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IJCI - Artificial Intelligence (AI) Productivity Tools in Research Writing as Perceived by Young Researchers: An Assessment of Acceptance and Utilization

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Abstract

The use of Artificial Intelligence (AI) productivity tools has been one of the most useful tools in the modern days. Its significance to society, especially for academic purposes is an understatement. However, such technology has still been apprehended to be utilized especially in research. As such, the study assessed the awareness, acceptance, and utilization behavior among college and senior high school students in the use of common AI productivity tools relative to research writing. The Unified Theory of Acceptance and Use of Technology (UTAUT) Model was adopted in this study to provide relevant information as well as correlate data towards information generated in this study as the basis for the development of a policy framework that can be further enhanced to maximize the potential of advanced technology. The data consolidated revealed that the level of acceptance as noted among the respondents is at a mean score of 5.0 equivalent to somewhat acceptable and the utilization behavior level is at 4.7 equivalent to somewhat utilizable. This result may be attributed to the risk of plagiarism and other intellectual property violations and concerns that AI poses in academic writing. Similarly, using the T-test and ANOVA test to determine if the acceptance and utilization level is influenced by sex, age, and education at an alpha level of 0.05, the statistics show that all of the mentioned variables do not influence the perception of acceptance and utilization among the respondents.

Keywords: Artificial Intelligence (AI), Productivity Tools, UTAUT, Research, Policy Framework.

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1. Introduction

1.1. Introduction to the problem

In the current year where the world is gearing towards the digital age, Artificial Intelligence (AI) has been one of the most utilized technological advancements ever developed. Its scope that has rooted in the various fields of society including agriculture, healthcare, education, media, etc. has been revolutionized due to the use of AI (Jallad, Khitam, Albadareen, & Al-maghaireh, 2024). Thus, multilateral organizations further spread initiatives as well as educate individuals on the use of AI for sustainable development and lifelong learning.

Significantly, in the context of education and higher learning, AI has become more popular among students and institutions of technology as their way of teaching and learning evolved. In previous years, universities all over the world recalibrated their teaching approaches in relation to AI solutions to perform better (Bhutoria, 2022).

With these facts presented, it is imperative to say that there is a need to further understand how students perceive the use of AI in research writing as one of the academic requirements for a degree as well as a major requirement to finish senior high school as reflected in the K-12 curriculum of the Department of Education.

1.2. Overview of AI in education

The overview of AI in education had been once acknowledged along with profiling and prediction, assessment and evaluation, adaptive systems and personalization, and finally, intelligent tutoring systems (Zawacki-Richter, Marin, Bond, & Gouverneur, 2019). The use of flipped classrooms as an attempt to retrofit and recalibrate to the needs of diverse learners in consonance with the educational frameworks used is an example of how AI is utilized in intelligent tutoring systems such as in anesthesia training for medical students (Chen, Chiu, Yu, Chang, & Chen, 2024). Likewise, the use of AI in assessment has been perceived as useful as it allows efficient checking of intuitive communication in the case of several tools such as Grammarly, Quilbot, and ChatGPT (Cortez, Ong, Diaz, German, & Jagdeep, 2024).

Relatively, in the aspect of research, AI productivity tools have also a significant role to play as most AI productivity tools are powerful enough to organize thoughts as well as systematically enhance scientific writing through language proficiency (Kim, Yu, Detrick, & Li, 2025; Noy & Zang, 2023). Aside from the fact that AI productivity tools can hasten and simplify technical writing, its vast connection to the World Wide Web allows automation and access to a wider range of data and information that may be limited to most countries around the globe, especially in developing countries such as the Philippines (Rashid & Kausik, 2024).

For organizations, especially higher education institutions who are aiming to become known as a research university, it is a good step to keep up with technological changes and advancement especially as the digital era is fast approaching. With the Internet of Things, Virtual Reality, Augmented Reality, and Artificial Intelligence gaining popularity, there is a need to recalibrate practices and approaches in research writing to boost productivity and also encourage more individuals to break the stigma of research that is limited only to intellectually gifted minds.

