

# Assessing Youth's Understanding of Artificial Intelligence Enhanced Digital Learning

Kush Patel<sup>1</sup>; Smita<sup>2</sup>; Khyati Trivedi<sup>3</sup>; Sarjoo Patel<sup>4</sup>

<sup>1</sup>Student, Computer Engineering, Sardar Vallabhbhai Patel Institute of Technology, Vasad, Gujarat, India

<sup>2</sup>Assistant Professor, Home Science Department, SCSS Govt. P.G. College Kapkote, Bageshwar, Uttarakhand, India

<sup>3</sup>Temporary Assistant Professor, Department of Family and Community Resource Management, Faculty of Family and Community Sciences, the Maharaja Sayajirao University of Baroda, Vadodara, Gujarat, India

<sup>4</sup>Assistant Professor, Department of Family and Community Resource Management, Faculty of Family and Community Sciences, the Maharaja Sayajirao University of Baroda, Vadodara, Gujarat, India

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**Abstract:** The present study focused on assessing the knowledge of the youth regarding artificial intelligence applications used in digital learning. Further, the objective was to enhance their knowledge regarding the artificial intelligence application used in digital learning through an educational module. Descriptive research design was used for the study. The sample size for the present study was 336 youth (168 Male and 168 Females) who were using AI applications. Respondents were selected through Purposive Sampling Technique. The study was carried out from October 2023-January 2024 in Gujarat State, India. The Data was collected through a structural Questionnaire which comprised of two sections i.e. Background information of the respondents and knowledge and use of Artificial Intelligence applications used in digital learning among youth. Coefficient of correlation was computed to check the relationship between knowledge and age and independent sample t-test was applied to check the difference in the knowledge with gender ( $\alpha$  at 0.05) level of significance.

**Keywords:** Artificial intelligence; Digital learning; Education; Youth

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## I. INTRODUCTION

Artificial intelligence is a software system that attempts to simulate human intellect by using data sources to make independent decisions or assist humans in making decisions (He *et al.*, 2019; Hashimoto *et al.*, 2020). It is a general term that includes machine learning, representation learning, deep learning, and natural language processing. Artificial intelligence is a field of computer science that can analyze large amounts of data. However, it is not only related to computer science but extends into many areas such as medicine, philosophy, psychology, linguistics, and statistics (He *et al.*, 2019). According to various international reports, Artificial Intelligence in Education (AIED) is one of the currently emerging fields in educational technology. AI and adaptive learning technologies are prominently featured as important developments in educational technology in the 2018 Horizon report (Educause, 2018), with a time to adoption of 2 or 3 years. According to the report, experts anticipate AI in education to grow by 43% in the period 2018–2022, although the Horizon Report 2019 Higher Education Edition (Educause, 2019) predicts that AI applications related to

teaching and learning are projected to grow even more significantly than this (Zawacki-Richter, 2019).

Emergence of this technology has increased the amalgamation of various digital learning platforms, personalized learning modules, assessment methods and advanced tutoring systems. These advancements in digital learning have enhanced the youths for the demands of a technology driven education and learning system. According to Dowd. M., (2020), Artificial Intelligence in learning can be widely described as, “train and learn with data to improve statistical algorithms”. Jacob. A. *et. al.*, (2023), stated four primary areas in which AIED is applied and is applicable are academic support services, institutional and administrative services, which include profiling and prediction, assessment and evaluation, adaptive systems and personalization as well as intelligent tutoring systems.

Artificial Intelligence has applications in a variety of educational fields in development of digital educational system.

AI applications are changing the traditional education methods and introducing new tools to enhance teaching and learning experiences. The generated AI in digital learning provides instant feedback and conclusion with the algorithms which allows the youth to track their progress and displays the areas of improvement in real time. These AI based applications utilized for digital learning plays a vital role in increasing the youth's employability by providing on-hands practical learning experience, emerging demand in a competitive labor market. This increases the use of Artificial intelligence (AI) by the present youth generation in their daily lives. They are not only using AI-related applications for basic day to day tasks but also massively focusing the research and product developments related to it especially the young generation. AI is impacting the youth in numerous ways. It enables the creation of intelligent educational games, drafting literature, learning new techniques and languages that adapt to the skill levels and progress of individual students. Therefore, it is essential to assess the knowledge and gender differences in youth's knowledge of artificial intelligence applications used in digital learning.

## II. METHODOLOGY

### ➤ Data Collection:

The Data was collected through a structural Questionnaire. Descriptive research design was used for the study. The study was carried out from October 2023- January 2024 in Gujarat State of India. The sample size for the present study was 336 youth (168 Male and 168 Females) who were using AI applications. Respondents were selected through Purposive Sampling Technique.

