



USE OF ARTIFICIAL INTELLIGENCE TOOLS BY OFFICE MANAGEMENT EDUCATION STUDENTS FOR IMPROVED LEARNING OUTCOMES IN UNIVERSITIES IN RIVERS STATE

¹Joy Amesi & ²Peace T. Tuwale

*Department of Business Education
Faculty of Education Rivers State University
Port Harcourt, Nigeria*

Corresponding Email: amesi.joy@ust.edu.ng, Peace.tuwale1@ust.edu.ng

Abstract

The study examined the Use of Artificial Intelligence Tools by Office Management Education Students for Improved Learning Outcomes in Universities in Rivers State. The study adopted descriptive survey design. The population of the study consists of three hundred and six (306) registered Business Education Office Management Education students. As shown in table 1. The sample size was two hundred and fifty (250) Year one and two Office Management Education students. The instrument was titled Use of Artificial Intelligence tools by Office Management Education Students for Improved Learning Outcomes in Universities in Rivers State (UAIOMESILO) and the instrument was validated by two experts in Business Education and one expert in Measurement and Evaluation. The reliability of the instrument was done by administering 20 copies of the questionnaire to Office Management Education students in Federal University Otuoke, Bayelsa State and a reliability index of 0.96 was achieved using Cronbach Alpha coefficient. SPSS Statistical tool was used for data analysis. Mean and Standard Deviation was used to answer the research questions and ANOVA was used to test the hypotheses. Mean ratings was used for the boundary limit as 2.50 and above is very high extent and 2.50 below is low extent. Findings from the study revealed that Office Management Education students in the three institutions used ChatGPT, Meta and Grammarly to a very high extent for improved learning outcomes. Conclusion was made and the following recommendation was made based on the findings that, Office Management Education students should be encouraged to use artificial intelligence tools such ChatGPT, Meta and Grammarly for improved learning outcomes.

Keywords: Artificial Intelligence, Tools, Office Management Education Students' Improved Learning Outcomes

Introduction

A well-designed academic course or programme is built on a clear understanding of its ultimate goals and objectives. Learning outcomes, which are the measurable skills, knowledge, abilities, and values that students acquire, serve as the benchmarks to assess student progress and success upon completing the course or programme. Learning outcomes are student-focused; emphasizing what students will achieve and demonstrate, rather than what the instructor will cover. They define the knowledge, skills, and values that students will acquire and apply, highlighting what students will be able to do and value upon completing the course, rather than just listing what the teacher will teach. Learning outcomes are defined in specific, quantifiable terms, clearly outlining what students are expected to knowledgeably understand, skilfully demonstrate, and valuably appreciate upon completion of their course of study. By setting these clear expectations, learning outcomes inform the choice of teaching methods, resources, learning exercises, and evaluation techniques, ensuring a cohesive and effective learning experience. According to Adam (2006), students learning outcomes are the knowledge, skills, and abilities that students have attained as



a result of their engagement in a particular learning experience, they also help guide students in determining what and how to learn in the course.

According to Mahajan and Singh (2017), Learning outcomes serve as a navigational tool, akin to a global positioning system (GPS). By setting a clear destination (the learning outcome), the global positioning system (GPS) (the learning process) guides the student throughout their journey, ensuring they stay on track and reach their intended goal. Even if a student takes a wrong turn (encounters a learning obstacle), the GPS (the learning outcome) recalibrates and redirects them back to the optimal path, leading to successful attainment of the desired knowledge, skills, and abilities. Learning outcomes serve as a guiding force, directing students towards achieving the intended goals of a course. They provide teachers with a clear roadmap to follow, ensuring students are aware of the skills and knowledge they will gain by the end of the course. This shared understanding enables both teachers and students to navigate the learning journey together, with clarity on what needs to be achieved. In the context of Business Education, courses like Office Management Education as recently called by Core Curriculum and Minimum Academic Standard (CCMAS) equip students' with the skills to teach and excel in business and education, aligning with the programme's overall objectives.

