Perception of Prospective Teachers on AI Application in Educational Field

Mrs. S. Catherene Nithya
Ph. D., Research Scholar, Meston College of Education, Chennai

Abstract
In this age of digital revolution, the sector of education is undergoing transformative changes at a rate that has never been seen before. The use of artificial intelligence (AI) has significantly accelerated the transition from traditional classrooms to digital learning environments, which are gradually replacing traditional classrooms. During the course of this research project, prospective educators' perspectives on the use of artificial intelligence (AI) in the classroom are analysed. Random selection was used to choose the sample, which consisted of approximately 130 individuals hoping to become teachers in the Chennai district. In order to analyse the data that was acquired, statistical methods were utilised. The findings indicate that there is a substantial disparity in the perspectives of those who are considering applying artificial intelligence (AI) in the field of education.

Introduction

Intelligence (AI) has revolutionized education with its many benefits. AI in education may help teachers personalize lessons for each student. AI can customize student learning routes based on speed, learning preferences, and knowledge gaps. This enables students learn at their own pace and get personalized guidance. AI allows students to receive real-time feedback and evaluation, making learning more engaging and personalized. It also helps teachers satisfy each student's needs, creating inclusive, equitable, and accessible classrooms. Education institutions can improve administrative efficiency by automating scheduling and student registration, optimizing evaluation procedures, and analyzing student performance and attendance trends with AI. By automating administrative tasks and providing customized learning experiences for all students, including those with disabilities, AI ensures that everyone, regardless of background or ability, can access high-quality educational resources. Overall, artificial intelligence (AI) has transformed education by personalizing learning, improving administration, and providing better learning resources. This has made the classroom more inclusive and interesting for teachers and students.

Literature Review

In 'Perceptions of Learners and Instructors towards Artificial Intelligence in Personalised Learning' (2022), Badi et al. identified change resistance, technological incompetence, and social and psychological anxieties as possible causes of their modest variances.

Artificial intelligence models and predictions help evaluate students' preferences, ability, career paths, recommendations, and learning programmes, however they are understudied. Depending on personality and other attributes, learners may embrace and use an intelligent learning environment but not their learning outcomes. Learning analytics may not be beneficial for tailored learning due to data limits and a lack of data-informed decision-making. Rather than replacing teachers, AI is making learning more fun.

AI could be employed in teaching, learning, admission, placement, and administration, according to Raman and Ravikumar's 2022 study on college student perceptions of AI. Online measurements and qualitative answers were taken. The data suggest that students think AI can be used in teaching, learning, and academic administration but not admission, evaluation, or placement.

In 'University Students' Perceptions About Artificial Intelligence' (2021), Keles and Aydin discovered that Education students had deeper AI perceptions than economists and administrators and arts and sciences students. The study indicated that bad impressions of AI outweigh good ones in all sample groups. The research advises teaching university students about AI implementation in their careers.

Methodology

The researchers in this study utilised a survey methodology and selected 133 first-year student teachers from different institutes of education in Chennai using a random sampling procedure. April 2023 was the month in which the investigator developed the gadget. Results from the pilot research showed a reliability of 0.86 and a reliability of 0.7. On a 5-point Likert scale, the tool gave users the option to "Totally Disagree," "Disagree," "Neutral," "Agree," or "Totally Agree" with each of ten assertions.

Objectives
1. To find the perception of prospective teachers in employing AI in the field of school education.
2. To find the differences in the perceptions of prospective teachers in employing AI in the field of school education based on the subgroups:
   a. Gender
   b. Educational Qualification
   c. Age

Hypothesis

There is no significant difference in the perceptions of prospective teachers in employing AI in the field of school education based on the subgroups:
   a. Gender
   b. Educational Qualification
   c. Age

Analysis and Interpretation

Table 1 T-Test to Find the Significant Differences in the Perceptions of Prospective Teachers in Employing AI in the Field of School Education based on Gender

Gender	N	Mean	SD	t	df	p
Female	107	14.3	1.86	-3.09	131	0.002*
Male	26	15.6	2.40			

It is clear from the data in the table that the p-value is less than 0.05, indicating that the null hypothesis cannot be accepted. The perspectives of aspiring educators in the area of school education vary considerably according to gender. Male prospective instructors had a more positive outlook on using AI in the classroom than their female counterparts.

Table 2 T-Test to Find the Significant Differences in the Perceptions of Prospective Teachers in Employing AI in the Field of School Education based on Educational Qualification

EQ	N	Mean	SD	t	df	p
UG	73	14.6	1.98	0.382	131	0.703
PG	60	14.5	2.12			

The null hypothesis is accepted because the p-value is greater than 0.05, as can be seen from the table above. Regardless of the educational background of a potential educator, their views on the use of artificial intelligence in the classroom do not differ significantly.

