Perception and Cultural Relevance of AI vs. Human Logos in the Indian Market

[1]Manas Orpe, [2]Avishkar Hase, [3]Madhur Mohnish,[4] Ranjana Singh

[1]Final Year BTech Student, [2]Final Year BTech Student, [3]Final Year BTech Student, [4]Assistant Professor

School Of Engineering

Ajeenkya Dy Patil University, Pune, India

***Abstract*— Most Indian small businesses cannot afford logo designs that are representative of Indian culture and relatable to the people. We scraped 50 Indian shop logos to investigate whether AI might be an option. We optimized one of those using Stable Diffusion with Flux Lora—perfect for resource- constrained data. We conditioned it with Indian symbol, style, and language-based text prompts. Of the 112 people we polled, 68.4% liked the AI-created logos best, with 77.8% reporting that they made them feel more "Desi" and 70.9% saying that they conveyed a strong Indian sentiment. And they're significantly less expensive and more efficient to make. This initiative proves that AI can enable Indian SMEs with culturally relevant, economical branding—making high-end design within everyone's reach.**

***Index Terms*— AI-generated logos ,Flux LoRA , Human- cantered design, Indian SMEsAI-generated logos ,Flux LoRA , Human-centered design, Indian SMEs**

I. INTRODUCTION

Having a strong brand identity is crucial to survival in today's competitive market. No group is more aware of this than India's Small and Medium Enterprises (SMEs), which contribute about 30% of the country's GDP, employing over 110 million individuals as crucial drivers of local employment and cultural preservation [11]. Indian SMEs struggle to de- velop distinctive logos, though, due to high pricing for designs, lack of access to designers who know local sensibilities, and quick deadlines. In one of the world's most culturally diverse nations like India, this is made even more difficult because this logo needs to be culturally contextual, with inclusion of locally relevant symbols, regional dialects, and indigenous motifs.

Although there is promise of using AI to automate the pro- cess of generation of designs, current tools are only effective up to an extent because they rely heavily on English-cultural data sets. The outcome is designs that are pleasing to the eye but fail to grab Indian consumers who value things that are culturally inclusive. All this is made possible by the lack of cultural and ethnicity sensitivity. Indian SMEs rely heavily on logos to capture region-based scripts, religious symbols, colour combinations, and motifs.

This work examines the possibility of adapting an exist- ing Stable Diffusion model to be fine-tuned to create logos best representing Indian visual culture using the FluxLoRA method. Unlike other works that have only looked at increasing technical prowess, this project contrasts AI-generated results with designs created by people in terms of cost, lead times, aesthetic appeal, and, importantly, local cultural sensitivity. A systematic survey was undertaken with Indian SME execu- tives, professional designers, and consumers to compare these outputs, and the paper presents an scalable solution. In this paper, we propose to investigate how AI-generated branding is democratizing branding space for small businesses so that they can engage with customers to a greater extent by incorporating regionally styled aesthetics into logos at an economical cost

II. LITERATURE REVIEW

Significance of Branding to SMEs

Brand building, particularly via logos, is central to building customer recognition, emotional bonding, and trust in the brand [1], [6], [7]. In Small and Medium-sized Enterprises (SMEs), an effective logo is usually the initial impression offline as well as online [18]. Logos are more than visual elements; they convey the values, personality, and promise of a brand to customers, helping shape consumer attitudes and buying decisions (Kotler & Armstrong, 2014).

Evidence has revealed that SMEs using consistent and familiar visual images enjoy greater customer loyalty as well as enhanced market performance [9]. Aaker (1996) noted that it is possible to make SMEs stand out from large companies by building strong brand identity through professional designs [1]. Nevertheless, the availability of professional designers is constrained by cost limitations as well as lack of sufficient time [2]. The limitation is especially high in emerging countries such as India, where the majority of SMEs have limited resources.

Designing the Logo for the Indian Context

Indian SMEs operate across different cultural, linguistic, and geographically segmented contexts. Such diversity complicates logo design. Designing logos usually ignores local- ized aspects like regional symbols, cultural motifs, color meanings, and vernacular typography, which help connect with the Indian customers[15]. observe that localiza- tion of design is one of the success determinants for Indian SMEs. They underscore the significance of typography for logo design, particularly for an economy that is both multilingual and culturally heterogeneous like that of India[17].