The following are objectives of Business Education as stated by Core Curriculum and Minimum Academic Standard (CCMAS); 1. Provide opportunity for practical job preparation or vocational studies in order to make students render effective and efficient services in office, distributive and service occupations. 2. Prepare students, based on interest and aptitudes needed to enter into a business occupation, advance and profit in it. 3. Provide opportunities for students to develop an understanding of business and economic system of the nation so as to enable them to participate actively as producers and consumers of goods and services 4. Develop in students the basic awareness of the contribution which business and office employee makes to the nation's economy. 5. Develop and improve personal qualities and attitude of students as required in personal and employment situation 6. Serve as a guide for individual student for suitable placement in business and office employment 7. Enable students to have career consciousness and economic understanding of the free enterprise system 8. Prepare student to assume the role of building a future generation through teaching and knowledge impartation. 9. Prepare students for leadership position in both public and private life CCMAS, (2023). To fully acquire the skills and values of Business Education, Office Management Education students ought to complete their studies in the field. One effective way to achieve this is by exploring the era of Artificial Intelligence.

Artificial Intelligence can significantly enhance student learning outcomes in various ways. And it is a subset of Information Technology designed to enhance student learning outcomes. The integration of Artificial Intelligence algorithms and systems in education has garnered significant attention in recent years. The term Artificial Intelligence was Coined by John McCarthy in 1955, Artificial Intelligence is defined as the scientific and engineering pursuit of creating intelligent machines that can learn and behave like humans. Artificial Intelligence is a branch of computer science that focuses on the study, design, and development of intelligent systems, known as agents that can perceive their surroundings, make decisions, and take actions to achieve their goals and maximize their likelihood of success. These agents are designed to interact with their environment, learn from experience, and adapt to new situations, mimicking the problem-solving abilities of human intelligence. (Singh & Sagar 2013).

In educational institutions, Artificial Intelligence has been increasingly applied to enhance the learning experience. Artificial Intelligence in Education (AIED) refers to the integration of Artificial Intelligence technologies into educational settings to improve the overall educational experience. Artificial Intelligence is being applied in various aspects of education, including



administration, Instruction, Teaching and Learning. Artificial Intelligence in Education aimed to enhance the efficiency, effectiveness, and accessibility of education, ultimately improving student outcomes and teacher effectiveness. Artificial Intelligence has enabled the development of adaptive programmes and applications that tailor curriculum and content to individual students' needs, abilities, and capabilities. According to Wartman and Combs (2018), Artificial Intelligence can enhance the learning experience by providing a more engaging, interactive, and experiential learning environment, leading to improved learning outcomes and better retention of information.

ChatGPT was the first Artificial Intelligence launched. It is a type of artificial intelligence model that is designed to engage in conversational dialogue with users. It is a chatbot that can respond to user input, such as questions, statements, and requests for information, with generated text. ChatGPT is trained on a large dataset of text and can generate human-like responses, making it a useful tool for a variety of applications, including customer service, language translation, and content generation. According to Salido (2023), ChatGPT has generated significant interest across various fields due to its ability to provide in-depth written responses to information requests based on extensive databases. Despite concerns about the accuracy of its factual content, ChatGPT's impact on education is being explored by many educators and scholars. According to Zhai (2022), the education system should prioritize developing students' creativity and critical thinking skills. Salido (2023) warns that over-reliance on ChatGPT can lead to plagiarism, as Artificial Intelligence generated responses are based on existing data. To avoid academic misconduct, students must use ChatGPT responsibly, citing sources and engaging in critical thinking. While Artificial Intelligence tools like ChatGPT offer self-learning opportunities, they shouldn't replace human teachers, who provide personalized guidance, contextualized learning, and emotional support. A balanced approach combining Artificial Intelligence resources and human teaching creates an effective learning experience

Meta is an artificial intelligence platform developed by Meta Platforms, Inc., formerly known as Facebook, in 2013. Initially, it was known as Facebook Artificial Intelligence Research (FAIR) and was led by Yann LeCun, a deep learning professor and Turing Award winner from New York University. Meta is based in Astor Place, New York City, New York, U.S. It encompasses various Artificial Intelligence technologies, including: Natural Language Processing (NLP) which enables computers to understand, interpret, and generate human language, machine learning which Allows systems to learn from data and improve their performance over time, computer vision which enables computers to interpret and understand visual information from images and videos. Meta provides various tools and services, such as Image generation this is done by creates images based on text prompts, Language translation; Meta can translates text from one language to another. And text summarization; it can summarise long texts into shorter versions. Meta enhances learning in Office Management Education through personalized learning and intelligent tutoring (Dziuban, 2020; VanLehn, 2011), Language processing and content generation (Zhai, 2022; Salido, 2023)

