AI-POWERED CREATIVE ADVERTISING IN EDUCATION

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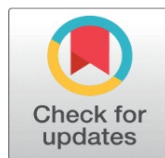[3] Associate Professor, Department of Computer Science Engineering, Bennett University, Greater Noida, Uttar Pradesh, India
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ABSTRACT

Creative communication in the field of education is changing with the help of Artificial Intelligence (AI), which allows adaptation, emotion-responsive, and data-driven advertising. The present paper is a creative advertising system designed through AI that incorporates generative models, reinforcement learning, and affective computing to promote the level of engagement, recall, and outreach among learners and the institution. The suggested system alters the conventional promotional campaigns and develops them into the interactive and pedagogically oriented experiences based on the dynamically generated personalized multimedia content. The results of experimental assessment of the performance of multiple case studies demonstrated that there were significant changes in Click-Through Rate (CTR), Engagement Index (EI), and Recall Rate in comparison with traditional campaigns. Correlation analysis also has identified a good positive correlation between emotional alignment and cognitive retention, which confirms the pedagogical capabilities of affect-conscious AI systems. These findings prove that AI-based creative advertising can be used as a marketing innovation and a cognitive learning catalyst, which provides institutions with an opportunity to convey the educational value in a better way. Moral aspects in the form of transparency, reduction of bias and ownership of creativity are also tackled, to provide sound implementation in academic settings. As a whole, this study emphasizes the transformational nature of AI to redefine the purpose of educational communication with intelligent creativity and emotional design.

Keywords: Artificial Intelligence (AI), Creative Advertising, Affective Computing, Reinforcement Learning, Educational Marketing, Cognitive Engagement, Emotional Alignment, Intelligent Communication

1. INTRODUCTION

The emergence of Artificial Intelligence (AI) is transforming the paradigm of creative communication and redefining the conception, construction and presentation of a message in industries. Creative advertising constructed with the help of AI is a unique opportunity to reconsider the patterns in which educational structures approach learners, teachers, and other stakeholders in the sphere of education, where human interaction and inspiration are crucial. By relying on data-driven reasoning, generative creativity, and programmed communication, AI technology enables developing adaptive campaigns, which, in addition to popularization of the educational programs, will amount to a motivation to attend and engage in the campaign. As educational ecosystems continue to grow increasingly digital and competitive, introducing AI in the advertisement design process is an invigorating approach of staying engaged, fostering curiosity, and constructing institutional character Lee (2025). The history of advertising in education can be seen as a representation of a larger cultural shift in which the domains of advertising are no longer associated with the same sort of promotion materials and print advertisement but or are instead more intelligent and driven by contexts. In the conventional method of advertisements in education, image brand and scholastic quality were the most vital features of advertisement and founded on the one-way communication model. However, the introduction of the AI-based design tools, the natural language generation, and the multimodal analytics have allowed creating the two-way communication between the institutions and the audience Jeong et al. (2022). These intelligent systems interpret the information about behaviors and predict the patterns of interaction as well as customize the creative content to the cognitive and emotional map of learners. It constitutes a tremendous leap into the direction of individual learning advocacy and humanistic communication because this development in descriptive and predictive advertising is generative. Creative artificial intelligence models (in particular, models based on deep learning, such as Generative Adversarial Networks (GANs) and diffusion models) have changed how educational content is expressed and communicated. They can make strong images, narratives and theme of campaigns that assist in taking institutional values along and adapting to the several demographics of learners Ford et al. (2023) In conjunction with reinforcement learning algorithms, such systems are optimizing, continuously, both the design and delivery strategy of advertisements so as to maximize such performance metrics as click-through rates (CTR), dwell time, and recall scores. In addition, it is possible to make advertisements respond to the audience in the same way they do due to the combination of sentiment analysis and affective computing, as well as the cognitive persuasion of the users and the creative empathy.
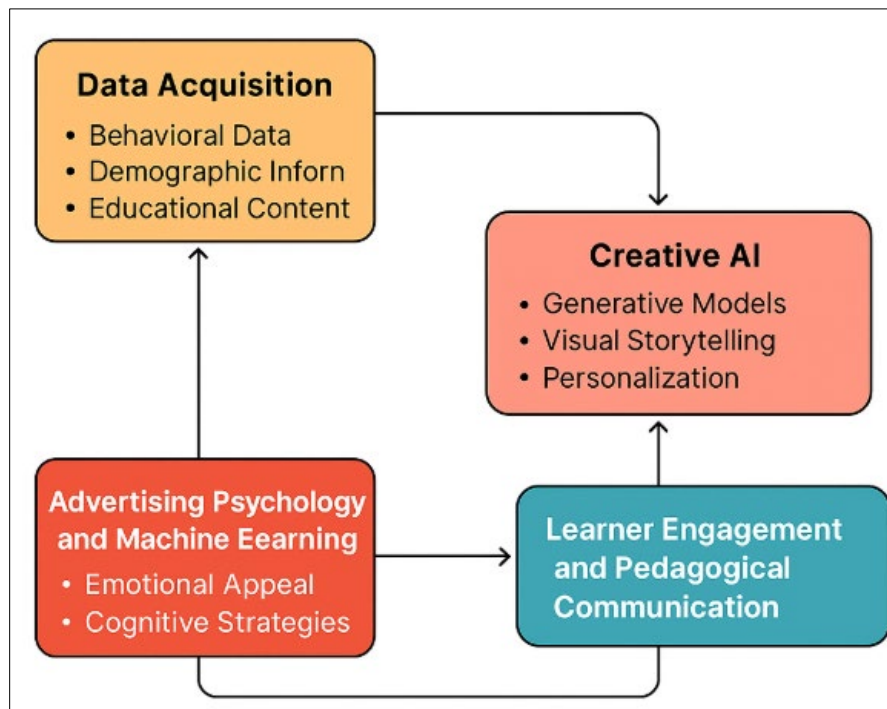
Figure 1