Table 3 F-test to Find the Significant Differences in the Perceptions of Prospective Teachers in Employing AI in the Field of School Education based on Age

| Sub Groups	df1	df2	F	p
perception of the Prospective teachers	2	130	7.26	0.001*

Table 4 Post - Hoc (Games - Howell Test) to Compare and find the Differences in the Values

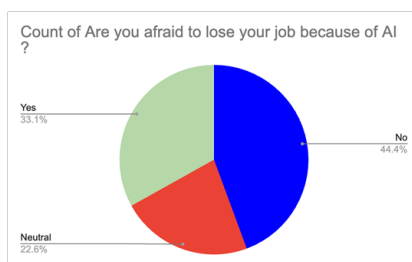|		20 - 23 Years	24 - 27 Years	27 and above
20 - 23 Years	Mean Difference	-	-1.56	2.18
	p-value	-	0.005	< 0.001
24 - 27 Years	Mean Difference		-	3.74
	p-value		-	< 0.001
27 and above	Mean Difference			-
	p-value			-

According to the data in the tables above, there is a clear generational divide when it comes to how future educators see the potential of artificial intelligence in the classroom. As compared to those in the 20-23 age bracket, those looking to become teachers between the ages of 24 and 27 had more positive views.
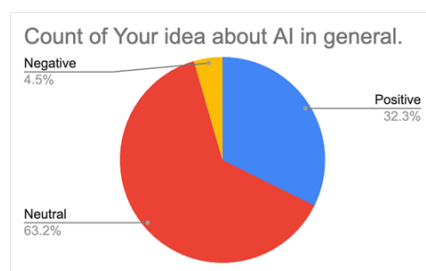
Figure 1 Chart on the Prospective Teachers General Opinion of AI

Count of Have you used AI tools be…

Maybe
23.3%

Yes
49.6%

No
27.1%
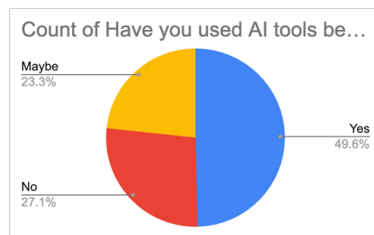
Figure 2 Chart on Whether the Prospective Teacher has used AI Tools before

Count of Are you afraid to lose your job because of AI?

Yes
33.1%

No
44.4%

Neutral
22.6%

Figure 3 Chart on Whether the Prospective Teacher has any Apprehension Towards using AI

Discussion

Prospective educators' reluctance to use AI in their own lives and careers is clear in Figures 1, 2, and 3. The results show that male student-teachers have a clearer grasp of AI's potential educational applications than their female counterparts, but there is no discernible gender gap in how the student-teachers view their own academic credentials. Perception seems to be better among the older student-teachers compared to their younger colleagues, as shown in Tables 3 and 4. The focus of student-teacher programmes should be on developing students' ability to use artificial intelligence (AI) in the classroom. It would seem that incorporating AI into our own classrooms can change the way future educators see the field.

Conclusion

In conclusion, by offering individualized learning opportunities, flexible learning platforms, and cutting-edge technologies to improve engagement and communication, artificial intelligence (AI) helps to create a more welcoming learning environment for students with a range of requirements. These developments enable teachers to meet the individual needs of every student, which eventually promotes a more welcoming learning environment. Therefore, it is necessary that prospective teachers have a more positive perception toward working with AI and its application in the field of education in the future.

References

1. V. V. Ravi Kumar & R. Raman, "Student Perceptions on Artificial Intelligence (AI) in higher education," 2022 IEEE Integrated STEM Education Conference (ISEC), Princeton, NJ, USA, 2022, pp. 450-454, doi: 10.1109/ISEC54952.2022.10025165.
2. Al-Badi, A., Khan, A., & Eid-Alotaibi. (2022). Perceptions of Learners and Instructors towards Artificial Intelligence in Personalized Learning. Procedia Computer Science, 201, 445–451. https://doi.org/10.1016/j.procs.2022.03.058.

3. Keleş, Pınar Ural, and Suleyman Aydın. "University Students' Perceptions About Artificial Intelligence." Shanlax International Journal of Education, vol. 9, no. S1, 2021, pp. 212–220.

4. Lokare, V. T., & Jadhav, P. M. (2023, November 1). An AI-Based Learning Style Prediction Model for Personalized and Effective Learning. Thinking Skills and Creativity; Elsevier BV. https://doi.org/10.1016/j.tsc.2023.101421.

5. Scott, C. (2023, November 11). The Role of AI in Special Education: Bridging Gaps and Breaking Barriers. https://www.linkedin.com/pulse/role-ai-special-education-bridging-gaps-breaking-barriers-cory-scott/