Grammarly is a digital writing tool that provides grammar and spell checking, plagiarism detection services, and suggestions about writing clarity, concision, vocabulary, style, and tone. Grammarly helps students find and correct low-level errors in their written work and avoid inadvertent plagiarism. Requiring students to check their work in Grammarly before turning it in allows instructors to focus more on higher-level issues such as critical thinking, creativity, and demonstration of learning. According to Zinkevich and Ledeneva (2021), Grammarly was launched in 2009, and it is of a Ukrainian-origin American-headquartered cross-platform cloud-based writing assistant with the linguistic content provided by the American side. It uses Artificial Intelligence to identify and search for an appropriate replacement for the mistake it locates. Grammarly's



algorithms automatically highlight potential issues that the user might have overlooked and suggest corrections for grammar, spelling, style and punctuation. Grammarly has great features that could enhance Office Management Education students' learning outcomes.

Artificial intelligence is now taking over the world of business and education. It is giving a new shape to teaching and learning. As students are privileged to have access to devices such as; smart phones, tablets, laptops and so on, that can actually enhance their learning outcomes, since these devices are connected to the internet. Despite the potential of Artificial Intelligence to enhance learning outcomes, Office Management Education students in universities in Rivers State finds it difficult to leveraging Artificial Intelligence tools to improve their academic performance, leading to suboptimal learning outcomes and reduced competitiveness in the job market. The problem is further compounded by the lack of research on the effective integration of Artificial Intelligence in Office Management Education in Rivers State universities, resulting in a significant gap in understanding the benefits and challenges of Artificial Intelligence using this context. According to Adiele (2022), Office Management Education students in Rivers State face significant challenges in utilizing Artificial Intelligence tools, including lack of technical skills, limited access to Artificial Intelligence resources, and inadequate training, leading to a significant gap in harnessing the potential of Artificial Intelligence to enhance their learning outcomes. The researchers observed that little related researches have been done on the use of artificial intelligence by Office Management Education students for improved learning outcomes in universities in Rivers State. Therefore the current study sought to fill this gap and contribute to the existing body of knowledge by determining the use of artificial intelligence tools by Office Management Education Students for improved learning outcomes in Universities in Rivers State.

Research Questions

The following research questions were posed to guide the study

1. To what extent do Office Management Education students use ChatGPT for improved learning outcomes in Universities in Rivers State?
2. To what extent do Office Management Education students use Meta for improved learning outcomes in Universities in Rivers State?
3. To what extent do Office Management Education students use Grammarly for improved learning outcomes in Universities in Rivers State?

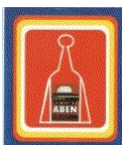
Hypotheses

The following hypotheses were formulated for the study and tested at 0.05 level of significant

1. There is no significant difference in the mean responses of Office Management Education students from RSU, IAUE and Uniport on the extent to which they use ChatGPT for improved learning outcomes.
2. There is no significant difference in the mean responses of Office Management Education students from RSU, IAUE and Uniport on the extent to which they use Meta for improved learning outcomes
3. There is no significant difference in the mean responses of Office Management Education students from Rivers State University, Ignatius Ajuru University of Education and University of Port Harcourt on the extent to which they use Grammarly for improved learning outcomes

Methodology

The study adopted descriptive survey design to elicit responses from Office Management Education students'. The study was carried out in Rivers State, Nigeria and the central focus was on the Use of Artificial Intelligence tools by Office Management Education Students for Improved



Learning Outcomes in university in Rivers State. The core of the study is in Rivers State University, Ignatius Ajuru University of Education and University of Port Harcourt. The population of the study consists of three hundred and six (306) registered Business Education Office Management Education students'. As shown in table 1. The sample size was two hundred and fifty (250) Year one and two Office Management Education students. Self-structured questionnaire designed by the researchers was used as instrument for data collection and the instrument was structured on a 4 point rating scale of Very High Extent (VHE 4points), High Extent (HE 3 Points), Moderate Extent (ME 2 Points), and Low Extent (LE 1point scale). The instrument was titled Use of Artificial Intelligence tools by Office Management Education Students for Improved Learning Outcomes in Universities in Rivers State (UAIOMESILO). The instrument was validated by two experts in Business Education and one expert in Measurement and Evaluation. The reliability of the instrument was done by administering 20 copies of the questionnaire to students in Federal University Otueke, Bayelsa State and a reliability index of 0.84 was achieved using Cronbach Alpha coefficient, to ascertain the internal consistency of the instrument. The instrument was administered by the researchers personally to the respondents and the instrument was retrieved immediately for those who filled and those who did not fill theirs instantly, the researchers went back a week after for collection and retrieval. SPSS Statistical tool was used for data analysis. Mean and Standard Deviation was used to answer the research questions and ANOVA was used to test the hypotheses. Criterion mean was used for the boundary limit as 2.50 and above is very high extent and 2.50 below is low extent.

