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Constructivist Learning of Students in the Age of Generative Artificial Intelligence

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Abstract:

This quantitative descriptive study explores how generative artificial intelligence (AI) intersects with constructivist learning principles among marketing students at Capiz State University. Guided by the Technology Acceptance Model and Constructivist Learning Theory, the research evaluates student perspectives on technology adoption and key learning dimensions, including exploration, experimentation, problem-solving, and critical thinking. Data were gathered through structured questionnaires administered to marketing students and analyzed using descriptive statistics. The findings demonstrate high overall acceptance and positive perceptions toward generative AI. Students regard these tools as highly useful for streamlining academic tasks, enhancing productivity, and supporting the execution of marketing projects. Generative AI is also perceived as accessible and user-friendly, effectively reducing workload while fostering engagement. Furthermore, students actively leverage AI as an interactive partner for hands-on experimentation, idea generation, and practical problem-solving. Rather than replacing cognitive effort, the technology encourages deeper inquiry, analytical evaluation of marketing strategies, and reflective decision-making. The study's implications underscore the need to formally integrate generative AI into higher education marketing curricula. Higher education institutions and educators should move beyond foundational theory to provide structured, hands-on opportunities that utilize AI for real-world applications such as strategy development and campaign creation. To maximize benefits, academic programs must pair technical AI literacy with ethical frameworks and guidance on critical thinking, ensuring students verify outputs, avoid overreliance, and develop into adaptable, industry-ready marketing professionals.

Keywords: Generative Artificial Intelligence, Constructivist Learning, Marketing Education, Technology Acceptance Model, Problem-Solving, Critical Thinking

1. Introduction

In the age of generative artificial intelligence (AI), educational approaches for marketing students are evolving rapidly, influenced by advancements that have reshaped both the marketing industry and pedagogical practices. A constructivist learning approach, in which students actively build knowledge through real-world experiences and reflection, is particularly relevant to marketing education. Generative AI provides marketing students with unprecedented access to tools and resources that support creative ideation, strategy development, and data analysis, key components of marketing expertise (Papert, 1993; Jonassen, 1999).

Constructivism emphasizes learning as a process where students connect new information to prior knowledge and experiences, a framework that generative AI complements by offering highly interactive and personalized learning environments (Piaget, 1952; Vygotsky, 1978). Tools like AI-driven content generators, data analytics software, and adaptive learning platforms enable students to apply marketing theories in simulated or real-world scenarios, fostering deep engagement and critical thinking (Siemens, 2005; Anderson & Dron, 2011).

Moreover, AI-driven platforms enable marketing students to co-create content, refine communication strategies, and practice data-driven decision-making, aligning with constructivist principles of learning by doing. As AI systems generate ideas or refine campaigns based on user inputs, they serve as interactive partners that encourage students to experiment and iterate, thereby constructing knowledge through feedback and reflection (Santos, 2017). As the marketing field grows more data-driven, the skills required of professionals are shifting to include AI literacy and critical thinking about AI's ethical and strategic implications. Educators adopting a constructivist approach can help students develop these skills by encouraging hands-on experiences with generative AI, which allows learners to see how AI tools can support creativity, decision-making, and strategic planning in marketing (Moorhouse & Wilkinson, 2021). This integration prepares students for a marketing landscape in which AI is not only a tool but a co-participant in the creative process. In recent years, generative AI for content creation has significantly revolutionized task marketing automation. Left, everyone has wondered how marketing should be taught. Marketing education now needs to incorporate these technological advancements into the curriculum. This integration helps students gain skills that are essential in a fast-changing market.

By doing so, graduates become better equipped to tackle current challenges and use AI tools effectively in their careers. The Commission on Higher Education (CHED) has noted a significant gap between the skills graduates possess and those demanded by the industry. As generative AI continues to reshape marketing practices, there is a pressing need for educational

institutions to adapt their programs accordingly. The traditional marketing curriculum, often focused on foundational theories and principles, may not adequately equip students with the practical skills required to navigate an AI-driven landscape (Pine, 2021). In response to these challenges, CHED has emphasized the importance of integrating technology and data analytics into marketing education. By doing so, students can develop competencies that align with industry needs, thereby enhancing their employability and effectiveness in the workforce (CHED, 2022). The purpose of constructivist learning of marketing students in the age of generative AI is multifaceted. Firstly, it aims to bridge the skills gap identified by CHED, ensuring that graduates are not only knowledgeable about marketing theories but also proficient in utilizing AI tools to analyze consumer behavior, create targeted campaigns, and measure performance metrics. By incorporating hands-on experiences with generative AI technologies, educators can foster a deeper understanding of how these tools can be applied in real-world situations (Smith & Jones, 2023). Secondly, this reimagined approach encourages innovation in marketing strategies, enabling students to explore creative possibilities offered by AI in content generation, customer engagement, and market segmentation (Anderson, 2023).

