TEACHER'S AI DIGITAL COMPETENCIES: AN INVESTIGATION BASED ON THE COVID-19 PANDEMIC EXPERIENCES.

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Abstract:

Artificial Intelligence (AI) has become one of the most discussed terms in these recent years. The Application of AI is evident in different areas of our day-to-day life. In a sense, it is a wonder to the ordinary person, hence fascinating. The outbreak of Covid 19 has bought many obstacles in the smooth run of human life worldwide. The reflection of this is visible in the educational sector too. A sudden transformation to the online mode of teaching-learning throughout the year, from the KG section to the higher level, happened during these periods. Kerala's education field is of no exemption.

Moreover, the Application of Artificial Intelligence in education is the most discussed topic these days. In this context, the investigator tried to determine Kerala school teachers' awareness of using Artificial intelligence in their teaching process. Data was collected using an awareness test from a sample of 80 school teachers for the study. Percentage analysis showed that the teachers have an average awareness of artificial intelligence. The study also revealed that gender has no differential effect on teachers' attention to artificial intelligence, but their mainstream study has.

Keywords: *Artificial Intelligence (AI), Awareness, Covid 19, School Teachers.*

Introduction:

Artificial Intelligence is not a new term in this century. It has become one of the most exciting topics of discussion for the last few years. Many films have exhibited the range of artificial intelligence before us. It has knowingly or unknowingly become a part of our daily life. Social networking, online shopping, communications apps, search engines, etc., are using artificial intelligence (Subrahmanyam & Swathi, 2018). The reflection of technological advancement can be seen reflected in the education field. In another way, the education field is coping with technological advancement without any delay or confusion. Application of artificial intelligence in education is the most experimented area today. Many pieces of research are being conducted on the pros and cons of using artificial intelligence in the educational sector.

AI is used in many institutions for admission purposes, grading students, taking attendance, communicating with parents, etc.

AI can be used to make administrative tasks much more manageable. One of the hectic tasks of the teachers is evaluating the homework and other works and grading the students. Many teachers are aware of using multiple-

choice questions and their automated valuation and grading. However, when it comes to essays or other descriptive works, it is not easy. Efforts are taken to develop such software. The Application of AI can give teachers more time to be with their students more comfortably. It can help to make the teaching more individualized (Swaminathan & Swathi, 2018; Goksel& Bozkurt, 2019).

Background of the Problem:

The pandemic Covid 19 brought a sudden break in the smooth flow of human life worldwide. Humans all over the world were set in a dilemma. At the same time, many inventions and experiments have been done in almost all fields. While considering the educational field, a drastic change to a full-time online teaching mode occurred. Teachers, as well as students, had a novel experience in this aspect. New means and modes were experimented with to make the learning process exciting and bring novelty to each class. The Application of Artificial Intelligence has gained much importance these days. It emerged as a trending topic of discussion in the education field too. The timely evaluation and online administrative processes have been challenging for the teachers. The teaching process during Covid 19 assures the importance of being aware of the Application of AI in education.

Statement of the Problem:

The researcher tried to determine school teachers' awareness of using Artificial Intelligence. Hence the problem is stated as "Awareness of school teachers on using Artificial Intelligence: An investigation based on Covid-19 experiences."

Objectives of the study:

The study focused on the following objectives:

1. To find the level of awareness of school teachers on using Artificial Intelligence in the teaching-learning process
2. To find whether there exists any significant difference in the awareness of school teachers on using Artificial Intelligence in the teaching-learning process for the sub-samples classified based on
   a) Gender (Female/Male)
   b) The mainstream of study (Arts/Science)

Hypotheses of the Study:

1. School teachers differ in the level of awareness of using Artificial Intelligence in the teaching-learning process.
2. There exists no significant difference in the awareness of school teachers on using Artificial Intelligence in the teaching-learning process for the sub-samples classified based on
   a) Gender (Female/Male)
   b) The mainstream of study (Arts/Science)

Material and Methods:

For the present study, we adopted the normative survey method. An awareness test was prepared to collect data regarding the school teachers' awareness of using Artificial Intelligence. Eighty teachers from different schools constituted the sample for the present study. Data collection was done via the online platform. The collected data

were scored and subjected to statistical analysis. Descriptive statistics were employed to find the normality of the data. In order to test the hypothesis, the collected data were subjected to percentage analysis and independent-sample *t*-test.