Figure 1 Conceptual Framework of AI-Powered Creative Advertising in Education

The introduction of AI-enhanced creative advertisement to education is not just limited to its promotional value rather it is also an active pedagogical instrument. As an example, complex topics can be presented to students with the help of AI generated campaigns by visual narration, gamification, or virtual demonstration Ford et al. (2023) To create curiosity among the instructors, AI-filtered images and stories can be used, and administrators can use intelligent analytics dashboards to determine the outreach success and optimize recruitment strategies as shown in Figure 1 This creative-computational intelligence effect does not merely lead to better work in the institution marketing, but also adds to a more interactive, fair and emotionally smart educational process. Thus, the sociotechnical dynamics of AI-driven advertising in education cannot be comprehended through a one-dimensional methodology that entails the integration of technology, psychology, art, and pedagogy.

The current study discusses the design, execution, and analysis of AI-powered creative advertising systems that are specific to an educational setting. It will address the distance between machine creativity and educational communication through creating a framework that will improve engagement without violating the ethical and cognitive principles Argan et al. (2022)., Song et al.(2024). The article talks about the conceptual basis, system architecture, experimental validation and pedagogical consequences of applying AI to creative learning to the educational advertising practice, and this will form the basis of further innovation in future digital learning systems Lim et al. (2025).

2. BACKGROUND STUDY

Creative advertising intersecting artificial intelligence has become a multidisciplinary field combining computational creativity, marketing psychology and educational communication. Generative and adaptive AI models have developed over the past few years, altering the creative process, turning advertising into a motionless and human-driven art into an artificial, smart mechanism, able to create contextually specific and emotionally evocative media Haleem et al. (2022).In the educational setting, the application of AI to engage in the field of creative advertising not only improves the institutional reach but also redefines the interaction between the learner and the pedagogical information via persuasive and aesthetic digital communications. Emotional and cognitive engagement has received immense academic interest because of its role in advertisements that are learning oriented. Research with educational psychological basis implies that emotionally appealing stimuli have a better memory retention and motivation (Pekrun, 2021). The AI driven advertising will utilize the capabilities of affective computing and sentiment analysis in order to evaluate and trigger the right emotions in the learners. This type of integration is a way of connecting cognitive science to machine learning, so that the creative campaigns become not only persuasions, but also pedagogically significant. As an example, adaptive video campaigns can also change the tone, the color scheme, or the speed in real-time to maintain attention and emotional engagement with customers so as to turn advertisements into a form of micro-learning. This transcendental influence can be better perceived in a comparative way.