Moreover, marketing education can lead to numerous benefits for students, educators, and the industry at large. For students, it provides an opportunity to gain relevant skills that increase their competitiveness in the job market. Familiarity with generative AI technologies can significantly enhance their ability to contribute to organizations, ultimately leading to better job placements and career advancement. For educators, this paradigm shift presents an opportunity to engage with contemporary marketing practices and stay abreast of technological trends, thereby enriching the learning experience (Taylor, 2023). Finally, the industry benefits from a more skilled workforce that can adapt to the dynamic nature of marketing in the digital age, fostering innovation and driving business growth (Wilson & Green, 2023).

In conclusion, constructivist marketing education in the age of generative AI is essential for aligning educational outcomes with the evolving needs of the marketing industry. By addressing the skills gap identified by CHED and integrating AI technologies into the curriculum, educational institutions can prepare students to thrive in a digital-first environment. This initiative not only empowers graduates with the tools necessary for success but also contributes to the overall advancement of the marketing profession. As the landscape continues to evolve, ongoing adaptation and innovation in marketing education will be crucial for ensuring that future marketers are equipped to meet the challenges of an increasingly AI-driven world.

Statement of the Problem

This study aimed to analyze and explore constructivist learning of marketing students in the age of generative Artificial Intelligence. Specifically, this study sought to find out:

1. What is the level of technology acceptance of marketing students on generative artificial intelligence in terms of perceived usefulness and perceived ease of use?

2. What is the level of marketing students on exploration and experimentation, problem- solving, and critical thinking in using generative artificial intelligence?
3. What insights into constructivist learning of marketing students can be drawn from the results of the study?

Theoretical Framework

Built on the theoretical foundations of Constructivist Learning Theory (Piaget, 1973) and the Technology Acceptance Model (TAM), this study is focused on reviewing the learning experiences of marketing students in light of generative artificial intelligence (AI). Constructivist Learning Theory argues that learners actively construct knowledge through meaningful experiences rather than passively receiving knowledge. It prioritizes exploration, experimentation, problem-solving, and critical thinking as fundamental to deep understanding. In the context of generative AI, this theory aligns with the way students engage with AI tools to develop marketing strategies, analyze data, and iterate on solutions. Generative AI facilitates constructivist learning by enabling students to explore real-world marketing scenarios, experiment with various strategies, and observe outcomes. Additionally, AI encourages problem-solving by allowing students to identify issues, generate solutions, and refine approaches. It also supports critical thinking by providing AI-driven insights that challenge students to analyze, evaluate, and adapt their decisions in response to feedback. These aspects of constructivist learning are central to the study's focus on marketing students' learning outcomes, particularly exploration, experimentation, problem-solving, and critical thinking.

Developed by Fred Davis in 1989, the Technology Acceptance Model (TAM) explains how users come to accept and use technology. Technology adoption boils down to two things: Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). Perceived Usefulness is students' perception of whether using generative AI would enhance their learning and performance. Perceived Ease of Use refers to the extent to which a student believes that technology will be used. It assists teachers and developers in determining how students can be better equipped with tools. What do you think about how technology influences how you learn? For instance, technology's influence is seen in making a campaign or interpreting data. Perceived Ease of Use reflects the convenience or hassle AI technologies present to students, which influences their decision to incorporate them into their learning.

In this study, TAM is used to assess marketing students' technology acceptance, which serves as an independent variable influencing their constructivist learning outcomes.

The theoretical framework aligns with the variables in the problem statement by examining how technology acceptance (via TAM) affects constructivist learning outcomes (such as exploration, experimentation, problem-solving, and critical thinking) among marketing students using generative AI. Additionally, faculty insights are explored qualitatively to deepen understanding of how constructivist learning principles and AI are integrated into the curriculum. By combining TAM with Constructivist Learning Theory, this study captures both the technological and pedagogical aspects of generative AI in marketing education. It highlights how students' acceptance of AI, driven by their perceptions of its usefulness and ease of use, directly affects their engagement with AI as a tool for constructing knowledge and solving real- world marketing challenges. This framework provides a comprehensive lens for analyzing how AI can enhance marketing education, fostering students' critical skills while preparing them for a rapidly evolving industry.

2. Literature Review

Constructivist Learning Theory. AI advancements in higher education have reshaped marketing education, posing challenges for educators seeking to integrate AI into curricula. This integration is essential for aligning with industry advancements and fostering responsible AI utilization among students. The purpose of this study is to provide insights into how marketing educators can incorporate AI into their curriculum practices. Central to our inquiry is the application of constructivist learning principles to leverage AI and foster a dynamic, engaging, and deeply impactful educational environment. This approach advocates for active student engagement and the development of learning through direct interaction with AI technologies, bridging the gap between theoretical knowledge and practical application. Employing a dual-strategy methodology, this research provides a case study on an undergraduate digital marketing course to highlight practical considerations for application. Employing a dual-strategy methodology, this research provides a case study on an undergraduate digital marketing course to highlight practical considerations for