As noted from the works of Marzuki et al. (Marzuki, Widiati, Surdin, Darwin, & Indrawati, 2023) AI tools provide a learning grounds for most students but also an avenue among faculty members to improve their skills and making them more competitive as AI tools fosters comprehensive learning experience to improve one's performance. Likewise, a positive impact on the image, efficiency, academic reputation, and citation index were duly observed. Universities in the Philippines may also reach a certain level of prominence with the aid of advanced technologies.

However, there is still a need to further assess the acceptance and utilization behavior of the community when it comes to AI productivity tools as cited by (Ali, Murray, Momin, Dwivedi, & Malik, 2024),who pointed out the need for further studies to ensure that the minds meet the law in the case of AI productivity tools utilization. This was further supported by Khogali & Mekid (2023) highlighting its implication for the overall Quality Management Systems of Philippine Higher Education Institutions.

1.3. Coping with AI productivity tools

Despite the wonders that AI can offer, several challenges were still noted. In the study of Herzallah & Makaldy (2025), that shows a positive attitude towards the use of AI among the 200 Arab and Jewish Teachers, but also reflect a moderate perception in terms of perceived ease of use which can be attributed to the awareness on both the benefits and technical know-how of AI in educational settings. Furthermore, Labrague et.al (2023) also highlighted that a similar level of readiness among nursing practitioners in the Philippines was consolidated primarily because of a low to moderate level of technological proficiency in the use of AI productivity tools, understanding of the tools, and finally, lack of necessary ICT infrastructures that can support the use of such technology to which Santiago et.al (2023) and Uyar (2023) further emphasized in their separate study on AI productivity tools and e-learning. On the other hand, Asirit & Hua (2023) noted that among the respondents of the survey they conducted, a percentage of the population reflects a cautious stance as to the utilization of AI tools primarily due to security, ethical considerations, and other potential violations of existing laws.

Thus, this study assessed the awareness, acceptance, and utilization behavior of students in the use of AI productivity tools while taking research courses and subjects to provide a basis for the development of a policy framework embedding AI into research

writing. Similarly, this study verifies the influence of sexes, gender, and education as determinants of acceptance of technology with the assumption that the distribution among these parameters does not reflect any significant differences in their perceptions.

2. Method

The study employed a descriptive correlational research design to describe the different data collected based on the parameters mentioned in the objectives as well as establish its relationship similarly noted by McBurney & White (2009) which further mentions that the appropriateness of descriptive correlational research design is relevant especially if data collected are based on behavior or attitudes of the participants with emphasis on the use of modified Unified Theory of Acceptance and Use of Technology Model by Venkatesh et al in 2003. As cited from the works of Marikyan & Papagiannidis (2021), the UTAUT model aids in examining the acceptance of certain technology through the determination of several factors including performance expectancy, effort expectancy, social influence, and facilitation conditions. This is presented using the model shown below.

