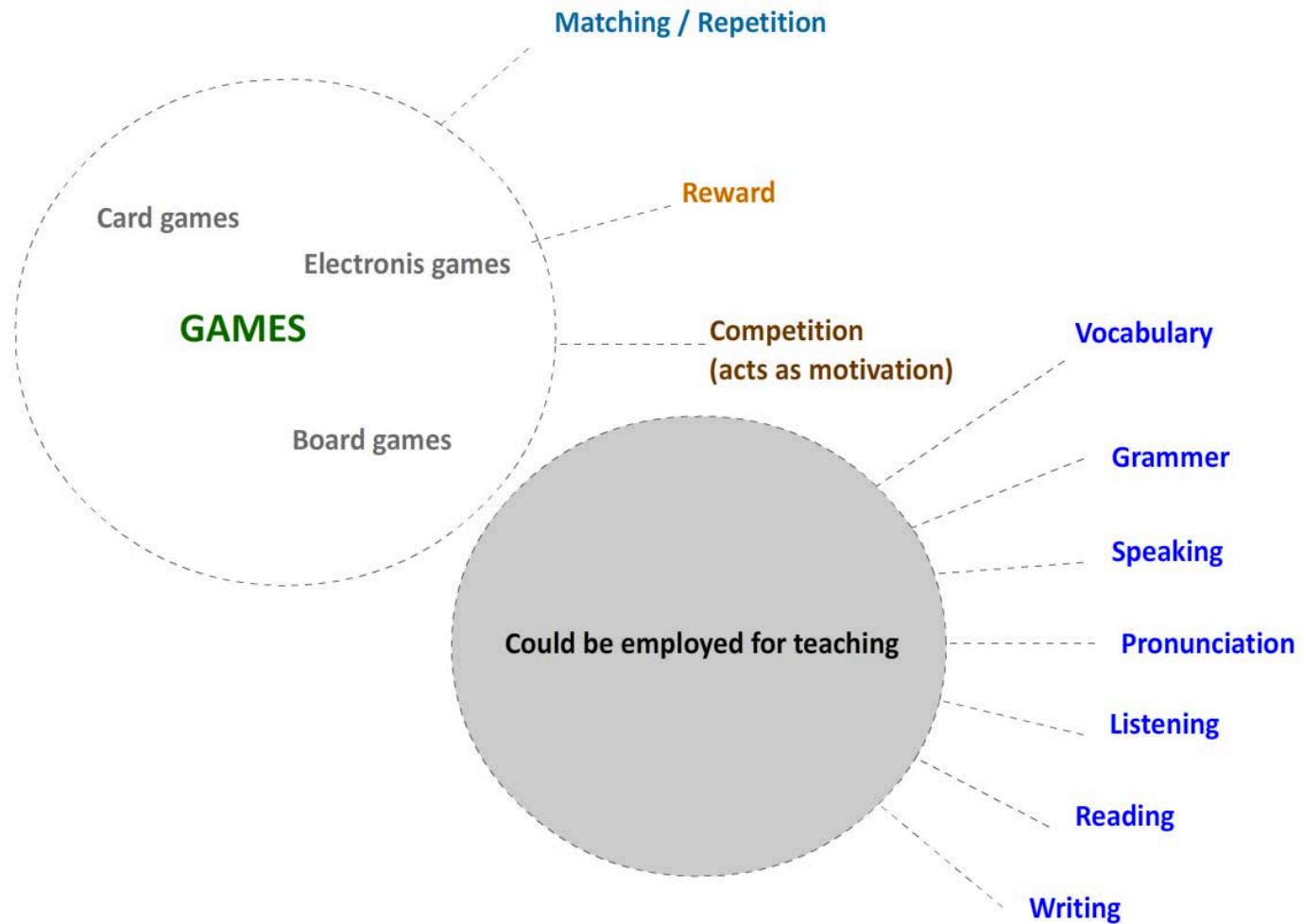


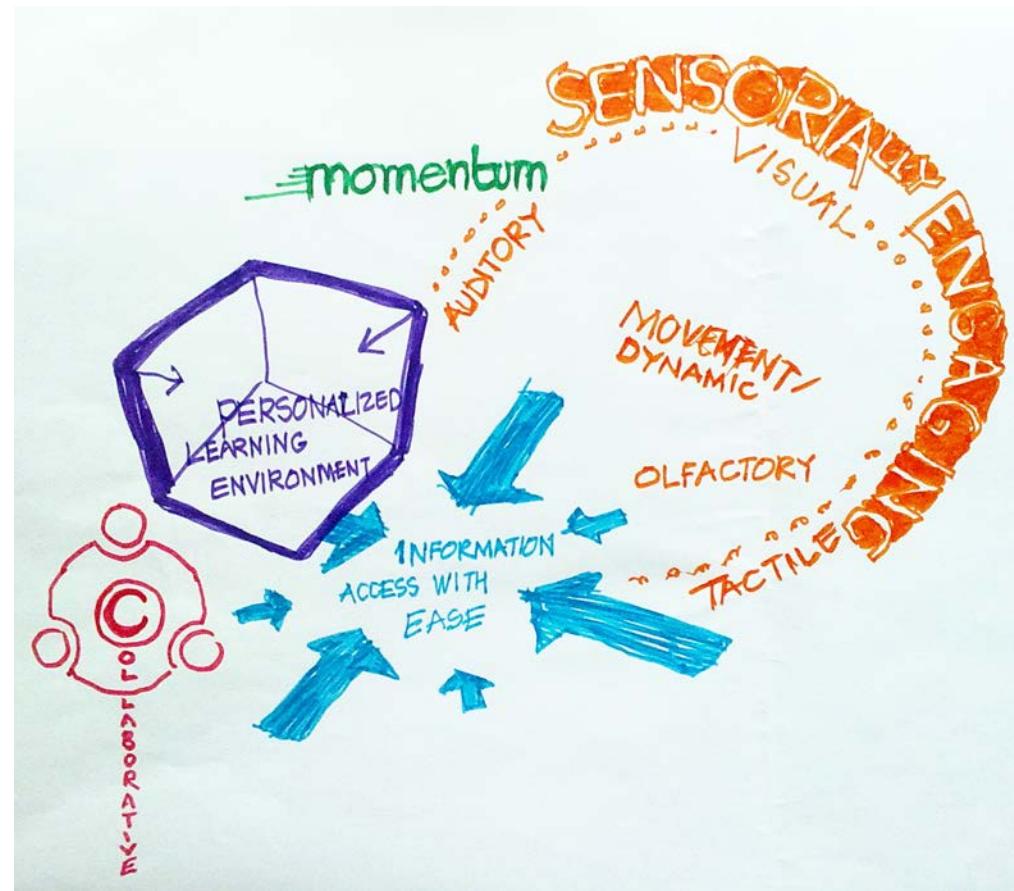
Yes / No ?

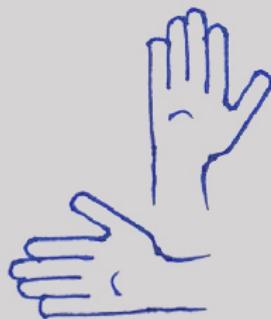
"One device to rule them all"

Should we have **dedicated devices**
Or give in to this age of **multiple devices**
with overlapping functions ?







