

Artificial Intelligence: A Study on Batna 2 University Teachers' Attitudes towards AI in Education

الذكاء الاصطناعي: دراسة حول آراء أساتذة جامعة باتنة 2 نحو الذكاء الاصطناعي في التعليم

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Abstract:

The integration of Artificial Intelligence (AI) technologies into teaching and learning process has revealed as a central area of educational technology. The present research paper aims to examine the attitudes of university teachers towards AI in education. The study employed a descriptive methodology and formulated a survey. Data was collected from a sample of (85) teachers chosen through random selection from different faculties of Batna 2 University. Results indicated that teachers hold an average attitude regarding the primary advantages of AI in education. Therefore, it is believed that teachers' attitudes should be strengthened by necessary support and technologies needed for AI integration.

Keywords: artificial intelligence, teaching and learning process, educational technology, teachers' attitudes.

ملخص:

لقد أدت الأهمية المتزايدة للتكنولوجيا إلى تغيير وإعادة النظر في مواقف الاساتذة اتجاه التكنولوجيا التعليمية ودورها في تطوير المستوى التعليمي. لقد أصبح دمج تقنيات الذكاء الاصطناعي في عملية التدريس والتعلم مجاًلاً مركزياً للتكنولوجيا التعليمية. تهدف ورقة البحث الحالية إلى دراسة آراء أساتذة الجامعات تجاه العديد من أبعاد الذكاء الاصطناعي في التعليم. استخدمت الدراسة منهجية وصفية وصاغت استبياناً.

تم جمع البيانات من عينة مكونة من (85) استاذ، تضم أساتذة واستاذات، تم اختيارهم من خلال الاختيار العشوائي من كليات مختلفة بجامعة باتنة 2 -الجزائر. أشارت النتائج إلى أن الاساتذة لديهم موقف متوسط فيما يتعلق بالمزايا الأساسية للذكاء الاصطناعي في التعليم. لذلك، يُعتقد أنه يجب تعزيز مواقفهم من خلال الدعم اللازم والتكنولوجيات اللازمة لدمج الذكاء الاصطناعي وبرامج التطوير المهني المستمرة وضمان الاستخدام الأخلاقي للذكاء الاصطناعي.

كلمات مفتاحية: الذكاء الاصطناعي، عملية التدريس والتعلم، التكنولوجيا التعليمية، مواقف الاساتذة

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1. Introduction

In recent years, Artificial Intelligence (AI) has become significant for instruction. This development can be allotted to changing pedagogical paradigms and the need for flexible learning approaches. Using digital technologies to facilitate learning outside the traditional classroom, AI has become integral to today's educational systems.

Universities worldwide have invested heavily in AI tools which were identified as having significant prospective for the educational context. In this era of change in education, it is essential to understand Algerian university teachers' attitudes toward this evolving pedagogical approach and design their instruction practices according to AI strategies and curricula.

2. Literature Review

Artificial intelligence is progressing at an accelerated pace in the education domain, It is a "booming technological domain capable of altering every aspect of our social interactions" (Alharbi et al., 2014, p. 23). AI in education means the use of artificial intelligence technologies, such as machine learning, to develop the learning teaching practices (Alneyadi et al., 2023). With more usage of artificial intelligence in education, major transformations can be foreseen in the education systems and its processes. Artificial intelligence could assist teachers develop personalized education for their students. It is supposed that AI applications can be encouraging, not only automates activities but also envisages increasing education and quality at all levels, especially by providing personalization.

Fig.1. some definitions of artificial intelligence

Thinking humanly	Thinking rationally
The exciting new effort to make computers think... machines with minds, in the full and literal sense. [The automation of] activities that we associate with human thinking, activities such as decision-making, problem solving, learning...	The study of mental faculties using computational models. The study of the computations that make it possible to perceive, reason, and act.

ZIDANI Soraya

Acting humanly

The art of creating machines that perform functions that require intelligence when performed by people.

The study of how to make computers do things at which, now, people are better.

Acting rationally

Computational Intelligence is the study of the design of intelligent agents.
AI... is concerned with intelligent behavior in artifacts.

Source : (Fernández-Cruz et al., 2016. p.56)

Adopting AI in learning goes beyond integrating those technologies in classrooms to facilitate learning. It also refers to reconsider and reshape traditional education curriculum, which reaches its limits, especially when aiming at self-directed learning. Neither classrooms nor teachers' instructions can provide the kind of independency AI can offer. The AI does not seem to replace the traditional education curriculum with smart phones and laptops, but the chances of AI to build up the educational system are very high. AI can take over activities as grading, help students develop learning habits, and may even be a substitute for real-world tutoring. In most cases, however, AI will shift the role of the teacher to that of a facilitator. With AI, the teacher's role is evolving: from content deliver to learning facilitator: teachers guide students rather than solely provide content.