Table 1: Population Distribution for 2023/2024 Academic Session

Institutions	Students				Total
	Year 1	Year 2	Year 3	Year 4	
Rivers state University	38	3	-	1	42
Ignatius Ajuru University of Education	74	66	-	-	140
University of Port Harcourt	39	34	51	-	124
					306

Source: Departmental Examination Officer, 2024

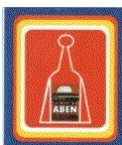
Results

Research question 1: To what extent do Office Management Education students use ChatGPT for improved learning outcomes in Universities in Rivers State?

Table 2: Respondents' Rating of Aggregate Mean and Standard Deviation on Office Management Education Students Use of ChatGPT for Improved Learning Outcomes in Universities in Rivers State

S/N	Item Statement	Mean	Std	Remarks
1.	Use ChatGPT to complete tasks and assignments in office management education	2.77	0.91	High Extent
2.	Use ChatGPT to generate ideas for projects and presentations in office management education.	2.65	0.97	High Extent
3.	Consult ChatGPT to clarify concepts and understand office management theories.	2.87	0.91	High Extent
4.	Use ChatGPT to practice office management skills, such as communication and problem-solving.	3.08	0.67	High Extent
5.	ChatGPT help save time in completing office management tasks.	3.24	0.62	High Extent
	Grand Mean	2.92	0.82	High Extent

Source: Field Survey, 2024



Findings from Table 2 shows that Office Management Education students utilized ChatGPT to enhance their learning outcomes, primarily using it to complete tasks and assignments (average score: 2.77). They also employed ChatGPT to generate project and presentation ideas (average score: 2.65), clarify concepts and understand theories (average score: 2.87), practice office management skills like communication and problem-solving (average score: 3.24), and save time on tasks (average score: 3.24). With a grand mean of 2.92, the results indicate that Office Management Education students used ChatGPT to a very high extent to achieve improved learning outcomes.

Research question 2: To what extent do Office Management Education students use Meta for improved learning outcomes in Universities in Rivers State?

Table 3: Respondents Rating of Aggregate Mean and Standard Deviation on the Extent to which Office Management Education Students Used Meta for Improved Learning Outcomes

S/N	Item Statement	Mean	Std Deviation	Remarks
6.	Used Meta for office management-related tasks.	3.40	0.62	High Extent
7.	Use Meta regularly to support my office management learning.	3.17	0.70	High Extent
8.	Rely on Meta to complete tasks and assignments in office management education.	3.21	0.65	High Extent
9.	Meta improves my understanding of office management concepts.	3.14	0.70	High Extent
10.	Meta increases my productivity in office management coursework.	3.19	0.66	High Extent
	Grand Mean	3.23	0.67	High Extent

Source: Field Survey, 2024

Findings from Table 3 shows that students of Office Management Education leveraged Meta to enhance their learning outcomes, primarily utilizing it for office management-related tasks (average score: 3.40). They also regularly employed Meta to support their office management learning (average score: 3.17), relied on it to complete tasks and assignments (average score: 3.21), and credited Meta with improving their understanding of office management concepts (average score: 3.14) and boosting their productivity in coursework (average score: 3.19). With a grand mean of 3.23, the results indicate that Office Management Education students utilized Meta to a very high extent to achieve improved learning outcomes.

Research question 3: To what extent do Office Management Education students use Grammarly for improved learning outcomes in Universities in Rivers State?

