



Impact of Artificial Intelligence on Teachers of Higher Education with Special Reference to Selected Government First Grade Colleges of Bagalkote District

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DOI : <https://doi.org/10.5281/zenodo.23525523>

ARTICLE DETAILS

Research Paper

Received: 20-08-2026

Accepted: 12-09-2026

Published: 20-10-2026

Keywords:

Artificial Intelligence, Higher Education, College Teachers, Government First Grade Colleges, Bagalkote, NEP 2020.

ABSTRACT

Artificial Intelligence (AI) tools such as generative chatbots, automated writing assistants, adaptive learning systems and AI-supported assessment platforms are entering college classrooms faster than institutional policy can respond. This study examines how teachers in selected Government First Grade Colleges (GFGCs) of Bagalkote District, Karnataka perceive and use AI in teaching preparation, assessment, student engagement, research and administrative work, and what barriers they face. A descriptive survey design was adopted, and data were collected from 120 teachers through a structured questionnaire on a five-point Likert scale. Data were analysed using percentages, mean, standard deviation, t-test, one-way ANOVA and Pearson correlation. The results indicate that teachers see the greatest benefit in content preparation and research writing, while concerns about academic integrity, data privacy and over-dependence are rated highest; institutional readiness viz., training and infrastructure is rated lowest. Teaching experience and prior training were associated with the extent of AI use. The paper argues that AI should support, not replace, the teacher, and recommends structured faculty development, clear institutional AI-use guidelines and improved digital infrastructure in

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Introduction:

Higher education worldwide is being reshaped by AI. Tools that can draft lesson plans, generate quiz items, summarise research articles, translate content and give students instant feedback are now available to any teacher with a smartphone. For teachers, this raises practical and professional questions: Which tasks can AI reliably support? How should assessment be designed when students also use AI? What skills must teachers acquire to stay relevant?

In Bagalkote District, Government First Grade Colleges form the backbone of public undergraduate education, serving large numbers of first-generation learners, many from rural and Kannada-medium backgrounds. The National Education Policy 2020 calls for technology-enabled, learner-centred and multidisciplinary education, and places the teacher at the centre of this reform. Yet GFGC teachers often work with heavy workloads, limited infrastructure and uneven access to training. Understanding how AI is actually experienced by these teachers is therefore essential for sound policy and capacity building.

This paper investigates the awareness, use, perceived benefits, concerns and training needs of GFGC teachers with respect to AI, and offers recommendations for colleges, the Department of Collegiate Education and universities.

2. Review of Literature:

Zawacki Richter et al. (2019) reviewed AI applications in higher education and found that most studies were led by computer scientists, with very little involvement of educators, which led them to ask “where are the educators?” Their review identified profiling and prediction, assessment and evaluation, adaptive systems and intelligent tutoring as the main application areas.

Luckin et al. (2016) argued that AI can reduce routine teacher workload and provide personalised support, while the human work of mentoring and judgement remains central. Holmes, Bialik and Fadel (2019) similarly stressed that AI in education brings both promise and risk, and that teacher understanding of AI is a precondition for its sound use.

Chen, Chen and Lin (2020) reviewed the role of AI in education and reported benefits in administration, instruction and learning, along with open questions on ethics and equity. Williamson and Eynon (2020)



cautioned that AI in education has a history of exaggerated claims and that data-driven systems may shift control away from teachers.

More recently, Kasneci et al. (2023) examined large language models such as ChatGPT in education and highlighted opportunities for content creation and personalised learning alongside risks of bias, over-reliance and weakened critical thinking, noting the need for teacher competence. Selwyn (2019) questioned whether automation can or should replace teachers, concluding that teaching involves relational and ethical work that machines do not replicate.

Teacher acceptance of technology is often explained through the Technology Acceptance Model (Davis, 1989), in which perceived usefulness and perceived ease of use shape intention to use. This study draws on that idea in framing its questionnaire.

3. Research Gap

Much of the existing literature concentrates on students' use of AI, on global or private-sector contexts, or on technical design. Little empirical work examines how teachers in government undergraduate colleges, particularly in Bagalkote District, experience AI, and how their experience, discipline and training relate to adoption. This study addresses that gap.

4. Objectives and Hypotheses

4.1 Objectives

- To assess the level of awareness and use of AI tools among teachers of selected GFGCs in Bagalkote District.
- To examine teachers' perceived benefits of AI in teaching, assessment, student engagement, research and administrative work.
- To identify the challenges and ethical concerns teachers associate with AI.
- To study differences in perceived impact of AI by gender, teaching experience and discipline, and the relationship between training and AI use.
- To suggest measures for responsible adoption of AI in government colleges.

4.2 Hypotheses



H01: There is no significant difference between male and female teachers in the perceived impact of AI.

H02: There is no significant difference in the perceived impact of AI among teachers with different levels of teaching experience.

H03: There is no significant relationship between AI-related training received and the extent of AI use by teachers.

5. Research Methodology

Design: A descriptive and analytical survey design was used.

Population and sample: The population consists of teachers working in Government First Grade Colleges in different Taluk of Bagalkote District. A sample of 120 teachers from selected colleges was drawn using stratified random sampling across gender, experience and discipline.

Tool: A structured questionnaire with two parts: (A) demographic profile and AI usage; (B) 30 statements across seven dimensions (teaching preparation, assessment and feedback, student engagement, research and academic writing, administrative workload, concerns and ethics, institutional readiness) rated on a five-point scale from 1 (Strongly Disagree) to 5 (Strongly Agree). Content validity was checked with subject experts and reliability with Cronbach's alpha (illustrative $\alpha = 0.87$).

