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Learning through gaming?

Subtitle: Comparative innovative educational games of children
(An on-going research project)

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Abstract: Learning fluently is an extremely important skill for all children to acquire. Many children are growing up in diverse bilingual or multilingual contexts and learn to speak and read in more than one language. It is crucial that children who are having problems in learning due to phonological difficulties are identified early, and that appropriate screening instruments are designed in their native language(s). Appropriate intervention programs can then be implemented. In bilingual and multilingual children the situation is even more complex as they have to learn using different writing systems, often concurrently. As bilingual children can have different phonological awareness profiles in their two languages, it is desirable to assess children in both of the languages spoken. In relation to multilingual children, assessing phonological and reading skills becomes an even more complex task. The current paper explores various parameters which impart knowledge through games by comparing two different scripts (Roman and Devanagari) as learning during childhood.

Key words: Learning, Language, Games, Conservative Education, Playful method, Hypothesis, Analysis, Sensitivity, Devanagari, Roman.

1. Introduction

Learning fluently is an extremely important skill for all children to acquire. Many children are growing up in diverse bilingual or multilingual contexts and learn to speak and read in more than one language. It is crucial that children who are having problems in learning due to phonological difficulties are identified early, and that appropriate screening

instruments are designed in their native language(s). Appropriate intervention programs can then be implemented. In bilingual and multilingual children the situation is even more complex as they have to learn using different writing systems, often concurrently. As bilingual children can have different phonological awareness profiles in their two languages, it is desirable to assess children in both of the languages spoken. In relation to multilingual children, assessing phonological and reading skills becomes an even more complex task (6). The current paper explores various parameters which impart knowledge through games by comparing two different scripts (Roman and Devanagari) as learning during childhood.

2. Problem Definition

Becoming literate is an very imperative skill to acquire, and children who fail to learn to read and write in general undergo the long-term corollaries of this disability. It is critical that problems or delays in reading are detected early, so that appropriate intervention programs can be instigated. However, literacy skills and their acquisition vary across languages and across printed forms of languages. It is therefore crucial that the assessment instruments used to screen children are developed in the child's own language or languages (6). This is crucial for children learning to read different languages throughout the world, and in particular for children growing up in multilingual contexts where children learn to speak and read in more than one language.

2.1 Germ of this paper

The problem as mentioned above the learning should happen in child's own language opened a new dimension of comparative study of different existing games in Indian market. Along with comparative study between conservative education forum and playful method in education so as to aid the learning methodologies.

3. Objective

To study various games that imparts knowledge in the existing Indian market. Games impart fun and knowledge during play. The current paper is a hypothesis to associate the Roman script and Devanagari script acquisition methodologies and their mediums. Also investigate whether Devanagari script games are individual innovative applications or a

replica of Roman script games. Among the vast variety of games, the concepts presented here can find applications as well as contradictions in board games, outdoor games, video games, imaginative play and professional games (4).

### 3.1 Learning during play

Every game involves a learning process. In this context we have to note that the meaning of 'learning' is not limited to the formal education alone. It also includes acquiring several qualities which are not part of the normal education curriculum.

Considering the age levels from kinder gardens till growing and developing ages (till five years) there are many games manufactured for the development of the child. Living in a diverse nation and considering the education system English is language of instruction, teaching and learning, English as it is progressed in school as first language (EFL). Individuals who speak and use two languages on a regular basis are often referred to as being bilingual (6).If we are bilingual, or second languages and first then we are multilingual. (We refer to any language learned after the first as a second language, even if it is the third or fourth you have learned.) According to Dr. Kathleen Alfano, former director of child research at Fisher price; variety of toys for learning, not just those labelled as such. In some way, all toys have some learning benefits. In fact, you'd be amazed by what children can learn from even the most basic toys. For example, blocks and building toys provide exposure to math concepts such as how many, more than and less than. They also offer experience in the critical thinking skill of estimation, in addition to enhancing problem-solving skills and creative thinking. Puzzles, stacking toys, shape sorters and many other toys foster eye-hand coordination and fine motor development-important skills for learning to write. Further Dr adds that books and toys that focus on letters, words and phonics help develop literacy, language and reading skills. Toys are first and foremost all about having fun and providing pleasure and enjoyment to children. Because most toys are intrinsically developmental, providing the right toy at the right time may be all that is needed to stimulate learning (7).

3.2 Exuberance and play

Considering the gaming system where the core being fun. Unexpected challenges thrown up by the game play (the system) and the process of trying to overcome, these challenges, by certain actions within the structure of the game (rules), is what imparts amusement.

