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Agentic Generative AI and the Future U.S. Workforce: Advancing Innovation and National Competitiveness

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Abstract This paper presents a systematic review of generative AI applications in workforce development and education. We categorize the literature into key themes and synthesize findings to highlight trends, challenges, and future directions. Expected outcomes include enhanced training efficiency, broader accessibility to high-quality learning resources, and reduced costs compared to traditional methods. The AI-driven approach ensures adaptability across industries, providing a scalable solution for continuous workforce upskilling. However, challenges such as data privacy, algorithmic bias, and user adoption must be addressed through stringent security measures, bias mitigation strategies, and user-friendly interfaces. By harnessing generative AI, this initiative aims to revolutionize professional training, equipping individuals with the tools to adapt to an evolving job market. Additionally, this paper proposes AI-driven training programs specifically tailored for older workers, addressing the AI skills gap and ensuring workforce inclusivity. The successful implementation of AI-driven training agents will not only improve productivity but also foster a culture of lifelong learning, empowering workers to thrive in an AI-enhanced economy. Furthermore, this paper utilizes various graphical representations, including decision trees, heatmaps, and trend analysis charts, to illustrate the projected impact of generative AI on workforce development. These visual tools provide a comprehensive and data-driven perspective on emerging trends, enabling readers to grasp complex interconnections and future scenarios effectively. If trends continue along their projected paths, AI-driven workforce transformation could reshape industries on an unprecedented scale, requiring proactive adaptation strategies from policymakers, businesses, and individuals alike. This review is based on latest research published in last one year.

Keywords **Author Keywords:** GEN AI; Agents; US Workforce Development; US Competitiveness

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