

Jr. Linguist: A Language Learning Mobile Application for Children

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Abstract

Jr. Linguist is a language learning mobile application specially designed to help children acquire proficiency in five major Indian languages through a highly interactive, gamified learning experience. The app is developed on Flutter and Dart, focusing on creating a seamless, engaging environment where children can learn to speak, read, and write these languages through structured modules. Each module has been specifically designed to address the cognitive and developmental needs of youngsters, fulfilling that the process of learning a language is not just educational but also fun and motivating. With the help of audio-visual aids, interactive games, quizzes, and a notepad feature to write on. Practice Jr. Linguist seeks to take a more holistic approach to language acquisition.

It was built to address an existing issue of head-on mental health. This is a significant challenge in multilingual societies like India: the increasing dominance of English in formal education and its subsequent impact on children's fluency in their native languages. With increased exposure to English at school, children may often get alienated from their regional languages and result in a disconnection from their cultural heritage. This linguistic gap can strain communication within families, weaken bonds to regional traditions, and damage a child's sense of identity. Jr. linguist tries to fill this gap by using a platform which is not only educational but also reinforces the importance of cultural preservation through language.

Jr. Linguist's design is informed by state-of-the-art research in language acquisition, particularly in the context of mobile-Assisted language learning (MALL). Such studies have shown that MALL tools, like Duolingo and Youdao Dictionary, significantly improve second-language learning outcomes, especially when paired with pedagogical strategies that encourage active participation and cognitive engagement. By integrating multimodal learning-audio, visual, and kinesthetic learning combined-jr. Linguist makes sure that children learn at their own pace. While keeping them engaged in the process. The app leverages Technologies such as speech-to-text for pronunciation practice, image-to-text recognition for writing exercises, which furthermore interactivity in the learning process will enrich the experience and context-aware.

To further enhance learning, Jr. Linguist incorporates personalized feedback systems that adapt to the individual's progress, offering a dynamic learning environment that grows with the child. Moreover, the application is designed to be flexible enough for integration into formal school curricula, offering the opportunity for schools to provide a tech-driven solution for the promotion of regional language learning. This future integration will enable teachers to monitor progress, establish learning objectives, and provide additional support, creating a structured yet engaging learning environment.

According to preliminary testing, the app is simple to use and intuitive; kids can effortlessly navigate

through lessons and take pleasure in the entertaining challenges that the gamified design of the app presents. The overall strategy of the application promotes an

a setting where kids can grow in their language abilities without feeling overburdened or bored.

Looking ahead, Jr. Linguist aims to expand its functionality by incorporating AI-powered pronunciation feedback, offline access for learning in areas with limited internet connectivity, and integration with local school curricula to make it a staple tool in educational institutions. These updates will further solidify Jr. Linguist's position as a cutting-edge, culturally relevant language learning platform that can make a significant contribution to preserving regional languages in India, while also supporting the global movement towards more accessible, engaging, and technology-driven education.

Jr. Linguist is more than just an app; it's a movement to revitalize the study of native Indian languages by combining innovative mobile technology with rich cultural content, giving kids the tools to embrace their linguistic diversity and connect with their heritage. Jr. Linguist has the potential to create a future where language preservation is not only possible but also engaging and relevant for the next generation through the power of mobile learning.

Jr. Linguist is more than just a teaching tool; it's a link to the past and a starting point for the future. The app turns learning one's native tongue into an enjoyable journey rather than a chore for today's kids. It serves as a personal companion, gently guiding them as they learn to read and write and celebrating their accomplishments with entertaining games and quizzes. A child can relate to the vibrant, immersive world created by the app's use of audio and visuals, which makes learning feel more like a story in which they are actively taking part.

The app's deeper value is found in its capacity to help kids connect with their cultural heritage. Jr. Linguist provides a concrete means for a child to develop a connection with their family's language and customs in a world where English frequently rules. It's a tool that can strengthen a child's sense of identity and belonging. The idea of incorporating this app into school curricula is especially potent because it would turn language learning from an elective activity into an essential component of a child's education, guaranteeing that these rich languages are not only preserved but actually flourish.

Index Terms: Language Learning, Mobile Application, Flutter, Dart, Indian Languages, Children Education

1. INTRODUCTION

Due to English's widespread use in formal education, media, and technology, children are being exposed to it increasingly in the digital age. Although this exposure is advantageous in many situations, it frequently results in a waning bond with their mother tongues. Children may therefore find it difficult to communicate within their families, in their local communities, and even to comprehend the cultural heritage ingrained in their mother tongues. This kind of thing

In this situation, it is particularly pronounced in multilingual societies like India, where the variety of regional languages forms part of their cultural identity and social cohesion. The erosion of proficiency in these languages leads to a rupture in intergenerational communication and adversely impacts the transmission of cultural knowledge, tradition, and values.