**Table 4: Respondents Rating of Aggregate Mean and Standard Deviation on Office Management Education Students' Use of Grammarly for Improved Learning Outcomes**

S/N	Item Statement	Mean	Std Deviation	Remarks
11.	Rely on Grammarly to improve the clarity of writing in office management coursework.	3.10	0.78	High Extent
12.	Use Grammarly to check grammar and spelling errors in office management assignments.	3.06	0.78	High Extent
13.	Consult Grammarly to enhance writing style in office management education.	3.20	0.76	High Extent
14.	Use Grammarly to correct low-level errors in written work.	3.27	0.51	High Extent
15.	use Grammarly in editing and proofreading of office management assignments in order to save time.	3.37	0.48	High Extent
	Grand Mean	3.20	0.66	High Extent

Source: Field Survey, 2024

Findings from Table 4 shows that Office Management Education students extensively utilized Grammarly to enhance their learning outcomes, primarily relying on it to improve writing clarity in coursework (average score: 3.10). They also used Grammarly to check grammar and spelling errors in assignments (average score: 3.06), enhance writing style (average score: 3.20), correct minor errors (average score: 3.27), and edit and proofread assignments to save time (average score: 3.37). With grand mean of 3.20, the results indicate that Office Management Education students used Grammarly to a very high extent to achieve improved learning outcomes.

Hypothesis 1: There is no significant difference in the mean responses of Office Management Education students from RSU, IAUE and Uniport on the extent to which they use ChatGPT for improved learning outcomes.

Table 5: ANOVA Result on Office Management Education Students use of Chatgpt for Improved Learning Outcomes in the three Institutions.

Source	Df	Sum of Squares	Mean Square	F-ratio	F-crit	p-value	Decision
Between Groups	2	5.01	2.51	11.13	3.03	0.00	Rejected
Within Groups	248	55.84	0.23				
Total	250	60.85					

Source: Field Survey, 2024

The ANOVA analysis in Table 5 revealed the differences in ChatGPT usage for improved learning outcomes among Office Management Education students from the three institutions. The results showed an F-calculated value of 11.13, which is higher than the F-critical value of 3.03, with a degree of from between and within groups, respectively. Additionally, the p-value of 0.00 is lesser than the significance level of 0.05. Since the F-calculated value is higher than the F-critical value and the p-value is lesser than the significance level, the null hypothesis was rejected. This indicates that there is statistically significant difference in the mean responses of Office Management Education students from the three institutions regarding their use of ChatGPT for improved learning



outcomes. To establish where the significant difference lies among the groups, a Post Hoc test using Scheffe-test was conducted and the resulted presented in table 5.1

Table 5.1: Post-Hoc Test (Scheffe-Test) Showing Significant Difference between Office Management Education Students’ from RSU, IAUE and Uniport on the Extent to which they Used Chatgpt for improved learning outcomes.

(I) institution	(J) institution	Mean Difference			95% Confidence Interval	
		(I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
Rsu	laue	0.29*	0.07	0.00	0.12	0.46
	Uniport	0.34*	0.09	0.00	0.13	0.55
laue	Rsu	-0.29*	0.07	0.00	-0.46	-0.12
	Uniport	0.05	0.08	0.85	-0.15	0.24
Uniport	Rsu	-0.34*	0.09	0.00	-0.55	-0.13
	laue	-0.05	0.08	0.85	-0.24	0.15

Source: Field Survey, 2024

The Post Hoc test shows that there is a significant difference between Rsu and laue (p-value= 0.00<0.05), mean difference (0.29), between Uniport and Rsu (p-value=0.00<0.05) mean difference (0.34). There was no significant difference between Uniport and laue (p-value 0.85>0.05) mean difference (0.05).

Hypothesis 2: There is no significant difference in the mean responses of Office Management Education students from RSU, IAUE and Uniport on the extent to which they use Meta for improved learning outcomes

Table 6: ANOVA Result on Office Management Education Students’ Use of Meta for Improved Learning Outcomes in the three Institutions.

Source	Df	Sum of Squares	Mean Square	F-ratio	F-crit	p-value	Decision
Between Groups	2	4.52	2.26	13.28	3.03	0.00	Rejected
Within Groups	248	37.48	0.17				
Total	250	42.00					

Source: Field Survey, 2024

The ANOVA analysis in Table 6 showed the differences in Meta usage for improved learning outcomes among Office Management Education students from the three institutions. The results showed an F-calculated value of 13.28, which is higher than the F-critical value of 3.03, with a degree of freedom of 2 and 248 between and within groups, respectively. Additionally, the p-value of 0.00 is lower than the significance level of 0.05. Since the F-calculated value is higher than the F-critical value and the p-value is lower than the significance level, the null hypothesis was rejected. This indicates that there is statistically significant difference in the mean responses of Office Management Education students from the three institutions regarding their use of Meta for improved learning outcomes. To establish where the significant difference lies among the groups, a Post Hoc test using Scheffe-test was conducted and the resulted presented in table 6.