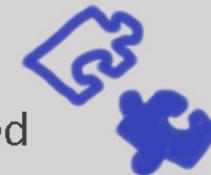


Hand held
tangible
Guestural

**Learning by common
constructive activity**



size of a ball
Slate-like



Modular units
/interconnected
/multiplayer



Concepts



Language Learning Tool for Schoolchildren

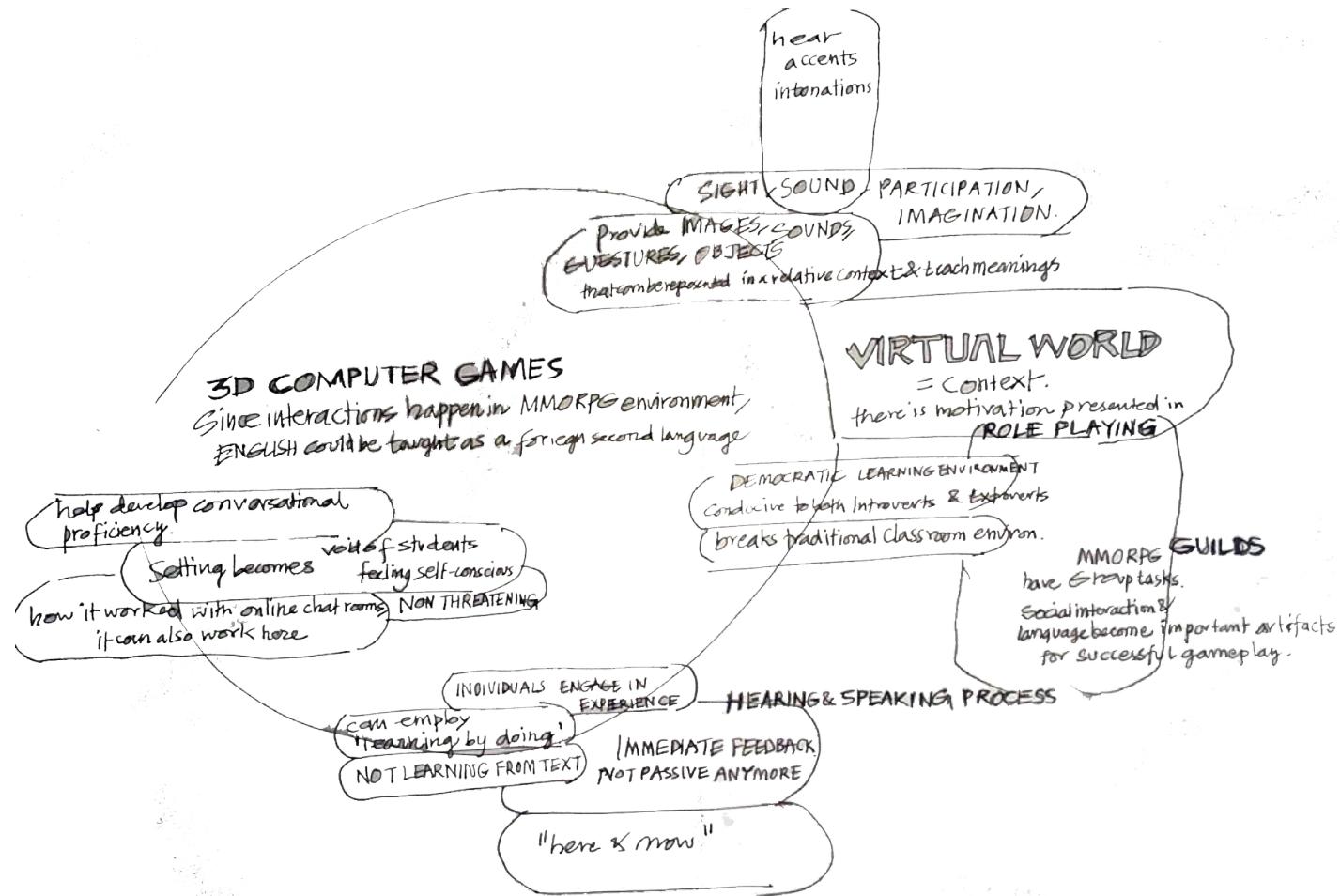
Story world

VERB TENSE TEACHING SYSTEM

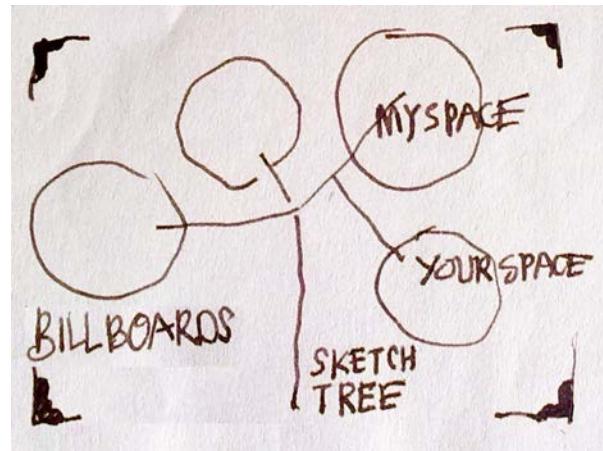
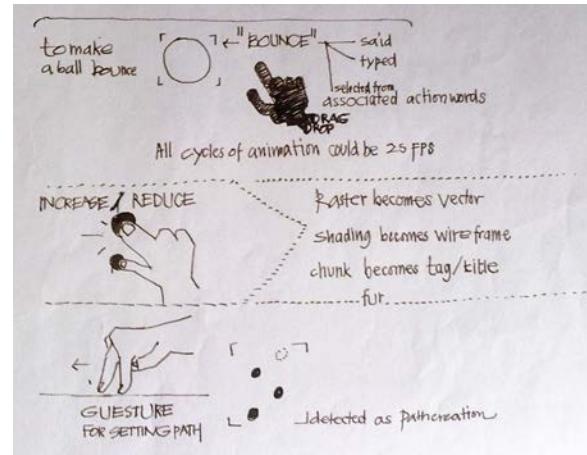
LEXI

CLIPART ENGINE

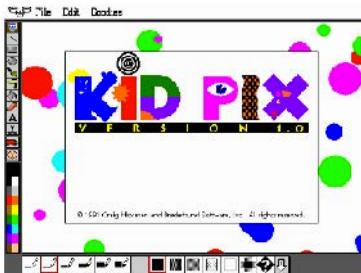
MMORPGs as Language teaching tool



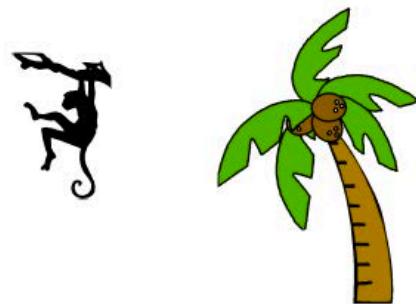
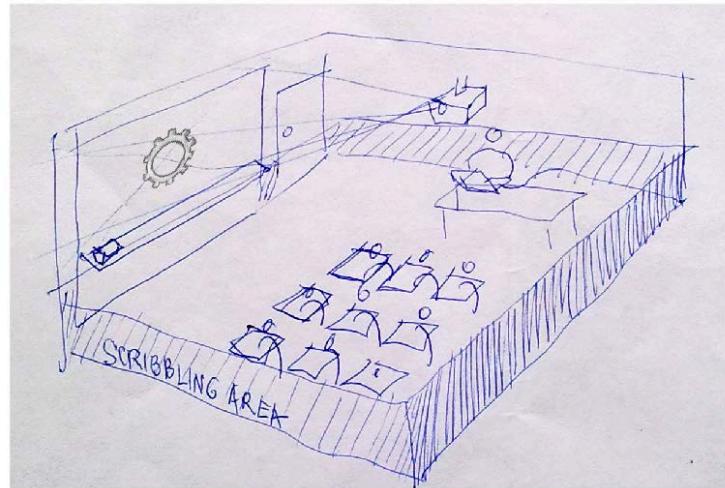
Storyworld



Scenario builder



+

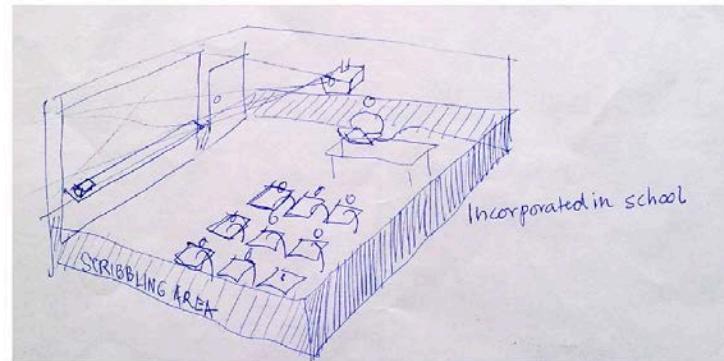


"A" + "monkey" + "climbs" + "coconut" + "tree"

CONCEPT ON TEACHING TENSES



"Representing on timeline realtime"
"Indicate the affective verb(s)"