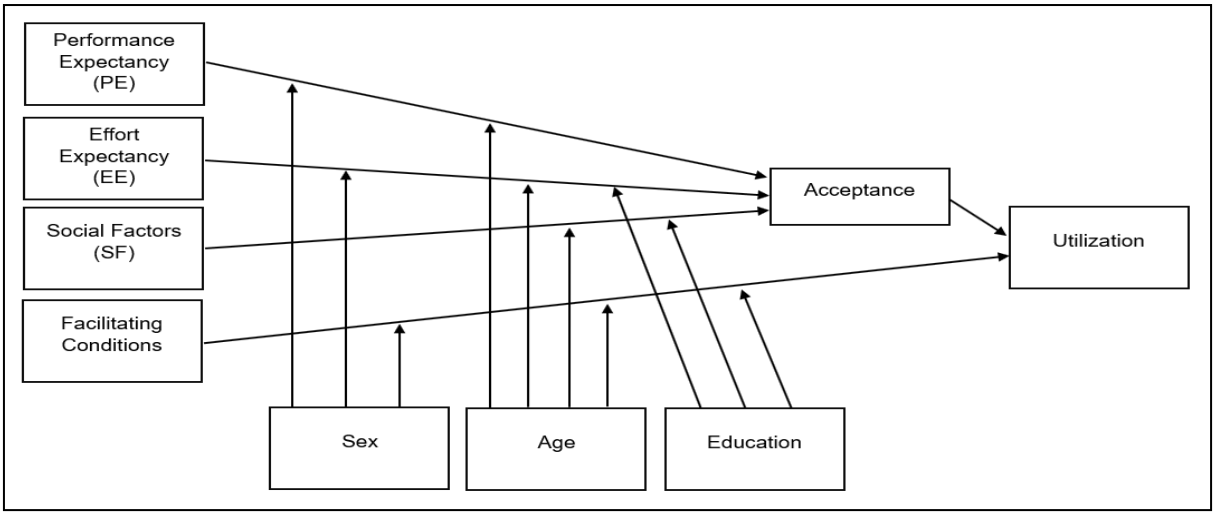

Figure 1: Modified UTAUT Model

To measure the acceptance of AI productivity tools in the conduct of research writing among students, Performance Expectancy, Effort Expectancy, Social Factors, and Facilitating Conditions were used as a measurement of acceptance of AI productivity tools. Performance expectancy is the measure of the degree to which individuals perceive that AI productivity tools may aid them in accomplishing their tasks at a very satisfactory level which may be analyzed through the influence of sex and age. On the other hand, Effort Expectancy was defined in this study as a measure associated with

how easily individuals could use AI in their work that may be viewed through sex, age, and education. Likewise, Social Factors were noted to be the measure of how individuals perceived the use of AI writing tools with what others may perceive which in turn may be further analyzed by age and education. Finally, Facilitating Conditions was defined as the measure of the degree at which individuals believe that the school they are currently enrolled in has and will have sufficient technical infrastructures and funding so that everyone may use AI productivity tools to improve productivity as viewed through age and education of the respondents.

2.1. Participant (subject) characteristics

The population includes senior high school and colleges students taking research courses and subjects in the province of Camarines Norte, Philippines wherein convenience sampling method was used in order to provide insights from different locales to which 108 SHS and College students responded to the deployed questionnaire. As such, the demographic characteristics of the respondents were duly presented in Table 1.

Table 1: Demographic Characteristics of Respondents (N = 108)

Demographics		Frequency	%
Sex			
	Male	34	31.78%
	Female	74	69.16%
Age			
	19 – 24	52	48.06%
	31 – 36	1	0.93%
	25 – 30	5	4.67%
	18 and below	50	46.73%
Education			
	College Student	54	50.0%
	Senior High School Student	54	50.0%

The respondents were sub-categorized according to sex, age bracket, and education. In terms of sex, 31.78% constitute the male samples while 69.16% were female. furthermore, in terms of age bracket, 95.33% of the respondents were at ages below 18 to 24 years of age. This constitutes the age bracket at which SHS and College Students are currently enrolled in research writing. Finally, in terms of education, 50% of the respondents were College students while 50% were SHS students.

2.2. Research Instrument

A survey questionnaire was developed using Google Forms and was deployed among students through an online modality. Questions in the instrument were adopted from the

works of Lescevia, Ginters, and Mazza (2023) which identified a total of nineteen reliable questions upon using Cronbach's Alpha reliability test, Split-Half Reliability Test, and Spearman-Brown prediction formula. As such, the nineteen (19) questions that was adopted from the said study were further modified to fit the needs of the present study.

