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Indic Script Primer

A platform to learn multiple Indian scripts through Analogy and Visual grammar.

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Abstract:

While, learning multiple languages is fun and fascinating for many, it is also a basic need of communication for some who live in culturally diverse countries like India. 22 official languages with over 1000 dialects are spoken in present India, most of which are written in different writing systems. Hence, learning only verbal languages is not enough to be multilingual in this country. To focus more on this concern, as a part of project, this research explores intuitive, feasible and fundamental methods of learning multiple Indic scripts through analogy and visual grammar of the letterforms. The project comprises of an introduction to the digital platform for learning one script from the other and bridging the gap between Indian languages and script.

Key words: *multi-script, acquisition, methodology, analogy, evolution, Indic scripts, multilingualism, digital tool, history and origin.*

1. Introduction

India is considered to be one of the most diverse nations in the world. its linguistic chart is highly diverse, with no one single language spoken across the country or even within a state. On an interesting note, eleven official scripts are used in multilingual India today. It is said that, an average person living in metropolitan cities of India, knows at least two to three languages. However, in personal experiences it was found that people who are multilingual, are not necessarily multi-scriptual as well. In fact, there are huge number of people who can speak more than two-three languages but are not able to read and write in it.

The way Indian languages have reached all around the world, are the scripts also being spread out in a similar way? Do Indians who speak multiple languages, consider learning the script of that respective language as well? Is knowing just a verbal language enough for communicating in India? Is transliteration of languages in casual social media conversation a threat to preserve Indian scripts?

Along with answering these questions, the idea of this project is to bridge the gap between Indian languages and scripts by making multiscript acquisition simpler.

2. An Overview

2.1 Background and Current status

From ancient period, the fundamental purpose of writing system was to document or transmit the information and it serves the same purpose till the date. With the advent of technology, the medium of writing has been changing from analog (rock, paper, walls) to digital (computer, mobile etc.) As the digital medium is becoming the intermediate place of non verbal written communication, the usage of written languages is also narrowing down to only technology-friendly languages. At present, English is the most common and majorly used language on internet and overall digital media which is written in latin script. Consequently, the usage of non-latin scripts seems to take downturn which affects multi-lingual countries like India. Though Indians verbally communicate in their multiple native languages, when it comes to digital communication, English is preferred a most considering latin script as it is highly techno-friendly. Transliteration-writing the alphabet of one language in another, is another way of communication Indians prefer largely on internet. A latin script is used to write the native Indian languages and therefore the new generation find themselves comfortable with latin script regardless of number of languages they can speak. This explains that by hook and crook, scripts are

being neglected in the current multi-lingual culture of India. Hence it is essential to introduce Indian scripts to the new generation.

2.2 An Objective

In this study, the research is done to find the relation of Indic scripts with the languages they are associated with, their importance in current society and what could be the possible ways of making multi script acquisition easier on the basis of their history and origin.

Learning a new language is not possible without a help of one base language which we already know. We as a grown up always learn one language through another. Similarly, while learning a new script if we use the existing knowledge of one script to find the visual connection with another script , it would be even easier to learn new scripts.

As all the Indian scripts except Urdu, have evolved from one script called Brahmi, the possibilities of finding visual similarities among them are deeper. Hence, with a number of experiments throughout a year, A new idea of using Analogy as method to learn one script from another was proposed.

3. Observation and Analysis

Mixed research methods were followed including literature studies, experimentation, surveys, linguistic and cultural studies, introduction to the writing systems of the world, contextual studies, open source technology, geographical mapping and visual analysis of scripts. The initial research was based on history and origin of various writing systems, and how they all shaped from pictograms to modern textual form. However, It was also interesting to realise that, with the advent of technology, how social media is encouraging us to use emoticons to express ourselves, which is apparently moving us back from text to pictograms.

While studying multi-scriptual designs, the initial focus was drawn into educational perspective of multiple scripts. In the long years of education in India, the schools and the curriculum are designed to use at least one native Indian languages and/or English as a medium of instruction. Hence almost every kid is familiar with minimum two scripts. In further case study, the investigation was done, on how learning multiple scripts simultaneously could affect the handwriting of kids. Two different script-handwriting of a single child were observed to see if they make any difference on each other. The purpose

3.1 Initial Approach

Though having evolved from a single script-Brahmi, the modern characters of each Indian script look altogether different from each other. Each Indian script has its individuality. And that could be the reason why learning multiple scripts seems challenging to most of the Indians than learning multiple languages. Considering every Indian knows at least one Indian script; through this research the initial approach was on, how their existing knowledge of one script could be the basis on which to acquire a handle on another script? Hence, while observing a single letter in nine different scripts, a set of basic simplified form was derived which could be used as a common grid to write one letter of all the nine scripts.



