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Importance of Integration of AI Towards Enhancing Academic Achievements of Female Students in Higher Education

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Abstract:

Artificial intelligence can take an essential part in increasing academic achievement specially in female students as they are considered as disadvantaged group but now slowly holding a vital position in population of higher education. The aim of this study is to explore the female students' perspectives on artificial intelligence in higher education in relation to their academic achievement. Mixed Method, Sequential Exploratory Design has been followed as research design. Descriptive survey method is used to conduct the study on 100 undergraduate female students of Diamond Harbour Women's University. Female students have indicated a positive relationship between their academic achievement and their perspectives on artificial intelligence in higher education.

Major findings from the survey revealed that educational impact of artificial intelligence is highly positive, female students' knowledge about artificial intelligence is moderate to high, and their overall attitude towards artificial intelligence is neutral. Personalized learning, data driven teaching strategies, curriculum planning, informative assignments, grading and feedback assistance etc are the main areas where artificial intelligence should be integrated to supports students and faculties to improve quality of higher education.

Keywords: *Academic Achievement, Artificial Intelligence, Personalized learning.*

1. Introduction:

Artificial intelligence has the capability to confront some of the major and serious challenges in higher education. Educational tools with AI features have gathered consciousness for their potential to improve quality of education and enhance the present method of teaching-learning and evaluation system. It can also offer support to higher education in variety of way such as students assistance, curriculum planning, research etc. Artificial intelligence caters to the needs and learning abilities of the learner.

Promotion of gender equality in education is necessary for social justice, social transformation and human resource development. Education has a direct and significant impact on women empowerment. It develops in them awareness about their rights, their capabilities, the choices and opportunities available to them. Higher education prepares them to face a world of scopes



and challenges. Good academic achievements in Higher education boosts and help them to inculcate all these qualities in them. Academic achievements of female students are important for the economic productivity and prosperity of the nation. It is also crucial for the mental health of women and their families. So, in today's scenario Artificial intelligence can take an essential part in increasing academic achievement specially in female students as they are considered as disadvantaged group but now slowly holding a vital position in population of higher education.

2. Literature Review:

The increasing global need of AI integration within Higher Education has led to a thorough investigation of its out growth in this field. This has made the investigators begin to explore the multiple domains of artificial intelligence application in Higher Education through different focused studies and systematic reviews, thus providing valuable insight. Research studies have been done on scope of artificial intelligence in different areas of education (Mudit Verma, 2018). Studies have been conducted to highlight the possibilities that AI may bring in Higher Education in future and the associated advantages and challenges of AI in this field (Ladda & Saraf, 2019).

A comparative perspective has also been presented to everyone who is interested in education in terms of the advantages and disadvantages of the use of artificial intelligence in education (Kaya N and Bulut S 2022). Again, studies have also been conducted on the influence of artificial intelligence in imparting education (Suvarna, 2021), ways in which AI is supporting both students and faculty members in higher education (Cromton & Song, 2021) as well as in the field of women's education (Tushar Kanti Ghara 2016). Research studies show that women education includes equitable and increased access to technical and vocational education, training, higher education and research with due attention to quality assurance (Ghara, 2016). There is a need to develop gender specific pedagogy and provide flexibility in the system of education, in which women could fulfill their aspirations, overcoming their domestic obligations (Ganguly, 2018). So, these important researches help to understand these broad associated areas of our education system and encourage studying more in these fields.

3. Research Gap:

Many studies have been conducted in this domain and reveal that artificial intelligence has more potential to change higher education than any other technological advance. But specifically, study about female students' perspectives on artificial intelligence and increasing their academic achievement through practice of AI applications is not give importance. Therefore, this study is conducted to provide a distinct understanding about the importance of artificial intelligence in increasing academic achievement of female students in higher education, so that, AI technology can help education systems to improve equity and quality in Higher Education.



4. Objectives:

Researcher finalized the following objectives as per the topic concern -

- (i) To understand the concept of artificial intelligence in higher education,
- (ii) To find the undergraduate female students' perspectives on artificial intelligence in higher education for improving academic achievement.