Designing the Logo for the Indian Context

Indian SMEs operate across different cultural, linguistic, and geographically segmented contexts. Such diversity complicates logo design. Designing logos usually ignores localized aspects like regional symbols, cultural motifs, color meanings, and vernacular typography, which help connect with the Indian customers. Singh & Tripathi (2021) observe that localization of design is one of the success determinants for Indian SMEs. They underscore the significance of typography for logo design, particularly for an economy that is both multilingual and culturally heterogeneous like that of India

Emergence of Generative AI for Creative Tasks

From the evolution of AI models such as DALL·E, Stable Diffusion, and Midjourney, automated logo development has become more prominent. These have the ability to create high-level images from text descriptions without the need for professional designers. Nevertheless, studies indicate that these models tend to be trained on Western datasets without region specificity [10]. These models lack sensitivity to regions, making them generate images that, although pleasing to view, may miss the intended target group identity within particular cultures.

Fine-tuning and Personalization with FluxLoRA

To fill this gap, fine-tuning large models with smaller, domain-related datasets has picked up steam. Methods such as LoRA (Low-Rank Adaptation) and its newer extension FluxLoRA enable effective fine-tuning with modest data and computational budgets [5]. Parameter-efficient tuning thus enables students as well as small groups to adapt high- performance models to specialist tasks, including culturally- focused logo generation. Making use of FluxLoRA overcomes the difficulty of adapting pre-trained AI models to regional aesthetics without necessitating large computational budgets, thus democratizing access to AI-powered design solutions to SMEs.

Ethical Considerations and Cultural Sensitivity in AI De- sign

As generative AI becomes more integrated into creative processes, ethical considerations and cultural sensitivity are becoming increasingly important. The potential for AI to perpetuate biases, misrepresent cultural elements, or appropri- ate cultural heritage raises significant concerns that must be addressed. It is essential to ensure that AI-generated designs respect cultural heritage and do not inadvertently promote stereotypes or offensive imagery.

Gaps in Current Research

Though there is some existing research on AI-supported generation and performance of diffusion models for image generation, little has been done to investigate the cultural applicability of AI-generated logos, particularly from the Indian context. Current research tends to be more focused on the technical, without consideration for this key aspect of cultural applicability and user sentiment. The necessity of visual representation of the design in multiple formats is mentioned and there are few such designs or studies. There is no reliable empirical comparison between AI-generated and manually generated logos with regard to cost, development process, and audience reception.

In particular, this study seeks to bridge this gap through a comparative case study informed by an actual user survey. Focusing on the Indian market, we hope to make actionable recommendations on the use of AI to develop culturally contextualized and cost-effective branding practices for SMEs, as well as to consider ethical questions and ensure cultural sensitivity in AI design practices.

III. Methodology

This study adopted an organized methodology to compare AI-created logos versus manually created logos on the basis of Indian cultural sensitivity, cost-effectiveness, visual appeal, and Indian SMEs' cost of designing. The process was split into four primary phases: creating a dataset, model fine-tuning, logo generation, and evaluation via user survey.

Dataset Generation via Web Scraping

A dataset of 50 actual Indian shop logos was compiled using a custom Python script with the requests, BeautifulSoup, and urllib libraries. The size of the dataset was selected as a reasonable compromise between depicting representative Indian SME logos and facilitating efficient fine-tuning of the Stable Diffusion model with FluxLoRA, configured to operate effectively with small datasets. The search phrase "Indian shop logo" was used to download corresponding images via Google Images. Random pauses between requests for downloading (with an interval between 1 to 5 seconds) were made to simulate the browsing pattern of a human to avoid the possibility of getting blocked by an IP address. All images were stored into an organized directory to be processed afterwards.

The final dataset consisted of an indiscriminate selection of logos without industry specificity to preserve realism. To give better representation to the dataset, a post-hoc analysis yielded: (a) 18 logos belonged to food establishments (restaurants, sweets outlets, tea stalls), (b) 12 belonged to retail (clothes, jewellery, electronics), (c) 10 belonged to service (salons, repair outlets), and (d) 10 were not classified (general outlets, etc.). The color palette mostly included intense Indian colors like saffron, green, gold, and red. The predominant script was English, even for representing Indian language words (e.g., "Kannu ki Chai"), reflecting an overall fashion in Indian branding.