Table 6.1: Post-Hoc Test (Scheffe-Test) Showing Significant Difference between Office Management Education Students’ from RSU, IAUE and Uniport on the Extent to which they used Grammarly for improved learning outcomes.

(I) institution	(J) institution	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Rsu	laue	0.25*	0.07	0.00	0.07	0.42
	Uniport	-0.08	0.08	0.66	-0.28	0.13
laue	Rsu	-0.25*	0.07	0.00	-0.42	-0.07
	Uniport	-0.34*	0.07	0.00	-0.49	-0.15
Uniport	Rsu	0.08	0.08	0.66	-0.13	0.28
	laue	0.34*	0.07	0.00	0.15	0.49

Source: Field Survey, 2024

The Post Hoc test shows that there is a significant difference between Rsu and laue (p-value= 0.00<0.05), mean difference (0.25), between laue and Uniport (p-value= 0.00<0.05), mean difference (0.34). There was no significant difference between Uniport and Rsu (p-value =0.66>0.05), mean difference (0.08).

Hypothesis 3: There is no significant difference in the mean responses of Office Management Education students from RSU, IAUE and Uniport on the extent to which they use Grammarly for improved learning outcomes.

Table 7: ANOVA Result on Office Management Education Students’ Use of Grammarly for Improved Learning Outcomes in the three Institutions.

Source	Df	Sum of Squares	Mean Square	F-ratio	F-crit	p-value	Decision
Between Groups	2	2.04	1.018	7.56	3.03	0.01	Rejected
Within Groups	248	33.41	.135				
Total	250	35.45					

Source: Field Survey, 2024

The ANOVA analysis in Table 7 revealed the differences in Grammarly usage for improved learning outcomes among Office Management Education students from the three institutions. The results showed an F-calculated value of 7.56, which is higher than the F-critical value of 3.03, with a degree of freedom of 2 and 248 between and within groups, respectively. Additionally, the p-value of 0.01 lesser than the significance level of 0.05, since the F-calculated value is higher than the F-critical value and the p-value is lesser than the significance level, the null hypothesis was rejected. This indicates that there is statistically significant difference in the mean responses of Office Management Education students from the three institutions regarding their use of Grammarly for improved learning outcomes. To establish where the significant difference lies among the groups, a Post Hoc test using Scheffe-test was conducted and the resulted presented in table 7.1

**Table 7.1: Post-Hoc Test (Scheffe-Test) Showing Significant Difference between Office Management Education students' from RSU, IAUE and Uniport on the extent to which they used Grammarly for improved learning outcomes.**

(I) institution	(J) institution	Mean			95% Confidence Interval	
		Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
rsu	laue	0.19*	0.05	0.00	0.05	0.32
	Uniport	0.22*	0.07	0.01	0.05	0.38
iaue	Rsu	-0.19*	0.05	0.00	-0.32	-0.05
	Uniport	0.03	0.06	0.87	-0.12	0.18
uniport	Rsu	-0.22*	0.07	0.01	-0.38	-0.05
	laue	-0.03	0.06	0.87	-0.18	0.12

Source: Field Survey, 2024

The Post Hoc test shows that there is a significant difference between laue and Rsu ($p\text{-value}=0.00<0.05$), mean difference (0.19), between Uniport and Rsu ($p\text{-value}=0.01<0.05$) mean difference (0.22), there was no significant difference between laue and Uniport ($p\text{-value}=0.06>0.05$), mean difference (0.03).