2.3. Sampling procedures

As the study utilized a convenience sampling method and the participation in this study was purely voluntary, there are limitations as to the number of respondents and to the duration of data collection that was conducted for the whole month of April 2024. An informed consent form was attached to the developed Google form which was first accomplished by prospective respondents of the study. Relatively, the questionnaire was distributed by online means including the use of social media platforms such as Facebook, Twitter, and Instagram.

3. Results

3.1. Awareness of commonly used AI Productivity Tools in Research Writing

To determine the awareness of AI Productivity Tools that can be used in research writing, the respondents were asked to choose among the choices of which tools are they familiar with along: Literature Search Tools, Knowledge Mapping Tools, Writing Tools, Citation Generator Tools, Paper Reading Tools, and Note Taking Tools. Based on the consolidated data presented in Figure 2, the majority of the respondents are more familiar with Writing Tools specifically Quillbot and Grammarly.

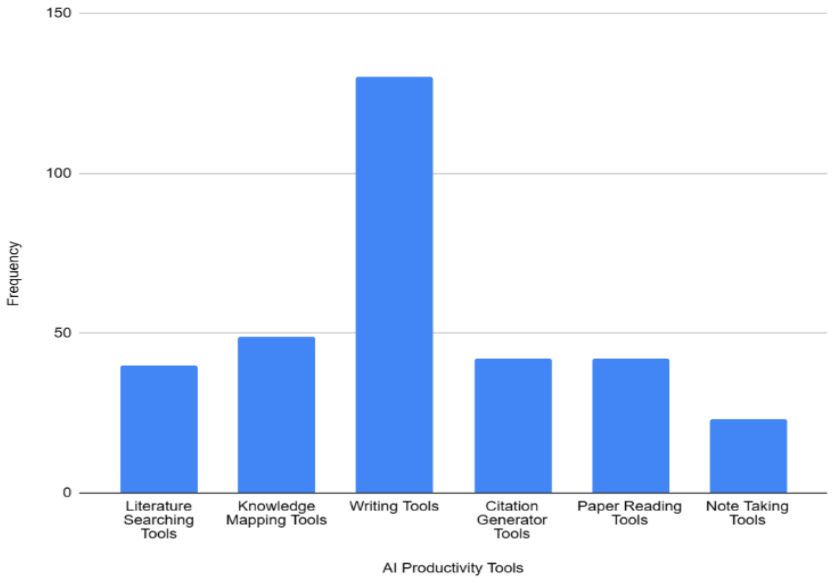

Figure 2: Level of Awareness on commonly used AI productivity tools in research writing

Quillbot is an AI Productivity Tool that allows paraphrasing of text in a variety of modes and styles as well as summarizing texts into compressed versions. It aids in providing a more fluent approach in the use of language particularly in vocabulary, tone, and style. This tool can be integrated into the web browser as an extension application. Thus, the integration of Quillbot in web browsers allows the user to provide appropriate language and fluent use of grammar while using web-based platforms for word processing. Respondents to the works of (Kohnke, Zou, & Su, 2025), claimed that Quillbot helps them to find new ways to express ideas and likewise shares suggestions as to synonyms and alternative phrases that can be used for written works. However, it is just an opportunity to learn but not neglect to learn the manual way of writing in English as the hybrid may produce the best quality works.

On the other hand, Grammarly, as lifted from the works of Moorhouse, Yeo, & Wan (2023), is an AI-powered tool used for assistance in English Writing. It provides grammar correction, and grammar suggestions depending on the tone and style of writing. This tool like most AI productivity tools, can also be integrated into web browsers and other web-based word-processing applications to aid in grammar use. Likewise, Nazari, Sabbir, & Setiawan (2021) have already noted the usefulness and suitability of using Grammarly as an English writing tool as it offers a user-friendly interface for error tracking in writing.

3.2. Acceptance of Commonly Used AI Productivity Tools in Research Writing

In terms of acceptance level in the use of AI productivity tools along Performance Expectancy, Effort Expectancy, Social Factors, and Facilitating Conditions data shows that respondent's level of acceptance is somewhat acceptable with mean scores ranging from 4.7 to 5.0 along the four parameters as seen in Table 2.