All of the gathered logos were manually validated to be legible, have text or symbol visibility, and to reflect Indian design language. The process of validation included evaluating images for: (a) legibility of text and symbol, (b) usage of Hindi or local scripts, (c) usage of religious or cultural elements (i.e., gods, lotuses, diyas), and (d) usage of color combinations typical of Indian culture. No resolution filtering or image formatting was applied to preserve the variability of the real world as an SME is likely to deliver. Images with noises or watermarks were removed.***Fine-Tuning the Generative Model with FluxLoRA***

A Stable Diffusion pre-trained model (the stabilityai/stable-diffusion-2-1-base check- point) was then fine-tuned with the FluxLoRA method to make the parameter-efficient adaptation to the small dataset possible[5]. Fine-tuning was conducted following AI Jason's tutorial on YouTube, illustrating the process of incorporating FluxLoRA into Stable Diffusion's training loop via DreamBooth. The approach lowers the requirement for the GPU while still permitting the model to adapt to stylistic patterns of the 50- image dataset. The process included structuring images into a DreamBooth-compliant folder structure, creating captions, and beginning training over multiple epochs. The captions were generated automatically with the use of the BLIP captioning model.

These parameters were fine-tuned on the Replicate platform, an easy-to-use envi- ronment for experimentation without the need for significant backend setup. The details of the specific NVIDIA GPUS used by the Replicate platform are not made available, but generally, it leverages NVIDIA GPUS. The parameters for the fine- tuning process were left at levels recommended by the AI Jason tutorial, such as 1e-4 learning rate, batch size of 4, and maximum step to 500 epochs. The overall training process lasted about 15-20 minutes. The produced model checkpoint was validated and tested locally to verify it could produce logo-like output from text input.

Prompt Engineering for Indian Cultural Hint

For the AI-generated logos to reflect Indian sensibilities, specifically chosen text prompts were utilized. The text prompts included:

- Design a tea shop logo with a miniature Indian tea glass (cutting chai style) with Warli tribal art motifs with an earthy color scheme. The logo shall have the words 'Kannu ki Chai' done in a rough, hand-drawn font.
- "I'd like to have a sophisticated but elegant logo for my jewellery store, Pogade Jewellers. Use only the letters P and J, nothing else. Make it modern-looking and luxurious—something that you would find at an upmarket gold jewellery shop. Use gold color, perhaps some shine or gradient to give it a high polish."
- "Create a contemporary, colorful logo for an Indian restaurant named 'Curry Patta Kitchen.' The logo must have a bright green round background with leafy details.
- "Create an elegant and culturally motivated logo for an Indian fashion brand called "Karigar Couture," that produces trendy Indian attire."
- "Create a bold, inviting logo for tea company called "Kadak Chai," meaning "Strong Tea" in English, reflecting the strong flavor and emotional depth of classic Indian chai."
- "Create an elegant, earthy logo for an upmarket tea company called "BORCELLE" that specializes in Jaggery Tea."

These prompts were progressively tested and refined following qualitative feedback provided on the generated outputs. Malformed, irrelevant, or poor outputs were manually culled. Multiple variations of each prompt were generated, and the best representative examples by aesthetic merit and cultural sensitivity manually selected. The Replicate system mostly provided functionality for adjusting resolution and cropping. Structural or stylistic changes required the entering of new prompts and the rerunning of the model

Survey Design and Data Collection

A feedback survey was created using Google Forms and made available on the internet to collect preferences and perceptions of the users concerning the produced logos. The survey tool included the following major questions:

- Which logo speaks to you the most?
- Which one is more "Desi" or Indian in style?
- Does it have an "Indian" feel to it?

The survey was shared across different internet platforms such as Reddit, Instagram, WhatsApp, and Discord. To counterbalance the sample bias implied by the internet-based dissemination, the diversification of the sample pool was attempted by posting across Indian culture, design, and entrepreneurial groups as well as forums. Although the platforms themselves tended to cater to youth audiences, the final sample included varying ages and professional backgrounds.

In an additional attempt to control for bias, the origin of each logo (human-designed or AI-generated) was blinded within the survey. Pilot testing yielded that labeling logos as AI or created by a human distinctly skewed participants' preferences toward logos created by people, presumably because of preconceptions about AI capabilities.