Discussion

The discussion was done according to each finding in the research question;

The findings from research question one provides valuable insights into the usage of ChatGPT among Office Management Education students in the three institutions. The results indicate that students utilize ChatGPT to a very high extent to enhance their learning outcomes, primarily for task completion, idea generation, concept clarification, skill practice, and time-saving. This suggests that ChatGPT is a useful tool for students to augment their learning experience. This finding is in agreement with the view of Salido (2023) that ChatGPT has generated significant interest across various fields due to its ability to provide in-depth written responses to information requests based on extensive databases. In agreeing with the view of Salido, Zhai (2022) postulated that educational institutions should prioritize developing students' creativity and critical thinking skills through the use of ChatGPT. However, it was also found that there is no significant difference in ChatGPT usage among students from RSU, IAUE, and Uniport. This implies that students from different institutions have similar usage patterns and levels of engagement with ChatGPT, despite potential variations in their learning environments and resources. The acceptance of the null hypothesis suggests that institutional affiliation does not significantly influence students' use of ChatGPT for improved learning outcomes. This finding has implications for educators and policymakers, as it indicates that ChatGPT can be a universally applicable tool for enhancing Office Management Education, regardless of institutional differences.

The findings research question two provides valuable insights into the ways in which Office Management Education students in the three institutions utilize Meta to enhance their learning outcomes. The results show that students leveraged Meta to a very high for various purposes, indicating a high level of usage. Notably, students primarily used Meta for office management-related tasks, suggesting that Meta is a valuable tool for supporting practical applications of office management concepts. Additionally, students regularly employed Meta to support their learning, complete tasks and assignments, and improve their understanding of office management concepts. The finding that students credited Meta with boosting their productivity in coursework is particularly significant, as it highlights the potential of Meta to enhance students' efficiency and effectiveness



in completing academic tasks. This finding is in agreement with Kumar (2020) that Meta can simulate real-world office scenarios, allowing students to practice administrative tasks and decision-making. In agreeing with the view of Kumar, Dziuban (2020) noted that Meta can help tailor learning experiences to individual students' needs and abilities. It was so found that there is no significant difference in the mean responses of Office Management Education students from RSU, IAUE and Uniport on the extent to which they use Meta for improved learning outcomes. This result has important implications for educators and policymakers, as it indicates that Meta can be a universally applicable tool for enhancing Office Management Education, regardless of institutional differences.

The findings research question three provides valuable insight into the ways in which Office Management Education students in the three institutions utilize Grammarly to enhance their learning outcomes. The results show that students used Grammarly to a very high extent for various purposes, indicating a very high level of usage. Notably, students primarily used Grammarly to improve writing clarity in coursework, suggesting that Grammarly is a valuable tool for supporting students' writing skills. Additionally, students utilized Grammarly to check grammar and spelling errors in assignments, enhance writing style, correct minor errors, and edit and proofread assignments to save time. This finding is in agreement with Zinkevich and Ledeneva (2021) who opined that Grammarly is a cloud-based writing assistant with the linguistic content provided by the American side. It uses Artificial Intelligence to identify and search for an appropriate replacement for the mistake it locates. Grammarly's algorithms automatically highlight potential issues that the user might have overlooked and suggest corrections for grammar, spelling, style and punctuation. The finding that students relied heavily on Grammarly to edit and proofread assignments to save time (average score is particularly significant, as it highlights the potential of Grammarly to enhance students' efficiency and productivity in completing academic tasks. There is no significant difference in the mean responses of Office Management Education students from RSU, IAUE and Uniport on the extent to which they use Grammarly for improved learning outcomes. This finding suggests that Grammarly is a universally applicable tool for enhancing Office Management Education, regardless of institutional differences. It also implies that individual student characteristics or learning styles may play a more significant role in determining Grammarly usage and its impact on learning outcomes.

Conclusion

In conclusion, the use of artificial intelligence tools by Office Management Education students has been found to be a significant factor in enhancing their learning outcomes. Specifically, ChatGPT, Meta, and Grammarly have been identified as crucial tools in supporting students' academic success. The use of these artificial intelligence tools has been found to have a positive impact on Office Management Education students' learning outcomes, and their use is not significantly influenced by institutional affiliation. Therefore, educators and policymakers ought to consider integrating these tools into Office Management Education curricula to support students' academic success.

Recommendations

The following recommendations were made based on the findings:

1. Office Management Education students should be encouraged to use ChatGPT strategically for task automation. Educators can provide guidance on how to effectively use ChatGPT to augment their learning, while also developing critical thinking skills to evaluate the tool's outputs.



2. Office Management Education students should be encouraged to leverage Meta for personalized learning and support. Educators can explore ways to integrate Meta into their teaching practices, providing students with tailored support and feedback to enhance their learning outcomes.

