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TO WHAT EXTENT DOES ARTIFICIAL INTELLIGENCE (AI) INTEGRATION IN EDUCATION INFLUENCE STUDENTS' ACADEMIC ACHIEVEMENT, ENGAGEMENT, AND PSYCHOLOGICAL ASPECT?

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ABSTRACT

Artificial intelligence profoundly holds such as education, health care and every aspect of life. During this era Al holds prominent position especially in educational field.The main aim of study in early education sphere learning style, interact and psychological development provided new direction of betterment. How aspect based teaching practice influence the psychological aspects of children in early education. In this study adopt a mixed research approach, combination of qualitative and quantitative approach. Collecting, organize and numerical data deal in Quantative method and interview data will collect and analysis qualitative approach. This mixed method provide in depth understanding. These Research descriptive and analytical nature. Basic purpose, to describe the situation and analysis the relationship between variables. Survey type study used to collect data from sample. Semi structure interview conducted to gain opinion of participant experience.The population of study consists of teacher and head teacher working in early education schools. Population consists of teacher whose have taught in primary class. In this study used random sample technique. It ensure the sample represent fairness sample size determine according to research objectives.For this study use the more than one tools according to objectives. Quantitative data collection collect by questionnaire and collection of qualitative data collect by semi structure interview. This tools use for data collection purpose.This study include the opinion of teachers Students and parents. Rresult shows that the AI has major influence in education. AI has positive impact on learning improvement. AI tools help to improve teaching learning process. With the help of AI teacher engage the student and student play active role in active learning environment. AI improves critical thinking that improve creative and problem solving skills in students. According to psychology impact, participant partially agreed AI develop psychological aspect of human development. Overall aspect show AI based teaching helps teacher and student that learning promotes to next level.

Key words: *Artifical Intelligence, Academic achievement, Engagement, and Psychological aspect.*

1.1 Introduction

Education is essential pillar of human development and early education play crucial in personality. Early education year has importance for the cognitive, emotional and social development. AI has brought about a revolution. In modern age technology, especially AI based technology included adaptive learning pedagogy provides personal education for the children. AI based not only for children learning through intelligent tutoring system but also enhanced the speed of learning, interest of children and active engagement of learner. The accelerated development has sparked many question, especially children psychology development promote creative skills or restrictions them.

1.2 Statement of problem

Despite the increasing use AI its effects on children psychology development not clear. One side opinion is AI helps to learning easy and interacted for early education. But in other hand it concern that it also cause negative effect on children social and emotional development. Due to, on this topic need for a comprehensive research.

1.3 Research Question

How AI based practice teaching methodology does effects the psychology development of children in early education.

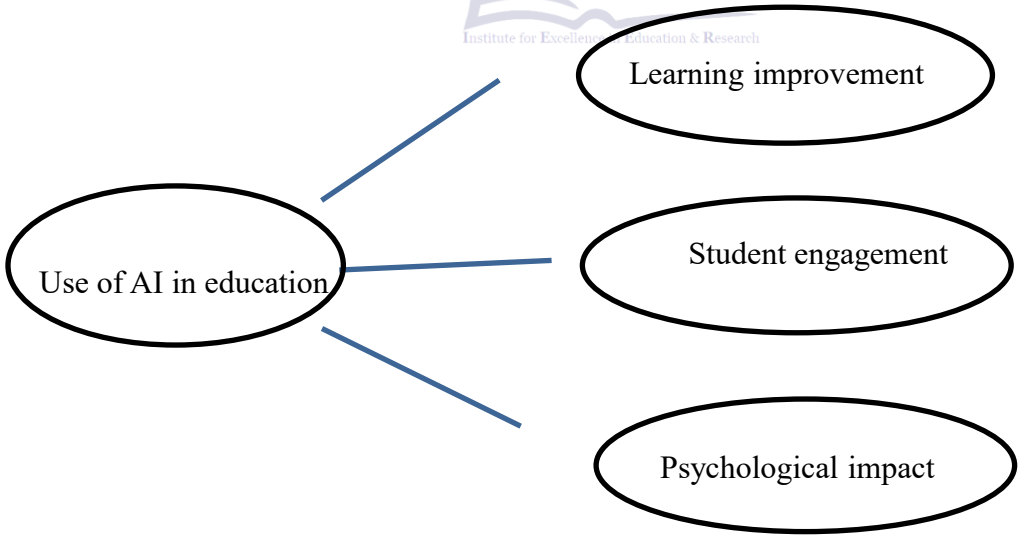
1.4 Objectives

1. Analysis the effects of AI based practice on Early children psychological aspect.
2. Evaluate the learning interest and change in behavior of children.
3. Highlight the positive and negative impact on psychological development.