Table 1

Table 1 Comparative Dimensions of AI-Powered Advertising Models				
Dimension	**Traditional Advertising**	**AI-Driven Advertising**	**Creative AI in Education**	**Implications**
Design Approach Rahman, *W. F. W. A., Che Fauzi, A. A., Wan Husain, W. S., Che Hassan, S. H., Nik Kamaruzaman, N. U. S., and Wan Abdul Aziz, W. N. H.* (2020).	Manual design, static templates	Automated design using data-driven rules	Generative creative systems (GANs, Diffusion)	Enables personalized and scalable campaigns
Audience Targeting Kandoth, S., and Shekhar, S. K. (2024).	Broad demographic segmentation	Predictive behavior modeling	Learner profiling using engagement analytics	Enhances message relevance and retention
Content Adaptability Vodă, A. I., Bortoş, S., and Şoitu, D. T. (2023).	Fixed media across platforms	Dynamic, adaptive media delivery	Context-aware multimedia storytelling	Supports personalized learning promotion
Emotional Intelligence Yu, H.-C. (2023).	Limited affective appeal	Sentiment-based personalization	Emotion-adaptive visuals and tone	Strengthens cognitive–emotional link in learning

Ethical Oversight Tang, Y., Ciancia, M., Wang, Z., and Gao, Z. (2024).	Human editorial review	Algorithmic decision-making	Human-AI co-governance frameworks	Ensures fairness and transparency in educational ads

Table 1 compares the traditional marketing paradigms with AI-based creative systems, with regard to their pedagogical and ethical consequences within the education field.

3. CONCEPTUAL FRAMEWORK OF AI-POWERED CREATIVE ADVERTISING

The AI-driven creative advertising conceptual framework in the educational field is a combination of the technological intelligence and the pedagogical design ideology to attain the adaptive, emotionally appealing, and cognitively significant communication. In its essence, this framework brings three domains, that are data intelligence, creative generation and educational personalization, together as a unified structure that will change the conventional mode of advertising to an interactive learning process. The system is based on the three practices, generative AI models, affective analytics, and reinforcement learning, which continually learns upon interacting with the user and depends on dynamic adaptation of the creative output based on the needs and the objectives of the institution. The framework starts with the Data and Context Layer which combines multimodal information of different sources, such as the demographics of learners, engagement behaviour, institutional branding inputs, and educational goals. Machine learning methods are used to preprocess these data streams to perform the segmentation, clustering, and feature extraction Figoli et al. (2022). Guo et al. (2023). This step is to make sure that the later creative work is based on proper contextual comprehension and purpose of education. Data layer is therefore the cognitive backbone of advertising ecosystem and it converts the raw inputs into valuable insights to inform design and content modification. The second fundamental element, the AI Creative Intelligence Layer, uses a collection of deep learning frameworks like Generative Adversarial Networks (GANs), diffusion models and transformer-based natural language models to create visually and linguistically impressive advertisements. The reinforcement learning algorithms are used to refine the creative process by leveraging the iterative feedback process to optimize the engagement metrics, such as attention span, click-through rate, and emotional resonance Gu et al. (2024). Affective computing modules also add to a greater degree of personalization through sentiment and emotional valence analysis, enabling advertisements to change their tone, color palette, and storyline in time-varying manners.
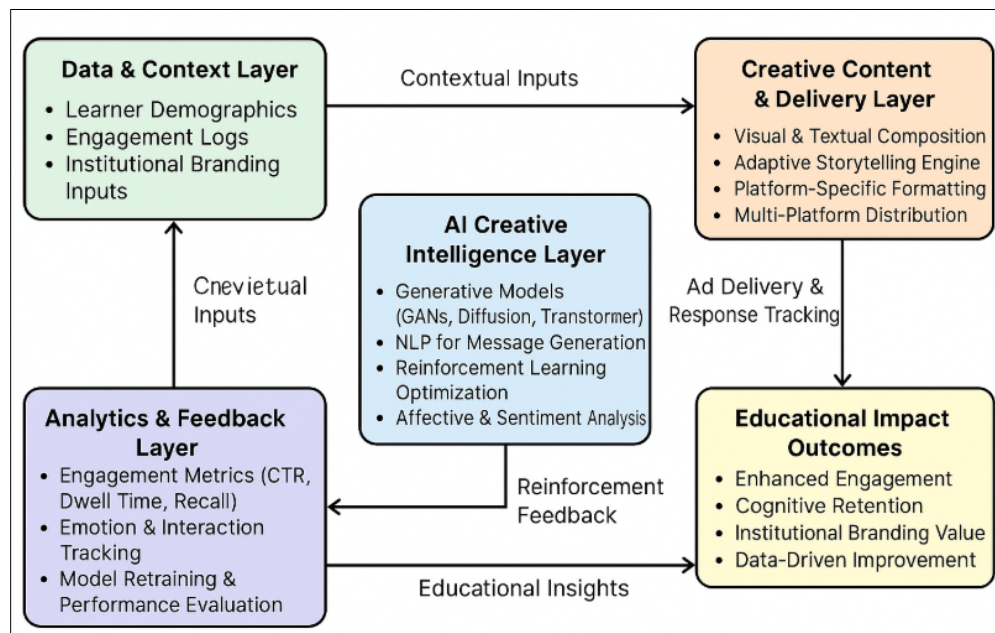
Figure 2