responsible and purposeful integration in the classroom. These insights inform practical implications for marketing educators and guide future research directions. In recent years, AI-driven technology has emerged as a major disruptor in business and marketing, and in the role of marketers (Davenport et al., 2020; Grewal et al., 2018). AI advancements have transformed marketing education (Crittenden & Peterson, 2019; Guha et al., 2024), with tools like DALL·E and ChatGPT enhancing learning experiences (Mollick & Mollick, 2022; Schlegelmilch, 2020; Seldon & Abidoye, 2018). Aligning curricula with AI advancements is essential for preparing students for the workforce (Andrzejewski & Dunal, 2021; Paschen et al., 2019). Educators must also engage students in discussions about the responsible use of AI, both in and out of the classroom (Peres et al., 2023).

The influence of AI has spurred interest in integrating it into marketing education to enhance personalized learning (Crittenden & Peterson, 2019; Davenport, 2018; Ferrell & Ferrell, 2020; Mollick & Mollick, 2022). There is a lack of clear guidelines for integrating AI into curricula while addressing ethical issues (Ferrell & Ferrell, 2020; Guha et al., 2024; Thontirawong & Chinchanachokchai, 2021). Constructivism emphasizes active knowledge development through experience and reflection (Applefield et al., 2000) and supports AI-driven learning in marketing education by fostering responsible AI use (Grubaugh et al., 2023). This approach aligns with modern educational theories, leveraging AI for personalized, interactive learning tailored to individual needs. By focusing on active knowledge construction and personal experience, constructivism connects theory with real-world scenarios, preparing students for AI-integrated marketing strategies, ensuring proficiency, responsibility, and

adaptability in digital environments.

The strategy involved two key steps. First, we collaborated with an undergraduate digital marketing program and a consumer electronics company to develop a course in which students created an AI-driven digital marketing campaign for a new mobile phone targeting Generation Z. This approach applied theoretical concepts in a practical digital context. Post-course, we analyzed feedback from students and lecturers to assess experiences, effectiveness, areas for improvement, and best practices. This research examines the interplay of technology, pedagogy, integrity, and industry readiness, offering insights for future marketing education curricula.

This research offers several key contributions. It advances constructivist learning theory within AI-enhanced marketing education, demonstrating how constructivist principles can shape active learning environments and deepen knowledge retention. It also contributes to the discourse on AI ethics in education by developing a specific ethical framework that ensures ethical considerations are integral to AI-driven learning. In addition, the study aligns educational programs with AI advancements in the marketing industry, bridging academic theory with industry practice. Finally, it provides practical insights and strategies to help marketing educators effectively integrate AI technologies, ensuring accessible and adaptable learning experiences.

A conceptual background by examining AI's impact on marketing education, focusing on key advancements and challenges. We then explore constructivist theory and its role in enhancing AI-driven marketing education. This is followed by an in-depth case study of an undergraduate course that details the development of a targeted marketing campaign for a consumer electronics company. The paper then discusses student and lecturer feedback, offering practical considerations for the responsible integration of AI tools into curricula. Finally, we conclude with the future agenda and the theoretical and practical implications of these practices.

Integrating AI into marketing education signifies a paradigm shift, necessitating a theoretical foundation to guide its implementation and evaluate its impact. This section introduces constructivism as the guiding theory underpinning its effective use in this context. Constructivism posits that learners develop knowledge through interactions with their environment, which aligns with the hands-on learning opportunities afforded by AI tools (Applefield et al., 2000). These tools allow students to simulate real-world digital marketing scenarios, fostering a deeper understanding through active engagement (Nguyen et al., 2023). This dual theoretical approach not only enriches the educational experience by leveraging technology to support traditional constructivist values but also adapts these principles to the digital era, recognizing the critical role of digital networks in contemporary learning. Other contemporary educational theories, such as connectivism, which emphasizes the importance of social and technological networks in learning, and experiential learning theory, which focuses on learning through direct experience, also support the inclusion of AI to create dynamic and engaging educational experiences. However, constructivism was chosen as the focal theory owing to its holistic approach, which seamlessly integrates personal, social, and experiential learning, providing a comprehensive framework for effectively utilizing AI in educational settings (Bransford et al., 2000; Mayer, 2004).

Constructivism, with its roots in the work of educational theorists such as Piaget and Vygotsky, emphasizes learning as an active, practical process in which learners build new knowledge on the foundation of their prior understanding (Piaget, 1972; Vygotsky & Cole, 1978). This theory is particularly relevant in marketing education, an area in which AI tools offer unique opportunities for hands-on learning, allowing students to engage directly with real-world marketing scenarios. Constructivism also encourages a sense of personal agency by empowering students to take ownership of their learning and assessment (Brooks & Brooks, 1999). Through AI-driven analytics, predictive modeling, and content creation platforms, students can apply theoretical concepts in practical settings, thus bridging the gap between abstract knowledge and its application. Social constructivism, a branch of constructivism, emphasizes the role of social interactions and cultural context in learning (Vygotsky & Cole, 1978). Vygotsky's notion that social interactions significantly influence cognitive development underscores the value of collaborative learning environments. In AI- enhanced marketing courses, students can work together on projects using AI tools, fostering a collaborative learning culture in which knowledge is co-constructed. These activities not only reinforce individual learning but also enhance team building and communication skills, critical competencies in the marketing field.