### ➤ Data Analysis:

To check the relationship between knowledge and age Coefficient of correlation was computed. To check the difference in the knowledge of different genders, independent sample t-test was applied ( $\alpha$  at 0.05) level of significance.

### ➤ Hypotheses:

The first hypothesis states that there exists relationship between the knowledge of the respondents regarding artificial intelligence applications and their age. The second hypothesis states that there exists a difference in the knowledge of the respondents regarding artificial intelligence applications with their gender.

## III. RESULTS AND DISCUSSIONS

### IV.

#### A. Profile of the Respondents

The data revealed that most of the respondents were ranged between 23-29 years of age group. It was also found that a higher percentage of respondents were Graduate. The occupation for more than one-half of the respondents was

employees. It was also found that the family monthly income for most of the respondents were less than 50,000.

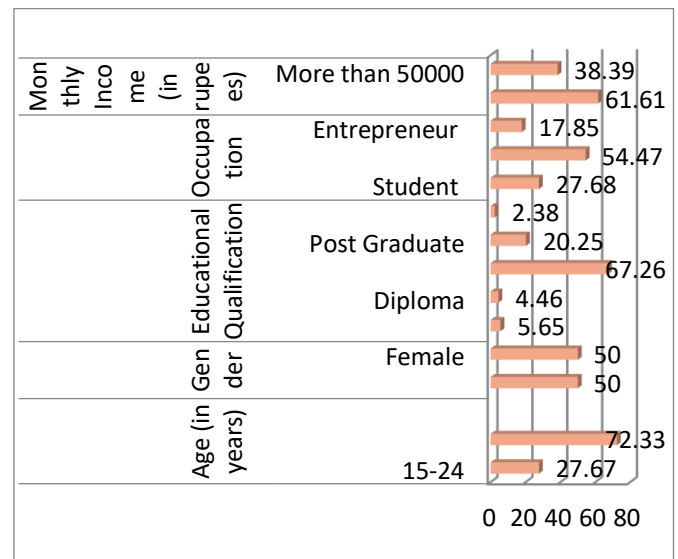


Fig. 1: Background Information of the Respondents

#### B. Information Regarding the Use of Artificial Intelligence Applications by Youth from Different Education Streams

A higher percentage (56%) of the respondents using AI were from Science and Technology stream followed by 25% from Arts and Humanities stream and 19% were from Commerce stream respectively.

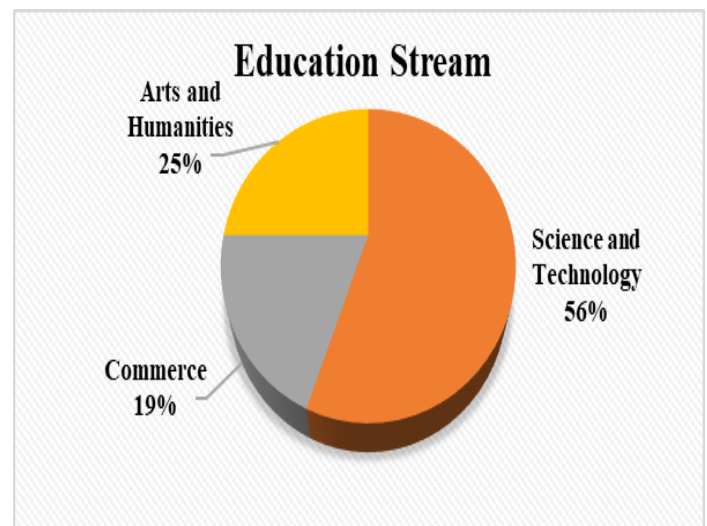


Fig.2: Use of Artificial Intelligence Applications in Different Education Streams

#### C. Knowledge and use of Artificial Intelligence Applications Used in Digital Learning among Youth

Table 1 Knowledge and Use of Artificial Intelligence Applications Used in Digital Learning among Youth

Sr. No.	Statements	Yes		Maybe		No	
		f	%	f	%	f	%
1.	Familiar about AI technologies or applications	279	83.05	07	2.08	50	14.88
2.	Advancement in AI can have an impact on the job of humans	198	58.92	36	10.71	102	30.35
3.	AI has the potential to surpass human intelligence in the future	171	50.89	75	22.32	90	26.78
4.	Aware about any ethical concerns related to AI development and use	126	37.50	105	31.25	105	31.25
5.	AI should be regulated to ensure ethical use and prevent misuse	183	54.56	93	27.67	60	17.85
6.	AI playing a significant role in improving education and learning	176	52.38	100	29.76	60	17.85
7.	Aware about potential risks or concerns associated with AI development and use	174	51.78	72	21.42	90	26.78
8.	Aware of social robots	168	50.00	72	21.42	96	28.57
9.	Interested in learning AI techniques	198	58.92	69	20.53	69	20.53

The data depicted in the above table revealed that 83.05 per cent of the respondents were familiar about the AI technologies or applications. More than one-half of the them believed that with the advancement in AI can impact on the job of humans and it has the potential to surpass human intelligence in the future. They also believe that AI should be regulated to ensure ethical use and prevent misuse and according to them AI playing a significant role in improving education and learning. Nearly one-half of them were aware about potential risks or concerns associated with AI development and use. It was also found that 58.92% of the respondents were interested in learning AI techniques.