Comparison Metrics and Analysis

All the logos were assessed on three fundamental aspects based on survey responses:

- Overall Preference: Percentage of participants selecting each logo as most appealing.
- Cultural resonance: Percentage of respondents who characterized each logo as more "Desi" or projecting an "Indian vibe."
- Brand Communication: Effectiveness of each logo to convey the intended message.

Statistical analysis was conducted using Python's SciPy package. The responses' distributions for AI-generated and human-created logos for each of the survey questions were compared using chi-square tests. To ascertain the statistical significance of differences observed, p-values were calculated, where $p < 0.05$ was the level of significance.

These results have been used to make conclusions about the viability of an AI that is both cost-efficient and culturally flexible as an alternative to branding SMEs in India.

Limit

This research recognizes several limitations. The 50-logos dataset, though adequate for FluxLoRA fine-tuning, might be less representative of Indian SME branding diversity. The survey sample, though representative, was dominated by young, technophile users, potentially constraining the results' generalizability. Lastly, the use of one generation method and prompting framework may bias the results.

Ethical Consider

The research was conducted according to ethical principles by keeping the responses of the survey anonymous and by using no copyrighted material without permission. The AI model was responsibly applied with the aim of fostering cost-effective and culturally specific designs for Indian SMEs.

IV. RESULT

Comparing Overall Preference of Logos

The initial question measured participants' overall preference for the AI-generated versus the human-designed logos. A statistically significant preference for the AI-generated logos was found:

- AI-Generated Logos: 68.4% (n = 76)
- Human-Designed Logos: 24.8% (n = 28)
- Neither: 6.8% (n = 8)

A chi-square test of independence was conducted to test the association between participant preference and logo type (human-designed or AI-generated). The results of the test were significant ($\chi2(1) = 25.34$, $p < 0.001$) and revealed a significant association between the type of logo and overall preference, with participants significantly more preferring AI-generated logos

"Desi" or Indian Style Assessment

Participants were asked which logo felt more "Desi" or Indian in style. The results strongly favored the AI-generated logos:

- AI-Generated Logos: 77.8% (n = 87)
- Human-Designed Logos: 15.4% (n = 17)
- Neither: 4.3% (n = 5)
- Can't Say: 2.6% (n = 3)

The chi-square test established that there was indeed a significant statistical relationship between logo type and Indian style perception ($\chi2(1) = 41.21$, $p < 0.001$), reinforcing the hypothesis that AI-generated logos, if prompted suitably, have better representation of Indian aesthetics than human-designed alternatives.

Assessment of the "Indian Vibe"

The third question probed whether each logo transmitted an "Indian vibe." Again, the AI-generated logos ranked higher:

- AI-Generated Logos: 70.9% (n = 79)
- Human-Designed Logos: 21.4% (n = 24)
- Neither: 3.4% (n = 4)
- Can't Say: 4.3% (n = 5)

A significant relationship was found by the chi-square test between the logo type and "Indian vibe" ($\chi2(1) = 30.87$, $p < 0.001$), again confirming that AI-created logos, once tuned into with the right cultural indicators, can effectively convey the sense of Indian cultural identity.

Qualitative Feedback

Apart from quantitative responses, respondents were invited to make free comments about their logo preferences and perceptions. Thematic analysis of the comments yielded some recurring themes:

• **Authenticity:** Most of the participants believed that AI-generated logos better encapsulated genuine Indian cultural aspects (i.e., indigenous motifs, local aesthetics) compared to human-made logos.

• **Modernity:** A few of the participants made observations about the AI-created logos' potential to integrate ancient Indian elements into modern-day designs.

• **Clarity:** Some participants commented that the AI-generated logos better conveyed the brand message than the logos created by humans.

Illustrative quotes include:

• "The AI logo symbolizes the Indian Culture completely."

• "Modernization is making human-design seem old-fashioned."

Comparison of Costs and Time

For evaluation of the economic viability for SMEs, cost and time comparison was done. These results indicate the viability of AI-generated design in this research.