In addition, AI tools in marketing education serve as catalysts for social constructivism by facilitating discussions and reflections among students. For instance, AI-powered social media platforms can enable students to experiment with different marketing strategies and receive immediate feedback, encouraging peer discussion and reflection on the outcomes. This interactive process mirrors Vygotsky's emphasis on the zone of proximal development, where learners achieve higher levels of understanding through social interaction and guidance.

Furthermore, incorporating AI in digital marketing education aligns with constructivist principles by customizing learning experiences. Its ability to analyze individual learning patterns and adapt content accordingly ensures that students are engaged at an optimal level of challenge, promoting deeper learning and retention. This personalized approach not only supports the constructivist view of learning as a personal journey and prepares students for the complexities of the digital marketing landscape, where consumer behaviors and technologies are constantly evolving. Applying constructivism and social constructivism to AI-enhanced digital marketing education underscores the importance of active engagement, social interaction, and personalized learning experiences. By leveraging AI tools, educators can create dynamic, interactive learning environments that not only convey theoretical marketing concepts but also equip students with the practical skills and collaborative experiences necessary for success in the digital age.

Finally, constructivism emphasizes active, reflective learning, in which students build knowledge through direct interaction with AI tools that simulate real-world marketing scenarios. Social constructivism further enriches this by fostering collaborative learning environments, which are crucial for developing teamwork and communication skills. This theory advocates for a pedagogical approach that leverages AI to create dynamic, interactive, and personalized learning experiences, preparing students for the complexities of the modern marketing landscape. This approach is also aligned with the transformative learning and technology-embracing argument of Crittenden and Peterson (2019), which advocates that higher education must go beyond imparting knowledge. It must also empower students to take responsibility for their learning,

Cultivate self-control in utilizing technology, foster effective inquiry skills, and enable them to evaluate and synthesize information critically.

3. Methodology

This study is based on a quantitative descriptive research design. It is a method used in describing the characteristics of a population or phenomenon. According to McCombes (2023), descriptive research is an appropriate choice when the research aim is to identify characteristics, frequencies, trends, and categories. It aims to gather information on a particular topic without attempting to establish cause-and-effect relationships. The study was conducted at Capiz State University-Main Campus during the first semester of the Academic Year 2024-2025, particularly from September 2024 to December 2024.

This study included 217 respondents, drawn from a total population of 476 marketing students and faculty in the College of Management, selected through convenience sampling. The sampling method used in this study was Convenience Random Sampling. It is a non-probability sampling method where units are selected for inclusion in the sample because they are the easiest for the researcher to access. Moreover, convenience can improve a sample design's efficiency in terms of survey expenses and estimate accuracy. (Parson, 2017). Unlike simple random sampling, which

selects data at random from the entire population with equal probability for each sample, convenience sampling ensures that each sample is chosen (Hayes, 2023).

Essential demographic information and insights into the constructivist learning of marketing students in the age of artificial intelligence were gathered through a researcher-developed survey. The questionnaire was composed of three (3) major parts: respondents' profiles, the level of awareness of marketing students on constructivist learning in the age of generative artificial intelligence, and marketing students' perception of constructivist learning in the age of generative artificial intelligence. The researcher-developed questionnaire was validated by three experts in fields relevant to this study's focus. Comments and recommendations were noted and incorporated into the questionnaire to improve it. The instrument's reliability was determined through a survey administered to the study's respondents. Cronbach's alpha was 0.834, indicating the questionnaire was reliable.

The research was administered through a researcher-developed survey questionnaire, personally distributed by the researcher, that participants completed. A consent form and permission from the school administration to conduct the study were presented before participants could answer the questionnaire. After the participants had finished answering the questionnaire, the data were coded and processed using the Statistical Package for the Social Sciences (SPSS). The gathered data were analyzed using the Statistical Package for the Social Sciences (SPSS) Version 20. The following statistical tests were used: frequency, percentage, and mean. The profile of respondents was described using frequencies and percentages. The mean was used to determine the level of technology acceptance of marketing students regarding generative artificial intelligence across the dimensions of perceived usefulness and perceived ease of use, and to assess their status in exploration, experimentation, problem-solving, and critical thinking, as stated in problem statements 1 and 2.

