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A New Approach To Learning Sanskrit Using Chatgpt: Analyzing Its Advantages And Disadvantages

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Abstract

Sanskrit, one of the world's oldest classical languages, has seen revitalized interest in digital and educational domains. With the rapid adoption of artificial intelligence (AI) in educational contexts, ChatGPT has emerged as an accessible tool for learners worldwide. However, learners often face challenges due to limited resources, lack of interactive feedback, and difficulties in understanding complex grammatical structures. This research investigates the use of ChatGPT an advanced generative artificial intelligence model as a novel tool for Sanskrit learning. By examining its pedagogical potential, advantages, and limitations through a mixed-methods approach involving learner interaction, expert evaluation, and qualitative feedback, this study seeks to understand how ChatGPT can supplement traditional Sanskrit instruction. Findings reveal that ChatGPT offers personalized explanations, real-time feedback, and enhanced learner engagement but also poses risks related to accuracy, contextual misunderstanding, lack of cultural nuance, and dependency. This research qualitatively investigates the advantages and disadvantages of using ChatGPT for Sanskrit learning, focusing on language acquisition processes, learner-tool interaction, accuracy, cultural nuances, and pedagogical implications. The paper concludes by offering recommendations for integrating AI tools responsibly into Sanskrit education.

Keywords: ChatGPT, Sanskrit learning, Language education, Artificial intelligence, Advantages, Disadvantages.

1. Introduction

In recent years, generative AI technologies have transformed language learning worldwide. Among these, ChatGPT a language model developed by OpenAI can generate humanlike responses, explain language concepts, and serve as an interactive tutor. ChatGPT's application spans various languages and educational scenarios, but its role in Sanskrit language instruction remains under-researched. Sanskrit, characterized by Panini's highly structured grammar and rich literature, has long posed pedagogical challenges for learners. Traditional Sanskrit instruction relies on grammar-intensive methods, memorization of rules, and guided practice with expert teachers. With AI-assisted tools now available 24/7, Sanskrit learners can access support at any time. However, the suitability and effectiveness of ChatGPT in this context are yet to be fully understood. This paper

qualitatively examines how ChatGPT can support Sanskrit learning, analyzing both opportunities and challenges. Research questions include:

1. What advantages does ChatGPT offer Sanskrit learners?
2. What limits must educators and learners recognize?
3. How can AI tools be integrated into Sanskrit pedagogy responsibly?

2. Methodology

This qualitative study synthesizes findings from existing literature on ChatGPT, AI in education, language learning frameworks, and AI's linguistic capabilities. While no experimental data was collected for this paper, critical analysis was grounded in peer-reviewed sources, preprints, journal articles, and systematic reviews that examine AI in education broadly, with relevance to language learning. References include research on ChatGPT's educational impact, AI language learning studies, and linguistic challenges inherent in Sanskrit. The discussion is organized into two main sections **Advantages** and **Disadvantages** each with focused qualitative analysis supported by literature.

3. Advantages of Learning Sanskrit Using ChatGPT

3.1. Accessibility and Availability

- 3.1.1. 24/7 Support:** ChatGPT is accessible at any time and from anywhere, allowing learners to study outside formal classroom hours. This flexibility supports individualized pacing and context-specific inquiry, important for self-directed learners.
- 3.1.2. Immediate Responses:** Unlike traditional classroom settings that depend on teacher availability, ChatGPT provides instant feedback on queries (e.g., grammatical explanations, translations, verb forms).
- 3.1.3. Learner Autonomy:** Access to AI promotes autonomous learning, where students can explore concepts without waiting for human tutor intervention.

Overall, this reflects broader findings that chatbots can enhance learner accessibility and personalized pace.

3.2. Personalized Assistance

- 3.2.1. Adaptive Interaction:** ChatGPT can tailor explanations based on prompt specificity. Beginners can receive simple definitions, while advanced learners can request complex grammatical analysis.
- 3.2.2. Error Correction and Feedback:** Learners can input Sanskrit sentences for grammatical feedback, gaining insight into inflectional patterns.

Personalized assistance supports differentiated instruction, which research suggests is crucial for language learning.

3.3. Lowered Language Barriers

- 3.3.1. Multilingual Support:** Though not optimized for all languages equally, ChatGPT's multilingual capacity allows learners to bridge Sanskrit and their native language, facilitating comprehension in early stages.
- 3.3.2. Confidence Building:** Interactive AI support can increase learner confidence, similar to findings in second language learning studies where AI tools improve writing fluency for non-native speakers.