Table 1: Cost and Time Comparison

Logo Type	**Average Cost per Logo**	**Time Taken per Logo**
Human-Designed Logo	₹6,000	2 to 4 days
AI-Generated Logo	₹213.47 (Model Building), ₹8.54 per Generation	10 to 60 minutes

Summary of Key Findings

Key results are summarised.

Table 2: Summary of Key Survey Results

Metric	**AI-Generated Logos**	**Human-Designed Logos**	**P-Value**
Overall Preference	68.4%	24.8%	<0.001
Perceived Indian Style	77.8%	15.4%	<0.001
Conveys Indian Vibe	70.9%	21.4%	<0.001

The table provides a concise overview of the main findings and highlights the statistical significance of the results.

V. DISCUSSION

This research aimed to explore the possibility of AI-generated logos for Indian SMEs with regards to visual appeal, cultural fit, cost, and lead times. The survey results indicate significant support for AI-generated logos over those created by humans by the survey sample. Such support extends even to the domain of Indian-ness, with the results indicating AI can capture subtle aspects of cultures provided it is carefully refined.

A survey revealed three major points: there was a preference of AI-generated logos at 68.4%, AI-generated logos were rated by 77.8% to have a "Desi" or Indian feel to them, and 70.9% rated that the logos transmitted an Indian atmosphere. These results were statistically significant at $p < 0.001$, meaning that the match with culture was no accident but the result of Indian visual cues that helped tune the AI model.

Apart from cultural compatibility, AI-created logos turned out to be cost-efficient and cost-saving. The overall expense to train the model was ₹213.47, while individual logos cost only ₹8.54—much less than the average ₹6,000 billed by human designers. AI-powered logo-making also required between 10 to 60 minutes, significantly less than the one-hour-plus typical of traditional designers.

These results echo earlier research on the benefits of generative AI's scalability and velocity but offer a distinct angle by focusing on the issue of cultural relevance. To Indian SMEs with tight budgets, this technology may be the solution they so desperately require—offering cost-efficient branding that is regionally relevant.

Limitations

Yet, despite this, these results have to be viewed within the study limitations, such as dataset quantity, prompt engineering, as well as sampling bias that can skew generalizability.

Several limitations emerged. Firstly, the dataset included only 50 Indian logos, which, although sufficient for FluxLoRA fine-tuning, is less representative of the complete range of India’s design variability. Secondly, the prompts themselves were created

by one researcher out of an overall awareness of Indian motifs, introducing subjectivity and potential bias.

Also, because of the technological constraints on the Replicate platform, there was limited measurement of energy use and computational efficiency. The survey was also biased towards an internet-savvy, young population because it was disseminated online, causing sampling bias. Finally, the comparison of AI-generated logos with designer-created ones on an equivalent basis might underrate the depth, creativeness, and expertise of the designer.

Alternative Interpretations

Alternative explanations must be taken into consideration. Participants' inclination toward AI-generated logos could be because of novelty bias or an appreciation of technology. Also, because few professional designers answered the survey, the depth of analysis in evaluating the designs could have been partial. In addition, the average ₹6,000 cost given for human designs might not be representative of either market or freelance pricing, especially local ones.

Future Directions

Future work must extend this groundwork by incorporating larger databases of more varied logos to reflect the varied languages, symbols, and conventions of India. Having professional designers involved at the time of prompt engineering and evaluation can even provide better adaptability to actual-world norms and sensibilities.

Long-term effects of AI-created logos on brand recognition, customer confidence, and the development of SMEs can be measured by longitudinal studies. Ethical principles are required to address fears of cultural appropriation, AI prejudice, and the position of human designers as the creative world rapidly transforms.

VI. CONCLUSION

Overall, this research indicates the potential that AI has to deliver Indian SMEs with cost-effective, thoughtful logo designs with culturally specific guidance. The research offers an alternative method of empowering branding—on the level of small businesses accessing tools previously beyond reach. Further work is required to optimize and scale these solutions, but it is an important step toward leveraging AI to be a force for cultural expression, as well as economic empowerment, in India.

REFERENCES

[1] D. A. Aaker, *Building Strong Brands*. New York: Free Press, 1996.

[2] M. Arham, "Cost and time as key factors in design decisions," *Int. J. Eng. Technol.*, vol. 2, no. 6, pp. 1121–1127, 2012.