Table 2: Acceptance in the use of AI Productivity Tools

Criteria	Mean Score	Adjectival Interpretation
Performance Expectancy	5.0	Somewhat Acceptable
Effort Expectancy	5.0	Somewhat Acceptable
Social Factors	4.9	Somewhat Acceptable
Facilitating Conditions	4.7	Somewhat Acceptable
Average	**4.9**	**Somewhat Acceptable**

The results show that despite various uses and benefits of different AI productivity tools in research writing, there are still apprehensions among the respondents about its actual use as noted in the table. This contradicts several studies including the works of

Utami, Andayani, Winarni, & Sumarwati (2023) which noted positive feedback in the use of AI productivity tools among Indonesian students. Likewise, in the works of Hamad (2023) despite efforts in various ways to utilize AI productivity tools in automation and streamlining of various research-related works.

3.3. Perceived Issues and Concerns in the Use of AI Productivity Tools

With regards to the apprehensions noted among the respondents, Table 3 summarizes the challenges and issues to the use of AI productivity tools in research writing.

Table 3: Perceived Challenges in the Utilization of AI Productivity Tools

Challenges	Frequency	Rank
AI tools are not compatible with the devices that I use	17	7th
Lack of accountability	28	4th
System protocol is complicated to understand	8	8th
Risks of plagiarism and other intellectual property violations	56	1st
Difficulties in complying with standards and regulations	23	5th
The information generated is not trusted	30	3rd
No internet connection in the locality	22	6th
Most of the tools are too expensive to subscribe	37	2nd
Too complicated to understand and use	17	7th

As reflected, in Table 3, the most notable issue with the use of AI productivity tools is its risk of plagiarism and other intellectual property violations with a frequency count of 56 out of 107. This is followed by the cost of the software as noted to be expensive to subscribe in.

The results were similar to the concerns of White (2025) in the use of AI technology especially from the academic perspective. In their point of view, the need for ethical consideration in the use of AI productivity tools should be thoroughly established as some AI productivity tools exhibit inaccuracies, copyright concerns, plagiarism issues, and authorship concerns. These concerns add up to the apprehension in the use of the said tools as it questions the integrity of the academic paper.

3.4. Perceived Utilization Behavior in the Use of AI Productivity Tools in Research Writing

With these facts presented, it can be noted that the overall utilization behavior of the respondents would also be influenced by how the respondents perceive the said

technology along with the consolidated statistics of Performance Expectancy, Efforts Expectancy, and Social Factors about the Facilitating Conditions. Thus, Table 4 reflects a somewhat utilizable level of utilization that can be noted among the respondents. This finding was duly noted about the identified challenges and issues perceived by the respondents of the study.

Table 4: Utilization Behavior Level in the use of AI Productivity Tools

Criteria	Mean Score	Adjectival Interpretation
Acceptance Level	5.0	Somewhat acceptable
Facilitating Conditions	4.7	Somewhat acceptable
Mean	**4.8**	**Somewhat utilizable**

3.5. Level of Acceptance and Perceived Utilization as Distributed by Sex, Age, and Education

Noted in Figure 3, that the mean scores of both males and females along Performance Expectancy, Effort Expectancy, Social Factors, and Facilitating Conditions range from 4.6 to 5.1 all equivalent to somewhat acceptable. Thus, upon analyzing the mean scores using the T-Test, a t stat value of -1.43196 less than the 2.776446 t critical value and a p-value of 0.22542 greater than the alpha level of 0.05 accepts the null hypothesis that there are no significant differences among the mean scores when distributed by sexes were noted.