1.5 Hypotheses

1. H1: AI based teaching practice has significant impact on student learning outcomes.
2. H2: AI base practice significantly enhances student engagement.
3. H3: AI based learning has significant impact on children psychology.

1.6 Variables



Literature Review

AI makes the education system move effective and individual in nature. Different result show AI help to recognize the child weakness in learning and provide material for improvement. Artificial intelligent is transforming the education sector by making teaching and learning more beneficial for practioner and accessible. It brought a revolutionary change. It provides to help eliminate strict tradition learning ways.

2.1 Influence of AI in Education

AI provides the awareness for better learning. Personalized learning possible due to technology of AI that help to understand student ability, interest and pace of student. Teacher understand the needs of student and help to improve personalized teaching and learning .AI evaluate student performance status and guide to the teacher to improve learning and equal opportunity. AI help to educator to developing creating content. Teacher use interactive text book, lectures, Summarize the lecture, use interesting activities. Use this this way of AI learning make more efficient and practicable. Intelligent tutoring systems help the student learning and provide assistance. If student need, this tutoring provides online assistance to explain concepts and guide student as tutor. (lam, 2021 December)

AI also helps to assess the student performance. It reduces teacher workload. AI help to checking the assignment work grade the MCQs and provide proper feedback to the children. AI also provides suggestion to improve the student performance. So. that the AI helps to time saving and provide more accuracy. AI use for administration purpose. AI use in management task in institutions. AI helps in student admissions, save record, attendance maintain staff and help to maintain schedule. It improves overall efficiency of institution. (Xie, 2019) AI play essential role in modern education. It helps to improve learning quality and learning more inclusive. Virtual classroom and e learning platform is a new concept or trends of modern era. Al possible the online learning and provide the different platforms that allow online learning

Different types of AI learning modes such as remote learning and live classes session. AI also helps to record lectures that make learning accessible anywhere. Chabot's helps the student. It provide assistance student to answer the question, provide academic information and guide the student to better courses. Language translation major issues in past but now days AI provide the translation of different languages that make the global learning to students. Real time translator and speech recognition helps the student. (Murtaza, 2022)

2.2 AI and children psychology

AI helps to psychology development if children. Now days AI help to understanding psychological development such ad cognitive, emotional and social development.AI show positive impact on children. AI helps to improve cognitive skills. It also help to students improve problem solving skills, increases engagement and motivation. In other hand we observe AI has also negtive impact on children health. It reduce social interaction and less emotional learning. With the passage of time cyber security is necessary become in technology era data privacy more important. AI impr5the learning system and significantly influence the responsibility of teacher. AI helps yo reduce the work burden on teacher. Teacher use AI for content presentation, assignment and assessment of the student. This help to teacher more focus on children learning. In this era teacher responsibility totally change, now the teachers are facilitator that provider of knowledge. AI totally changes the concept of traditional teaching ways. (Srinivasa, 2022)

2.3 AI and professional development

AI helps to teacher professional development. Teacher learns new digital skills that advance the education system. Advance technology improves the teaching strategies and pedagogy. AI helps to student and teacher make more creative environment of learning. If proper training provide to teacher than teacher utilize the best AI resources during teaching learning process.AI increased the student teacher interaction. Teacher prepare better lesson with help of AI tools. AI tools help to active engagement of children that provide emotional support. (Pedro, 2019)

2.4 Theoretical Framework

This research based on constructive theory and social learning theory. According to this children learn through environment and performing experiments. AI base learning provide friendly environment that influence the learning.

Methodology

3.1 Research design

In this study adopt a mixed research approach, combination of qualitative and quantitative approach. Collecting, organize and numerical data deal in Quantative method and interview data will collect and analysis qualitative approach. This mixed method provide in depth understanding.

3.2 Research type

In this research will be descriptive and analytical nature. Basic purpose, to describe the situation and analysis the relationship between variables.

3.3 Data collection

Survey type study used to collect data from sample. Semi structure interview conducted to gain opinion of participant experience.

3.4 Population of study

The population of study consists of teacher and head teacher working in early education schools. Population consists of teacher whose have taught in primary class.

3.5. Sample

In this study used random sample technique. It ensure the sample represent fairness sample size determine according to research objectives.

Gender			
Age			
Experience			

3.6 Data collection tool

For this study use the more than one tools according to objectives. Quantitative data collection collect by questionnaire and collection of qualitative data collect by semi structure interview. This tools use for data collection purpose.

3.7 Data collection procedure

Firstly prepare a questionnaire for pilot testing. After testing the main data collection start. For this purpose proper permission obtain from relevant authority before data collection. After that questionnaire distribute to Sample of study and conducting interview.

3.8 Data Analysis Technique

Quantitative data analysis by statically method percentage, charts and tables. For correlation variable analyzed by SPSS 27. Qualitative data will be analysis through thematic Analysis.

