

Readiness and Self-Efficacy of Lecturers toward Using Perplexity Artificial Intelligence for Research Purpose in Federal University of Education Kontagora, Niger State

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Abstract

The study investigates awareness and self-efficacy of lecturers toward using Perplexity Artificial Intelligence for research purpose in Federal University of Education Kontagora, Niger State. Using descriptive survey design. The population of the study consists of 281 lecturers from Federal University of Education Kontagora, Niger State. Random sampling technique was used to select 165 sampled lecturers. The research was guided by four research questions and two null hypotheses and tested at 0.05 level of significance. Questionnaire named Perplexity Artificial Intelligence Research Questionnaire for University Lecturer (PAIRQFUL) with five items each on readiness and self-efficacy was used for the study. A pilot study was carried out to test reliability of the research instrument. A reliability coefficient of 0.76 and 0.81 on both readiness and self-efficacy respectively, using Cronbach Alpha. The data collected from the administration of the research instrument was analysed using mean and standard deviation to answer the research questions while (t-test) statistics was used to test the research hypotheses. SPSS version 20.0 was used as statistical package. The findings of the study revealed that lecturers' readiness towards using Perplexity Artificial intelligence for research purpose in Federal University of Education Kontagora is positive. Also, there was no significant difference in the mean of gender of lecturers' readiness towards using Perplexity Artificial intelligence for research purpose. The study concludes that lecturers exhibited high level of readiness to utilize Perplexity Artificial Intelligence for research purpose while a low self-efficacy was observed. Moreover, AI self-efficacy was found to have

no significant impact on the gender of lecturers for research purpose. It was recommendations that Federal University of Education Kontagora should tailored support programmes that will develop and improve Perplexity AI self-efficacy for research purpose, for both female and male lecturers.

Keywords: Perplexity, Artificial Intelligence, Readiness, self-efficacy and Gender

Introduction

Perplexity Artificial Intelligence (AI) is an AI search engine that helps people find information on the internet by giving direct answers with sources, instead of only listing websites like traditional search engines. The appearance of AI chatbot in public access in 2022 and its success and interest in its capabilities of a wide range of the public (Duarte, 2025) prompted other IT companies to similar developments. Subsequently, Perplexity AI in 2022, Google Bard in 2023, currently called Gemini, Bing Chat (2023), currently Microsoft Copilot, Grok (2023, stable version in 2025), DeepSeek (2025), Le Chat (2025) appeared. Demand and competition have led to the emergence of a variety of generative AI tools. Wide public attention to generative AI tools, supported by mass media, could not fail to attract the attention of educators.

The possibilities described by the developers excited the imagination and prompted educators to research generative AI tools with the aim of using them for educational purposes. Naseri *et al* (2024) notes that Perplexity AI focuses on clarity and efficiency of responses. Architecture of Perplexity AI is adept at managing lengthy conversations and texts without a defined token constraint, and that adaptability enables Perplexity AI to sustain context across prolonged interactions, rendering it highly suitable for various natural language processing tasks (Chatautet *al*, 2024).

Perplexity AI, leveraging GPTs such as Open AI's GPT-3.5 and Microsoft's Bing search engine, presents an innovative approach by providing conversational search capabilities (McIntosh *et al.*, 2024). The free version of Perplexity AI allows you to do unlimited basic searches even without registration. Registration allows you to save search history (Library), customize the platform interface and use advanced tools for team collaboration (Spaces). Perplexity AI's free plan includes LLM model selection for an advanced Deep Research query (limited to 3 queries), setting search sources, and a document download feature. The pro plan provides access to features such as more powerful AI functionality, image uploads, and hundreds of queries using pro search and reasoning (Gomez, 2025). Perplexity AI as a

search source, you can set searching across the entire internet, searching academic papers, or searching for information on social platforms to obtain user opinions or analyse current discussions. In the process of working on a request, Perplexity AI can download textual files, including plain text, code, or PDFs, as well as images. This enables Perplexity AI to access the file's contents and maintain contextual awareness for follow up questions within that thread. Perplexity AI can analyse short files completely. Analysing a long file, Perplexity AI extracts the most important parts to provide the most relevant response to your query when carry out research works (Gomez, 2024). Ability of lecturers to use perplexity artificial intelligence for research purpose depends on the readiness of lecturers to the application for academic research work.