However, the awareness of teacher attitudes towards technology is a critical criterion in the evaluation of the AI integration and in the development of AI curricula. A number of important questions are raised, such as the relationship of teachers with AI: how much they are familiar with it, how much they are interested in knowing about it, and how much they use it both in and out of class. Accordingly, the attitudes, whether positive or negative, that teachers hold towards artificial intelligence (AI) can play a crucial role in the success of the process. Burns's study supports that issue saying, "attitudes are evaluated beliefs which predispose the individual to respond in a preferential way" Burns (1997, p.34).

The issue of weighing up teachers' attitudes towards AI integration in education has been investigated in different countries; the importance of conducting the present research paper is that limited studies pertain to the Algerian context particularly Batna 2 University. The present research paper is done to direct the attention that the shift is not technological but also pedagogical, as it reconsider the pedagogical paradigms of learning and teaching. The aim of the current research paper is to determine the attitudes of teachers towards AI

Artificial Intelligence: A Study on Batna 2 University Teachers' Attitudes towards AI in Education

integration in education during the first semester of 2023/2024. The study, therefore, aims to answer the following questions:

- What are the teachers' attitudes towards AI integration in education?
- Do the attitudes of university teachers towards AI integration differ in terms of gender, age, teaching field and prior AI experience?

3. Methods and Materials

3.1. Participants

The current study utilized a quantitative research methodology, and it adopted a descriptive research design to accomplish its purpose. A random sample of 85 teachers of Batna 2 University in Algeria was selected for the purpose of the present study.

3.2. Instrument and Data Analysis

Data gathering was carried out using online platform. The survey was distributed using the Google Forms platform and then shared with the teachers. Data gathering occurred in October and November of 2024. The research paper carefully got the rules of privacy and confidentiality regarding maintaining responses. Participants have knowledge that information provided to the researcher will be treated in a confidential manner. Accordingly, they will not be identified and confidentiality is confirmed from data collection to any future publication.

The survey made up of three sections. Section one addressed personal information, including age, gender, teaching field and prior AI experience. The subsequent section tackled the benefits and drawbacks of AI in education by asking teachers to express their attitudes utilizing a Likert scale ranging from strongly disagree to strongly agree (McLeod, 2019). The third section encompassed teachers' desire to use AI in their teaching practices.

Data was analyzed using statistical package for social science version 29. The obtained data was analyzed and interpreted using descriptive statistics, including frequency, percentage, and mean. Chi-square test assessed the relationship between teachers' attitudes toward AI and their personal data. The overall attitude was assessed to decide whether it was positive, neutral or negative. (Hilbert, 2016). As far as the validity of the survey, the researcher presented the survey in its preliminary form to a set of educators, specializing in statistics, language and methodology.

4. Results and Discussion***Personal Information Results*****Table 1. Teachers' personal information**

Item	Frequency (n)	Percentage (%)
Age		
27 -35	17	20
36-45	59	69
>45	09	10
Gender		
Female	65	76
Male	20	24
Teaching field		
Medicine	5	6
Mathematics and computer science	11	13
Arts and foreign languages	25	29
Institute of earth and universe science	7	8
Institute of sciences and techniques of physical and sports activities	11	13
Technology	9	11
Nature and life science	7	8
Industrial hygiene and security	10	12
Prior AI experience		
Yes	30	35
No	55	65

Source: Prepared by the researcher

Table 1 presents the personal data about the respondents. Teachers' age varies: 20% of them were between 27 -35 years old; 69%, 36-45years old; and 10%, more than 45 years old. Among the teachers, a majority were identified as female, comprising 76% of the total sample, while the remaining 24% were identified as male. Most teachers (29%) are instructors in Arts and foreign languages faculty. 6% of the participants are teaching in medicine faculty. The proportion of instructors in Mathematics and computer science faculty was 13%. The proportion of teachers in Institute of earth and universe science was 8%. The proportion of participants in Institute of sciences and techniques of physical and sports activities was 13%. 11% of the participants are teaching in Technology faculty. The

Artificial Intelligence: A Study on Batna 2 University Teachers' Attitudes towards AI in Education

proportion of teachers in Nature and life science faculty was 8% and 12% of the participants are teaching in Industrial hygiene and security faculty. Most (65%) of the participants had never experienced AI tools in their classrooms.