Jr. Linguist is intended to offer a creative and captivating solution that closes this linguistic and cultural divide to address this expanding problem. Children can learn to read, write, and speak regional Indian languages in an engaging and instructive manner with Jr. Linguist, an interactive mobile platform. The

app creates a dynamic learning environment where kids can interact with languages in a fun, immersive way by combining cutting-edge technology and gamification strategies. The app helps to preserve and promote regional languages among younger generations by fostering a sense of pride and connection to one's cultural roots in addition to focusing on language acquisition.

This study critically examines and evaluates popular language-learning apps, like Duolingo and Youdao Dictionary, using a comprehensive evaluation framework grounded in well-established theories of language acquisition and pedagogical principles. Even though these apps have fundamentally altered how people approach language learning, a closer look at their design reveals both benefits and drawbacks. We intend to identify the key elements of effective language learning in digital environments and how Jr. can profit from these elements by assessing the effectiveness of these tools. Linguists should create more effective and tailored educational initiatives.

The study identifies four essential requirements that any language-learning application must fulfil to be genuinely successful: motivation, feedback mechanisms, usability, and customization options. Children's language learning can be a difficult and drawn-out process, so motivation is especially crucial. To keep learners interested, reward systems, age-appropriate content, and captivating, game-like features are crucial. Feedback systems are essential for guiding students through the process because they let them spot mistakes and monitor their progress. While many apps are excellent at incorporating gamification elements to increase user engagement, they frequently fail to offer insightful, context-rich feedback that is consistent with research on second language acquisition. Research indicates that to promote active learning and cognitive development, feedback needs to be specific, constructive, and context aware.

Usability is another key consideration. Mobile applications must be intuitive and accessible, especially for young users who may not have the technical expertise to navigate complex interfaces. An app that is easy to use encourages consistent engagement and makes the learning process enjoyable rather than frustrating. The ability to customize options permits personalized learning experiences that adjust to each child's particular pace and skill level. A one-sized-fits-all approach rarely works, even less so during early language education, where learners may progress at different speeds.

Through this framework, our study seeks to draw a clear comparison of Jr. Linguist and current applications, emphasizing how the latter meets these crucial requirements. Our goal is to demonstrate how Jr. Linguist integrates rich cultural content, individualized feedback, and a curriculum that is structured to meet the developmental needs of kids. By providing not only a tool for language acquisition but also a way to preserve and foster linguistic diversity in the digital age, Jr. Linguist stands to close a significant gap in language learning applications.

Our ultimate objective is to show how Jr. Linguist, which is based on sound pedagogical theory and informed by recent developments in mobile-assisted language learning (MALL), can provide a potent solution to the problem of language preservation, assisting kids in rediscovering and re-establishing a connection with their native tongues while simultaneously preparing them for a multilingual society.

Jr. Linguist is a dynamic response to an expanding cultural problem, not just another app. This platform uses technology to bring kids closer to their heritage in a world where screens frequently distance them from it. The struggle is real: children may experience a subtle estrangement from their own families and communities as they become more fluent in English through school and media. The very ties that bind cultures together—the common narratives, customs, and values transmitted through language—may be weakened by this disconnect. This is directly addressed by linguists, who turn learning Indian languages into an exciting voyage of discovery rather than merely an educational process.

The app is based on the idea that learning a language requires more than just vocabulary lists. Making it feel like playing is one way to motivate children. With its entertaining tasks, prizes, and interactive features, the gamified design entices young students to return for more. However, Jr. Linguist is based on sound research, in contrast to other apps that might compromise deep learning for rapid engagement. It focusses on giving children insightful feedback that goes beyond a straightforward "right" or "wrong," assisting them in realizing their errors and developing their pronunciation and writing skills. A learning environment that is both productive and pleasurable is produced by this methodical approach in conjunction with an intuitive interface that is simple for small fingers to use. Jr. Linguist is poised to become a vital resource for teaching languages and assisting a new generation in embracing their rich linguistic heritage by providing a platform that is customised to each child's pace and preferences.

LITERATURE REVIEW

Because they provide a flexible and interesting route to language acquisition, language learning applications (LLAs) have emerged as a preferred tool for young learners. Mobile devices' ease of use has completely changed education by enabling personalized and on-the-go learning. Mobile-Assisted Language Learning (MALL) has become an important area of research because of this development. Although studies on MALL have demonstrated its efficacy in developing receptive abilities like vocabulary and listening comprehension, they also highlight its obvious drawbacks.

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