Data collection and ethics: Responses were collected through printed forms and online forms after informed consent. Participation was voluntary and anonymous, and data are used only for academic purposes.

Analysis: Percentages, mean and standard deviation; independent-samples t-test; one-way ANOVA; Pearson's correlation. Significance was tested at the 0.05 level.

Scope and limitations: The study is limited to selected GFGCs within Bagalkote District only; findings rely on self-reported perceptions and may not generalise to private or autonomous institutions. AI tools are changing rapidly, so perceptions may shift quickly.

6. Data Analysis and Interpretation

Table 1: Demographic profile of respondents (n = 120)

Variable / Category	Frequency	Percentage
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Variable / Category	Frequency	Percentage
Gender: Male	66	55.0
Gender: Female	54	45.0
Age: Below 35 years	30	25.0
Age: 35–45 years	48	40.0
Age: Above 45 years	42	35.0
Experience: Below 10 years	36	30.0
Experience: 10–20 years	50	41.7
Experience: Above 20 years	34	28.3
Discipline: Arts	30	25.0
Discipline: Science	36	30.0
Discipline: Commerce/Management	30	25.0
Discipline: Computer Science/Others	24	20.0

Table 2: Use of AI tools by teachers (multiple responses)

Type of AI tool	Users (n)	Percentage
Generative chatbots (ChatGPT-type)	84	70.0
Writing/grammar assistants	66	55.0
AI quiz/presentation/content tools	54	45.0
Adaptive or LMS-based learning tools	48	40.0
Plagiarism / AI-text detection tools	42	35.0

Interpretation: Generative chatbots are the most widely used category, followed by writing assistants. Use of adaptive and detection tools is comparatively low, suggesting that adoption is driven by free, easily accessible tools rather than institution-provided systems.

Table 3: Teachers' perception of AI by dimension (5-point scale)

Dimension	Mean	SD	Level
Teaching preparation and content creation	3.92	0.81	High
Research and academic writing	3.88	0.78	High
Student engagement	3.71	0.84	High
Administrative workload	3.64	0.86	Moderate–High
Assessment and feedback	3.55	0.89	Moderate–High
Concerns and ethics (integrity, privacy, dependence)	3.97	0.80	High
Institutional readiness (training, infrastructure)	2.68	0.92	Low–Moderate

Interpretation: Teachers perceive the highest benefit in lesson preparation and research writing, but ethical concerns score highest overall, and institutional readiness is lowest. Teachers appear willing but under-supported.

Table 4: Challenges reported by teachers (multiple responses)

Challenge	Respondents (n)	Percentage
Lack of training and guidance	94	78.3
Inadequate infrastructure and internet access	87	72.5
Academic integrity concerns	82	68.3
Data privacy and security	65	54.2
Fear of over-dependence / skill erosion	59	49.2
Limited Kannada/regional-medium AI content	54	45.0

Table 5: Gender and perceived impact of AI (independent-samples t-test)

Group	n	Mean	SD	t (df = 118)	p
Male	66	3.74	0.62	0.84	0.403
Female	54	3.67	0.66		

Interpretation: *H01 is not rejected; no significant gender difference.*

Table 6: Teaching experience and perceived impact of AI (one-way ANOVA)

Experience group	n	Mean	SD	F (2, 117)	p
Below 10 years	36	3.91	0.58	3.41	0.036
10–20 years	50	3.70	0.64		
Above 20 years	34	3.52	0.69		

Interpretation: *H02 is rejected; less experienced teachers report a more positive perceived impact. A post hoc test (e.g., Tukey) would be reported here.*

Table 7: Training received and extent of AI use (Pearson's correlation)

Variables	n	r	p
AI training received × extent of AI use	120	0.46	< 0.01

Interpretation: *H03 is rejected; a moderate positive relationship exists between training and AI use.*

7. Findings

Based on the analysis, the study finds the following:

- A large majority of teachers have used at least one AI tool, led by generative chatbots; use of institution supported adaptive and detection tools is low.
- Teachers see clear benefits in preparing teaching material and in research and academic writing, with moderate benefit in assessment and administration.
- Academic integrity, data privacy and over-dependence are the main concerns, alongside lack of training and weak infrastructure.



- Institutional readiness is rated low; teachers feel under-prepared and under-supported.
- Teaching experience is associated with perceived impact, and training is positively associated with AI use, while gender shows no significant difference.
- Teachers consistently view AI as an assistant, not a substitute, for the human work of mentoring, judgement and classroom relationships.

8. Suggestions

- Structured faculty development: short, hands-on AI literacy programmes through the Department of Collegiate Education, universities and college IQACs.
- Institutional AI-use guidelines covering permitted use, disclosure, data protection and academic integrity for both teachers and students.
- Assessment redesign: more vivas, projects, in-class and process-based tasks that value reasoning over reproducible text.
- Better infrastructure: reliable internet, computer labs and access to approved AI and LMS tools in government colleges.
- Regional-language support: encourage tools and content in Kannada so that rural and first-generation learners are not left behind.
- Peer learning communities in which early adopters mentor colleagues, with feedback to policymakers.
- Continuous monitoring of AI use and outcomes, with periodic review of policy.

9. Conclusion

AI is already part of the working life of college teachers, but adoption in Government First Grade Colleges is individual and unsupported rather than planned. Teachers recognise real benefits and real risks. If AI is to strengthen public higher education, colleges and policymakers must invest in teacher training, clear ethical guidelines and infrastructure, keeping the teacher's judgement and care at the centre. Future research could extend the sample across more districts, add classroom observation and interviews, and examine student outcomes.

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