5. Rationale of the Study:

Education is the primary foundation for human development and improvement in educational status is a key factor in the progress of any segment of society. Without education, an individual remains devoid of social and economic development and also cannot foster personal growth. The significance of education is acknowledged globally. However, there still exists a large part of women who lag behind in matters of education compared to men. Application of technology can bring a change in women education. Artificial intelligence is one of them, which has a huge ability to help female students to deal with the obstacles they face during the period of their education. AI can assist them in all aspect, to acquire a good academic score and achieve a successful academic career. Therefore, the purpose of this study is to find out the actual scenario of female students' perspective about artificial intelligence in higher education, so that it can help out all the planners and decision-makers to take appropriate steps to make AI technology more popular and usable among female students. Specially for female students they can also plan skill development programs, required for application of AI.

6. Methodology:

6.1. Area of Study:

The study has been conducted in Diamond Harbour Women's University under Block - Diamond Harbour 2, Sub division - Diamond Harbour, district South 24 pargana.

6.2. Sample Design/Population and sampling technique:

- The survey has been conducted on 100 undergraduate female students studying in undergraduate section of Diamond Harbour Women's University.
- For this study purposive random sampling technique has been applied.

Table-1: Sample distribution

Sl. No.	Name of the Institution	Demographic Position		Number of Students
		Rural	Urban	
1	Diamond Harbour Women's University	Yes	No	100

6.3. Planning of Data/Information Collection/Research Design:

Mixed Method, Sequential Exploratory Design has been followed.



6.4. Tools Used:

Researcher made questionnaire used to measure the undergraduate female students' perspectives on artificial intelligence. It contains 16 items. The questionnaire has been made to focus on the main three dimensions i.e., female students' knowledge about artificial intelligence in higher education, educational impact of artificial intelligence in higher education and students' attitude towards artificial intelligence in higher education. The minimum and maximum range of score is 16 to 42. There is no fixed time limit for the respondents to fill the questionnaire as it is in the form of Google Form.

6.5. Data Analysis Planning:

Descriptive statistics, mainly percentage is calculated to analyse the collected data. Mean, mode, median, standard deviation and other descriptive statistics have also been calculated to get a clear concept of the study.

7. Study Conducted (Brief Description):

First the broad area for study was selected and then thorough literature review was done. After finding the research gap, objectives of the study were set. Methodology for the study was decided and collection of data was done.

8. Data Collection (Brief Description about the Procedure):

Researcher made questionnaire as google form was used to measure the undergraduate female students' perspectives on artificial intelligence. The google form link was shared among the target sample. Data was collected and stored in excel sheet for further analysis.

9. Analysis of Collected Data:

9.1 Concept of artificial intelligence in higher education:

Artificial intelligence is the combination of two words Artificial and Intelligence, where artificial means 'not real' or 'not natural' and intelligence means 'the ability to reason, to trigger new thoughts, to perceive and learn'. It is the area of computer science that mainly focus on making such kind of intelligent machines, that work and give reactions same like human beings. It can actually perform tasks intelligently without being explicitly instructed. So, in short, AI is an intelligent entity created by humans, able to think and act rationally and humanely.

Recent developments in AI have gotten numerous enormous changes in the higher education field. AI helps students and teachers to make their educational experience wonderful. Personalized learning, data driven teaching strategies, curriculum planning, informative



assignments, grading and feedback assistance are the main areas where artificial intelligence should be integrated to supports female students and faculties to improve quality of higher education.

9.2 Undergraduate female students' perspectives on Artificial Intelligence in Higher Education for improving Academic Achievement:

To measure female students' perspectives on artificial intelligence in Higher Education, three main dimensions were considered. The dimensions were students' knowledge about artificial intelligence in higher education, educational impact of artificial intelligence in higher education and students' attitude towards artificial intelligence in higher education. Items under these dimensions, helps to get the actual scenario of female students' outlook towards artificial intelligence in increasing Academic Achievement in Higher Education.