Lecturers' readiness to adapt emerging technologies is not solely a function of access to tools. It is shaped by factors such as their attitudes toward technology, their beliefs about teaching and learning, their prior experiences with digital tools, and the professional support systems available to them. Where these factors are lacking, teachers may use technology at a surface level, failing to engage students in deep, meaningful learning experiences (Al-Furaih, & Al-awidi, 2020). Furthermore, much of the available lecturers training focuses on basic ICT competencies such as using office applications or browsing the Internet without equipping lecturers with the pedagogical strategies needed to integrate emerging technologies into research work (Howard *et al*, 2021). As pointed by Schreur *et al* (2008), readiness also takes account of ones capability to adapt to perplexity and elicit artificial intelligence in the area of academic research of a lecturer. For the lecturers to be effectively utilize perplexity artificial intelligence for research purpose, self-efficacy of lecturers is very important.

Self-efficacy originated from social cognitive theory which states a significant interaction between individual, environment, behavior and cognitive factors (Lopez-Garrido, 2020). Self-efficacy is the belief that an individual can efficiently perform some tasks that usually influence his or her own behavior in a positive way. Self-efficacy is belief of an individual in his ability to successfully carryout a behavior or activity that is required to achieve certain goals and objectives (Gabriel&Aniella 2025).

Self-efficacy is a psychological concept that influences behavior (Keiler, 2018). It is a belief in one's capabilities to organize and execute the series of action required to manage prospective situation (Lind *et al.*, 2020). Self-efficacy is related to personal perception of a person's capacity to plan and execute actions to achieve specific goals (Zahidah, 2019). Self-

efficacy is measured according to the level of the person's certainty for carrying out a particular task. Yogendra *et al* (2024) lectures self-efficacy toward perplexity and Elicit Artificial intelligence, is key determinants in the adoption of AI technologies for research purposes. This implies that the more lecturers are able to use a particular artificial intelligence tools in research, the faster they will accomplished research task. Bondoc (2021) opined self-efficacy as task specific, related to the perception about the difficulty level that a person has for a specific job. Zahidah (2019) argues that self-efficacy is the best means of measuring an action's level of success as it focus on the specific action each time.

Self-efficacy refers to individuals' convictions that they can successfully deliver any academic tasks at designated levels (Schunk, 2018). Self-efficacy also refers to lecturers' perceptions of their competence to perform a manipulative task with the use of technology gadgets (Midgley *et al.*, 2022). Self-efficacy is one of the important aspects of social cognitive theory because most of the individual levels of self-efficacy are from external experiences and self-perception which determine the results of tasks and circumstances they encountered (Kan&Akbas, 2022). Researches have revealed that self-efficacy has a significant influence on human behavior and this cannot be overemphasized. People can have high self-efficacy in some situation and lower in others, this shows that it is a behavioral change and it depends on one's situation or condition (Ando &Asakura, 2021). In order to carry both male and female lecturers along in the use of perplexity artificial intelligence in research, gender is considered as moderating variable.

Gender is an important factor in education. It is a composition of male and female and educational researchers, for a long time researches have shown concern on the influence of gender in the education sector. Gender issue generally in education industry has become of immense importance and cannot be overlooked, but attention should be deliberately given to it, in order to make intellectual discourse free from sentiments and prejudice (Adeyinka, 2010). Male and female lecturers need to make use of artificial intelligence which perplexity and elicit artificial intelligence are parts of them in carry out academic research in the 21st century, so that lecturers would be able to achieve better and faster results.

Statement of the Problem

There is no doubt that emerging technology can provide a considerable benefit in supporting the lecturers in their research work in Universities. It has advantage of improving efficiency of lecturers in the conduct of research work, when they are ready and have self-efficacy to

emerging technologies. However, perplexity artificial intelligence for research purpose is underutilized in the universities, especially in Federal University of Education Kontagora, Niger State whereby most lecturers are ready, but lack self-efficacy to fully utilize perplexity artificial intelligence for research purpose. The innovation in educational sectors forced the entire world to rely on artificial intelligence in the area of academic work and research in 21st century. The challenges in the implementation of perplexity artificial intelligence are relating to inadequate modern technological gadgets and skill require in using them. It is on this note that the researcher intends to investigate thereadiness and self-efficacy of lecturers toward using Perplexity Artificial intelligence for research purpose in Federal University of Education Kontagora.