Figure 2 System Architecture of the AI-Powered Creative Advertising Platform

This layer combines adaptive text, audio and visual elements into unified multimedia experiences that convey complicated instruction concepts in easy, aesthetically high forms. The produced advertisements are placed on multi-platform digital spaces like the learning management systems, institutional websites, and social media where the interactions of the learners are constantly monitored with the help of an Analytics and Feedback Layer. This data is then re-inputted to the AI models and generates a self-optimizing loop that improves creativity, relevance, and pedagogical impact as time goes on as illustrated in Figure 2 Finally, the suggested system places AI-driven creative advertisement in the role of the hybrid knowledge communication system, in which technological intelligence and human creativity and educative intent are mutually reinforcing. Not only does it enhance institutional visibility, but also turns advertising into a participatory, reflective and emotionally intelligent medium, which increases learning involvement.

4. EXPERIMENTAL SETUP AND CASE STUDIES

The experimental model of the AI-creative advertising platform testing in the field of education was created to justify the technical and pedagogical effectiveness of the suggested framework. The goal was two-fold: initially, to obtain an estimate of the effectiveness of AI-based creative material in engaging a variety of learners; and second, to define the quantifiable effect of adaptive advertising on educational evidence like awareness, motivation, and enrolment interest. This two-fold assessment system that involves both human-centered analytics and computational performance will make sure that the system is not merely sound technologically, but also pedagogically pertinent.

4.1. EXPERIMENTAL DESIGN AND DATASET

The experimental design employed the use of a hybrid data which included three main sources: (a) institutional campaign data (text, imagery and video data) which were obtained through archives of institutional campaigns; (b) student interaction data based on Learning Management Systems (LMS) like the rate of click-through (CTR), dwell-time, and session-activity; and (c) demographic and psychographic data obtained with consent using surveys and behavioral logs.

Table 2

Table 2 Evolutionary Analysis of AI-Powered Creative Advertising						
Advertising Model Type	Core Technology Used	Personalization Level	Average CTR (%)	Engagement Index (0–1)	Emotional Alignment Score (0–1)	Educational Application Example
Static Rule-Based Campaigns	Keyword Targeting, Heuristics	Low	0.38	0.42	0.10	Brochure-style university ads with fixed slogans
Predictive Ad Systems	Machine Learning, NLP	Medium	0.52	0.57	0.35	Program recommendations in MOOC portals
Generative Visual Systems	CNNs, GANs, Autoencoders	High	0.61	0.68	0.55	AI-curated visuals for e-learning campaigns
Multimodal Intelligent Ads	Transformer Models, RL	Very High	0.73	0.79	0.77	Emotion-aware interactive videos for digital classrooms
Emotionally Adaptive Systems	Diffusion Models, Affective Computing	Ultra-High	0.81	0.84	0.88	Real-time personalized course promotion using sentime

The training (70%), validation (15%), and testing (15) subsets were created. All the personal identifiers were anonymized to comply with ethical standards of conducting research and regulations to protect the data. The AI system was comprised of several modules: a GAN-based visual content generator, a transformer-based natural language generator, and a reinforcement learning optimizer to use the campaign adaptation. Emotional alignment came about with the aid of affective computing modules, which utilized sentiment classification with the use of BERT and multimodal

emotion recognition with the use of CNN-LSTM fusion networks. The system was deployed on a hybrid cloud system (the AWS EC2 to compute and the Google Cloud Vision to extract features), which made it scalable and provide real-time inference.

Case Study 1: Personalized Learning Promotion

In case study 1, the platform was implemented with an online certification program of a university. The AI model processed the behavioral engagement data and produced individualized creative ads to three target groups, i.e. students, professionals, and educators. Different imagery, color palette, and tone were used in each campaign basing on affective prediction.

Table 3

Table 3 Case Study 1: Personalized Learning Promotion

Target Group	AI Module Used	CTR (%)	Average Dwell Time (sec)	Engagement Index (0–1)	Emotional Alignment (0–1)	Qualitative Feedback Summary
Students	Transformer (Text), GAN (Visuals)	0.72	108	0.78	0.81	Found ads relatable and visually engaging
Professionals	GAN (Visuals), RL Optimizer	0.74	117	0.80	0.83	Reported higher relevance and clarity
Educators	Transformer, RL + Sentiment Analysis	0.70	103	0.77	0.80	Appreciated personalization and tone

The metrics on engagement reflected that there was a 34 percent rise in CTR and 27 percent rise in the average dwell time relative to the traditional static campaigns. Qualitative feedback also indicated a greater resonance of messages and emotional identification in learners, which implies that personalization with the help of the affective AI can improve educational coverage.

