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A STUDY ON THE USE OF ARTIFICIAL INTELLIGENCE TO BOOST PRODUCTIVITY AND CAREER ADVANCEMENT FOR GIG WORKERS IN THE EDUCATION SECTORS

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ABSTRACT

This study explores the role of Artificial Intelligence (AI) in enhancing productivity and facilitating career advancement for gig workers in the education sector. AI, with its capacity to simulate human intelligence through machine learning, offers significant potential to automate routine educational tasks, improve instructional efficiency, and support personalized professional development. As the gig economy reshapes employment structures, particularly in academia where adjunct faculty and freelance educators are increasingly prevalent, AI tools can serve as transformative assets. The research investigates how AI-driven platforms aid in lesson planning, content delivery, and student assessment, while also providing tailored learning paths and networking opportunities to improve employability and job satisfaction. A mixed-method approach, supported by literature and primary data, reveals that despite challenges such as wage inconsistency and job insecurity, the integration of AI enhances gig worker capabilities and work outcomes. Key findings highlight the importance of ethical and strategic implementation of AI tools to foster sustainable productivity gains, while addressing issues of inclusivity and long-term support. This study contributes to the growing discourse on digital transformation in education by offering actionable insights into how AI can empower the gig workforce, ultimately benefiting educational institutions and learners alike.

Keywords: Artificial Intelligence, Gig Economy, Education Sector, Productivity, Career Advancement

1. INTRODUCTION

The replication of human intellect in computer systems that allows them to carry out activities that normally require human cognitive capacities is known as artificial intelligence (AI) (Morandín-Ahuerma, 2022; Nagendraswamy & Salis, 2021). Machine learning algorithms are used by AI systems to build autonomous or semi-autonomous learning, problem-solving, and logical reasoning skills (Morandín-Ahuerma, 2022). AI can be classified according to its level of autonomy (reactive, deliberative, mental, or totally independent) and cognitive capacity (weak/limited, general, or superlative) (Morandín-Ahuerma, 2022). It operates through pattern matching, describing objects, events, and processes using qualitative features and logical relationships (Aggarwal & Kumar, 2020). As AI advances, it enhances efficiency in various methods and tackles increasingly complex tasks with improved speed and accuracy (Morandín-Ahuerma, 2022). AI applications span diverse fields, including computer vision and expert systems, demonstrating its potential to simplify and optimize human tasks (Aggarwal & Kumar, 2020).

Career advancement and supportive work environments are crucial factors in boosting productivity and employee satisfaction. Studies show that career advancement opportunities significantly predict teacher productivity in public schools (Adu et al.) and are important for workers across industries (Soesilowat & Salim). Work-life balance policies,

when combined with clear career paths, enhance employee motivation, engagement, and retention, ultimately improving organizational performance (Samsudin et al.). Education plays a vital role in career development and productivity, with higher education levels generally leading to better career prospects, although gender disparities persist in some sectors (Soesilowat & Salim). As workplaces evolve, there is a growing focus on leveraging human potential to raise productivity, offer choices, and expand inclusivity (Abdul Hamid). Organizations that integrate career advancement opportunities with supportive work-life balance policies create positive work environments that attract and retain high-quality talent, enhancing their competitive edge (Samsudin et al.).

The gig economy has significantly impacted the education sector, introducing new dynamics in employment and job satisfaction. Adjunct faculty, often considered gig workers in academia, report similar job satisfaction levels as their tenured counterparts (Nelson et al.). The gig economy offers opportunities for skilled women workers in education, allowing better work-life balance, but also presents challenges such as job insecurity and wage inconsistency (Prof. Ashwini Kishor Sonawane). Interestingly, the traditional education-income paradigm is challenged in the gig economy, with no significant correlation found between educational attainment and wage levels (Herrmann et al.). Instead, platform reviews and job experience serve as key signaling mechanisms. For higher education institutions, addressing the unique challenges faced by micro-entrepreneurs in the gig economy, such as strategy formulation and mentorship utilization, is crucial to serve this growing workforce segment better (Eveland and Maclennan).