Fig. 2.1. Identifying the similarities and deriving the common element from each letter of 9 scripts

While having critical analysis of self experiment, it was observed that the 'single' letterform as summary of related-ness between letters referring to the same phoneme across Indic scripts does not necessarily serve as a productive pedagogical tool because it

looks so over-simplified in certain cases and quite impractical in other.

Hence, as an alternative way to help writers of one script understand how their existing knowledge would help them to learn the other scripts. It was decided to divide the nine scripts in two major groups viz. North Indian and South Indian group, by taking into consideration the historical and political background as well as the geographical position of the states where these scripts are used majorly.



Fig. 2.2. Identifying the similarities and deriving the common element from only Northern scripts.

3.2 Design Development

Though, designing the common visual form for two sets of scripts was serving its purpose at certain level, due to some limitations and impracticality the idea was altered and as a further development, combination of every single letter in all nine scripts had been tried. With all the 36 possible combination pairs of nine scripts, the idea became more practical and concrete in terms of learning any script through any other script. To apply this method practically, a prototype of mobile application was designed, where a user can choose their own combination of scripts and use Analogy method to correlate with both the writing systems.

Correlation between the letter 'ka' of two Indian scripts - 'Devanagari' and 'Bangla'

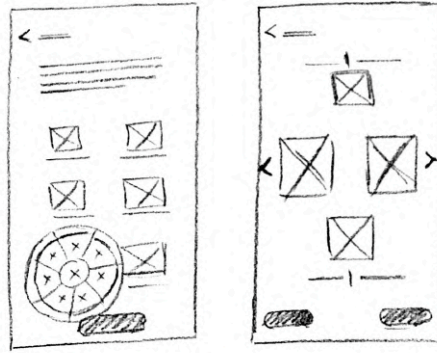
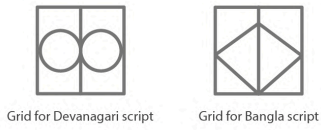
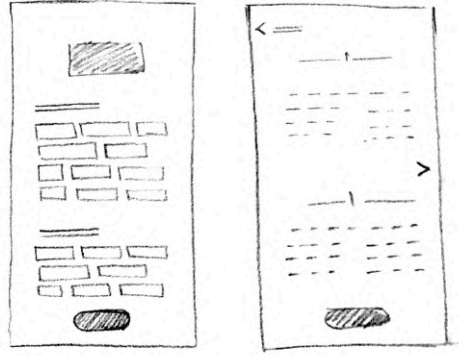
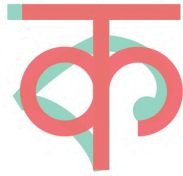


Fig. 3.1. Structure and framework of Mobile application.



Collecting user information before start learning

User can choose their own combination of scripts

Displaying the whole set of vowels and consonants of both the scripts together

An animation of each letter showing the correlation of shape, form and its stroke mannerism

Fig. 3.2. User Interface Design for mobile application.

3.3 Structure of Indic Script Primer

Along with the mobile app, as an improvisation in the project it was decided to make a web version which was more simplified and user-friendly. The learning tool was named 'Indic Script Primer'