Dimensions wise female students' responses are noted and given below in a tabular form which helps to understand their perspectives on artificial intelligence in Higher Education.

Table-2. Female Students' Knowledge about Artificial Intelligence in Higher Education

Items	Responses	% of Respondents
Familiar with artificial intelligence	Not at all familiar	10%
	Slightly familiar	32%
	Moderately familiar	48%
	Very familiar	5%
	Extremely familiar	5%
Aware of the positive impact of artificial intelligence	Yes	89%
	No	11%
Aware of the negative impact of artificial intelligence	Yes	58%
	No	42%

Table 3. Educational impact of Artificial Intelligence (AI) in Higher Education

Items	Responses	% of Respondents
AI can positively impact your college learning experience	Yes	71%
	No	28%
	Not sure	1%
AI will have a significant impact on academic achievement	Yes	82%
	No	18%
Colleges should include AI related courses in their curriculum	Yes	94%
	No	6%
AI can replace teachers in future	Yes	38%
	No	62%
AI can abolish the private tuition system from our education system	Yes	30%
	No	12%
	Don't know	58%
AI has the potential to change	Yes, completely	10%



radically the field of education	May be to some extent	68%
	No, not really	2%
	Not sure	20%
AI can lead to advancements in research	Yes	64%
	No	0%
	Not sure	36%

Table 4. Students' attitude towards artificial intelligence in Higher Education

Items	Responses	% of Respondents
Overall attitude towards artificial intelligence	Positive	27%
	Negative	1%
	Neutral	72%

Descriptive statistics of the scores of 100 respondents showed that the average value of score is 32.51 and the middle value of the series is 33. The highest value for perception on AI in the data set is 39 whereas the smallest value is 25. Standard Deviation is 3.118841.

Table 4. Descriptive statistics of the scores of respondents

Statistical Analysis	Scores
Mean	32.51
Standard Error	0.311884
Median	33
Mode	33
Standard Deviation	3.118841
Sample Variance	9.727172
Kurtosis	-0.29434
Skewness	-0.44087
Range	14
Minimum	25
Maximum	39
Sum	3251
Count	100

10. Findings revealed from the Data Analysis:

Findings from item wise responses have revealed important data about female students' perspectives on artificial intelligence in Higher Education. 48% respondents have showed moderate familiarity with artificial intelligence. 89% of female students were aware of the positive impact of artificial intelligence whereas only 58% were aware of the negative impact of artificial intelligence. 71% of respondents have agreed that artificial intelligence can positively impact their college learning experience. According to 82% female students' artificial intelligence will have a significant impact on academic achievement and 94% of them have suggested that



Colleges should include artificial intelligence related courses in their curriculum. 62% respondents disagreed with the statement that artificial intelligence can replace teachers in future where as 58% respondents were unaware about the concept of abolition of private tuition system from our education system due to use of artificial intelligence. But 68% female students have indicated that in some extent artificial intelligence has the potential to change radically the field of education and as per 64% respondents, advancements can be seen in research field. Finally, 72% representers have showed neutral attitude towards artificial intelligence. So, from the analysis of above data, the major findings can be concluded below, that-

- Female students' knowledge about Artificial Intelligence is moderate to high,
- Educational impact of Artificial Intelligence is highly positive,
- Female students' overall attitude towards Artificial Intelligence is neutral.

11. Conclusion:

The present study revealed the importance of Artificial Intelligence in increasing academic achievement of female students in higher education. It admits that artificial intelligence has a vast potential to support female students as a vulnerable population in higher education. Students' perspectives on Artificial Intelligence are mainly considered. As there is little apprehension in use of artificial intelligence by female students for academic purpose, it can be concluded that, application of artificial intelligence in all areas of higher education is good for academic success. This report will help the educators, administrators and stakeholders to include artificial intelligence in the curriculum of higher education.

12. Delimitation of the Study:

- i) This present study is conducted only in one university of West Bengal.
- ii) The collected data was limited from undergraduate female students of different undergraduate streams.
- iii) The sample size is only 100, comprising only female undergraduate students.

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