{

Present = **red**
Past = **orange**
Future = **blue**

+ A man **crossed** the street



Augmented classroom teaching Kit



{

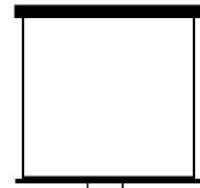


Computer /
executable
hardware platform

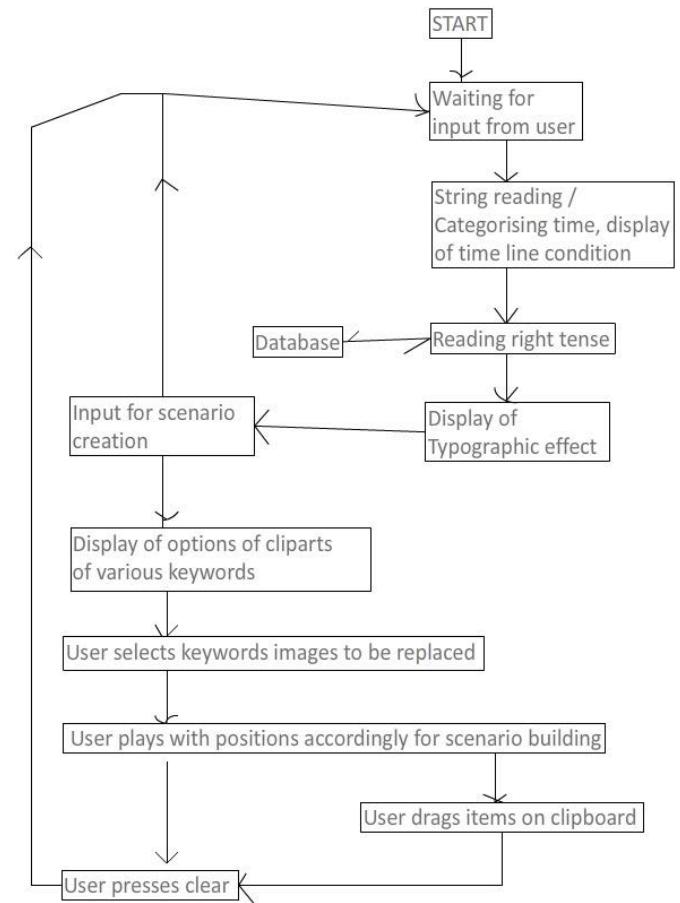
+

Application

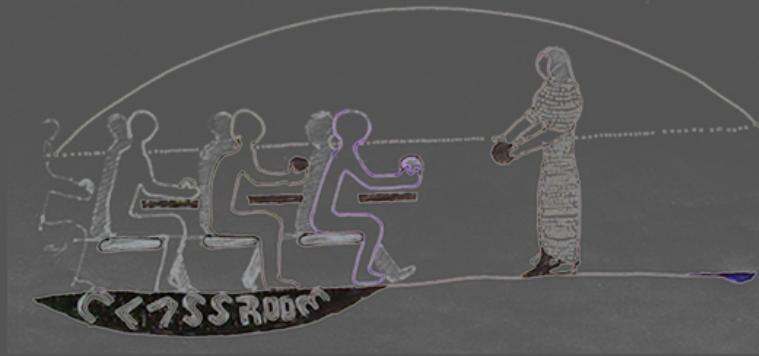
+

Verb Tense
Database+
or

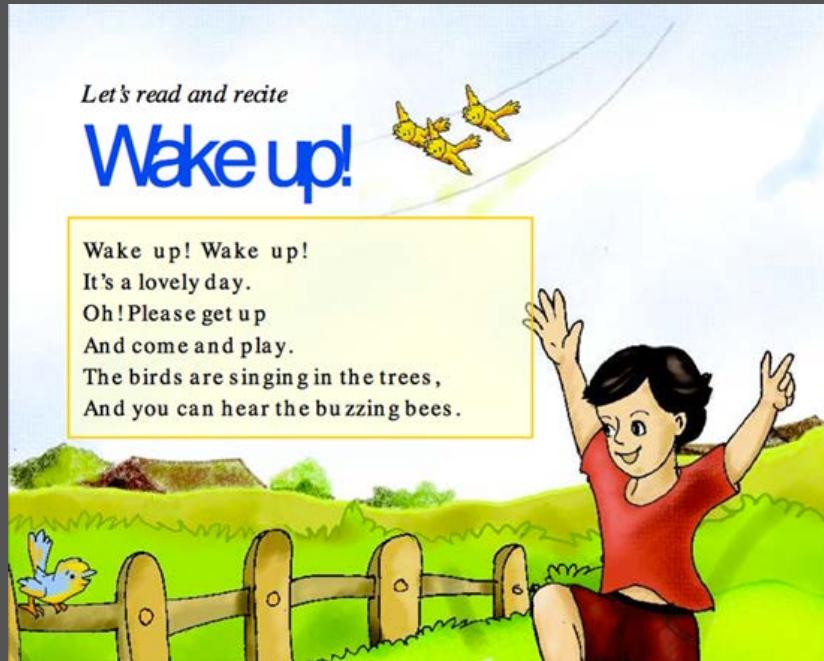
+



An electronic augmented classroom environment has been sought for creating a tangible way to learn **framing sentences correctly** by means of an activity introduced by the teacher to the students.



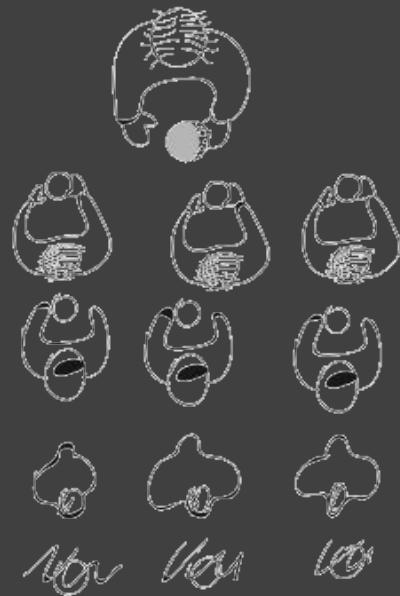
Breaking down to children **the words** they are learning in their chapters.. { }



Reinforcing what they are learning in classroom..

LEXI is a toy to play with words.

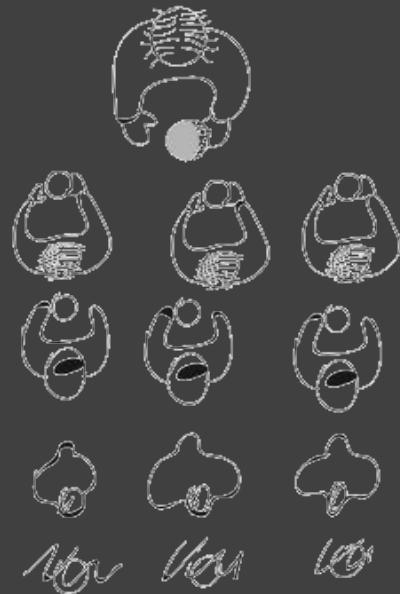
It comes as many individual units given each to a child of English language class of 4th grade. It is meant to be stringed together to make sentences.



LEXI is a toy to play with words.

It comes as many individual units given each to a child of English language class of 4th grade. It is meant to be stringed together to make sentences.

A Master LEXI is held by the teacher. Teacher shall introduce the activity by selecting the chapter and sending various words of the chapter to Children LEXIs and shall suggest the discourse.



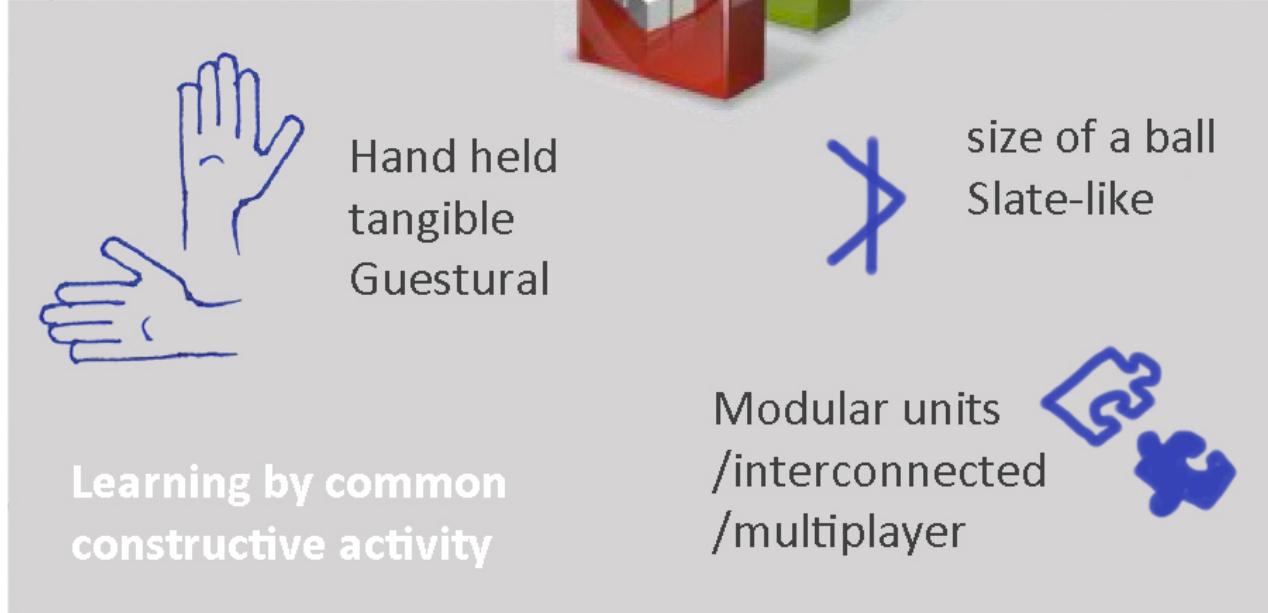
By capturing how interactive language teaching happens in a class and which parts of it can be tapped to introduce LEXI for enhancing the learning, following has been explored ..