Results and Discussion:

The responses of the teachers were scored and subjected to statistical analysis. Preliminary analysis was employed to check the normality of the distribution. Percentage analysis and *t*-test were used to test the hypothesis.

Preliminary analysis of the data:

The summary of the descriptive statistics of the scores on awareness of school teachers on using Artificial Intelligence is presented in Table 1.

Table 1

Summary of the Descriptive Statistics of the Scores of Awareness of School Teachers on using Artificial Intelligence

N	M	M_{dn}	M_o	SD	S_k	Ku
80	19.90	19.00	17.20	7.47	-0.03	-1.24

Table 1 shows that the mean, median, and mode obtained for the awareness scores are 19.90, 19.00, and 17.20, respectively, with a standard deviation of 7.47. The value of skewness and kurtosis is -0.03 and -1.24, respectively.

Discussion.

The scores of measures of central tendency obtained denote that the data obtained are almost equal, which shows that the data is not much scattered. The value of kurtosis denotes that the distribution is platykurtic. The average score (19.90) hardly reached half of the total score of the tool administered.

A graphical representation of the distribution of the scores of awareness of school teachers on using Artificial Intelligence is given in figure1.
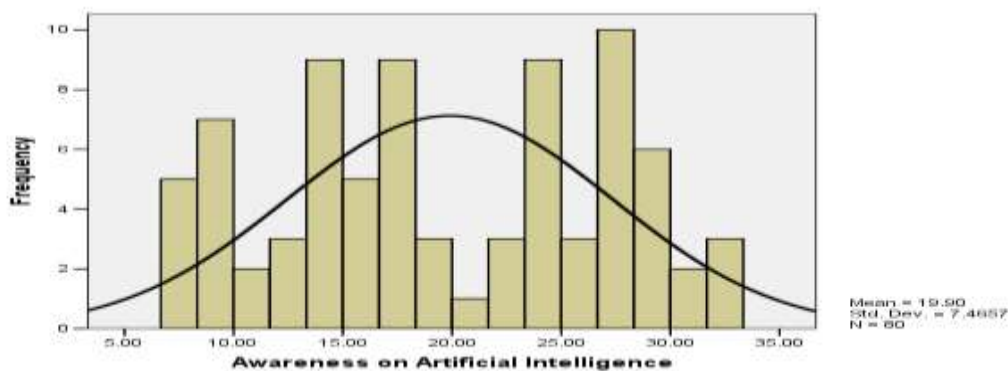
Figure 1. Graphical representation of school teachers' awareness of using Artificial Intelligence in the teaching-learning process

Level of awareness of school teachers on using Artificial Intelligence.

By finding the σ distance from the mean, μ, the awareness scores were classified as high, average, and low. The number and percentage of the sample falling into each group are presented in Table 2.

Table 2

Number and Percentage of School Teachers Falling Into the Three Groups of Awareness of Artificial Intelligence (High, Average, and Low)

Variable	Group	Score	n	%
Awareness	High	≥ 27.37	15	18.75
	Average	27.37- 12.43	50	62.50
	Low	≤ 12.43	15	18.75
	Total		80	100.00

Out of the total sample, 50 percent falls into the average group. Fifteen percent of the sample is found to be falling into the high group as well as the low group.

Discussion. The percentage analysis of the scores depicts that school teachers differ in their awareness of using artificial intelligence in education. Most of the teachers fall into the average level. The difference in awareness may be due to their experience and exposure to the latest technologies. Interest and attitude are also reasons for the difference in the awareness level. Thus the first hypothesis is substantiated.

Figure 2 graphically represents the distribution of the total sample among the different levels of awareness of using artificial intelligence.
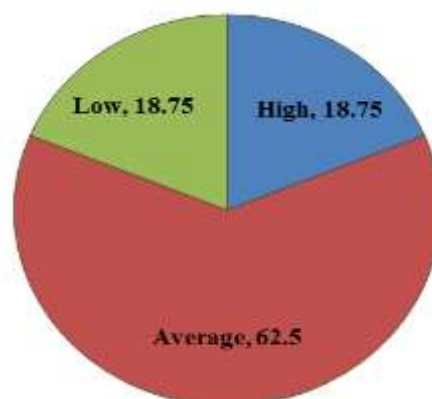

Figure 2. Graphical representation of different levels of school teachers' awareness of using Artificial Intelligence.