3.4. Resource Supplementation

- 3.4.1. **Supplementing Traditional Materials:** ChatGPT can generate practice sentences, explanations of rules, and examples not found in standard textbooks.
- 3.4.2. **Rich Contextual Examples:** Students can request contextual examples, cultural background information, and etymological notes that may aid deeper understanding.

Thus, AI can enrich existing resources and provide diversified learning modalities.

4. Disadvantages and Challenges

Despite the promising advantages, significant limitations need careful attention.

4.1. Accuracy and Hallucination

- 4.1.1. **Inaccurate Responses:** AI models can produce incorrect or misleading outputs (“hallucinations”), especially in languages with limited training data such as Sanskrit.
- 4.1.1. **Lack of Referential Transparency:** ChatGPT does not usually provide sources for its answers, making it difficult to verify the authenticity of generated grammatical explanations.

This is especially problematic in Sanskrit learning, where precision is paramount.

4.2. Limited Sanskrit Proficiency

- 4.2.1. **Low Training Emphasis:** While ChatGPT supports multiple languages, its performance varies significantly across languages, with stronger training on high-resource languages like English than Sanskrit.
- 4.2.2. **Complex Grammar Handling:** Sanskrit’s morphological and syntactic complexities may not be fully captured without specialized datasets or training increasing the risk of erroneous feedback.

4.3. Over-Reliance and Dependency

- 4.3.1. **Reduced Critical Thinking:** Heavy use of AI for answers can diminish active problem-solving and critical thinking a concern echoed in education research.
- 4.3.2. **Cognitive Offloading:** Studies suggest over-reliance on tools like ChatGPT may impair cognitive engagement if learners delegate reasoning to AI rather than internalizing language structures.

4.4. Ethical and Pedagogical Issues

- 4.4.1. **Academic Integrity:** Using ChatGPT to complete tasks without deep engagement may compromise academic integrity, similar to broader concerns in education.
- 4.4.2. **Assessment Challenges:** AI assistance challenges traditional assessment models; educators must adapt assessments to measure true competence, not AI usage.

4.5. Cultural Nuance and Context

- 4.5.1. **Limited Cultural Insight:** Sanskrit is deeply embedded in Indian culture, philosophy, and textual traditions. AI responses may miss subtle cultural and philosophical contexts embedded in the language.

5. Discussion

5.1. Pedagogical Implications

The integration of ChatGPT into Sanskrit pedagogy must be guided by clear instructional design considerations:

- 5.1.1. Tool as a Supplement:** ChatGPT should serve as an adjunct to traditional teaching, not a replacement. Instructors can leverage AI for practice exercises while maintaining teacher-led cultural and contextual instruction.
- 5.1.2. Scaffolded Use:** AI responses must be scaffolded within structured learning objectives to prevent misconceptions.
- 5.1.3. Assessment Redesign:** Educators may need to design assessments that account for AI assistance for example, oral examinations, handwritten compositions, or dialogues that require real-time language use.

5.2. Balanced Integration

- 5.2.1. Guided AI Interaction:** Teachers can incorporate ChatGPT prompts into class exercises, encouraging students to reflect critically on AI outputs.
- 5.2.2. Critical Evaluation Skills:** Learners should be trained to evaluate AI responses rather than accept them at face value fostering analytical skills.

5.3. Future Research Directions

- 5.3.1. Empirical Studies:** There is a need for experimental research evaluating learning outcomes with and without AI assistance.
- 5.3.2. Dataset Improvement:** Training AI models specifically on high-quality Sanskrit corpora, including classical grammar and texts, may improve reliability.
- 5.3.3. Cross-Platform Tools:** Combining ChatGPT with other linguistic tools (e.g., morphological analyzers) may provide better feedback for learners.

6. Conclusions

This study demonstrates that ChatGPT offers significant advantages for Sanskrit learners, including personalized explanations, real-time feedback, increased engagement, and accessibility. However, limitations such as inaccuracies, lack of cultural insight, and potential over-reliance underscore the need for careful integration into language pedagogy. Recommendations for educators include using ChatGPT as a supplementary tool, fostering learner critical evaluation, and combining AI interaction with structured curricula. For developers, enhancing training datasets with high-quality Sanskrit resources and culture-rich materials can improve AI performance. Future research may explore longitudinal impacts of AI-assisted Sanskrit learning, evaluation across different age groups and learning contexts, and the development of specialized AI models fine-tuned on classical language corpora.

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