A scenario..



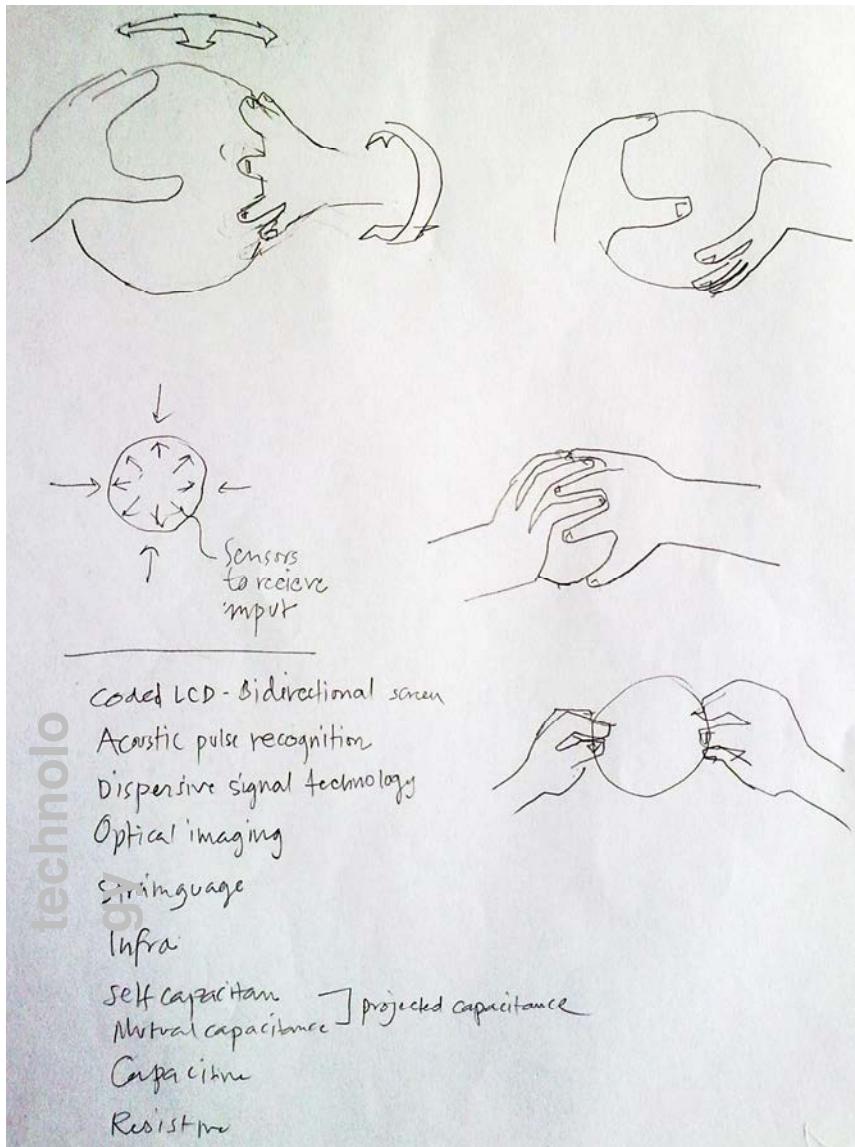
Form



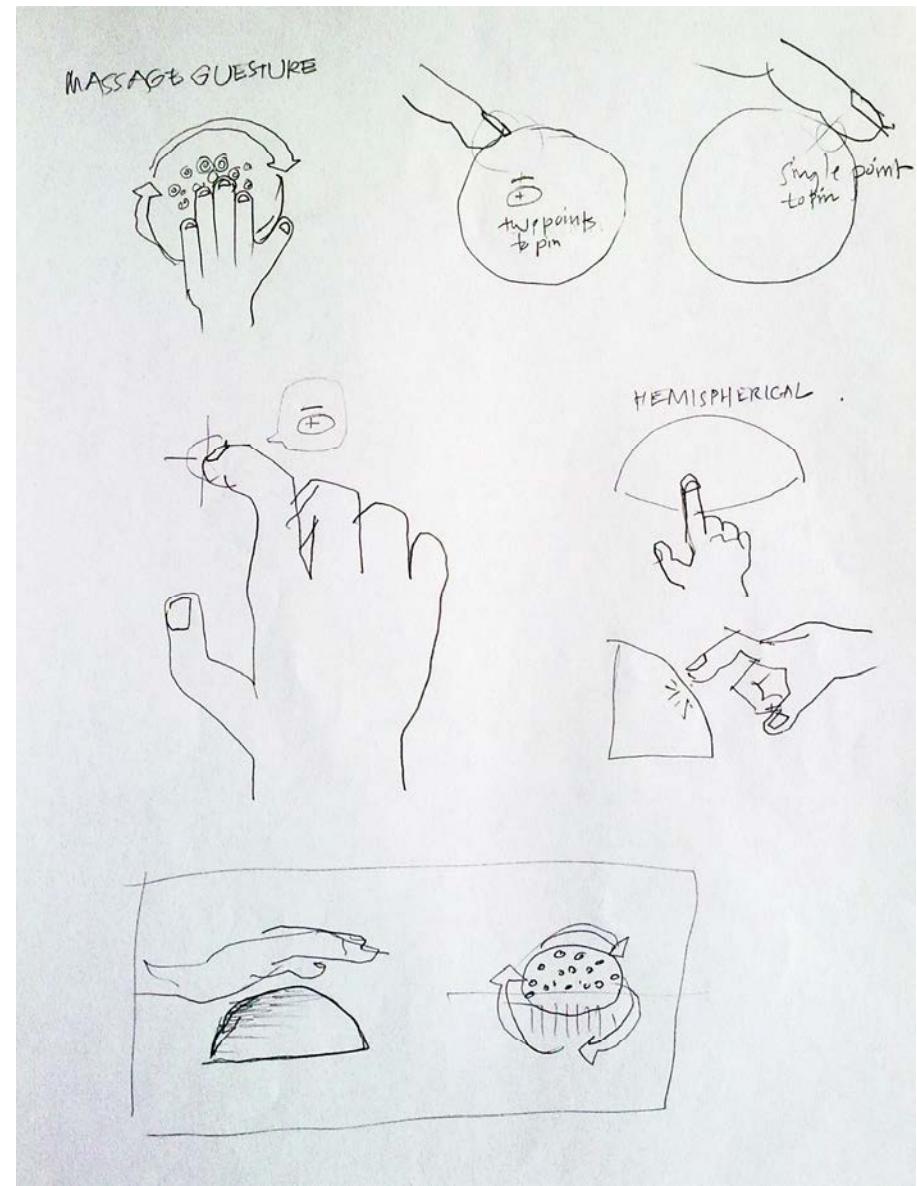
Started with a ..