There is a significant difference in awareness of school teachers' on using Artificial Intelligence related to gender and mainstream study.

The result obtained for the employed independent sample *t*-test is shown in Table 3.

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Table 3

Test of Significance of Difference in the Mean Scores of Awareness of School Teachers on Using Artificial Intelligence for the Sub-samples classified based on Gender and Main Stream of Study

Sub-Sample		*n*	*M*	*SD*	*t*	*p*
Gender	Female	52	19.94	7.37	0.069	0.945
	Male	28	19.82	7.78		
Main Stream	Arts	39	17.74	7.59	2.611*	0.011
	Science	41	21.95	6.82		

Note. * denotes the value is significant at 0.05 level.

The *t* value obtained for the test of significance of the difference in the mean scores of school teachers' awareness of using artificial intelligence for the subsample classified based on gender is 0.069, less than the table value 1.96 at a .05 level of confidence. That means the difference is not significant.

The critical ratio for the test of significance of the difference in the mean score of school teachers' awareness of using artificial intelligence for the subsample classified based on their academic stream is 2.611 ($p = 0.011$). The value obtained is greater than the table value of 1.96 at the .05 level. Hence, the difference is significant.

Discussion. For the subsample gender, the *t* value obtained is less than 1.96 at the .05 level, which shows that gender has no differential effect on school teachers' awareness of artificial intelligence. At the same time, teachers' awareness is found to be significantly different when classified based on their mainstream of study. Those who have studied the Science stream are found to be more aware of using artificial intelligence in the teaching-learning process. Hence the second hypothesis is partially accepted.

The graphical representation of the difference in the mean score of awareness of school teachers on using artificial intelligence based on the mainstream of study is given in Figure 3.
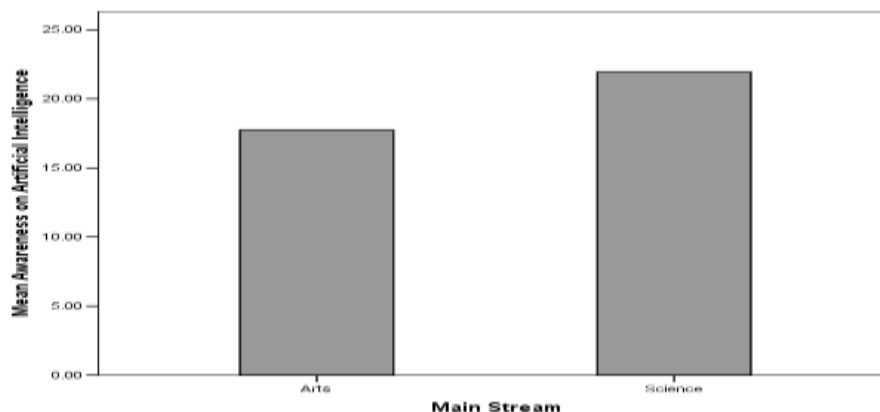

Figure 3. Graphical representation of the mean scores of awareness of school teachers on using artificial intelligence classified based on their mainstream of study.

Findings of the Study:

From the analysis of the data following the formulated hypothesis, the researcher came to the following findings:

1. The school teachers have an average awareness of using artificial intelligence in teaching-learning.
2. There is no significant difference in female and male school teachers' awareness of using artificial intelligence in the teaching-learning process.
3. The school teachers who have studied science as their main subject are found to have high awareness compared to those studying arts subjects.

Educational Implications:

The study highlights the importance of giving teachers more up-to-date training to cope with the changing world. The technologies are developing at a drastic speed. Moreover, the education field should be fully equipped to meet the needs of the new generation. For this, the teachers should be given periodic training in this regard. An academic year entirely dependent on the online platform was a novel experience for the teachers as well as for the students and parents. However, the education sector managed to cope up with this situation. This experience makes those in the education field aware of the need to give further advanced training to teachers and administrators.

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Author Contributions

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Declaration of Interest:

The author declares that the author does not have any competing interest

Data Availability:

The data can be made available on request.

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