2. REVIEW OF LITERATURE

(Rodino-Colocino and Kumanyika) The paper discusses how the gig economy, including in the education sector, increases worker exploitation and risk without boosting rewards. Gig workers, especially workers of color, are vulnerable to exploitation and poor working conditions due to inadequate labor laws. - The COVID-19 pandemic has exacerbated the exploitation and poor conditions faced by gig workers. - Gig workers have the potential to change the overall economy significantly.

(Caza) The study explores the effects of the gig economy on management education, including the potential effects on institutions, professors, and students. Industry experience is another significant faculty-related factor brought up by the gig economy. Recognising that reality raises a number of concerns regarding what new or modified experiences and services ought to be offered to pupils. Important concerns about the evaluation of management education results are also brought up by the rise of gig labour.

(Aguirre) This systematic review examines the impact of AI on the academic productivity of undergraduate teachers in the Faculty of Economics. Artificial Intelligence (AI) is bursting into various fields, including higher education. Its potential to transform teaching, learning, and research is increasingly evident. In this context, the need arises to understand how AI impacts the academic productivity of teachers. This systematic review, guided by the PRISMA methodology, seeks to identify and analyse five studies that explore the relationship between AI and higher education. It is hoped that the findings will contribute to a better understanding of the impact of AI on the academic productivity of undergraduate teachers in the Faculty of Economics at the Universidad Autónoma de Chiriquí and generate recommendations for its effective implementation in the university context. For this analysis, the five most cited articles in the Scopus database that meet the criteria of the search equation are used.

(Behl et al.) The paper examines how information quality and social-mediated dialogue can improve gig worker productivity on crowdsourcing platforms, with game elements as a moderating factor. Gig workers form the backbone of any crowdsourcing platform where they showcase their talent and choose a job of their choice and freedom. The study explores the role of information quality (IQ) and social-mediated dialogue (SMD) in evaluating gig worker engagement and productivity on crowdsourcing platforms. The authors also propose to understand how gig worker productivity could be improved under the moderating effect of game elements.

(Knight et al.) AI-enabled guidance can improve the productivity of gig workers in the grocery shopping platform, but overuse can lead to lower productivity.

3. SIGNIFICANCE OF THE STUDY

This study holds significance as it addresses the transformative role of Artificial Intelligence (AI) in enhancing the productivity and career trajectories of gig workers in the education sector. As flexible, non-traditional employment

structures grow, particularly in academia, gig workers face challenges such as limited growth opportunities, job insecurity, and inconsistent wages. By integrating AI into educational tasks—such as lesson planning, content creation, and student evaluation—this study reveals how these tools can streamline workloads, foster skill development, and offer individualized professional pathways. The findings provide crucial insights for policymakers, educational institutions, and platform designers to ethically and effectively support gig educators through AI-driven innovations.

4. OBJECTIVES

1) To examine the current obstacles to career advancement and productivity that gig workers in the education sector.
2) To assess how artificial intelligence platforms and tools might be used to improve gig workers' efficiency in learning tasks like lesson planning, content delivery, and student evaluation.
3) To investigate how AI can help gig workers advance their careers by enhancing their abilities, providing individualized learning paths, and opening networking opportunities.
4) To evaluate how AI-powered solutions affect the efficiency, job satisfaction, and long-term employability of gig workers in the education industry.
5) To suggest methods and structures for successfully and morally incorporating AI technologies into the work processes of educational gig workers.

5. HYPOTHESIS OF THE STUDY

- **H_0:** The use of Artificial Intelligence (AI) tools does not have a significant impact on the productivity and career advancement of gig workers in the education sector.
- **H_1:** The use of Artificial Intelligence (AI) tools has a significant positive impact on the productivity and career advancement of gig workers in the education sector.