Fig. 1. List of games (4)
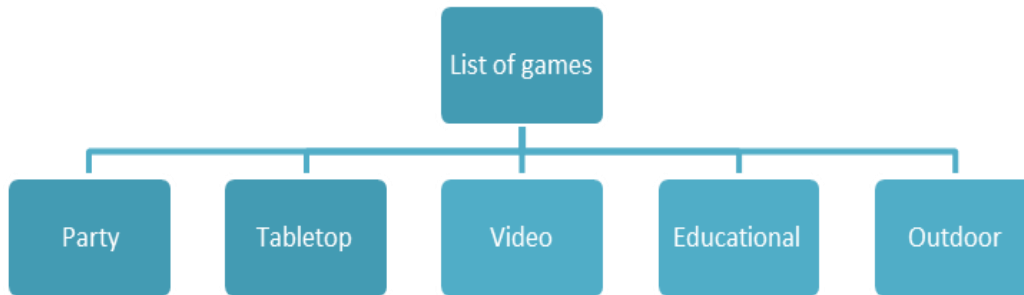
According to the targeted age one falls in the respective categories by their choice. Considering the current scenario of learning environment table top, video and educational games are the keys to development of a child.

Table top games	Video games	Educational games
Board	Arcade	Letter
Card	Computer	Mathematical
Miniature	Online	Parlour
Dice (Chance)	Chance	Memory (Chance)
Pencil-Paper	Handheld	Locative
Tile	Mobile	Color
Role	Mini	Spelling
Carom	Flash	Interactive
Strategy	Strategy	Strategy
Real time	Casual	Reading
Thematic	Escape	Recognition

For any game the most important element required is skill to accomplish it. Therefore there are three important and basic factors, which determine the suitability of a game for any particular age group. They are CHANCE, SKILL and STRATEGY.

4 Game Analysis

4.1 Technology applications

Technology playing a vital role in learning process electronic gadgets is in the forefront. Below are top 10 mobile learning games for children below 5 years to learn roman alphabets.

Fig. 2. Top 10 mobile learning games (3)

The games above involve different aspects such as care, learning, recognition, strategy, exploring, coloring, interaction, sound.

Following are the advantages of playful educational environment.

1. Play way methods takes into consideration the overall development of the child.
2. Holistic development approach takes into consideration, sensory-motor, physical, cognitive as well as social-emotional development.
3. Enables each child to set up independent learning goal.
4. Is learner-centric and not teacher-centric.
5. Emphasizes on learning by doing and helps in better internalization.

6. Enables peer group learning in which differently abled children would actually enhance the learning of normal children too.

7. Enables integrated learning i.e. learning of different skills and knowledge base from one source.

For Devanagari learning mobile apps restricted to interaction and innovative execution methods which can be observed below. However these are not the ideal examples but easily accessible medium of learning when investigated by tutors.

Fig. 3. Devanagari mobile apps.

4.2 Color Palate

Color Palate of roman alphabets.

Colors play an important role in learning. Vibrant the color palate more attraction is gained. A basic example of roman alphabets and color used below.
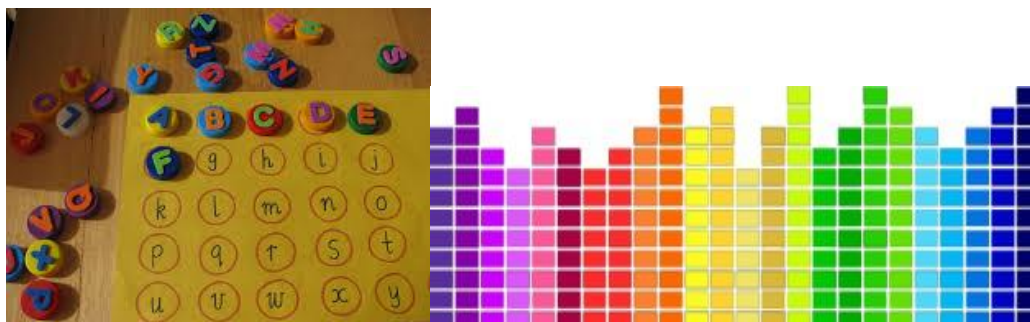

Fig. 4. Simple Roman alphabet game with its color palate (5)

Color Palate of Devanagari alphabet game is less attractive as compared to Roman.