The study adhered to strict ethical requirements to protect participants' rights, privacy, and data throughout the study. Before the survey began, the participants were given a full briefing on the study's purpose, objectives, and significance. This included a clear explanation of the voluntary nature of their participation, their right to withdraw at any stage without any consequences, and an assurance that their responses would remain confidential. Informed consent was collected from all the participants before their involvement in the study. The consent process emphasized their right to decide whether to participate and explained that the data collected would be used solely for academic purposes. The researcher ensured that participants had sufficient time to review and understand the consent form and allowed them to ask questions or seek clarifications before agreeing to participate.

To protect participants' privacy, all personal and identifying information was securely stored and later on, was shredded. Data was collected, processed, and analyzed in accordance with relevant privacy and data protection laws, ensuring that no individual could be identified from the study's findings. Furthermore, strict data security protocols were implemented to safeguard information from unauthorized access, including encryption and secure storage. By following these ethical guidelines, the researcher aimed to foster trust and create a safe environment for participants, enabling them to contribute to the study without concerns about their privacy or personal security.

4. Results & Analysis

Level of Technology Acceptance of Students on Generative Artificial Intelligence in Terms of Perceived Usefulness and Perceived Ease of Use

Perceived Usefulness. Students highly agree that generative AI significantly improves their productivity in academic tasks, as reflected in the highest mean score of 4.72, demonstrating strong enthusiasm for its role in streamlining their academic work.

Similarly, students strongly agree that generative AI enhances their performance in marketing projects (average score: 4.30) and improves their learning experience in marketing (average score: 4.22). These results suggest that students perceive generative AI as a valuable tool for enhancing their understanding and efficiency in academic contexts. However, there is slightly less agreement on the role of generative AI in specific applications, such as developing social media marketing strategies (average 4.13) and enhancing the quality of marketing campaigns (average 4.12),

where students merely "High." These scores indicate positive perceptions but suggest room for further exploration of how generative AI can be optimized for practical, skill-specific tasks. Despite this, students strongly agree, with an average score of 4.27, that generative AI enhances their ability to craft marketing plans, reinforcing its perceived usefulness in applied marketing practices. The "Overall Average Mean of 4.29" in interpretative scales described as "Very High" further emphasizes that generative AI

is highly beneficial to marketing students concerning increased productivity, performance, and learning outcomes within the constructivist learning environment. This result shows that generative AI is not only accepted but also regarded as transformative within marketing education.

The findings suggest that generative AI has great potential to improve professional practices and marketing education. With significant agreement on its role in simplifying academic tasks and supporting marketing initiatives, marketing students view AI as highly advantageous, especially for enhancing productivity, performance, and learning outcomes. Its application to specific marketing tasks, such as social media strategy and campaign quality, could be improved, suggesting that AI technologies could be further tailored for these purposes.

A study by Spector, M. J. (2021) titled "Artificial Intelligence and the Future of Education: Toward a More Personalized and Effective Learning Experience" explores how AI, particularly generative AI, can positively impact educational practices. The research highlights that AI applications, including generative tools, provide personalized learning experiences, improve productivity, and foster deeper engagement with content across various fields, including marketing. In the study, students report a high level of satisfaction with AI's assistance in both improving learning efficiency and enhancing the overall learning experience. These findings align with the results of your study, in which marketing students perceived generative AI as valuable for improving their academic performance and productivity.

Perceived Ease of Use. The results demonstrate an overall positive reception, with an average mean score of 4.18, interpreted as "High." This indicates that students generally find generative AI tools user-friendly and supportive in their marketing education.

Students highly agree that generative AI tools are easy to learn and use, as reflected in the highest mean score of 4.29. This suggests that these tools are widely regarded as intuitive, accessible, and well-suited for academic purposes. Additionally, students agree that generative AI significantly reduces their workload (average 4.19) and that its functionality enhances their overall experience (average 4.18). These findings indicate that the tools not only simplify academic tasks but also foster enjoyment and engagement. Confidence in using generative AI is also evident, with students agreeing that they feel capable of effectively using these tools (average 4.15) and that integrating AI into their studies is beneficial (average 4.14). Furthermore, students find generative AI easy to apply to marketing subject requirements with an average of 4.15, emphasizing its practicality in academic contexts. The findings highlight a strong perception of generative AI as a valuable and easy-to-use tool in marketing education. The results reinforce the importance of continued integration of these technologies into the studies while ensuring students have adequate resources and training to maintain their confidence and maximize their potential. This positive feedback underscores the transformative role of generative AI in enhancing both productivity and learning outcomes in marketing education.

The result highlights that students regard AI technologies as user-friendly and helpful for improving their educational experience, emphasizing the necessity of continuing to incorporate them into marketing studies. Institutions should ensure that students are competent and confident in using AI for marketing jobs by offering ongoing training and resources to maximize the potential of these tools. In addition to increasing student engagement and productivity in the classroom, this will better prepare them for employment in AI-driven marketing. Furthermore, student input can guide ongoing AI tool development, ensuring that these tools remain useful and effective for both professional and educational applications. In the end, the results emphasize the transformative role of generative AI in marketing education and underscore the importance of equipping students with the tools they need to succeed in a rapidly evolving field.