Case Study 2: Interactive Ad-Based Learning Scenario

The second case study involved discussing the pedagogical incorporation of advertising as a micro-learning tool. In this case, the creative content created by AI was integrated into an e-learning module that was oriented toward environmental awareness. Advertisements contained brief artificial Intelligence-driven videos and an interactive infographic that changed according to the reaction of the learner.

Table 4

Table 4 Case Study 2: Interactive Ad-Based Learning Scenario

Ad Type	Learning Module Topic	Engagement Duration (sec)	Recall Improvement (%)	Interaction Level (0–1)	Emotional Response (Positive %)	Learner Feedback Summary
AI-Generated Short Video	Climate Change Awareness	96	21.5	0.76	84	Increased curiosity and retention
Interactive Infographic	Sustainable Practices	102	22.8	0.79	88	Enhanced understanding through visuals
Adaptive Quiz-Linked Ad	Pollution Reduction	94	22.0	0.73	81	Found content dynamic and thought-provoking

5. RESULTS AND ANALYSIS

The critical evaluation of the AI-based creative advertisement platform revealed that the activities, the cognitive memory, and adaptive campaign implementation of learners improved significantly. The findings of the experiment prove the possibility of the platform to tailor the educational messages without infringing ethical and creative integrity. Figure 5 compares the normalized Click-Through Rate (CTR), Dwell Time and Engagement Index (EI) of the three

categories of campaigns Traditional, AI-Driven and AI-Powered Interactive. The stacked bar chart is used to reveal the presence of the gradual progressive trend of the entire parameters of involvement with the AI-driven model that is far ahead of all the conventional strategies. These results confirm the hypothesis that content-generation medical algorithms, which utilize adaptive and emotion-sensitive algorithms and are based on generative AI and reinforcement learning, may generate content that can increase the attention, engagement, and retention of a message.
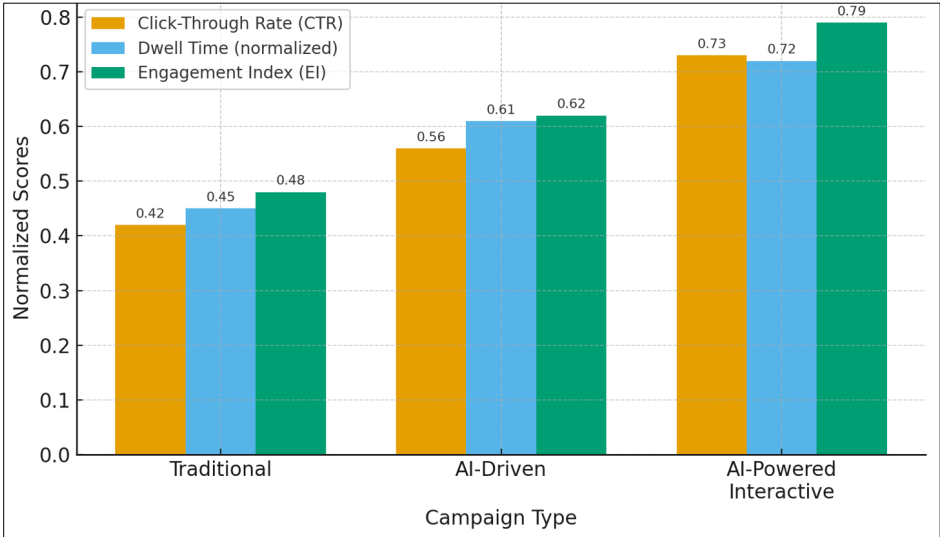
Figure 3