Benefits and Drawbacks of AI in Education

Table 2. Benefits and Drawbacks of AI in Education

Statement	SD	D	N	A	SA	MS	Attitude
	N %	N %	N %	N %	N %		
Providing immediate feedback and grading tasks to students	8 10	25 29	2 2	45 53	5 6	2.1	Negative
Offering a more effective, motivating and engaging learning sphere	1 1	2 2	1 1	55 65	26 31	4.2	Positive
Supporting personalized learning to meet the needs of each student	5 6	5 6	5 6	55 65	15 17	3.8	Positive
Introducing an innovative teaching approaches	1 1	2 2	1 1	55 65	26 31	4.2	Positive
Over-dependence on AI leading to a students' weakness in critical thinking and problem-solving skills	5 6	5 6	0 0	70 82	5 6	3.8	Positive
AI threatens academic integrity and ethical issues	5 6	2 2	1 1	70 82	7 9	3.8	Positive
AI in education raises the idea of teacher work displacement	10 12	5 6	0 0	55 65	15 17	3.7	Positive
Some universities may not provide the necessary technical support	3 4	2 2	0 0	50 59	30 35	4.2	Positive
Overall Mean Score						3.7	Positive

SD: Strongly disagree; D: Disagree; N: Neutral; A: Agree; SA: Strongly agree; & MS: Mean score 1-2.4(Negative attitude), 2.5-3.4(Neutral attitude), and 3.5-5(Positive attitude)

Source: Prepared by the researcher

Table 2 presents an analysis of the benefits and drawbacks of AI in education. The primary benefit of AI, as indicated by a majority 96% (65+31%) of teachers, is “offering a more effective, motivating and engaging learning sphere and introducing an innovative teaching approaches”. This is closely followed by the advantage of supporting personalized learning to meet the needs of each student, as 74% (59+15%) of participants expressed.

Other remarkable benefit mentioned, including the issue of providing immediate

ZIDANI Soraya

feedback and grading tasks to students (59%) (53+6%). Regarding the drawbacks of AI in education, the majority 94% (59+35%) of respondents indicated that universities may not provide the necessary technical support, followed by Over-dependence on AI, academic integrity and ethical issues 91% (82+9%) and teacher work displacement 82% (65+17%). The results showed a significant prevalence of a positive attitude (MS =3.7) among the teachers.

Desire to use AI in education

Table 3. Respondents' desire to use AI in education

Statement	S D	D	N	A	SA	MS	Attitude
	N %	N %	N %	N %	N %		
I am in favour of AI adoption as it leads to a continuous professional development	56	79	22	7082	11	3.6	Positive
I plan to participate in future AI use training	11	22	11	5565	2631	4.2	Positive
It is easy to acquire any information by using the AI	5565	1012	00	56	1517	1.2	Negative
Using AI in classrooms makes learning and teaching fun	11	22	11	5565	2631	4.2	Positive
AI does not interest me.	3541	2024	1012	1517	56	2.2	Negative
I feel anxious about my ability to use AI effectively	11	1416	00	6071	1012	3.8	Positive
AI is a de-humanizing approach in education	1012	56	00	5565	1517	3.7	Positive
I do not prefer the idea of using AI tools in classrooms	5059	2024	00	1315	22	1.8	Negative
Overall Mean Score						3.08	Neutral

SD: Strongly disagree; D: Disagree; N: Neutral; A: Agree; SA: Strongly agree; & MS: Mean score 1-2.4(Negative attitude), 2.5-3.4(Neutral attitude), and 3.5-5(Positive attitude)

Source: Prepared by the researcher

Table 3 shows the respondents' desire to adapt to AI. Most respondents (71%) prefer AI

Artificial Intelligence: A Study on Batna 2 University Teachers' Attitudes towards AI in Education

because it leads to a continuous professional development, while 81% planned to participate in future AI trainings and workshops. Nearly 65% of the respondents did not find the acquisition of any information by using the AI easy, and 81% found AI in classrooms to be fun. About 20% of the teachers were not interested in AI. 70% of the participants feel anxious about their ability to use AI effectively. 70% of the respondents found it to be a dehumanizing learning approach and 15% of them do not prefer the idea of using AI tools in classrooms. Most teachers had a neutral attitude toward AI adoption in education.

Table 4. The relationship between attitudes towards AI use and personal factors

Topic	Chi-square χ^2	p-value
Age	35.633	5.99
27-35		
36-45		
>45		
Gender	38.547	3.84
Female		
Male		
Teaching field		
M		
MCS		
AFL		
IEUS		
STPSA	22.279	14.07
T		
NLS		
HS		
Prior AI experience		
Yes	48.156	3.84
No		

Source: Prepared by the researcher

It is crucial to thoroughly investigate the relationships between attitudes toward AI tools and socio-demographic variables. Table 4 indicates the statistical relationships ($\chi^2 > p$) between attitudes toward AI intention to use and demographic characteristics such as age, gender, teaching field, and previous use of AI tools. The results revealed remarkable relationships. First, a statistical difference exists between teachers with regard to their age ($35.633 > 5.99$).