The study by Venkatesh, Thong, and Xu (2022) examines key factors influencing technology acceptance, with a particular focus on ease of use. Their research underscores the significant impact of user-friendly design on technology adoption, particularly among students. According to their findings, when technology is perceived as easy to use, students are more likely to embrace it and incorporate it into their academic tasks and learning environments. The study found that ease of use significantly influences students' intention to adopt new technologies, which aligns with your research showing that marketing students find generative AI tools user-friendly. When these tools are easy to

use, students experience reduced workload and are more likely to view them as valuable and effective. This ease of interaction leads to positive perceptions of the tool's usability, fostering greater adoption and engagement. Prioritizing user-friendly design can enhance long-term satisfaction and encourage deeper integration of generative AI in academic and professional tasks.

Level of Students on Exploration and Experimentation in Using Generative Artificial Intelligence

The overall average means score is 4.18, interpreted as "High," indicating that students generally perceive exploration and experimentation with generative AI as valuable for enhancing their marketing education. Students strongly agree that experimentation with generative AI helps them understand future marketing education (average 4.21) and that it enables them to gain more knowledge by providing opportunities for hands-on learning (average 4.26). These high scores highlight the perceived effectiveness of generative AI in fostering deeper learning and forward-thinking skills. Furthermore, students strongly agree that they are open to trying different generative AI tools to enhance their marketing skills, with an average rating of 4.28, demonstrating a willingness to engage with diverse technologies to broaden their expertise. This openness indicates their enthusiasm for continuous learning and adaptability in a tech-driven academic landscape. Additionally, students agree that generative AI tools fuel their curiosity about their potential in marketing education (average 4.13) and help them explore innovative approaches in their studies (average 4.07). They also agree that experimenting with generative AI tools is enjoyable, with an average rating of 4.10, which may help sustain motivation and engagement. The findings suggest that marketing students view generative AI as an essential component of their exploration and experimentation processes, contributing to their skill development and understanding of future marketing practices. The high level of interest and openness among students indicates strong alignment with constructivist learning principles, in which active experimentation leads to the construction of meaningful knowledge. These results emphasize how further support and integration of generative AI tools in marketing education is necessary to create a dynamic and exploratory learning environment. The level reflects that marketing students are highly receptive, motivated, and proactive in exploring and experimenting with generative AI. They recognize its value for skill development, future applications, and hands-on learning, aligning with constructivist principles. These findings highlight the need to integrate AI tools into marketing education further to support students' curiosity and adaptability.

The result highlights that marketing programs must continue integrating generative AI into their curricula, offering opportunities for practical experimentation to improve learning and skill development, given the high level of student interest and openness to using AI tools. Constructivist learning concepts, which emphasize active participation and knowledge production through experimentation, align with this.

Institutions should guarantee access to a range of AI tools and resources to promote ongoing research and innovation and foster students' curiosity and adaptability.

A study by Lee, J. J., & Cho, M. H. (2019) explores the relationship between experimentation with AI tools and learning outcomes in higher education. The research found that when students were encouraged to experiment with AI technologies, they demonstrated greater engagement and motivation in their coursework. The study highlights how hands-on learning, facilitated by AI tools, fosters a deeper understanding of academic concepts, stimulates curiosity, and equips students with future-ready skills. This finding aligns with the results of your study, in which marketing students reported that exploring and experimenting with generative AI tools enhanced their understanding of marketing education and supported hands-on learning, thereby contributing to future career preparedness.

The Role of Students' Problem Solving in Using Generative Artificial Intelligence

The overall average mean score is 4.18, interpreted as "High," indicating that students generally perceive generative AI as a valuable tool for addressing marketing challenges and enhancing their problem-solving skills. Students strongly agree that generative AI improves their understanding of marketing education (average rating of 4.28) and helps them develop new ideas for marketing-related tasks (average rating of 4.21). These high scores suggest that generative AI plays a significant role in fostering creativity and deepening comprehension, essential components of problem-solving in academic contexts. Students also strongly agree that they can rely on generative AI to supplement their problem-solving skills in marketing education, with an average rating of 4.24. This indicates that students

perceive generative AI as a reliable and supportive tool for overcoming complex academic challenges. Furthermore, students agree that generative AI helps address complex marketing challenges efficiently (average 4.07) and serves as a tool for brainstorming solutions to marketing problems (average 4.12). These respondents highlight the practicality of generative artificial intelligence in supporting analytical and strategic thinking in marketing education. Lastly, students agree that generative AI helps them resolve difficulties encountered in marketing education with an average of 4.16, reinforcing its utility as a problem-solving resource. The findings suggest that marketing students actively use generative AI to enhance their problem-solving, particularly for generating ideas, addressing challenges, and deepening their understanding of marketing concepts. The high level of agreement indicates that generative AI is an effective and trusted tool for supporting problem- solving in their studies. There are important implications for marketing education from the research on how marketing students use generative AI to solve problems. AI's strong positive perception as a tool for improving problem-solving abilities underscores the importance of marketing studies continuing to incorporate it. Educational programs must provide students with access to AI technologies that foster creativity and critical thinking, as students rely on AI to better understand marketing concepts, generate fresh ideas, and solve challenging problems. Institutions can support students' development of critical thinking and strategic problem-solving abilities, which are essential for success in the marketing industry, by integrating generative AI into problem-solving exercises. Furthermore, students' strong faith in AI as a tool for problem-solving suggests that it should be a fundamental component of instructional strategies, promoting active, experiential learning and improving understanding. In the end, these results highlight how crucial it is to use generative AI to give students the tools they need to handle challenging marketing situations.