3.9 Limitation of study

The study face some limitation such as sample size, time and availability of participant.

Data Analysis

4.1 Demographic information of Sample

Variable	Category	Frequency	Percentage
Gender	Male	48	48
	Female	52	52
Age	25-30 years	30	30
	31-35 years	40	40
	36-40 years	10	10
	40 above	20	20
Qualification	Bachelor	35	35
	Master	50	50

	M.Phil / PHD	15	15
Experience	1-5 year	25	25
	6-10 year	35	35
	11-15 year	25	25
	16 and above	15	15

4.2 Reliability Analysis

Cronbach Alpha

Scale	No of item	Value
Use of AI in education	8	0.80
Learning improvement	6	0.83
Student engagement	5	0.83
Psychological impact	8	0.79

4.3. Descriptive statistics of key variable

Variable	Mean	Std. Deviation	Interpretation
Use of AI in education	3.79	0.70	High
Learning improvement	3.91	0.65	High
Student engagement	3.78	0.71	High
Psychological impact	3.40	0.73	Moderate

4.4. Likert Scale Analysis (impact of Al on Students)

Statement	SA	A	N	D	SD	Mean
AI makes learning more effective	30	40	10	12	8	3.70
AI enhance student engagement	28	38	12	14	8	3.60
AI improve academic performance	32	46	11	13	8	3.69
AI reduce student independent thinking	20	25	15	22	8	3.06
AI effect psychological growth	22	30	14	20	14	3.20

4.5 Correlation Analysis

Variable	AI use	Learning	Engagement	Psychological impact
Use of AI in education	1	0.67	0,66	0.43
Learning improvement	0.67	1	0.71	0.39
Student engagement	0.69	0.69	1	0.35
Psychological impact	0.42	0.41	0.35	1

Correlation is significant at 0.05 level correlation is significant at 0.01 level.

Table 4.6. Regression Analysis

Variable	Beta value	t-value	p-value
Use of AI in education	0.50	5.80	0.00
Learning improvement	0.32	3.39	0.001
Student engagement	0.42	3.47	0.03
Psychological impact	-0.20	-2.10	0.007

4.7 Interpretation

The data analysis indicate that the use of positive impact on student learning and engagement. The descriptive and correlation results reveal strong relationship between Al usage and learning outcomes. However regression analysis also highlights a slight negative effect on psychological development. Suggesting that excessive reliance on Al may influence independent thinking and emotional growth.

4.8 Hypothesis Testing

H1	AI positive effect learning outcome.	Accepted
H2	AI improve student engagement	Accepted
H3	Al negatively affects psychological development.	Accepted

All variable show cronbach Alpha value above 0.70, indicating good internal consistently and reliability.

5.1 Introduction

In this chapter compile the conclusion explaining and comprehensive the result. Furthermore, the basis of research to put suggestions. So that ensure in early education.

5.2 Summary of the Study

The basic purpose of this study effects of AI learning on children psychology. Furthermore study aim how the AI based learning influence children learning. For this purpose used the standard qualitative and quantitative technique use to gain accurate information. In this study, teachers and head teachers use as sample. Data collection possible through questionnaires and interviews. After data collection descriptive and statically infertial analysis used to gain more accurate results. To find the relationship of variable use correlation analysis. For statically inferential analysis use Spss27 software.

5.3 Summary of Findings

The major findings are:

AI use in education:

Respondent result show usage of AI in Education (mean=3.9) high level mean. Most of participant agreed AI make learning more effective. AI adoption increase the education level. Findings show (mean=3.8) AI promote learning outcomes. AI has positive impact on learning outcome. Respondent result show (mean=3.4) AI enhance student engagement in learning activities. Psychological impact mean (mean=3.1) AI has a moderate impact on children psychology development.

Overall summary show AI play vital role in learning and teaching practice. Balance use of AI in education promotes the learning.

5.5 Conclusion

This result shows that the AI has major influence in education. AI has positive impact on learning improvement. AI tools help to improve teaching learning process. With the help of AI teacher engage the student and student play active role in active learning environment. AI improves critical thinking that improve creative and problem solving skills in students. According to psychology impact, participant partially agreed AI develop psychological aspect of human development. Overall aspect show AI based teaching helps teacher and student that learning promotes to next level.

5.6 Recommendations

On the basis of research some recommendations are:

Use the AI tools in tradition teaching methodology make the learning more purposeful in remote areas.

During teacher training teacher learn usage of AI tools that helps to make more effective teaching practice in field.

Teachers use in class interactive activities that help the student better understanding.

AI based classroom provide by the government to make the classroom more attractive and student able to understand concept next level.

5.7 Future Recommendation

AI based learning is essential for next level education. For this government should be conduct a longitudinal studies which contain on different area according to location(rural ,urban) that compare and relate the results and show relationship and differences.

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