Next, there is a statistical difference ($38.547 > 3.84$) between male and female teachers in the desire to use AI in education. Then, there is a significant disparity in statistical data between the various faculties in the intention to use AI in teaching practices ($22.279 > 14.07$). Finally, teachers with prior AI experience exhibited higher positive attitudes towards AI tools to use them in their instruction ($48.156 > 3.84$).

Regarding the advantages and disadvantages of adopting AI, the results revealed that most teachers 96 % indicated the convenience of offering a motivating and engaging learning sphere and introducing innovative teaching approaches as an advantage. This finding is closely followed by the advantage of supporting personalized learning (74%). This result may be due to the idea that new devices of technology filled in our lives and captivate students. This finding aligns with a study conducted by (Tapalova et al., 2022), which suggested that AI revolutionized teaching and personalized learning. Other notable advantages included the issue of providing immediate feedback and grading tasks to students (59%). Grading takes up a significant amount of time, time that could be used to interact with students. These findings parallel to another study (McKinsey, 2023), which reported that AI might assist teachers in reducing their time to the assessment of students' tasks.

Concerning the negative aspects of AI implementation, the majority of participants (94%) highlighted that universities may not provide the necessary technical support. This result suggest that teachers experienced primary deficiencies in AI due to internet issues (Russel et al., 2010). This finding is consistent with myriad studies, which stated that a prominent impediment to integrating AI has been identified as an absence of technological resources (Pedro et al., 2019). Additionally, over than 70 % of the teachers cited an over-dependence on AI, academic integrity and ethical issues and teacher work displacement as disadvantages of AI incorporation. In technology-based learning, successful education is decisive yet challenging. Integrating technology in the classroom is crucial for improving teaching and learning experiences, yet technology can only be effective if teachers can navigate the digital landscape effectively and ethically.

About the desire to use AI in teaching practices, most teachers had a neutral attitude (3.08) toward AI adoption in education. The current research paper conveyed that integrating AI was comparatively complicated than adopting the traditional way of teaching. This may reflect the anxiety regarding teachers' proficiency in AI use and stress association with a slow internet connection. The existence of technology anxiety is often based on computer attitudes.

The results concerning the relationships between attitudes toward AI and socio-demographic information revealed significant relationships between demographic data and attitudes toward AI. The findings found that younger group of teachers, male teachers, teaching mathematics and computer science and technology and teachers with prior AI experience exhibited more positive attitudes towards AI integration. These results are not similar to those of Tapalova et al., (2022). who found that factors such as age, gender and teaching field did not influence teachers' AI attitudes.

The gender factor is an important factor that affects the incorporation of AI in

Artificial Intelligence: A Study on Batna 2 University Teachers' Attitudes towards AI in Education

teaching. Female teachers reported less use of AI in their instruction than male teachers did, as there is a statistical difference between genders in the desire to use AI. This may mean that males on average tend to acquire computer self-efficacy faster than female. Younger group of teachers perceived AI implementation in their teaching practices as user-friendly.

There is undeniable significance in teachers' AI prior-experience that effect their receptiveness to incorporate AI tools in their teaching practices. Teachers who did not experience technology use might not be able to integrate it into their instruction. Regarding the teaching field aspect, one may also assume that teachers who used different computer technologies in the classroom are more likely than other teachers to demonstrate AI use. They may have a deeper insight into how to use technology.

5. Conclusion

The present study investigated teachers' attitudes toward AI integration in classrooms and the effects of personal information on their attitudes. Participants in the current research paper had neutral attitudes regarding AI intention to use. The results showed that teachers tend to use AI tools with caution and careful planning. The findings provide new insights for higher education institutions using AI tools for instruction. The integration of AI tools should provide new opportunities for higher education. Therefore, it is critical to carefully weigh the advantages and challenges of integrating AI tools into education. It is essential to consider that AI should be used as a tool to develop teaching learning process, rather than replacing teachers; it can pave the way to access information. The role of teachers in guiding students' learning remains focal in the educational process.

Therefore, the development of teachers' AI pedagogical competencies could be taken into consideration. It is believed that teachers' attitudes towards AI in education should be strengthened by providing effective training courses and workshops, and the necessary equipment and technologies needed for such integration in order to implement them easily without any difficulties. In addition, the infrastructure for the AI use should be developed at the higher education institutions level. Other than that, it is good if further researches can be made based on what barriers teachers are facing in integrating AI applications in their teaching practices. A broader data set that include more higher education institutions in which it can take the good aspect as examples and make improvements required.

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