Fig. 5. Simple Devanagari alphabet recognition with its color palate (7)

5   Statement

The new parameters of acquiring Devanagari script with Roman script seems insufficient to learn in a more creative way. This paper attempts to state hypothesis to compare the existing ways of learning respective scripts. Are the new ways of learning Devanagari innovative and rooted to fundamentals or just a replica of roman learning games?

6   Approach

To test the parameters of learning we compared few fundamental existing games. Those were easily available for both the scripts with following stages like rewriting on the letterform or tracing the letterform and phonetic association the scripts. These are essential methods to learn any script.

6.1 Tracing the letterform

Fig. 6. Tracing the Devanagari consonant 'Ka' without the starting point and imitating roman application

6.2 Lessening the sensitivity of the letterform

Fig. 7. Devanagari Vowels 'a' and 'u' with distorted structure (9).
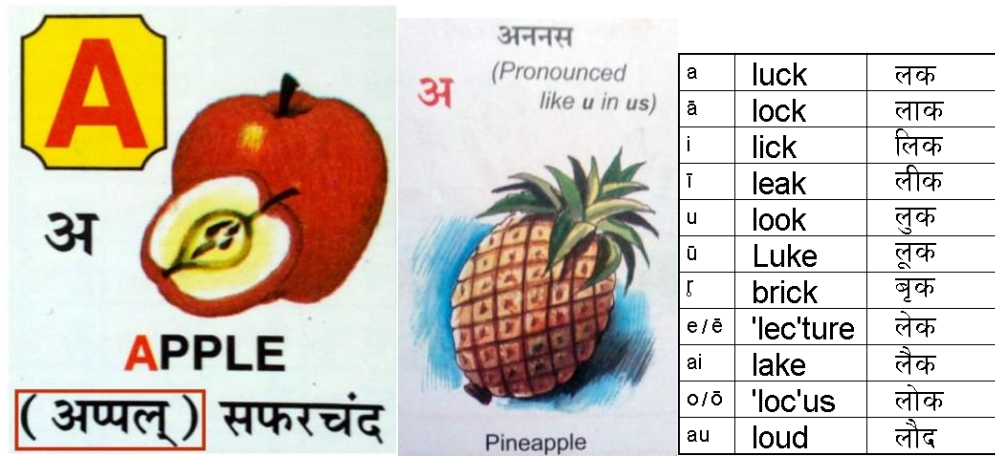
6.3 Phonetic association of Devanagari

a	luck	लक
ā	lock	लाक
i	lick	लिक
ī	leak	लीक
u	look	लुक
ū	Luke	लूक
ɼ	brick	बृक
e / ē	'lec'ture	लेक
ai	lake	लैक
o / ō	'loc'us	लोक
au	loud	लौद

Fig. 8. Academic references in MFL and EFL (Marathi as First Language and English as First Language)

7 Observation

1. Scripts differ in appearance, the visual form of its symbol set.
2. Symbol units, called akshara, represent sounds at the level of both a syllable and a phoneme (8).
3. In contrast, the alphabetic scripts of languages like English represent sounds at the level of the phoneme.
4. Interdependency on scripts to learn individual script. (Transfer of learning)
5. As bilingual children can have different phonological awareness profiles in their two languages, it is desirable to assess children in both of the languages spoken with individual system rather than replicating each other.
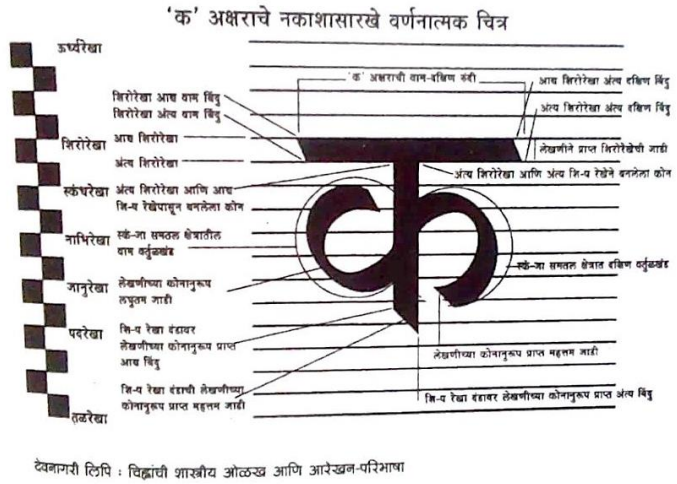
'क' अक्षराचे नकाशासारखे वर्णनात्मक चित्र

देवनागरी लिपि : चिह्नांची शास्त्रीय ओळख आणि आरेखन-परिभाषा

Fig. 9. Construction and anatomy of Devanagari letterform by Prof. Mukund Gokhale (5)

Fig. 10. Typography of Devanagari (5)

Latin Script	Devanagari Script
H + I = HI	ह् + इ = हि (vowel = इ; vowel diacritic = ि)
H + U = HU	ह् + उ = हु (vowel = उ; vowel diacritic = ु)
H + E = HE	ह् + ए = हे (vowel = ए; vowel diacritic = े)

8 Synthesis

Analyzing the games described above the following segment will explore its reasons as why they were chosen and what the outcomes were. Considering the conservative teaching forum and playful education techniques the above games are more effective.