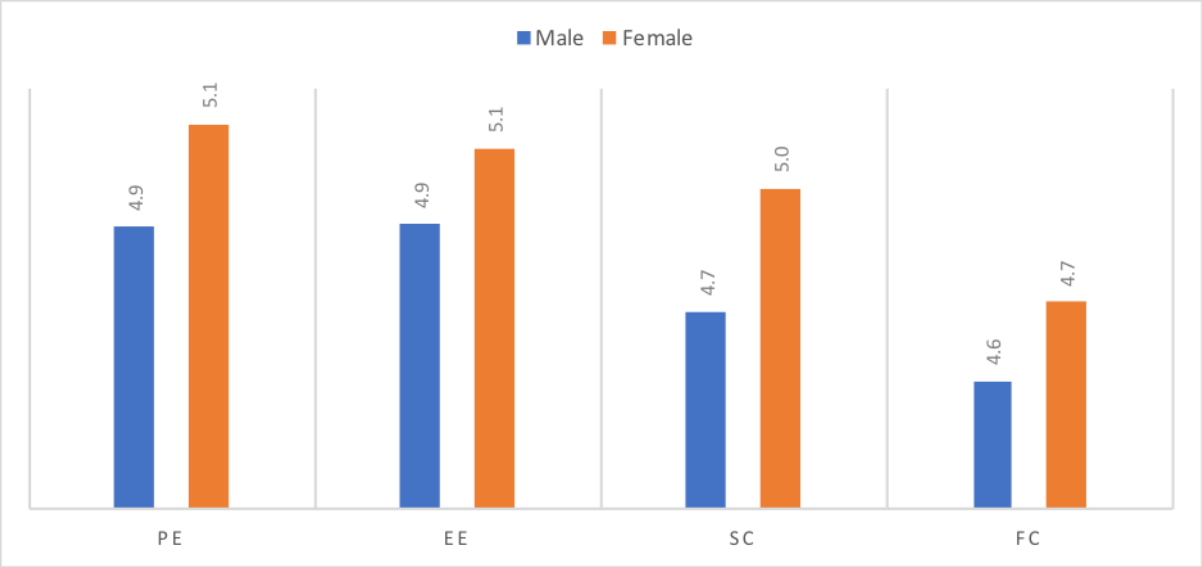

Figure 3: Acceptance Level as distributed by Sexes

Similar results were also concluded upon the distribution of the mean scores based on education. As seen in Figure 4, the mean scores among the four parameters as distributed among Senior High School Students and College Students range from 4.7 to 5.1 all equivalent to a somewhat acceptable level. A t stat value of -0.1094151 less than the t critical value of 2.77644511 and a p-value of 0.91814272 greater than the alpha level of 0.05 noted to accept the initial assumption that there are no significant differences in the mean scores of the groups if distributed by education.