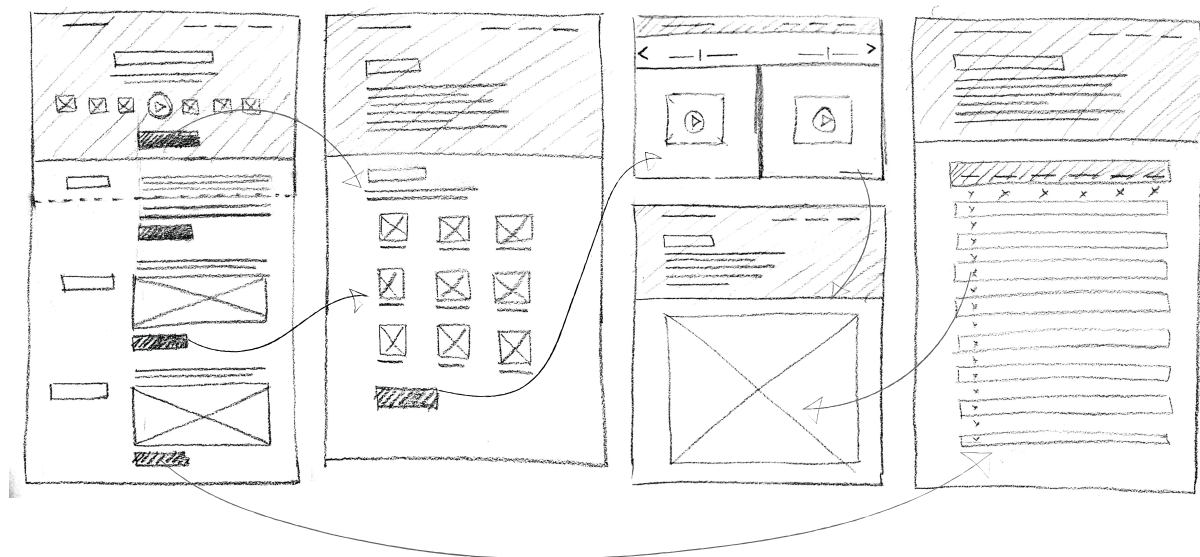


Fig. 4.1. Low fidelity wire framing for Website design (Indic Script Primer)

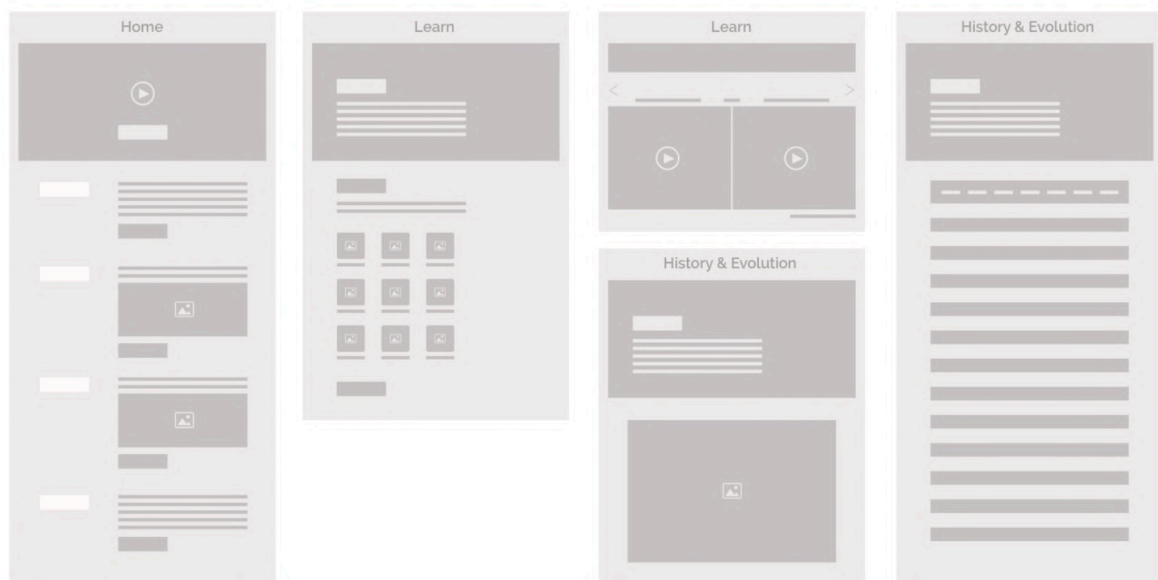


Fig. 4.2. High fidelity wire framing with improvisation in user interface of Indic Script Primer.

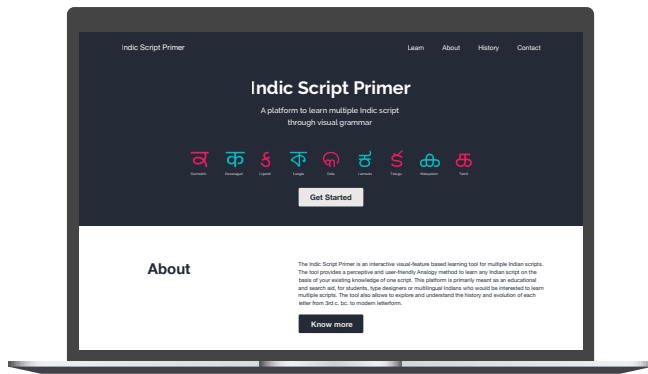


Fig. 4.3. Homepage

A homepage of website which includes Information about the Indian scripts, objectives of the project and simple graphic animations explaining how this digital tool works.