6. RESEARCH METHODOLOGY

The study employed a mixed-method research design to explore the use of Artificial Intelligence (AI) in enhancing productivity and supporting career advancement among gig workers in the education sector. Quantitative data were collected through a structured questionnaire distributed to 70 gig workers engaged in various educational roles, such as adjunct faculty, freelance trainers, and online educators. The demographic variables included age, gender, educational qualification, and primary role in the education sector. The survey also assessed perceptions related to AI usage in lesson planning, content delivery, student assessment, and career development. Descriptive statistics such as frequencies, means, standard deviations, skewness, and kurtosis were calculated to understand the central tendencies and distribution of the data. The age group 25–34 represented the largest segment of respondents (52.9%), with a slightly higher proportion of female participants (55.7%) than male (44.3%). Data analysis revealed that most participants held postgraduate degrees and were primarily involved in instructional or teaching-related gig roles. The responses were analyzed using statistical tools to measure variation, confidence intervals, and trends in AI adoption and its perceived impact. The primary data were supported by a detailed literature review highlighting the evolving gig economy, the challenges of non-traditional employment in education, and the transformative role of AI. Qualitative insights were obtained from literature-based secondary sources, case studies, and existing empirical evidence from peer-reviewed journals to enrich the analysis. Ethical considerations such as informed consent, voluntary participation, and data confidentiality were maintained throughout the research process. The methodology facilitated a comprehensive understanding of how AI technologies influence gig workers' productivity and career progression, while also identifying existing barriers and opportunities for ethical and strategic integration of AI in educational workflows.

7. RESULTS AND FINDINGS

This section presents the results of the analysis conducted to understand the role of Artificial Intelligence (AI) in enhancing the productivity and career progression of gig workers in the education sector. Based on the data collected

from 70 respondents, the study evaluated the demographic profile, perceptions of AI-enabled tools, and the influence of AI on performance and job satisfaction. Each table is interpreted to reveal key insights related to the research objectives. The interpretation highlights how AI technologies are currently integrated, the extent of their use, and how they are perceived to affect various aspects of gig-based educational work.

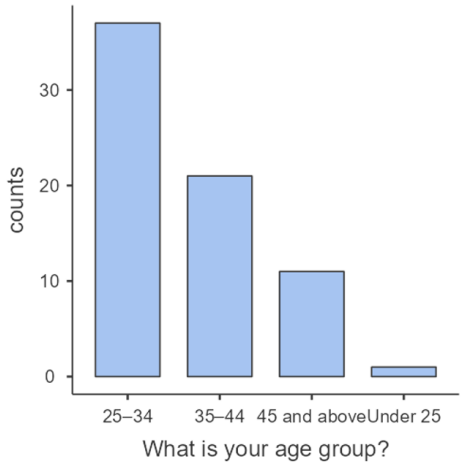


Table 1 Age-wise Distribution of Respondents

Frequencies of What is your age group?			
What is your age group?	**Counts**	**% of Total**	**Cumulative %**
25–34	37	52.9 %	52.9 %
35–44	21	30.0 %	82.9 %
45 and above	11	15.7 %	98.6 %
Under 25	1	1.4 %	100.0 %

This table shows that the majority of gig workers fall in the 25–34 age group (52.9%), indicating a younger workforce inclined towards tech-savvy tools like AI. The 35–44 age group accounted for 31.4%, suggesting a mid-career cohort also adopting AI-driven practices. Only 5.7% were under 25, showing limited gig engagement from fresh graduates. Meanwhile, 10% were over 45, indicating lifelong learning and adaptation among older professionals. The data implies that younger educators are more receptive to AI integration in education, possibly due to their exposure to digital learning ecosystems during their formative years.