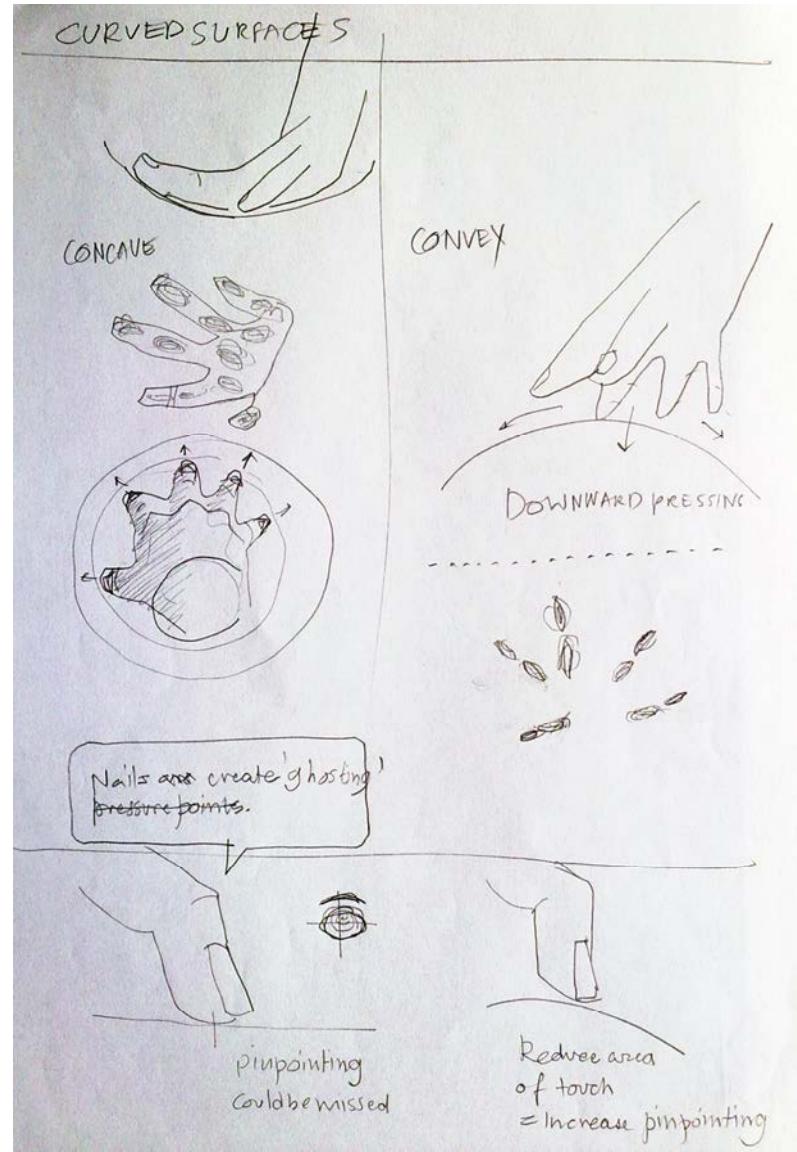
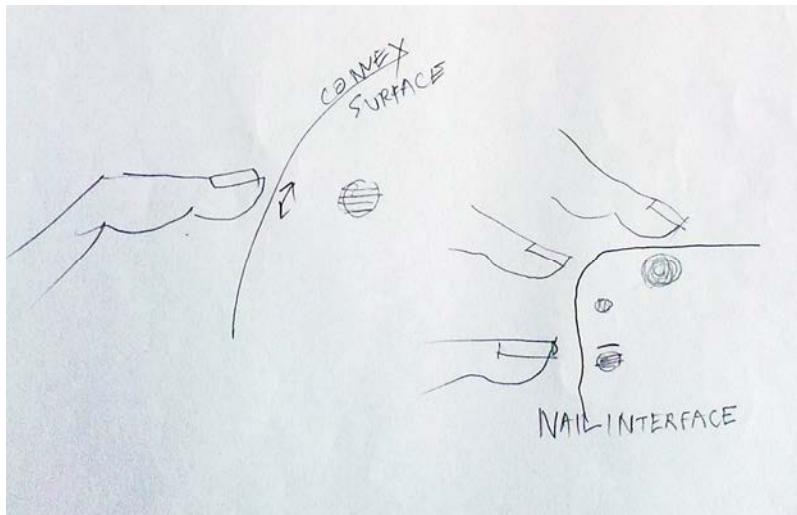
Interactions with a ball



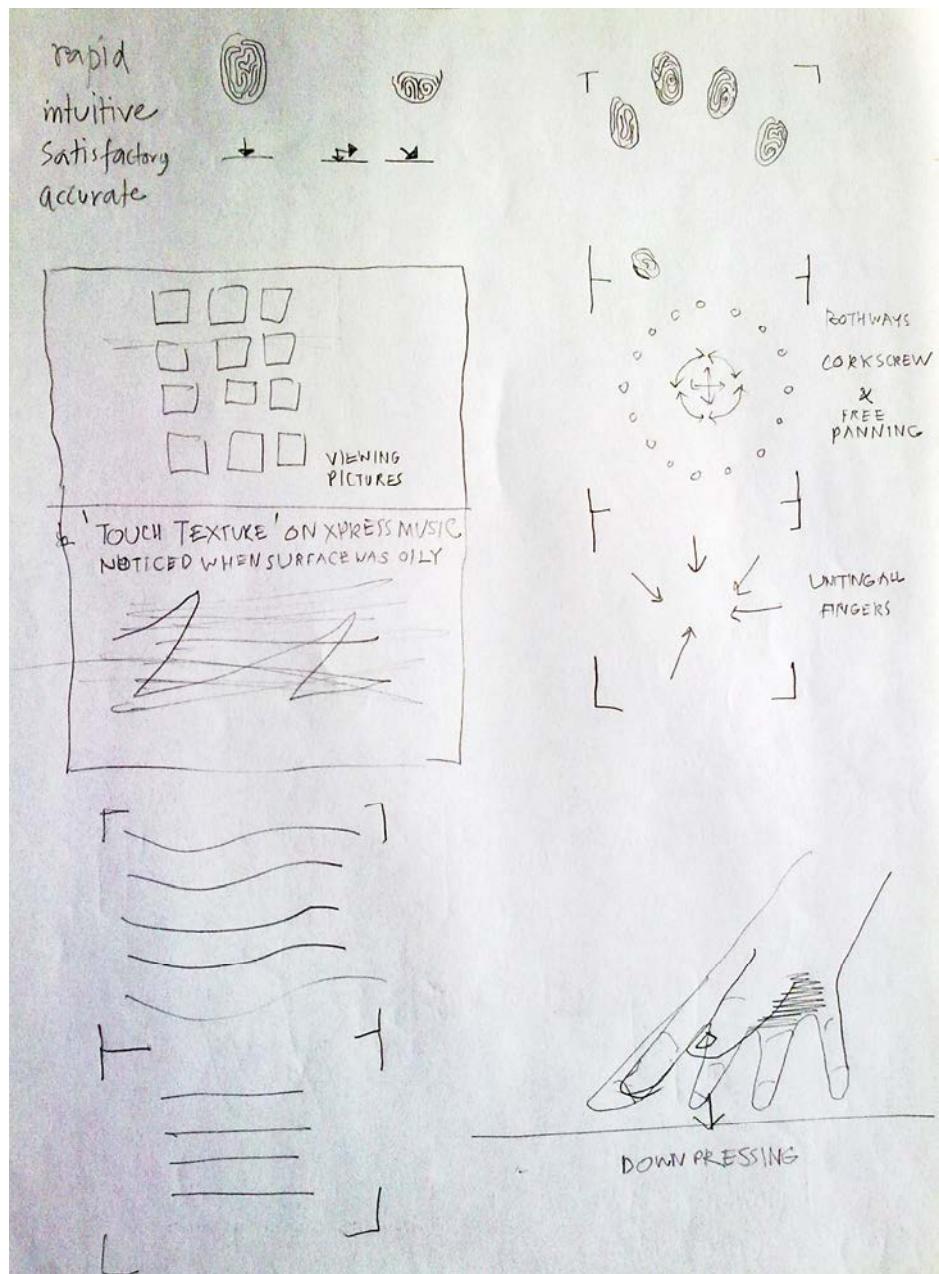
Interactions with a ball



Interactions with a ball



Interactions with a ball



Affordance of Forms



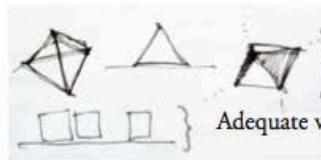
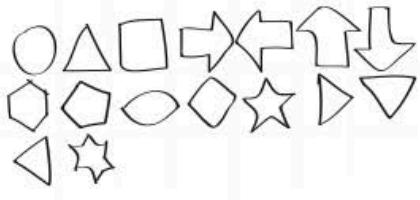
- dynamic,
- moved and played with
- bounce
- roll
- meant to be thrown