Sound value	Devanagari	Gujarati	Gurmukhi	Bangla	Odia	Kannada	Telugu	Malayalam	Tamil
a	अ	અ	ਅ	অ	ଅ	ಅ	అ	അ	அ
ā	आ	આ	ਆ	আ	ଆ	ಆ	ఆ	ആ	ஆ
i	इ	ઇ	ਇ	ই	ଇ	ಇ	ఇ	ഇ	இ
ī	ई	ઈ	ਈ	ঈ	ଈ	ಈ	ఈ	ഈ	ஈ
u	उ	ઉ	ਉ	উ	ଉ	ಉ	ఉ	ഉ	உ
ū	ऊ	ઊ	ਊ	ঊ	ଊ	ಊ	ఊ	ഊ	ஊ
r	ऋ	ઋ		ঋ	ଋ	ಠ	ఠ	ഠ	
e	ए	એ	ਏ	এ	ଏ	ಎ	ఎ	എ	எ
ē							ఏ	ഈ	ஏ
ai	ऐ	ঐ	ਐ	ঐ	ଐ	ಐ	ఐ	ഐ	ஐ
o	ओ	ઓ	ਓ	ও	ଓ	ಓ	ఓ	ഓ	ஓ
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Fig. 4.4. Indic Script Chart

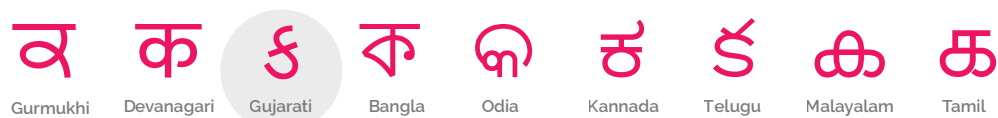
An informative chart displays a set of all characters of nine Indic scripts together. Clicking on any of the letter, leads you to the page showing evolution of that particular letter from Brahmi to modern scripts.

3.4 Learning Instructions

Follow the arrow path and draw a letter on your left hand side of the screen. The same letter in another script will appear on the right side with the stroke similarities (wherever possible) and comparative visual form.

Foundation Script

User needs to choose one script which they are most comfortable with. This script will be served as a foundation script to correlate with a new script



New Script

As a next step, user needs to choose one script which they are willing to learn

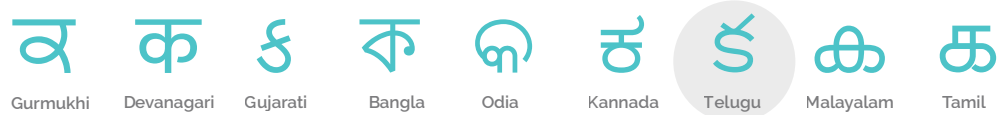


Fig. 4.5. A snapshot from Indic Script Primer showing the learning instructions.

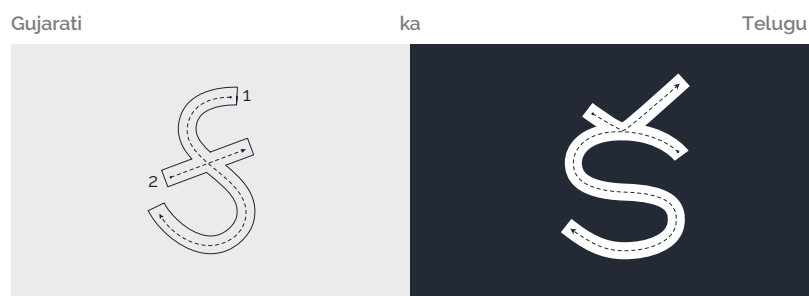


Fig. 4.6. An animation of each letter showing correlation between shape, form and its stroke mannerism.

4. Challenges and Limitations

Studying each letterform profoundly and playing around with nine scripts extensively, is inevitably an overwhelming experience. That said, there are always logistical challenges that come up when a project is scaled up.