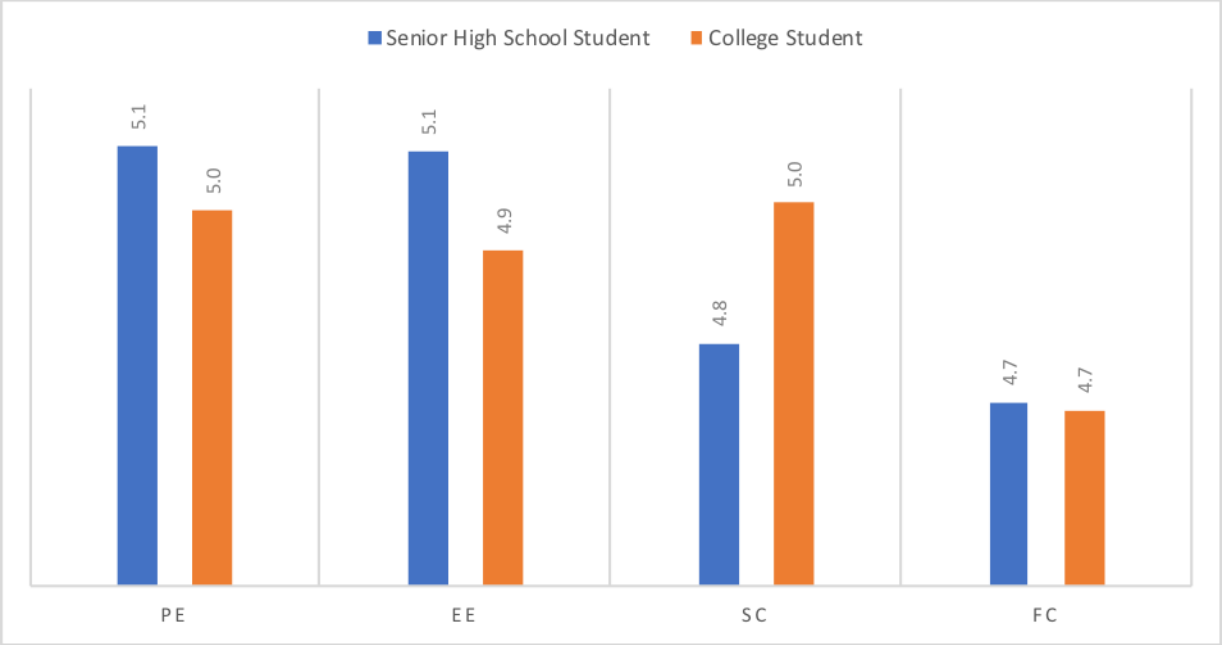

Figure 4: Acceptance Level as distributed by Educational

Finally, Figure 5, shows that the mean scores for the four parameters evaluated across different age groups range between 3.8 and 6.0. These scores translate to an average of 4.8, which falls within the "somewhat acceptable" category according to the interpretive scale used in the analysis. This gives a suggestion of medium degree acceptance or satisfaction of parameters being tested, that shows the respondent does not despise all the parameters under test completely but not satisfactory enough since their acceptance level is low. Variation among the scores may reflect an age-factor difference in the perception and experience of age factors. For example, a more sceptical or less accepting age group is seen in aged respondents, and younger generations might score relatively higher since expectations and adjustment to some technological issues would be

dissimilar. The findings again emphasize that age-specific modifications need to be considered within interventions or changes so more general acceptance occurs.

The ANOVA test shows that the p-value of 0.633151, which is much larger than the most common alpha level at 0.05. Hence, there is insufficient evidence to reject the null hypothesis, meaning that the original assumption holds, where it does not matter the distribution of the respondents according to age brackets in relation to their acceptance level of AI productivity tools. In simpler terms, the variation in age group does not have a significant statistical influence on how those tools are perceived or embraced. Such a finding would, therefore imply that the use or view of AI productivity tools seems to be homogeneous across these age groups in a sense that other factors that include experience, familiarity or technological savvy might play much more central roles in infusing acceptability levels. Therefore, this would mean the use of strategies and interventions that consider broader influencing factors rather than age-specific approaches to address how to improve the adoption of AI tools.