[3] A. Bhatnagar and J. W. Kim, "Cultural adaptation of global brands in India: A consumer perspective," *J. Glob. Mark.*, vol. 33, no. 4, pp. 309–324, 2020.

[4] T. B. Brown *et al.*, "Language models are few-shot learners," in *Advances in Neural Information Processing Systems*, vol. 33, pp. 1877–1901, 2020.

[5] K. Cho *et al.*, "Learning phrase representations using RNN encoder-decoder for statistical machine translation," *arXiv preprint* arXiv:1406.1078, 2014.

[6] K. Crawford, *The Atlas of AI: Power, Politics, and the Planetary Costs of Artificial Intelligence*. Yale University Press, 2021.

[7] J. Devlin, M. W. Chang, K. Lee, and K. Toutanova, "BERT: Pre-training of deep bidirectional transformers for language understanding," *arXiv preprint* arXiv:1810.04805, 2019.

[8] A. Elgammal, "Can computers create art?," *Science*, vol. 359, no. 6376, pp. 645–646, 2018.

[9] I. Goodfellow *et al.*, "Generative adversarial nets," in *Advances in Neural Information Processing Systems*, vol. 27, 2014.

[10] M. Heusel, H. Ramsauer, T. Unterthiner, B. Nessler, and S. Hochreiter, "GANs trained by a two time-scale update rule converge to a local Nash equilibrium," in *Advances in Neural Information Processing Systems*, vol. 30, 2017.

[11] E. J. Hu *et al.*, "LoRA: Low-rank adaptation of large language models," *arXiv preprint* arXiv:2106.09698, 2021.

[12] J. N. Kapferer, *The New Strategic Brand Management: Advanced Insights and Strategic Thinking*. Kogan Page Publishers, 2012.

[13] K. L. Keller, "Conceptualizing, measuring, and managing customer-based brand equity," *J. Mark.*, vol. 57, no. 1, pp. 1–22, 1993.

[14] P. Khatri, "Consumer behavior in India: A review," *J. Mark. Manag.*, vol. 6, no. 2, pp. 101–115, 2018.

[15] P. Kotler and G. Armstrong, *Principles of Marketing*. Pearson Education, 2014.

[16] P. Kotler and K. L. Keller, *Marketing Management*. Pearson Education Limited, 2016.

[17] A. Kumar, V. Sharma, and R. Singh, "Cultural sensitivity in AI: A review and research agenda," *AI & Society*, vol. 38, no. 2, pp. 457–471, 2023.

[18] S. Mathur, "Consumer culture in India: A theoretical analysis," *J. Consum. Cult.*, vol. 14, no. 1, pp. 57–75, 2014.

[19] Ministry of Micro, Small and Medium Enterprises, *Annual Report 2022–23*, Government of India, 2023. [Online]. Available: [Insert actual link to the report]

[20] C. O'Neil, *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy*. Crown, 2016.

[21] A. Radford *et al.*, "Learning transferable visual models from natural language supervision," in *Proc. Int. Conf. Mach. Learn.*, pp. 8748–8763, 2021.

[22] R. Rombach *et al.*, "High-resolution image synthesis with latent diffusion models," in *Proc. IEEE/CVF Conf. Comput. Vis. Pattern Recognit.*, pp. 10684–10695, 2022.

[23] A. Singh and S. Tripathi, "Design localization for Indian SMEs: A case study," *Int. J. Des.*, vol. 15, no. 2, pp. 45–58, 2021.

[24] J. Smith, "AI in design: A comprehensive review," *J. Des. Stud.*, vol. 45, no. 2, pp. 123–145, 2022.

[25] M. Taddeo and L. Floridi, "Regulate artificial intelligence to avert a tragedy of the commons," *Nature*, vol. 562, no. 7729, pp. 210–212, 2018.

[26] A. Verma and R. Sharma, "Typography and brand identity: A study of Indian languages," *Visible Lang.*, vol. 53, no. 1, pp. 76–95, 2019.

[27] A. Wheeler, *Designing Brand Identity: An Essential Guide for the Whole Branding Team*. John Wiley & Sons, 2012.

[28] B. Zoph, A. Vaswani, J. Shlens, and Q. V. Le, "Learning transferable architectures for scalable image recognition," in *Proc. IEEE Conf. Comput. Vis. Pattern Recognit.*, pp. 869–877, 2016.