Each Indian script has a set of 10-12 vowels and average 34 consonants excluding their combinations with each other and the conjunct letterforms. Complexity rises even more when all the nine scripts are handled together. Though, the origin of nine scripts was common, the modern set of glyphs looks completely different from each other. The intention of this project was not to find similarities between all of them but to propose a new method to learn them. While implying Analogy as a method of acquisition, certain letterforms were difficult to compare and correlate in certain pair of scripts. To overcome this issue, the evolution of each letter from its origin (Brahmi) to present nine scripts was observed thoroughly. This helped to understand the harmony of nine Indic scripts.

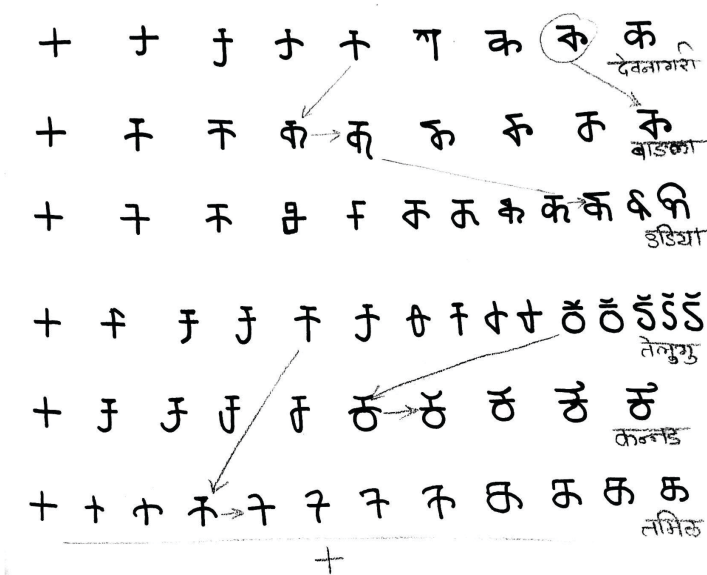


Fig. 5.1. Evolution of letter 'ka' individually from Brahmi to each script

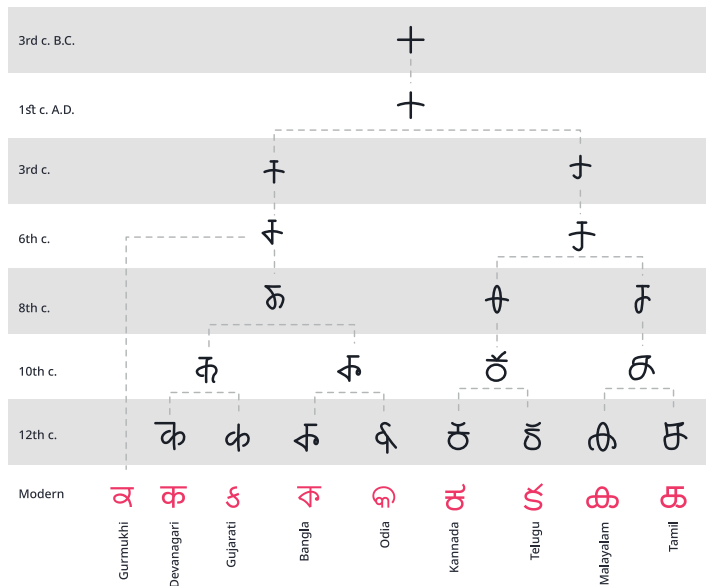


Fig. 5.2. Evolution of letter 'ka' from Brahmi to all nine scripts shown together

5. Conclusions

- By proposing this method of acquisition, the vision is not only to document the history, origin and correlation of the scripts but also to try to preserve the multi-lingual and multi-scriptural culture of India by introducing it to the new generation through digital platform.
- Learning to speak multiple Indian languages is not enough to call yourself multi-lingual in countries like India. hence The Indic Script Primer is an interactive visual-feature based learning tool for multiple Indian scripts. The tool provides a perceptive and user-friendly analogy method to learn any Indian script on the basis of your existing knowledge of another script. This platform is primarily meant as an educational and search aid for students, type designers or multilingual Indians who would be interested in learning multiple scripts.
- As we always learn one language through another, similarly the method of Analogy to learn one script form another is not limited to only Indic scripts but could also be used to learn another set of scripts which has common origin.
- Indic Script Primer, being an on-going, open ended project, I intend to work more on how inclusive it could be in terms of learning conjuncts and make it accessible to wider audience by bridging the gap between the Indian languages and scripts.

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