In a conservative school, the instruction imparted places emphasis on primarily developing reasoning abilities and in acquiring knowledge. This is done through a educator-led system where instructor imparts knowledge and children are supposed to evoke the same. The edification objectives are set by the educator and all the children are assumed to accomplish the same goals. This often leads to a competitive environment in course. The motivation for students is most often praise from mentor or in the form of rank/prize. On the divergent a playful method is learner centric. Each child is able to set distinct goals of

learning according to his/her aptitude and level. The child acquires to enjoy the whole spirit of learning and discovery and this becomes a pattern of learning even at a later stage. The learning is not limited to cognitive development but considers the overall development of the child. The learning is closer to real life and is interactive in nature. This ensures better internalization of learning. Below is pictorial chart representation of the entire process of learning which caters to different levels of acquiring respective scripts. The playful method is more reliable as conservative teaching forum thus we need different innovative individual games to learn.
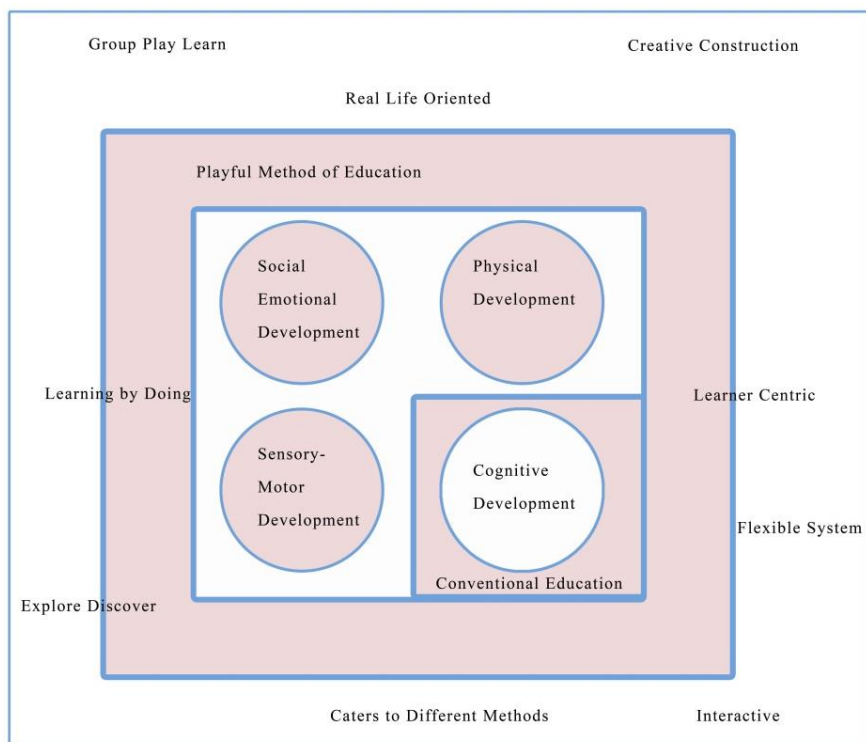

Fig. 10. Acquiring and expansion in conservative education and playful method.

9   Conclusion

It is extremely important that children in both monolingual and multilingual contexts become literate in a country like India. The results of the present research suggest that to enhance the acquisition to Devanagari recognition we need to develop individual learning games rather that temporary solutions. The learning through gaming should be more towards fundamental structures along with phonological base. Thus the Devanagari script requires more individual approach and designing sensitive articulated study material. From the above inference it can be observed that Roman script offers more dimensions than

Devanagari script there by creating a lacuna in absorbing Devanagari script hence creating a need of individual learning.

The possibilities are infinite and never ending process. There is always scope for development in the existing research paper for self-development and society.

10 Approaching opportunity

Further the research paper can give possibilities to device different innovative games to acquire Devanagari script with book diversities with vocabularies, abundant attitudes perhaps functional through devices and techniques.

11 Acknowledgement

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