#### D. Artificial Intelligence Applications used in Digital Learning

The data from the figure depicts that the respondents were using various AI applications such as Quillbot, ChatGPT, Chatbots, Grammer Check, Google Duplex, Chatpdf, Saras AI, Tomeppt, Hold for Me, Ghostwriter and some other applications depending on their work requirements.

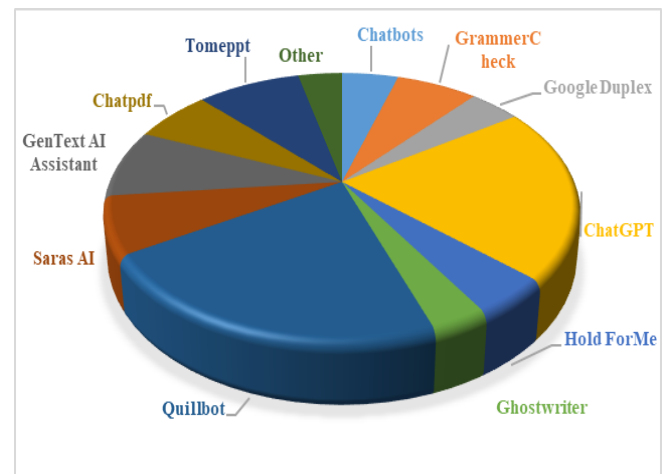


Fig. 3: Artificial Intelligence Applications used in Digital Learning by the Youth

#### E. Hypotheses Testing:

Co-efficient of correlation was computed to find out relationship between the knowledge of the respondents regarding artificial intelligence applications and their age.

Table 2: Co-efficient of Correlation was Computed to Find out Relationship between the Knowledge of the Respondents Regarding Artificial Intelligence Applications and their Age

Sr. No.	Selected variables	n	r-value	Level of significance
I.	knowledge of the respondents regarding artificial intelligence applications	336	0.40	0.05
	Age			

The data in table 2 showed the relationship between knowledge of the respondents regarding artificial intelligence applications and their age. As stated in Research conducted by Alghamdi & Alashban (2023), Respondents were questioned about their Knowledge on AI, and the majority of respondents indicated that they had heard about artificial intelligence/deep learning/machine learning. Of the 129 respondents, 89 respondents were ones who had heard about AI and had basic knowledge of artificial intelligence/deep learning/machine learning. This supported

the present study as in the present study the Correlation coefficient (r) was found significant between the knowledge of the respondents regarding artificial intelligence applications and their age (Table 2). Hence, the null hypothesis was rejected. It can be concluded that the knowledge increases with age. t-test was computed to find out the difference in the knowledge of the respondents regarding artificial intelligence applications with their gender.

Table 3: T-Test Showing the Difference in the Knowledge of the Respondents Regarding Artificial Intelligence Applications with their Gender

Variable Gender	Mean score of knowledge	t-value	df	Level of significance
Male	21.24	1.74	334	NS
Female	20.42			

Franken et.al., (2020), Stated that According to their self-awareness, women have a lower understanding of AI than men. Moreover, AI research and development is predominantly in the hands of men. But the same the data may vary according to region. For the present study which was conducted in Indian locality, the t-value was not found significant for Gender (table 3). Hence, the null hypothesis was accepted. It can be concluded that the knowledge of the respondents regarding artificial intelligence applications did not vary with their Gender.

## V. CONCLUSION

The study revealed that most of the respondents had heard about the different AI applications, they use some of them to make their work easy and less time consuming. It was found that the respondents were using various AI applications such as Quillbot for paraphrasing, ChatGPT, Grammar Check, Chatpdf, Saras AI etc. whereas they were interested in learning new techniques and methods also, which were covered in the educational module prepared by the researcher. With AI transforming education and changing how youth learn, prepare for the future, and interact with it, it is becoming more and more significant for them. Personalized learning experiences are one of AI's most valuable features. AI adapts instructional material to each learners' requirements by evaluating personal strengths and shortcomings, which promotes greater understanding and engagement. It gives individuals access to learning materials around-the-clock so they may progress at their own speed. Learners gain vital skills from data literacy to critical thinking and problem-solving by incorporating AI into their work, preparing them for future occupations.

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