- meant to be grabbed
- easy to hold

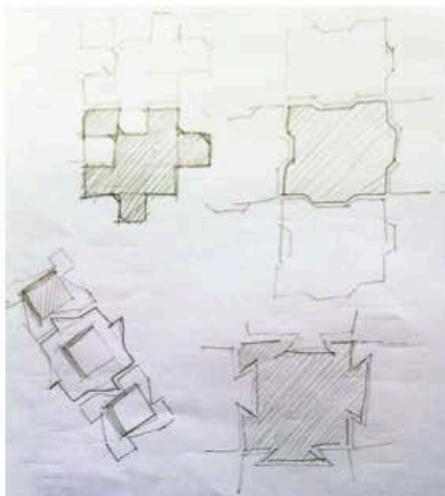
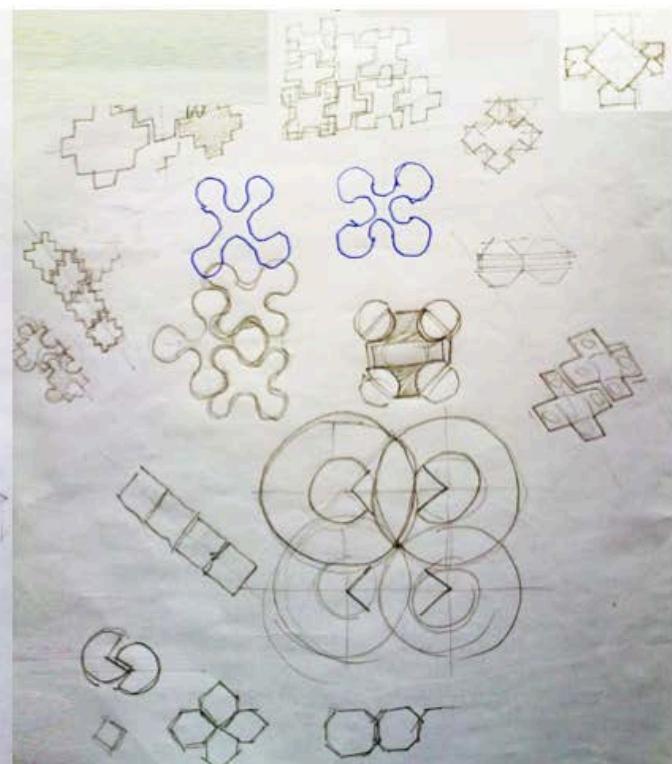
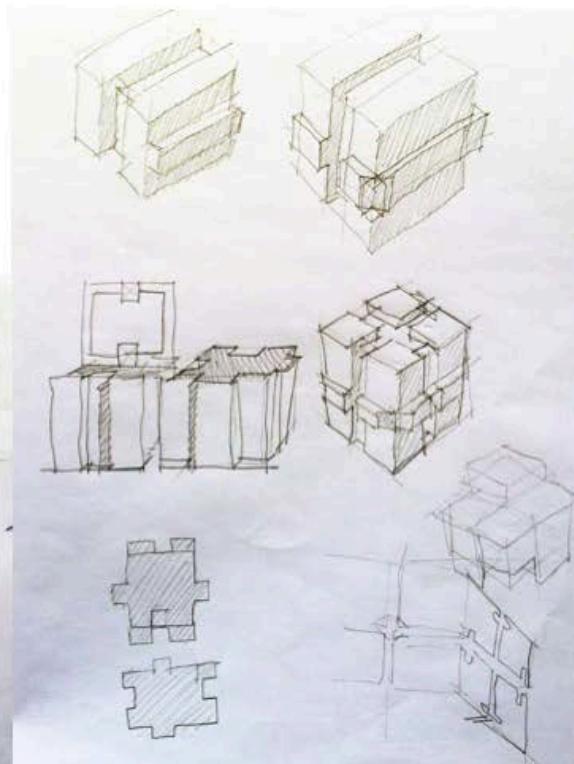
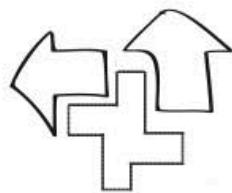
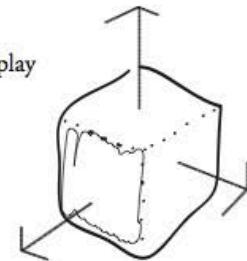


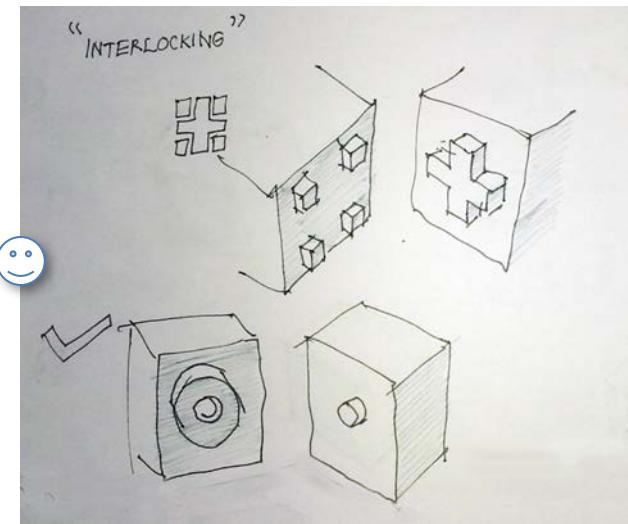
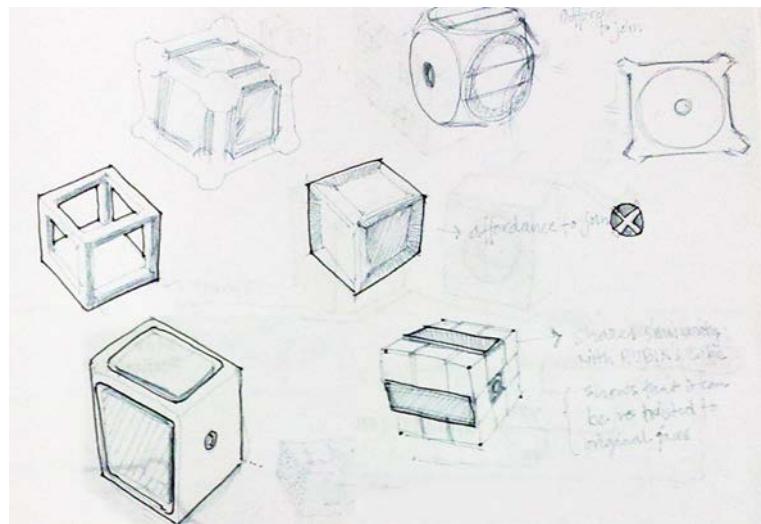
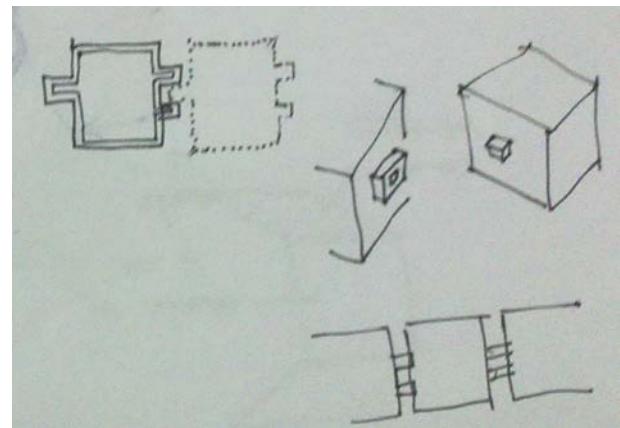
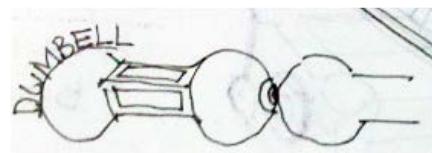
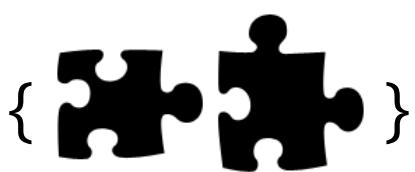
Affordance of Interlocking { }