A sA study by Huang, R. H., & Hew, K. F. (2018) examines how AI tools, including generative AI, support students in solving complex problems across various academic domains, such as marketing. The research highlights that students who engaged with AI for problem-solving tasks demonstrated greater ability to generate new ideas, analyze marketing challenges, and find creative solutions, consistent with the findings in your study. The study suggests that generative AI fosters problem-solving abilities by providing students with alternative solutions and perspectives, which aligns with your results showing that students perceive generative AI as a reliable and valuable tool for addressing marketing challenges.

Level of Students' Critical Thinking on Using Generative Artificial Intelligence

The overall average mean score is 4.14, interpreted as "High," suggesting that students generally perceive generative AI as a supportive tool for enhancing their critical thinking skills in marketing education. Students strongly agree that using generative AI encourages them to ask more questions and seek a deeper understanding of marketing concepts, with an average rating of 4.24. This indicates that generative AI fosters curiosity and promotes deeper intellectual engagement, essential components of critical thinking. Students agree that generative AI helps them evaluate the effectiveness of marketing strategies and campaigns (average 4.10) and improves their marketing decision-making processes (average 4.10). These responses highlight the practical application of generative AI to enhance analytical and evaluative skills, which are critical to forming sound marketing judgments. Students also agree that using generative AI in their studies promotes deeper thinking and understanding of marketing practices (average 4.18) and supports their activities while helping them think critically (average 4.16). These findings suggest that generative AI contributes to a reflective and thoughtful approach in addressing marketing challenges. Lastly, students agree that using generative AI has directly contributed to the development of their critical thinking skills, with an average rating of 4.06, further reinforcing the role of marketing in education. To develop the skills of future marketers in analyzing and synthesizing complex information in marketing education. The findings show that marketing students see the value of generative AI for developing and applying critical thinking skills. By encouraging deeper understanding, supporting decision-making, and enhancing their ability to evaluate marketing strategies, generative artificial intelligence emerges as a vital tool for fostering critical thinking. These results emphasize the importance of continued integration of generative AI in marketing education to cultivate analytical, evaluative, and reflective skills among students.

The result highlights that marketing programs must incorporate AI into their curricula to improve students' analytical and evaluative skills, as students view it as a useful tool for stimulating curiosity, encouraging deeper intellectual engagement, and enhancing decision-making. Students are better prepared to think critically and make wise decisions when generative AI is used to promote deeper investigation of marketing concepts and assess strategies. To ensure

that students acquire the critical-thinking skills needed to address challenging marketing problems, educational institutions should highlight how AI can facilitate reflective thinking and decision-making. The high degree of student agreement on AI's role in critical thinking further underscores the importance of integrating these tools into the educational process to foster the analytical, evaluative, and reflective abilities necessary for success in the marketing industry.

A study by Liu and Toprac (2020) found that AI tools, especially generative AI, foster critical thinking by encouraging deeper questioning, evaluation, and synthesis of information. This aligns with your study, where marketing students reported that generative AI enhances critical thinking, aids in strategy evaluation and informed decision-making, and deepens their understanding of marketing concepts. The research suggests that AI technologies promote analytical and evaluative skills by providing diverse perspectives and encouraging reflective thinking, supporting constructivist learning principles.

Insights into Students' Constructivist Learning can be drawn from the Study's Results.

Based on the researcher's findings, the study provides valuable insights into the constructivist learning experiences of marketing students, particularly in the context of generative artificial intelligence. Constructivism emphasizes the importance of active, collaborative, and reflective learning, in which students construct knowledge through experience and interaction. The results of the study highlight key elements that align with these principles and showcase how generative artificial intelligence can transform marketing education.

One of the primary insights is the role of active engagement in constructivist learning. The study revealed that marketing students interact with generative artificial intelligence tools to explore, experiment, and solve problems, reflecting the active construction of knowledge. By using AI for tasks such as creating marketing strategies, analyzing data, or simulating scenarios, students are not merely passive learners but are directly involved in shaping their learning process. This hands-on engagement fosters a deeper understanding of marketing concepts and allows students to apply theoretical knowledge in practical contexts.