Purpose of the Study

The main purpose of this study is to investigate thereadiness and self-efficacy of lecturers toward using Perplexity Artificial intelligence for research purpose in Federal University of Education Kontagora. The specific objectives of the study areas follows to:

1. Determine the lecturers' readiness towards using Perplexity Artificial intelligence for research purpose in Federal University of Education Kontagora.
2. Examine the gender differences on lecturers' readiness towards using Perplexity Artificial intelligence for research purpose in Federal University of Education Kontagora.
3. Determine the lecturers' self-efficacy towards using Perplexity Artificial intelligence for research purpose in Federal University of Education Kontagora.
4. Find out the gender differences on lecturers' self-efficacy using Perplexity Artificial intelligence for research purpose in Federal University of Education Kontagora.

Research Questions

The following research questions were formulated to guide the study;

1. What is the mean of lecturers' readiness towards using Perplexity Artificial intelligence for research purpose in Federal University of Education Kontagora?
2. What are the mean of gender of lecturers' readiness towards using Perplexity Artificial intelligence for research purpose in Federal University of Education Kontagora?
3. What is the mean of lecturers' self-efficacy towards using Perplexity Artificial intelligence for research purpose in Federal University of Education Kontagora?

4. What are the mean of gender of lecturers' self-efficacy towards using Perplexity Artificial intelligence for research purpose in Federal University of Education Kontagora?

Research Hypotheses

The following null hypotheses were formulated and tested at 0.05 level of significance:

H₀₁: There is no significant difference in the mean of gender of lecturers' readiness towards using Perplexity Artificial intelligence for research purpose in Federal University of Education Kontagora.

H₀₂: There is no significant difference in the mean of gender of lecturers' self-efficacy towards using Perplexity Artificial intelligence for research purpose in Federal University of Education Kontagora.

Methodology

The research design adopted for this study was descriptive survey design. The population of the study was made up of 281 lecturers from Federal University of Education Kontagora Niger State. 165 lecturers were randomly selected for the study from four faculties within the university. The instrument used for this study was named Perplexity Artificial Intelligence Research Questionnaire for University Lecturers (PAIRQFUL). The instrument contains three sections; A, B and C. Section A contains bio-data of the respondents, Section B captured items on Readiness of Lecturer towards using Perplexity Artificial intelligence for research purpose while section C contains opinion of lecturers' on Self-efficacy toward using Perplexity Artificial intelligence for research purpose. The instrument was subjected to face and construct validity through the experts. Pilot study was carried out using 30 lecturers to determine the reliability of the instrument using Cronbach Alpha statistics. A reliability computation on (Readiness) showed 0.76 alpha level and (Self-efficacy) showed 0.81. Mean and standard deviation were used to answer research questions and t-test was used to analyze research hypotheses.

Results

Research Question One: What is the mean of lecturers' readiness towards using Perplexity Artificial intelligence for research purpose in Federal University of Education Kontagora?

Table 1: Mean and Standard Deviation of Lecturers' Readiness towards Using Perplexity Artificial Intelligence for Research Purpose in Federal University of Education Kontagora

SN	Item	N	Mean	Sd	Decision
1	I am ready to use Perplexity Artificial Intelligence for research work.	165	3.29	1.41	Agree
2	I am ready to use Perplexity Artificial Intelligence as a research search tool for review of literatures.	165	3.69	1.20	Agree
3	I am ready to use Perplexity Artificial Intelligence to generate reliable research results.	165	3.25	1.25	Agree
4	I am ready to improve on the level of data privacy and security through the use of Perplexity Artificial Intelligence tool.	165	3.33	1.36	Agree
5	I am ready to use Perplexity Artificial Intelligence for cost-effectiveness in my research work.	165	3.22	1.31	Agree
Grand mean			3.35	1.30	

Table 1 indicates mean responses of lecturers' readiness towards using Perplexity Artificial intelligence for research purpose in Federal University of Education Kontagora. From the analysis, the respondents agreed with items 1 to 5 with mean values ranging from 3.22 to 3.69 with grand mean of 3.35. This implies that lecturers' readiness towards using Perplexity Artificial intelligence for research purpose in Federal University of Education Kontagora is positive, since all the five items on attitude response show agreed based on decision mean of 3.0.