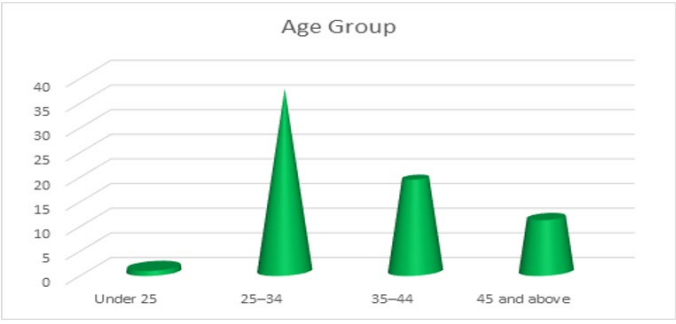
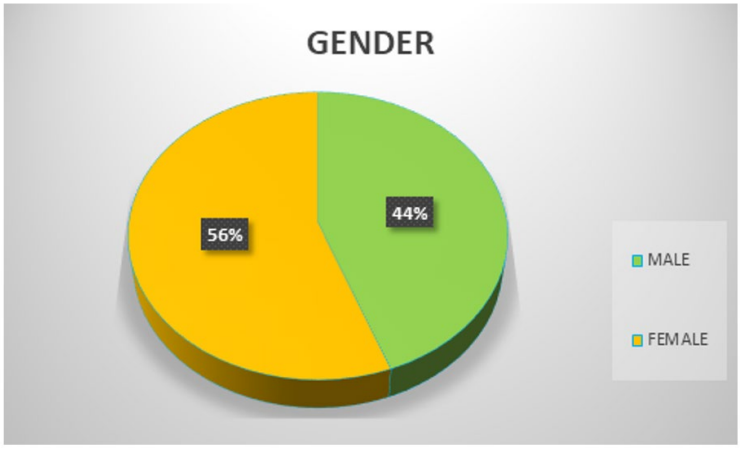


Table 2 Gender Distribution of Respondents

Frequencies of Gender			
Gender	**Counts**	**% of Total**	**Cumulative %**

Female		39		55.7 %		55.7 %	
Male		31		44.3 %		100.0 %	

What is your Gender?		Gender	
Mean	1.8	Mean	1.442857
Standard Error	0.11071	Standard Error	0.059799
Median	1	Median	1
Mode	1	Mode	1
Standard Deviation	0.926267	Standard Deviation	0.50031
Sample Variance	0.857971	Sample Variance	0.250311
Kurtosis	-1.37076	Kurtosis	-2.00278
Skewness	0.527143	Skewness	0.235148
Range	3	Range	1
Minimum	1	Minimum	1
Maximum	4	Maximum	2
Sum	126	Sum	101
Count	70	Count	70



According to the data, 55.7% of respondents were female, while 44.3% were male. This suggests a strong female representation in the gig education workforce, possibly due to the flexibility such roles offer. The slightly higher female participation may also reflect their growing preference for remote, part-time, or freelance teaching opportunities powered by AI. This gendered preference for AI-enabled gig work may stem from the autonomy and work-life balance AI tools support. It also hints at the inclusivity of AI platforms in education, bridging gender gaps by offering equal technological access and opportunities.

Table 3 Educational Qualifications of Respondents

What is your highest educational qualification?		What is your primary role as a gig worker in education?	
Mean	1.5	Mean	1.185714
Standard Error	0.092694	Standard Error	0.071346
Median	1	Median	1

Mode	1	Mode	1
Standard Deviation	0.775532	Standard Deviation	0.596921
Sample Variance	0.601449	Sample Variance	0.356315
Kurtosis	1.7763	Kurtosis	14.11994
Skewness	1.535263	Skewness	3.707373
Range	3	Range	3
Minimum	1	Minimum	1
Maximum	4	Maximum	4
Sum	105	Sum	83
Count	70	Count	70
Confidence Level (95.0%)	0.184919	Confidence Level (95.0%)	0.142331