The second major insight is the role of personalized, self-directed learning facilitated by generative artificial intelligence. The study found that students place a high value on the perceived usefulness and ease of use of AI tools, which empower them to tailor their learning experiences. This personalization empowers students to focus on areas of interest and address their unique learning needs. For instance, students can experiment with various marketing techniques, evaluate outcomes, and refine their approaches, all at their own pace. This aligns with the constructivist view that learners construct knowledge most effectively when they have control over their educational journey.

The findings also underlined the activity-based, collaborative social learning. Constructivism suggests that knowledge is built through interaction with peers. Generative artificial intelligence becomes a collaborative tool, allowing learners to brainstorm ideas, co-create campaigns, and peer-review marketing initiatives. This brings students to meaningfully interact, discuss ideas, and build on each other's ideas to achieve better outcomes. This not only enhances learning outcomes but also mirrors real-world teamwork among marketers.

Critical thinking and reflective practice emerged as another key element of constructivist learning. The study indicated that marketing students use generative artificial intelligence to critically evaluate AI-generated outputs, such as campaign suggestions or data analyses. This reflective process encourages students to question the relevance, accuracy, and ethical implications of the information provided by AI. By engaging in such evaluative practices, students develop their analytical and decision- making skills, which are essential for navigating the complexities of the marketing industry.

Moreover, the study illustrates how generative artificial intelligence acts as a bridge between theory and practice. The students used AI tools to put theoretical concepts into practice in real-life settings, such as customer segmentation and market trend forecasting. This practical application of knowledge helps learners feel that what they are learning in the classroom is relevant in professional life.

The role of exploration, experimentation, and problem-solving is also central to the insights drawn from the study. Generative artificial intelligence empowers students to test various approaches, analyze results, and iterate on their ideas. This iterative process fosters creativity and resilience, key attributes for success in the dynamic field of

marketing. By engaging with AI in this way, students learn to approach challenges with a problem-solving mindset, preparing them for the demands of an AI-driven industry.

Lastly, it demonstrates that a constructivist approach to learning is required for ethical consciousness. Through engagement with AI tools, students are equipped to pose and reflect on ethical issues related to data privacy, transparency, and bias. This reflective practice ensures that students not only master their technical skills but also develop responsibility and integrity, which are crucial for making ethical judgments in marketing.

5. Conclusion and Recommendations

The results of the study highlight that marketing students' acceptance and use of generative artificial intelligence depend significantly on two key determinants: perceived usefulness and perceived ease of use. These elements are also close to the principles of the Technology Acceptance Model (TAM), which holds that users are more inclined to adopt and use a technology when they perceive it as useful for achieving specific goals and when it is not difficult to use, requiring no extraordinary effort or technical expertise.

The focus on perceived utility reflects students' awareness of how generative artificial intelligence can help them be more productive, simplify complex tasks, and provide useful assistance in solving problems or creating content. For marketing students, that could mean generating campaign ideas using generative artificial intelligence, analyzing consumer behavior, or efficiently creating targeted content. Meanwhile, perceived simplicity of use underscores the importance of intuitive interfaces and user-friendly designs, ensuring that even individuals with limited technical knowledge can use the technology effectively.

Furthermore, the study highlights the critical role of exploration and experimentation, problem-solving, and critical thinking in shaping students' engagement with GenAI. These factors suggest that marketing students are not merely passive users but active learners and innovators who experiment with the technology to push its boundaries and discover new applications.

Recommendations

Based on the findings and conclusions, the following suggestion is proposed: Marketing students strongly agree that generative artificial intelligence significantly improves their productivity in academic tasks by streamlining their work. Therefore, it is recommended that students use AI tools to generate ideas, gather information, and conceptualize solutions. However, they should avoid excessive reliance on AI, as it may not always provide accurate or reliable information. It is essential to approach AI outputs critically and ensure proper verification to maintain accuracy and relevance. Responsible use of AI fosters independent learning and enhances students' intellectual development.

The integration of generative AI into academic activities is seen as beneficial and necessary, as it improves the overall learning experience. Students and faculty perceive AI positively, particularly for its ability to reduce workload in marketing education.

Faculty members are encouraged to incorporate AI tools into the curriculum while emphasizing their potential to enhance productivity, understanding, and efficiency in academic contexts.

While students recognize the value of generative AI in developing social media marketing strategies and improving the quality of marketing campaigns, these applications are rated as only "High," indicating room for growth. This suggests the need for further exploration and optimization of AI tools for practical, skill-specific tasks.

Educators should consider offering workshops or training sessions to help students better leverage generative AI for real-world marketing applications. Such efforts could enhance students' capabilities in crafting marketing plans and strategies, reinforcing AI's role as a valuable tool in applied marketing practices.

Disclosure Statement

The author declares that there are no financial interests, commercial affiliations, or personal relationships that could have influenced the conduct, results, or interpretations of this research. No direct financial benefit has been derived from the applications of this study on Constructivist Learning of Students in the Age of Generative Artificial Intelligence.

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