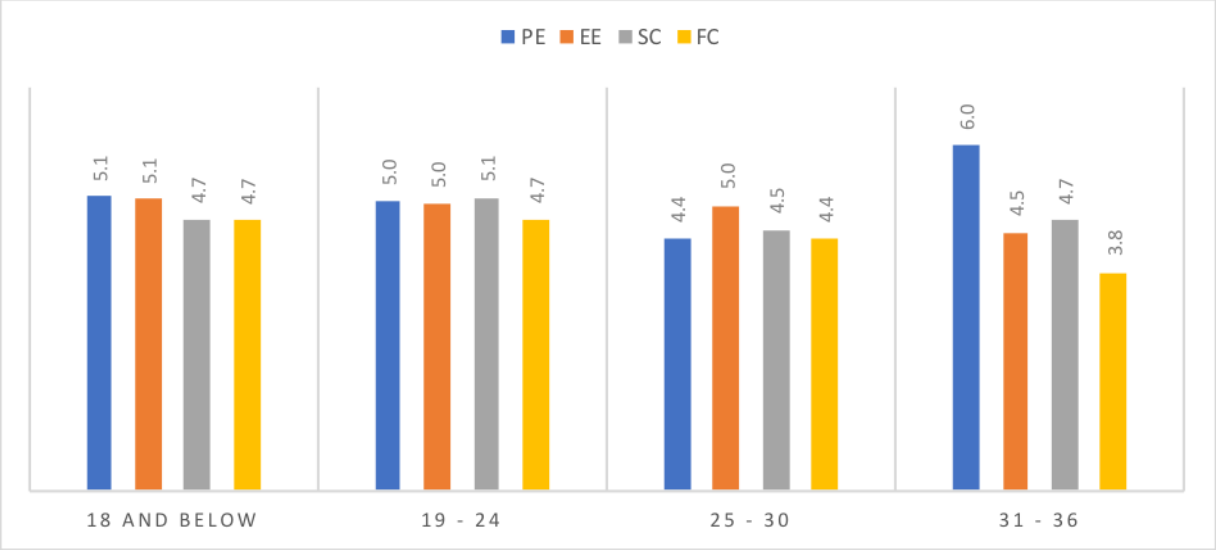

Figure 5: Acceptance Level as distributed by Age Bracket

In summary, sex, education, and age do not influence the acceptance level of AI productivity tools in research writing. Thus, policy frameworks that is inclusive regardless of sex, education, and age should be considered for crafting.

4. Conclusion and Recommendations

AI productivity tools are one of the most convenient technological advancements that have ever been developed in the past years. Its significance and benefits to the different aspects of society are an understatement, especially, in academic purposes. Seeking to

expound and streamline the practice in academic and educational institutions would mean acceptance that change is constant.

In light of research as one of the breads and butter of academe, the use of AI productivity tools would mean improvement in the way people think and perceive technology. As noted in several studies, its benefits were duly significant to increase productivity among researchers and students despite apprehensions as to different issues arising from the way it evaluates and executes commands due to the complicated algorithms. Thus, it is only valid to raise concerns in terms of the integrity of the output produced through the use of AI productivity tools.

However, as the world gears towards the 5th Industrial Revolution, digitalization is no longer an avenue that we can ignore. Information Technology had already revolutionized processes in the different sectors and it is only a matter of time before it is fully integrated in the society. As such what can be considered is the establishment of a standard protocol and policy that actuates the responsible and ethical use of AI productivity tools as most students have positive attitude towards the use of social media and other forms of online media including AI powered tools as pointed out by Sales et al. (2024). A policy that encompasses all users regardless of sex, age, and educational attainment. Thus, the stand of Philippine Government through the Department of Information and Communications Technology (DICT) to draft a similar policy in relation to several calls as noted in the study of Chua et.al (2023) and Estrellado & Miranda (2023) is a positive outlook towards the future.

Based from the foregoing facts presented in this study, academes and schools in the country may consider re-evaluating their practices and policies in research writing to streamline technological advancements that are currently available to maximize its potential and to improve research outputs and statistics of the country. As such, the following steps may be considered: Review, Educate, Simulate, Embed, Assimilate, Replicate, Continue, and Harvest. Review existing policies and practices through frameworks such as SWOT Analysis and Risk Analysis to determine areas that needs for recalibration as well as the implication of using AI productivity tools in intellectual property related laws and statutes. Educate all interested parties through relevant trainings and seminars especially in the students who are considered more adept in the use of advanced technology. Simulate and practice what has been learned through seminars. Slowly use and embed AI productivity tools into the process until appropriate skills is mastered and knowledge has been assimilated. Replicate the process to different agencies and organizations through extension services and continue the process for further development until such time that AI productivity tools had improved the quality of research practice and other relevant processes for all the fruits of labor be harvest at the end, and repeat the same process.

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