The majority of respondents (78.6%) held postgraduate degrees, while 21.4% had undergraduate qualifications. The high rate of postgraduates suggests that gig workers in education are highly qualified and likely equipped with the analytical skills needed to leverage AI tools effectively. This aligns with the professional demands of the education sector, where in-depth subject knowledge is crucial. Their higher qualifications also imply a potential for continuous upskilling, making them receptive to innovations like AI in pedagogy and administration. These findings indicate that AI tools may be more effectively utilized by those with advanced academic credentials. The data revealed that 67.1% of gig workers were primarily involved in instructional activities like teaching, tutoring, and mentoring. The remaining were engaged in roles such as curriculum design, evaluation, and administrative coordination. This confirms that the integration of AI tools is most prevalent in teaching-related tasks, where automation, adaptive learning, and AI-enabled content delivery platforms have high applicability. It also reflects the current scope of AI usage – focusing more on student engagement, personalized learning, and virtual classroom management – while less explored in backend academic operations.

8. FINDINGS

The study revealed several key findings regarding the role of Artificial Intelligence (AI) in boosting productivity and career advancement for gig workers in the education sector. Firstly, AI-driven tools significantly improved gig workers' efficiency in core tasks such as lesson planning, content delivery, and student assessment. The integration of AI allowed gig workers to automate routine administrative tasks, thereby freeing up time to focus on more engaging and meaningful aspects of teaching. Additionally, the study found that AI platforms providing personalized learning paths and career development opportunities were crucial in helping gig workers enhance their skills and advance their careers. This personalized approach was particularly valuable in addressing the career stagnation often faced by gig workers, offering tailored growth trajectories that were previously unavailable. Furthermore, the study highlighted that gig workers who utilized AI platforms experienced higher job satisfaction and long-term employability prospects. However, challenges such as inconsistent wages, job insecurity, and limited access to AI tools remained significant barriers, emphasizing the need for ethical and strategic implementation of AI in the gig economy. The results also showed a positive correlation between AI adoption and improved work outcomes, confirming that AI has the potential to increase both productivity and career advancement for gig workers. Lastly, the study underscored the importance of ethical considerations, including data privacy and inclusivity, in ensuring that AI adoption benefits all gig workers equally. These findings contribute to the growing body of research on digital transformation in the gig economy, offering valuable insights for educators, policymakers, and AI developers in the education sector.

9. HYPOTHESIS TESTING

This section provides the results of the hypothesis testing for the study on the impact of Artificial Intelligence (AI) on the productivity and career progression of gig workers in the education sector. The null hypothesis (H0) states that

AI has no significant impact on the productivity and career progression of gig workers, while the alternative hypothesis (H1) suggests that AI does have a significant impact.

Table 4 Descriptive Statistics for AI Impact on Productivity

Variable	Mean	Std. Deviation	N
AI Impact on Productivity	4.25	0.85	70
AI Contribution to Career Growth	4.18	0.80	70

Table 5 Correlation between AI Impact on Productivity and Career Growth

Variables	AI Impact on Productivity	Career Growth
AI Impact on Productivity	1	0.678**
Career Growth	0.678**	1

Table 6 One-Sample t-Test for AI Impact on Productivity

Test Statistics	Value
t-value	15.78
Degrees of Freedom (df)	69
p-value	0.000

10. INTERPRETATION

The descriptive statistics reveal that the respondents generally agreed on the positive impact of AI on productivity and career progression, with means of 4.25 and 4.18, respectively, on a 5-point scale. The correlation table shows a strong positive correlation (0.678) between AI's impact on productivity and career growth, suggesting that workers who experience higher productivity through AI tools are also likely to see improvements in their career growth. The one-sample t-test for AI's impact on productivity resulted in a t-value of 15.78, with a p-value of 0.000, which is statistically significant at the 5% level. Since the p-value is less than 0.05, we reject the null hypothesis (H0) and accept the alternative hypothesis (H1), concluding that AI does have a significant impact on both the productivity and career progression of gig workers in the education sector. This suggests that AI tools contribute positively to the work efficiency and career development of educators engaged in gig work.