Reduced volume for display

Adequate volume for display



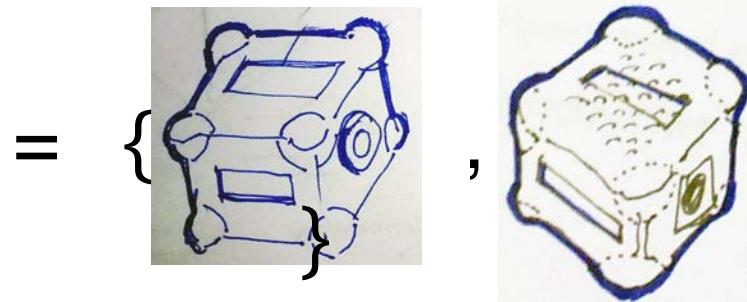




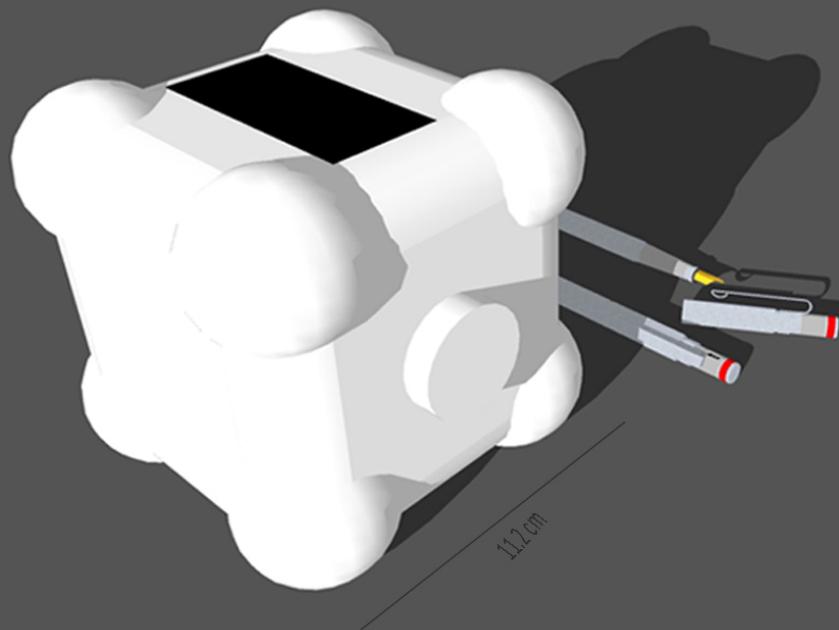
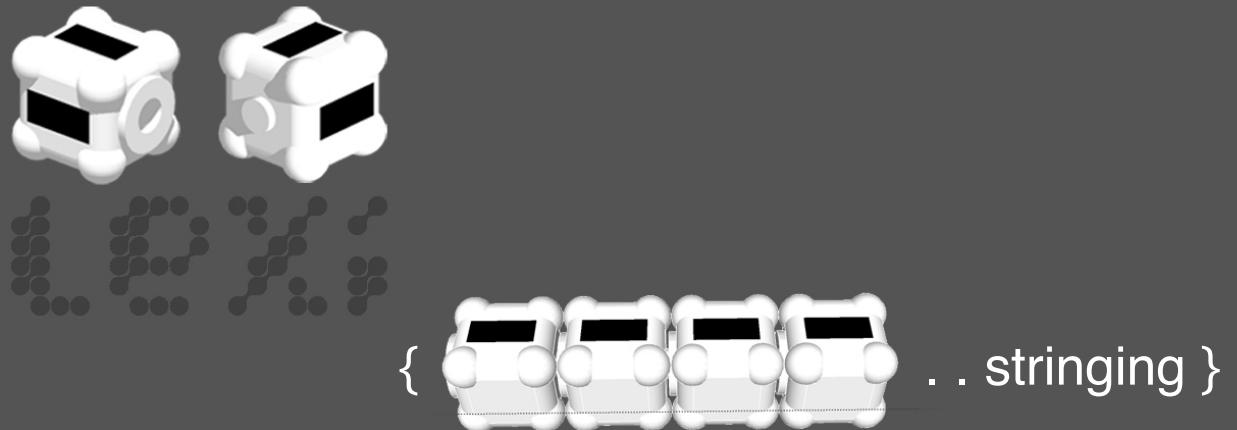
+



+



Final form



Final form

..needs to be more suited for
children

..ought to be more colourful

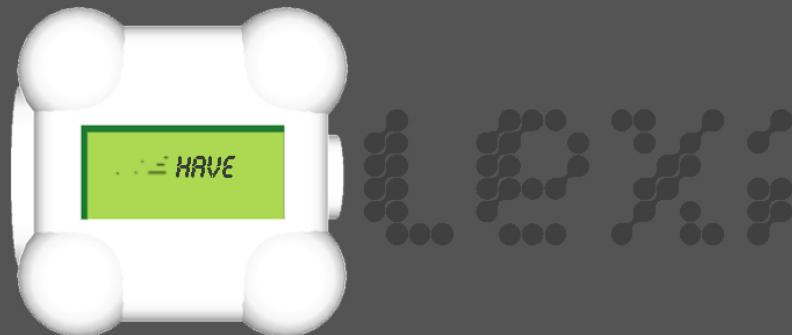
DISPLAYS

There are two LCDs present on the LEXI.

The Grammer Type LCD faces away from the user so he/she would need to intentionally tilt the cube to see it or bend over themselves. It displays the Grammer type, for eg: noun.

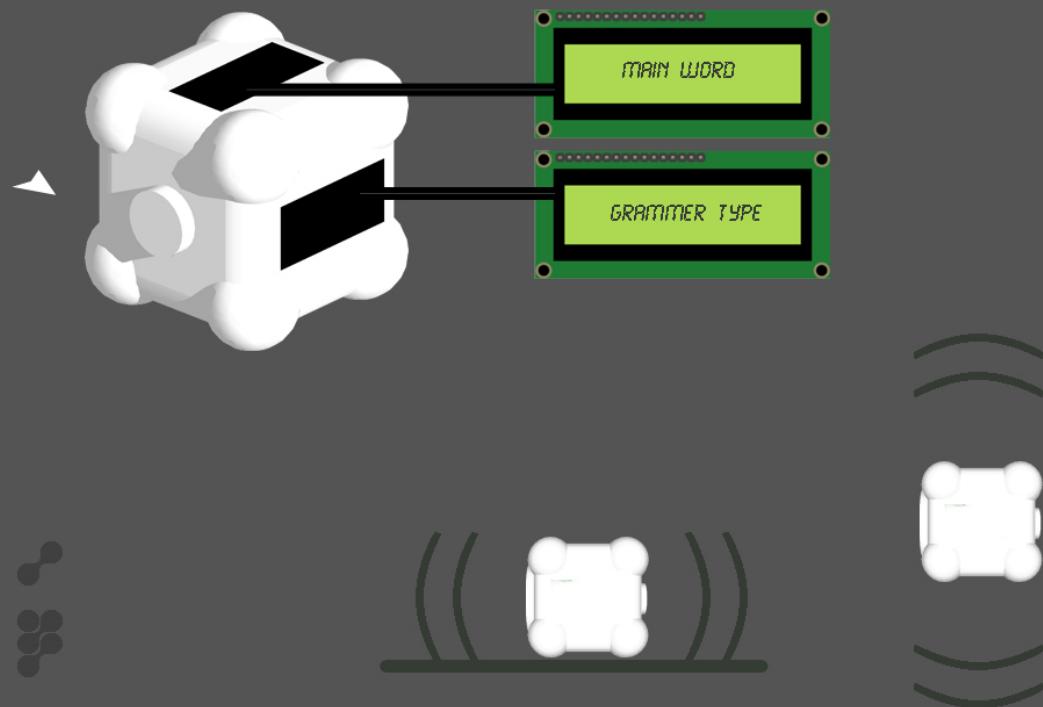
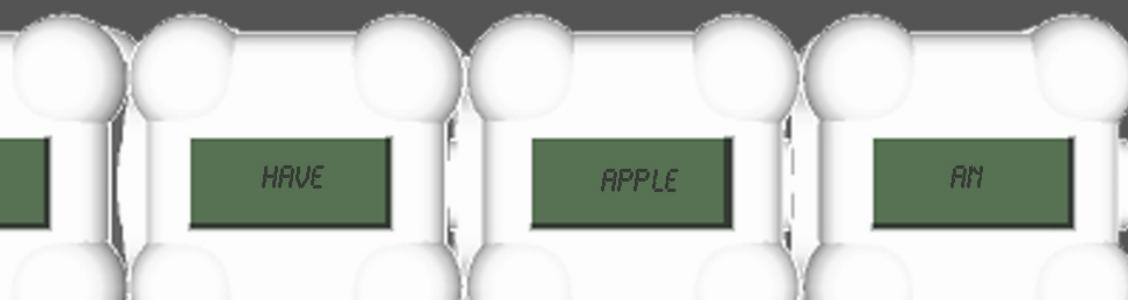
FEEDBACK

The word "HAVE" as seen below in the default state keeps bouncing about laterally in the display. Once placed in the right sequence in the sentence formation, the marquee effect comes to an end.



LENGTH OF SENTENCE/NUMBER OF LEXIs TO BE STRINGED

With three LEXIs, the solutions being much rarer, four LEXIs have been considered for the activities and it shall occur between two benches of two kids.



The words are sent out from Master LEXI to the various LEXIs happens from a chapter chosen by the teacher. The full set of words present in the chapter and numerous classified sets of those words based on their grammatical functions.

FLIP FEATURE

By shaking the LEXI, the grammatical form of the word can be changed and it can also be iterated to its 'next in the set'

Shaking along the connecting axis (which have fixing grooves) changes the word to "next in the set" and shaking it vertically changes its grammatical form.

EXAMPLE

The words set from Chapter 1, NCERT book for 4th grade.