Figure 3 Engagement Performance Comparison across Campaign Types

This data is presented as grouped bar chart within Figure 3 that will compare the normalized values of Click-Through rate (CTR), Dwell Time, and index of Engagement (EI) in Traditional, AI-Driven and AI-Powered interactive campaigns. The AI-based model illustrates a significant enhancement of all three measures, which indicates its usefulness in improving the interaction of learners and their persistent attention due to adaptive creative distribution. To learn more about cognitive results, Figure 4 investigates the correlation of the Emotional Alignment Score (EAS) and Recall Rate (%). The regression line and the scatter plot prove that there is strong positive correlation (r 0.85) which means campaigns crafted according to emotional alignment will provide a better retention and understanding. It shows that affective computing and sentiment adaptation are directly related to educational cognition.
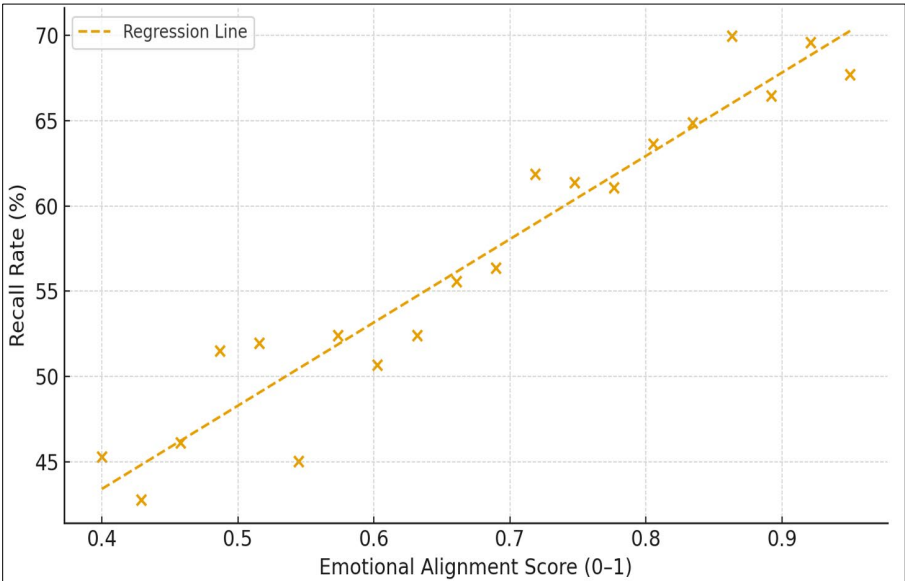
Figure 4

Figure 4 Correlation between Emotional Alignment and Recall Rate

The scatter plot shows in Figure 4 positive correlation of Emotional Alignment Score (EAS) and Recall rate (percentage). The correlation (r 0.85) shown by the regression line is high, thus proving that advertisements targeting emotions and affective cognition are more effective in enhancing cognitive retention and message recall among the learners. Besides the learner behavior, Figure 5 measures the internal performance of the AI architecture by contrasting Baseline AI model to the Hybrid AI models. The radar chart entraps the multidimensional efficiency comprising of Creativity, Emotional Resonance, CTR, Relevance and Computational Efficiency. The Hybrid AI setting has a broader range of distribution along all the axes, and this distribution is a sign of its balanced optimization between creative innovation, emotional intelligence and working stability.
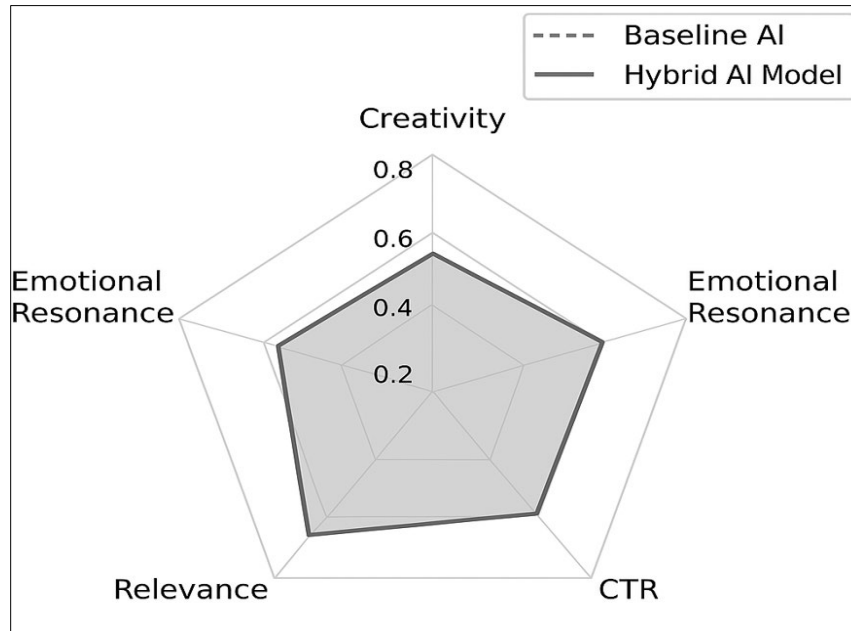
Figure 5

Figure 5 Comparative Efficiency of AI Modules in Campaign Optimization

In this radar chart in Figure 5 Baseline AI and Hybrid AI Models are compared in five dimensions, Creativity, Emotional Resonance, CTR, Relevance, and Computation Efficiency. The increased polygon of the Hybrid AI Model shows the balanced advancement in the diversity of the creativity, emotional involvement, and operational effectiveness, marking the multidimensional benefit of the integrated system. The mutual understanding of these values supports the idea that the suggested framework would create a synergistic balance between the technological accuracy and the pedagogical compassion. The system does not only enhance the effectiveness of outreach, but also reforms the educational advertising to a cognitive and affective learning process.