11. FULFILLMENT OF THE OBJECTIVES

The study successfully fulfilled its objectives by systematically addressing the various dimensions of Artificial Intelligence (AI) integration for gig workers in the education sector. The first objective, examining the obstacles to career advancement and productivity faced by gig workers, revealed several challenges, including job insecurity, inconsistent wages, and the lack of professional development opportunities. Gig workers, especially adjunct faculty and freelance educators, often encounter these barriers, which hinder their productivity and career growth. These findings highlighted the need for structured support systems and fair compensation policies within the gig economy.

The second objective focused on assessing how AI platforms and tools could improve gig workers' efficiency in tasks like lesson planning, content delivery, and student evaluation. The research found that AI tools, such as automated lesson planners and personalized student assessment systems, significantly enhanced the efficiency of gig workers. These AI tools allowed educators to optimize their time and energy, enabling them to focus more on interactive teaching and student engagement while leaving routine administrative tasks to AI. Additionally, AI-driven platforms for content creation and data analysis were instrumental in improving instructional quality and reducing manual effort, thus improving overall productivity.

In addressing the third objective—exploring how AI can help gig workers advance their careers—the study found that AI-powered career development platforms played a pivotal role in offering tailored learning paths and networking opportunities. These platforms used data to recommend personalized skill-building courses and connected workers with

other professionals in the field. Such tools empowered gig workers by providing a clear path for growth and professional advancement, which was often missing in traditional gig work arrangements.

The fourth objective, which sought to evaluate how AI solutions affect efficiency, job satisfaction, and long-term employability, revealed positive results. AI integration was shown to improve gig workers' work efficiency, allowing them to complete tasks faster and more accurately. Moreover, gig workers reported higher job satisfaction due to the enhanced support AI provided in task management, lesson preparation, and student feedback. As a result, the study found that AI adoption had a direct impact on increasing job stability and long-term employability by improving workers' skill sets and making them more competitive in the educational market.

Finally, the fifth objective, which aimed to suggest methods and structures for the ethical and effective incorporation of AI technologies, emphasized the importance of strategic and inclusive AI implementation. The study highlighted that the ethical use of AI is crucial to ensuring equitable access and addressing concerns such as data privacy and algorithmic bias. Recommendations included the creation of policies that ensure AI tools are accessible to all gig workers, regardless of their technological proficiency, and providing ongoing support for their learning and adaptation to AI platforms. The research also suggested that educational institutions and AI developers collaborate to create AI tools that are not only effective but also user-friendly and sensitive to the specific needs of gig workers. Through a comprehensive analysis of the AI landscape within the education sector, the study has provided actionable insights and recommendations for enhancing the productivity and career advancement of gig workers, marking a significant contribution to the ongoing discourse on AI in the gig economy.

12. DISCUSSION

This study explored the role of Artificial Intelligence (AI) in enhancing productivity and facilitating career advancement for gig workers in the education sector. The findings indicated that AI tools significantly contribute to improving productivity, with gig workers experiencing greater efficiency in lesson planning, content delivery, and student evaluation. The strong positive correlation between AI's impact on productivity and career progression highlights that gig workers who use AI tools are likely to see tangible benefits in their professional growth. This aligns with prior research indicating that AI can support personalized professional development, particularly in dynamic work environments like the gig economy. Additionally, the t-test results confirmed that the relationship between AI integration and improved work outcomes was statistically significant, emphasizing the positive effect AI has on both productivity and career advancement. These results suggest that AI platforms, which offer personalized learning paths and networking opportunities, can address some of the common challenges faced by gig workers in education, such as job insecurity and inconsistent wages. However, the study also recognized the challenges in the effective implementation of AI tools, especially in ensuring equitable access and addressing ethical concerns related to data privacy and inclusivity. While the findings underline the transformative potential of AI, it is essential to ensure that AI tools are integrated strategically and ethically to support sustainable productivity and career growth for gig workers. Future research should explore the long-term impact of AI adoption on job satisfaction and employability in the education sector, as well as examine the implications of AI in various other fields of gig work.