FULL SET

{wake, up, it, is, a, lovely, day, oh!, please, get, and, come, play, the, birds, are, singing, in, trees, you, can, hear, buzzing, bees}

CLASSIFIED SETS

nouns/pronouns {trees, you, bees, day, birds, it}
verbs {wake, get, come, play, are, singing, hear}
modals {can}
articles {a, the}
adjective {buzzing, lovely}
interjections {oh!, please}
prepositions { in, up}

EXAMPLE WORDS CHOSEN AND SENT TO LEXIs

"trees" + "come" + " a" + "lovely"

GRAMMER FORM ITERATION SET

{tree, trees}
{came, come, coming, will come}
{a, an, the}
{lovely, lovelier, loveliest}



SHAKING ALONG FIXING AXIS (HORIZONTALLY)

"trees" changes to {you, bees, day, birds, it, trees} consecutively
"come" to {wake, get, play, are, singing, hear, come}
"a" to {the, a}
"lovely" to {buzzing, lovely}



SHAKING VERTICALLY

"trees" changes to {trees, tree}
"come" to {coming, will come, came, come}
"a" to {an, the, a}
"lovely" to {lovelier, loveliest, lovely}



HOW TO GET TO A SOLUTION?

"trees" + "come" + " a" + "lovely"

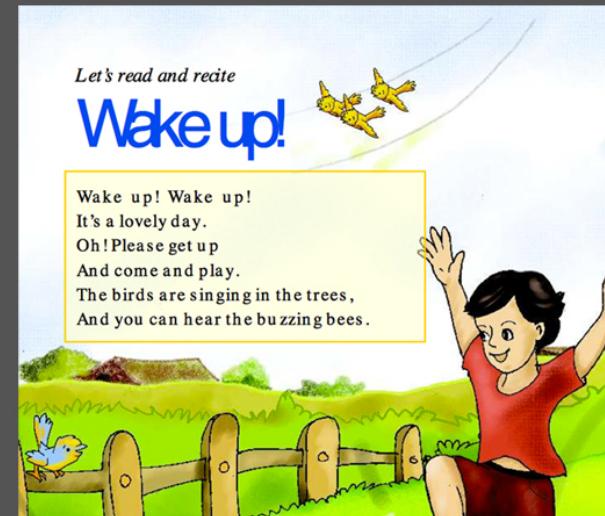
1. Shaking "trees" vertically makes it "tree"
2. Shaking "come" vertically makes it "came"
3. Aligning in right sequence..

"a" + "lovely" + "tree" + "came"

Let's read and recite

Wake up!

Wake up! Wake up!
It's a lovely day.
Oh! Please get up
And come and play.
The birds are singing in the trees,
And you can hear the buzzing bees.



The simulation..



TOUCH . REWARD UNSLIPPERY INTERACTIVE
SEQUENCE STICKINESS STUDENTS CHAIN MODULAR
SURFACE CONNECTIVITY FEEDBACK ITERATE
INTUITIVENESS GAME WEIGHT FORM
MAKE&BREAK GRIP LEARNING FLIP
COLLABORATIVE MAGNETIC GESTURE PARTS OF SPEECH ECO DRIVE
YIN YANG DURABLE ENTERTAINMENT

LEXI

"No no... not here! ... there." – DECISION MAKING/CHOICE

As close to a GAME as possible – Near equal chance of winning everytime.

SOCIAL PROCESS – confident peers (once able to quickly follow intended discourse) will take it their right and duty to make their team win.

HIGHER REWARD – Homework can be done away with if they are winning consecutively showing positive response to the activities.

COMPETITION – by splitting the class into two, left and right set of benches, helps encourage them to participate.

EXPLAIN & they can play in two minutes

RANDOMNESS – New problem to solve everytime. Surprise factor

A BUTTON to FLIP/change the form of the word (mode set by teacher by a boolean-enabled/disabled). Resulting change could be from

1. noun to pronoun
2. verb form
3. article
4. synonym
5. antonym
6. adjective form

REWARD = Dancing display of text/characters + informs Master LEXI

FEEDBACK = with shake gesture, can replace button for changing word form.

IMMEDIATE FEEDBACK = Right positioning. Even a part of it to keep them going.

UNSLIPPERY surface, DURABLE body, texturous/tactilely loaded/grippy SURFACE

MATERIAL – rubber/aluminium/acrylic/wood/leather/synthetic

ITERATION – for arriving at right sequence of sentence

GAMEPLAY – based on chapter material. Will help revisit what's been learnt, will not be vague.

Future Scope of Project

LEXI brings in the angle of surprise and immediate feedback to say an activity like sentence forming. What has been looked at is sentences with just four words having a **subject, object** and **a verb** and **an article/ adjective**.

All parts of speech can be explored to be played with LEXI. The traditional parts of speech (also called word classes): **nouns, pronouns, verbs, adjectives, adverbs, prepositions, conjunctions, articles, and interjections.**

Except for interjections (“ouch!”), which have a habit of standing alone, and articles (a, an, the), which appear in front of nouns, the parts of speech come in many varieties and may show up just about anywhere in a sentence. To know for sure what part of speech a word is, we have to look not only at the word itself but also at its meaning, position, and use in a sentence.



References

- [1] Felicia Zhang, Beth Barber, *Handbook Of Research On Computer-Enhanced Language Acquisition And Learning*, Information Science Publishing, Illustrated Edition, Jan 2008
- [2] Rankin A. Yolanda, Gold Rachel, Gooch Bruce (2006) Evaluating Interactive Gaming as a Language Learning Tool. In Proceedings of SIGGRAPH2006, ACM Press [Accessed 10 July 2010]
- [3] Daloukas V., Dai V., Alikanioti E. and Sirmakessis S. (2008) The design of open source educational games for secondary schools. In Proceedings of PETRA 2008, ACM Press [Accessed 10 July 2010]
- [4] Powers MW David, Leibbrandt Richard, Pfitzner Darius, Luerssen Martin, Lewis Trent, Abrahamyan Arman and Stevens Kate(2008) Language teaching in a mixed reality games environment. In Proceedings of PETRA 2008, ACM Press [Accessed 5 August 2010]
- [5] Ullrich Carsten, Borau Kerstin, Luo Heng, Tan Xiaohong, Shen Liping, Shen Ruimin (2008) Why Web 2.0 is Good for Learning and for Research: Principles and Prototypes. In Proceedings of WWW 2008 [Accessed 5 August 2010]
- [6] Sean Aita (2009) The theatre in language learning model: Exploring theatre as pedagogy in the L2 environment In Proceedings of Scenario 2009 [Accessed 6 August 2010]
- [7] Dr. Dunham, Dennis (2010) New Ways to Learn French in Classroom Environments. Available at—<<http://www.articlesbase.com/languages-articles/new-ways-to-learn-french-in-classroom-environments-3448866.html>> [Accessed 25 Oct 2010]
- [8] Morgan T. Clifford, King A. Richard (2004) Chapter 11 - Development During Infancy and Childhood, *Introduction to Psychology* (7th Edition). TATA McGraw-Hill Publication, 2004.
- [9] Antle, A.N. Designing tangibles for children: What designers need to know. Extended Abstracts of Conference on Human Factors in Computing Systems (San Jose, CA, USA, 2007) ACM Press [Accessed 10 July 2010]
- [10] Learn vocabulary effectively, Vistawide World Languages & Cultures <<http://www.vistawide.com/languages/languagetips.htm>> [Accessed 11 Nov 2010]
- [11] Merill David, Siftables <<http://blog.sifteo.com>> , <<http://alumni.media.mit.edu/~dmerrill/siftables.html>> [Accessed 11 Nov 2010]
- [12] <<http://www.ideotoylab.com>> [Accessed 10 July 2010]
- [13] <<http://www.playlab.hk>>[Accessed 10 July 2010]
- [14] Open Cobalt<<http://www.opencobalt.org>> [Accessed 7 August]
- [15] Second Life <<http://secondlife.com>> [Accessed 7 August]
- [16] Natural Language Learning, <http://www.pickthebrain.com/blog/language-learning/_Language_acquisition> [Accessed 15 August]
- [17] Diamond, A.S. *The History and Origin of Language*. Methuen,1959
- [18] Wilga M. Rivers, *Interactive Language Teaching*, Cambridge University Press, Jan 1987
- [19] John Holt, *How Children Fail* (Pelican), Penguin Books Ltd, New Edition, 1969-11 Allan Paivio, *Mental Representations: A Dual Coding Approach*, Oxford University Press, New Edition, Sep 1990.

Images taken from NCERT text books, free stock images and <iconfinder.com>



..thank you