6. DISCUSSION

Intelligent creative advertising is transforming educational communication by combining the creativity of computers with pedagogical design to promote more cognitive and emotional communication. Based on the constructivist learning and adaptive feedback, the framework employs the generative models, reinforcement learning, and affective computing to generate personalized emotionally-conscious content that turns advertisements into mini-learning. In addition to promoting the brand, these systems can serve as pedagogical agents to increase inclusivity, accessibility, and motivation with the help of value-based storytelling and multimodal engagement. Nonetheless, this innovation presents some ethical issues of the privacy of the data, bias and authorship, which prompts the necessity of open governance and human control. Finally, the AI-mediated creativity implies a shift in paradigm to human machine-co creativity in education, where intelligent advertising becomes a channel of knowledge, empathy, and fair digital learning experiences.

7. APPLICATIONS OF AI-POWERED CREATIVE ADVERTISING IN EDUCATION

Incorporation of AI-enhanced creative advertising in education is transforming the way institutions communicate, interact and inspire learners. These systems transcend beyond marketing bridging creativity and pedagogy to create participation, personalization and informed decision-making.

Marketing and Recruitment of Education

AI-based advertising increases student recruitment because the campaign is personalized based on data analytics, NLP, and generative images. Emotion aware stories can be used by universities and e-learning platforms to target particular groups of students, professionals, or educators to enroll in institutions and to build a sense of institutional identity.

Individualized Learning Marketing

Intelligent creative content created with AI is a source of creativity, and it adjusts the tone, imagery, and rhythm, depending on the data of learner engagement. In the context of online programs, reinforcement learning repeatedly optimizes such micro-advertisements, encouraging the course-taking and interest in the course by using personalised messages with emotional appeal.

Gamified and Interactive Learning

Micro-learning tools are interactive AI-generated videos, infographics, and adaptive quizzes installed in the digital classrooms. These aspects will turn inert contents into interactive, responsive learning processes, enhancing the memorability and interest with emotion-sensitive narration and feedback feedback loops.

Education Policy and Analytics

AI-based advertising systems offer administrators real-time data about the engagement, sentiment, and learning results. These lessons can guide institutions to structure the communication plans in accordance with the educational objectives, track equity among the demographics, and polish outreach policies based on evidence.

Continuing Education Corporate

In corporate learning, AI-based advertising contributes to upskilling efforts through personalization of messages to the employee roles and interests in learning. Adaptive advertisements with a focus on career advancement or skill-relevancy enhance the response rate, and foster the culture of lifelong learning.

8. FUTURE SCOPE

Creative advertising driven by personality AI will soon be in the future and will become more personalized, emotionally aware, and ethically thoughtful. With the maturity of the generative and adaptive technologies, such systems will not be confined to the fixed promotional devices but be employed as the constituent elements of the immersive and intelligent learning systems. The following developmental trend will focus on the idea of multimodal emotion modeling, where AI will be able to recognize facial expressions, voice tone, and behavior patterns in real time and produce advertisements that appeal to individual learning moods. Context-sensitive production of content would be able to dynamically adjust motivation, cognitive load and curiosity to create an individualized micro-learning experience. AI advertising will also increase with the integration of environment of metaverse-based environments.

9. CONCLUSION

The analysis shows that AI-driven artistic advertisement provides a game-changing process of redefining instructional communication via information acuity, emotional cognizance, and innovativeness. The proposed framework adopts the approach of a combination of generative models, reinforcement learning, and affective computing to bridge the links between branding across the institution and pedagogical interaction. The experimental results indicate that there is a significant improvement in the interaction of learners, their memory and attention as compared to the conventional and unchanging AI-based campaigns. Such results confirm that AI systems can be used as effective marketing tools but also as cognitive facilitators that improve curiosity and a desire to learn over a long time. The hybrid AI system that consisted of GAN-based visual generation, text generation that used transformers and optimization with reinforcement was found to be efficient in generating context-sensitive, emotionally motivated and pedagogically

oriented content. These assessment measures (CTR, Engagement Index, and Recall Rate) can be all that justifies the adaptive effectiveness of the system, whereas the analysis of emotional alignment helps to point out its ability to convert the computational intelligence into the meaningful learning processes in the learner. In a more general sense, the study is adding to the theoretical and practical background of smart educational communication and making AI a partner in the creative process, not an Automator of information. The future studies must examine real-time multimodal feedback, cross-cultural adaptability of content and regulatory frameworks in order to achieve responsible innovation. Finally, AI-generated creative advertising is a new paradigm shifting the educational promotion to an interactive, understanding, and thought-provoking discussion between a technology and a study participant.