Research Question Two: What are the mean of gender of lecturers' readiness towards using Perplexity Artificial intelligence for research purpose in Federal University of Education Kontagora?

Table 2: Mean and Standard Deviation of Gender of Lecturers' Readiness towards Using Perplexity Artificial Intelligence for Research Purpose in Federal University of Education Kontagora

Group	N	$\bar{X}$	SD	Mean Difference
Male	126	16.60	1.52	0.81
Female	39	17.41	1.63	

Table 2 shows the mean and standard deviation of gender of lecturers' readiness towards using Perplexity Artificial intelligence for research purpose in Federal University of Education Kontagora. From the result, the mean and standard deviation of male and female are; male $\bar{X} = 16.60$, SD = 1.52 and female $\bar{X} = 17.41$, SD = 1.63, the mean difference is 0.81 in favour of female lecturers.

Research Question Three: What is the mean of lecturers' self-efficacy towards using Perplexity Artificial intelligence for research purpose in Federal University of Education Kontagora?

Table 3: Mean and Standard Deviation of Lecturers' Self-Efficacy towards Using Perplexity Artificial Intelligence for Research Purpose in Federal University of Education Kontagora

SN	Item	N	Mean	Sd	Decision
1	I can navigate through Perplexity Artificial Intelligence.	165	2.45	0.76	Disagree
2	I have ability to use Perplexity Artificial Intelligence to gather relevant literatures for my research work.	165	2.28	1.10	Disagree
3	I can use Perplexity Artificial Intelligence to identify gaps in existing research, in order to identify explore new areas.	165	2.45	0.71	Disagree
4	I can use perplexity Artificial Intelligence in summarizing academic papers.	165	2.01	0.07	Disagree
5	I have the necessary digital skills to effectively use Perplexity Artificial Intelligenceto filter out non-scholarly results.	165	2.45	0.78	Disagree
Grand mean			2.32	0.31	

Table 3 indicates mean response of lecturers' self-efficacy towards using Perplexity Artificial intelligence for research purpose in Federal University of Education Kontagora. From the analysis the respondent disagree with all the five items with mean values ranging from 2.01 to 2.45 with grand mean of 2.32. This implies that lecturers' self-efficacy towards using Perplexity Artificial intelligence for research purpose in Federal University of Education Kontagora is not positive, since all the five items on self-efficacy responses show disagree based on decision mean of 3.0.

Research Question Four: Mean and standard deviation of mean of gender of lecturers' self-efficacy towards using Perplexity Artificial intelligence for research purpose in Federal University of Education Kontagora?

Table 4: Mean and Standard Deviation of Gender of Lecturers' Self-Efficacy towards Using Perplexity Artificial Intelligence for Research Purpose in Federal University of Education Kontagora

Group	N	$\bar{X}$	SD	Mean Difference
Male	126	11.73	1.52	0.37
Female	39	11.36	1.63	

Table 4 shows the mean and standard deviation of gender of lecturers' self-efficacy towards using Perplexity Artificial intelligence for research purpose in Federal University of Education Kontagora. From the result, the mean and standard deviation of male and female

are; male $\bar{X} = 11.73$, SD = 1.52 and female $\bar{X} = 11.36$, SD = 1.63, the mean difference is 0.37 in favour of male lecturers.

Hypothesis One: There is no significant differences in the mean of gender of lecturers' readiness towards using Perplexity Artificial intelligence for research purpose in Federal University of Education Kontagora.

Table 5: t-test Analysis of Mean of Gender of Lecturers' Readiness towards Using Perplexity Artificial Intelligence for Research Purpose in Federal University of Education Kontagora

Participants	N	$\bar{X}$	SD	t-cal	Df	p-value
Male	126	16.60	1.52	0.90	163	0.36
Female	39	17.41	1.63			

p>0.05

Table 5 shows the t-test analysis of mean of gender of lecturers' readiness towards using Perplexity Artificial intelligence for research purpose in Federal University of Education Kontagora. From table the t-cal = 0.36, df = 163, with p=0.34. Since p> 0.05, hypothesis one is accepted. Therefore, there is no significant difference in the mean of gender of lecturers' readiness towards using Perplexity Artificial intelligence for research purpose in Federal University of Education Kontagora.