3. Office Management Education students should be encouraged to use Grammarly to enhance their writing and communication skills. Educators can incorporate Grammarly into their curriculum, teaching students how to effectively use the tool to refine their writing skills and produce high-quality documents.

References

- Adam, S. (2006). An introduction to learning outcomes.
- Adiele, J. N. (2022). Exploring the challenges of Artificial Intelligence adoption in Office Management and Technology education in Rivers State universities. *Journal of Education and Technology*, 21(1), 1-12.
- Chassignol, M., Khoroshavin, A., Klimova, A., & Bilyatdinova, A. (2018). Artificial Intelligence Trends in Education: A Narrative Overview. *Procedia Computer Science*, 136, 16-24.
- Chaffey, D. (2020). *Digital Marketing: Strategy, Implementation and Practice*. Pearson Education
- Chen, L., Chen, P., & Lin, Z. (2020). Artificial Intelligence in Education: A Review. *Leee Access*, 8, 75264-75278
- Choi, J., Park, J., & Suh, J. (2023). Evaluating the Current State of ChatGPT and Its Disruptive Potential: An Empirical Study of Korean Users. *Asia Pacific Journal of Information Systems*, 33(4), 1058-1092.
- Diele, J. N. (2022). Exploring the Challenges of Artificial Intelligence Adoption in Office Management and Technology Education in Rivers State Universities. *Journal of Education and Technology*, 21(1), 1-12.
- Dong, X., Huang, X., & Lin, M. (2021). Application of Data Mining Technology in Public Welfare Sports Education in the Era of Artificial Intelligence. *Mobile Information Systems*, 2021, 1-13.
- Dziuban, C. (2020). Adaptive learning: A review of the literature. *Journal of Educational Technology Development and Exchange*, 13(1), 1-25.
- Jiang, T., Li, W., Wang, J., & Wang, X. (2021). Using Artificial Intelligence-based Online Translation Website to improve the Health Education in International Students. In 2021 2nd International Conference on Artificial Intelligence and Education (ICAIE), Dali, China: Lee 25-28.
- Kumar, A. (2020). AI-powered Research Assistance: A Review. *Journal of Library and Information Science*, 12(2), 1-10.
- Mahajan, M., & Singh, M. K. S. (2017). Importance and benefits of learning outcomes. *IOSR Journal of Humanities and Social Science*, 22(03), 65-67.
- Microsoft. (2022). Microsoft Office documentation. Microsoft Support.
- Moulieswaran, N., & NS, P. K. (2023). Amelioration of Google Assistant –A Review of Artificial Intelligence Stimulated Second Language Learning and Teaching. *World Journal of English Language*, 13(1), 1-86.
- Pappas, C. (2024). 7 Ways to Enhance Learning Outcomes with the Help of Artificial Intelligence.
- Salido, M. (2023). Impact of AI-Powered Learning Tools on Student Understanding and Academic Performance.
- Salido, M. (2023). Using ChatGPT to generate educational content: A pilot study. *Journal of Educational Technology*, 14(1), 1-12.
- Singh, G., & Sagar, A. M. D. S. (2013). An overview of Artificial Intelligence. *SBIT Journal of Sciences and Technology*, 2(1), 1-12.



- Trisoni, I., Ardiani, S., Herawati, A., Mudinillah, R., Mai-mori¹, A., Khairat¹, D., David¹, & N, Nazliati. (2023). The Effect of Artificial Intelligence in Improving Student Achievement in High Schools. Proceedings of the International Conference on Social Science and Education (ICoESSE 2023), *Advances in Social Science, Education and Humanities Research*, 789. VanLehn, K. (2011). The Relative Effectiveness of Human Tutoring, Intelligent Tutoring Systems, and other Tutoring Systems. *Educational Psychologist*, 46(4), 197-221.
- Wartman, S. A., & Combs, C. D. (2018). Medical Education must move from the Information Age to the Age of Artificial Intelligence. *Acad. Med.*, 93(8), 1107-1109.
- Webopedia. (2024). Google Assistant.
- Zhai, X. (2022). Can ChatGPT be used to Support Language Learning? A Preliminary Study. *Journal of Language and Linguistics*, 21(3), 537-546.
- Zinkevich, N. A., & Ledeneva, T. V. (2021). Using Grammarly to Enhance Students' Academic Writing Skills. *Professional Discourse & Communication*, 3(4), 51-63.