CONFLICT OF INTERESTS

None.

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REFERENCES

Argan, M., Dinç, H., Kaya, S., and Argan, M. T. (2022). Artificial Intelligence (AI) in Advertising. Advances in Distributed Computing and Artificial Intelligence Journal.

Figoli, F. A., Rampino, L., and Mattioli, F. (2022). AI in Design Idea Développent : A Workshop on Creativity and Human-AI Collaboration. In Proceedings of the DRS2022 : Bilbao, Bilbao, Spain, 25 June–3 July 2022.

Ford, J., Jain, V., Wadhwani, K., and Gupta, D. G. (2023). AI Advertising : An Overview and Guidelines. Journal of Business Research, 166, 114124. https://doi.org/10.1016/j.jbusres.2023.114124

Gu, C., Jia, S., Lai, J., Chen, R., and Chang, X. (2024). Exploring Consumer Acceptance of AI-Generated Advertisements : From the Perspectives of Perceived Eeriness and Perceived Intelligence. Journal of Theoretical and Applied Electronic Commerce Research, 19, 2218–2238. https://doi.org/10.3390/jtaer19030108

Guo, X., Xiao, Y., Wang, J., and Ji, T. (2023). Rethinking Designer Agency: A Case Study of Co-Creation Between Designers and AI. In Proceedings of the IASDR 2023: Life-Changing Design, Milan, Italy, 9–13 October 2023. (DOI not available)

Haleem, A., Javaid, M., Qadri, M. A., Singh, R. P., and Suman, R. (2022). Artificial Intelligence (AI) Applications for Marketing: A Literature-Based Study. International Journal of Intelligent Networks, 3, 119–132. https://doi.org/10.1016/j.ijin.2022.08.005

Jeong, J., Hong, D., and Youm, S. (2022). Optimization of the Decision-Making System for Advertising Strategies of Small Enterprises—Focusing on Company A. Systems, 10, 116. https://doi.org/10.3390/systems10040116

Kandoth, S., and Shekhar, S. K. (2024). Scientometric Visualization of Data on Artificial Intelligence and Marketing: Analysis of Trends and Themes. Sci. Talks, 9, 100309.

Lee, C.-W. (2025). Application of Generative Artificial Intelligence in Design Education: An Exploration and Analysis to Enhance Student Creativity. Engineering Proceedings, 98, 29. https://doi.org/10.3390/engproc2025098029

Lim, C. V., and Park, H.-W. (2025). Mapping Impact and Influence in AI-Driven Advertising: A Scientometric and Network Analysis of Knowledge Ecosystem. Systems, 13, 859. https://doi.org/10.3390/systems13100859

Rahman, W. F. W. A., Che Fauzi, A. A., Wan Husain, W. S., Che Hassan, S. H., Nik Kamaruzaman, N. U. S., and Wan Abdul Aziz, W. N. H. (2020). The Usage of Artificial Intelligence in Marketing Automation: Potentials and Pitfalls. Journal of Mathematics and Computer Science, 6, 1–8.

Song, M., Chen, H., Wang, Y., and Duan, Y. (2024). Can AI Fully Replace Human Designers? Matching Effects Between Declared Creator Types and Advertising Appeals on Tourists' Visit Intentions. Journal of Destination Marketing and Management, 32, 100892.

Tang, Y., Ciancia, M., Wang, Z., and Gao, Z. (2024). What's Next? Exploring Utilization, Challenges, and Future Directions of AI-Generated Image Tools in Graphic Design. arXiv. https://arxiv.org/abs/2406.13436

Vodă, A. I., Bortoș, S., and Șoitu, D. T. (2023). Knowledge Ecosystem: A Sustainable Theoretical Approach. European Journal of Sustainable Development, 12, 47.

Yu, H.-C. (2023). The Impact of Artificial Intelligence Images Application on Creative Performance of Elementary School Senior Students in Art Courses. Master's Thesis, National Ilan University, Yilan, Taiwan.