Hypothesis Two: There is no significant difference in the mean of gender of lecturers' self-efficacy towards using Perplexity Artificial intelligence for research purpose in Federal University of Education Kontagora.

Table 6: t-test Analysis of Mean of Gender of Lecturers' Self-Efficacy towards Using Perplexity Artificial Intelligence for Research Purpose in Federal University of Education Kontagora

Participants	N	$\bar{X}$	SD	t-cal	Df	p-value
Male	126	11.73	1.520	1.31	163	0.19
Female	39	11.36	1.630			

p>0.05

Table 6 shows the t-test analysis of mean of gender of lecturers' self-efficacy towards using Perplexity Artificial intelligence for research purpose in Federal University of Education Kontagora. From table the t-cal = 1.31, df = 163, with p = 0.19. Since p-value > 0.05, hypothesis one is rejected. By implication, there is no significant difference in the mean of gender of lecturers' self-efficacy towards using Perplexity Artificial intelligence for research purpose in Federal University of Education Kontagora.

Discussion of Findings

From the result, the mean and standard deviation of male and female are; male $\bar{X} = 16.60$, $SD = 1.52$ and female $\bar{X} = 17.41$, $SD = 1.63$, the mean difference is 0.81 in favour of female lecturers. There is no significant difference in the mean of gender of lecturers' readiness towards using Perplexity Artificial intelligence for research purpose in Federal University of Education Kontagora. This is contrary with the study of Badri, *et al*, (2014) who carried out investigation on a study on technology readiness of school teachers: An empirical study of measurement and segmentation. The results revealed that there are significant differences with regard to the teachers' gender. This is in disagreement with the study of Okafor&Arinze (2025) who investigates assessment of lecturers' readiness level on the use of artificial intelligence in colleges of education in Anambra State. It revealed that the lecturers readiness level on the utilization of artificial intelligence was low and lack of equipment, inability to adjust to new ways, poor power supply are some of the causes of low level of readiness.

Also from the mean and standard deviation of male and female are; male $\bar{X} = 11.73$, $SD = 1.52$ and female $\bar{X} = 11.36$, $SD = 1.63$, the mean difference is 0.37 in favour of male lecturers. There is no significant difference in the mean of gender of lecturers' self-efficacy towards using Perplexity Artificial intelligence for research purpose in Federal University of Education Kontagora. This is in agreement with the study of Jimoh *et al* (2025) who examined perception and self-efficacy of education technology students towards integrating artificial intelligence for academic purpose in colleges of education Niger State. It was observed that no significant difference occurs in self-efficacy of education technology students towards integrating artificial intelligence for academic purpose in colleges of education Niger State. Also in line with the study of John and Dante (2025) who investigates gender differences on the impact of AI self-efficacy on AI anxiety through AI self-competency: A moderated mediation analysis. It was observed that students exhibited a moderate degree of self-efficacy and self-competency in AI, as well as a moderate level of anxiety while gender does not significantly influence how AI self-competency mediates the relationship between AI self-efficacy and AIA in the study.

Conclusion

The research concludes that lecturers exhibited high level of readiness to utilise Perplexity Artificial Intelligence for research purpose while a low self-efficacy was observed. Moreover, Perplexity AI self-efficacy was found to have no significant impact on the gender of lecturers

for research purpose. Therefore, readiness of lecturers of Federal University of Education Kontagora

Recommendations

Training programmes that will develop and improve Perplexity Artificial Intelligence self-efficacy of both male and female lecturers should be organized, these programmes could include mentoring, workshops, and hands on Artificial Intelligence skill-building activities.

Encouraging lecturers to engage in practical usage of perplexity Artificial Intelligence for research purposes, in order to increase lecturers' knowledge in the area.

Regular tracking mechanism should be implemented to monitor progress of lecturers in the Perplexity Artificial Intelligence self-efficacy in the area of research work.

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