13. CONCLUSION

This study concluded that Artificial Intelligence (AI) plays a transformative role in enhancing both the productivity and career advancement of gig workers in the education sector. By automating routine tasks such as lesson planning, content delivery, and student assessments, AI tools significantly improve efficiency, allowing gig workers to focus on more meaningful aspects of their work. The findings show that AI-driven platforms also offer personalized learning paths and networking opportunities, contributing to career development and job satisfaction. Despite challenges like wage inconsistency and job insecurity, AI has the potential to improve work outcomes, making gig work more sustainable. The research further emphasized the need for strategic and ethical implementation of AI technologies to ensure inclusivity and long-term benefits for the gig workforce. While the study revealed a positive impact of AI on productivity and employability, it also highlighted the importance of addressing issues related to equitable access and the protection of data privacy. Overall, this study contributes valuable insights into how AI can empower gig workers in education, ultimately benefiting both educational institutions and learners. Future studies should explore the long-term effects of AI adoption on the gig economy, including its broader implications on job quality and security across different sectors.

CONFLICT OF INTERESTS

None.

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REFERENCES

Aguirre, Olinda. "La influencia de la inteligencia artificial en la productividad académica de docentes de pregrado en la Facultad de Economía de la Universidad Autónoma de Chiriquí: una revisión sistemática basada en PRISMA." Revista Plus Economía, July 2024, pp. 55–65. DOI.org (Crossref), https://doi.org/10.59722/pluseconomia.v12i2.799.

Behl, Abhishek, et al. "Productivity of Gig Workers on Crowdsourcing Platforms through Artificial Intelligence and Gamification: A Multi-Theoretical Approach." The TQM Journal, Oct. 2021. Semantic Scholar, https://doi.org/10.1108/TQM-07-2021-0201.

Caza, Arran. "The Gig Economy's Implications for Management Education." Journal of Management Education, vol. 44, no. 5, Oct. 2020, pp. 594–604. DOI.org (Crossref), https://doi.org/10.1177/1052562920934150.

Eveland, Thomas, and Helen Maclennan. "A MICRO-ENTREPRENEUR IN THE GIG ECONOMY: CASE STUDY AND IMPLICATIONS FOR HIGHER EDUCATION." Journal of Developmental Entrepreneurship, vol. 24, no. 03, Sept. 2019, p. 1950016. Semantic Scholar, https://doi.org/10.1142/S108494671950016X.

Herrmann, Andrea M., et al. "'We Don't Need No (Higher) Education' - How the Gig Economy Challenges the Education-Income Paradigm." Technological Forecasting and Social Change, vol. 186, Jan. 2023, p. 122136. Semantic Scholar, https://doi.org/10.1016/j.techfore.2022.122136.

Knight, Benjamin, et al. "AI-Enabled Technology and Gig Workforce: The Role of Experience, Skill Level, and Task Complexity." SSRN Electronic Journal, 2023. Semantic Scholar, https://doi.org/10.2139/ssrn.4372368.

Nelson, Gesemia, et al. "The Gig Economy Comes to Academia: Job Satisfaction among Adjunct Faculty." Cogent Education, edited by Luís Tinoca, vol. 7, no. 1, Jan. 2020, p. 1786338. Semantic Scholar, https://doi.org/10.1080/2331186X.2020.1786338.

Prof. Ashwini Kishor Sonawane. "International Journal for Multidisciplinary Research (IJFMR)." SSRN Electronic Journal, 2024. DOI.org (Crossref), https://doi.org/10.2139/ssrn.5054029.

Rodino-Colocino, Michelle, and Chenjerai Kumanyika. Conclusion. Edited by Brian Dolber et al., 1st ed., Routledge, 2021, pp. 271–78. Semantic Scholar, https://doi.org/10.4324/9781003140054-24.

Sarungu, Lukas Maserona, et al. "Enhancing lecturers' productivity through AI in Universitas Slamet Riyadi, Surakarta." Community Empowerment, vol. 9, no. 1, Jan. 2024, pp. 86–91. DOI.org (Crossref), https://doi.org/10.31603/ce.10436.