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ANALYZING THE PRELUDES AND DETERMINANTS OF ARTIFICIAL INTELLIGENCE AND LEARNING IN THE 21st CENTURY: A CRITICAL ANALYSIS

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ABSTRACT

In the coming years, there will be a transformation of learning systems around the globe, which will be aided by new technologies and information science. With the advent of artificial intelligence and mobile devices with cutting-edge capabilities, the learning process will undergo the most significant changes in over a century. The use of mobile learning methods is becoming increasingly popular as new technology advances. According to the authors' literature review, as the field of research advances, more and more researchers are investigating the effects of artificial intelligence on learning, teaching methods, and teacher evaluations. The paper also discusses the benefits of using artificial intelligence to facilitate independent learning. Rather than being seen as an adjunct to learning and teaching, Artificial Intelligence helps to enable a fundamental shift in thinking about what should be taught and how it should be taught. It is both an exciting opportunity and a serious responsibility for a company that are of big size. Toward meeting this challenge, this article examines several key precursors and determinants of learning and artificial intelligence. Recently, a number of terms have been introduced into the field of learning, including portal connectivity, artificial intelligence, big data, machine learning, mobile technologies, and intelligent learning patterns. Due to these changes, society and education have undergone unprecedented transformations. The authors of the study conclude that the use of artificial intelligence in learning is likely to follow the trend that shows a rapid increase after a period of relative stability. As artificial intelligence develops rapidly in the field of learning, the way knowledge is conveyed and the ability to learn new things will be greatly altered.

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Introduction.

The increasing interdisciplinary nature of today's technologies and products makes it increasingly difficult for learning organizations to maintain all of the necessary skills within an organization, including core activities, due to the increased degree of interdisciplinary nature of today's technologies and products. Several businesses must be able to leverage their internal competencies with external resources in order to remain competitive in their key technologies. There is an increasing need to acquire external technologies (Granstrand and Sjolander, 1990; Granstrand et al., 1992) as the number of component technologies increases, suggesting that the need to acquire such technologies is increasing (Granstrand and Sjolander, 1990). When there is a high level of complexity, it may be necessary to establish specialist development networks, since these networks will provide support for businesses that

specialize in integrating learning systems and modifying learning resources if there is a high level of complexity. In accordance with Tiwari (2022), emerging technologies will increasingly impact knowledge sharing in learning, and businesses must utilize their unique core competencies so as to keep up with the artificial intelligence explosion. As a result, emerging artificial intelligence can be described as a machine learning technique that can perform tasks and activities normally performed by humans but can be performed by computers. As a result of the use of artificial intelligence in schools and classrooms, educators are finding that their jobs are becoming easier. While these emerging technologies may have some potential benefits, many educators are concerned that they will negatively impact learning in the future. Does it have the potential to close the achievement gap, democratize learning, or close the attainment gap?

As a result of Aldridge (1990)'s examination of artificial intelligence management and the findings pertaining to engineering learning, teachers, professors, and other educators are able to make sure that their teaching materials are accessible to a broad audience by utilizing emerging artificial intelligence. This progressive approach allows students to learn without limitations since they are provided with a variety of opportunities to learn. Since students have access to study materials regardless of whether they attend school or not, they are able to complete their studies even if they are ill or stuck at home due to inclement weather. Language barriers are inevitable for multilingual students due to the difficulty of understanding teachers who speak a different language than the students. It is possible to use artificial intelligence to translate and make student-friendly materials. As a result, instructors and students will be able to collaborate more effectively.

It is widely recognized that artificial intelligence has led to a change in teaching methodologies, a change in learning approaches, and a change in accessibility to information that has changed how information is imparted. In addition, the author of the article states that he strongly prefers the use of bridles when mounting a horse. Watson (2001) has argued that in the 21st century, there are two needs: a need for knowledge as well as a need for answers. Knowledge is the only key to the future of learning. Policies must be designed to take into account the nature of learning and teaching in order to be effective in achieving such knowledge. This creates a more holistic view of improving learning and a clearer picture of the types of changes that are occurring in learning as well as the benchmarks that we will set in both learning and artificial intelligence, to achieve the goals we have set for ourselves. We cannot deny the importance of artificial intelligence in our daily lives in the modern age, and its importance is growing with each passing day. Artificial intelligence facilitates an economy that is perceived as efficient and economically successful. Due to the development of technology over the past few decades, there have been a number of features introduced into learning. The use of artificial intelligence has been used by educators in a variety of contexts and applications to enhance teaching and learning. As noted in Tiwari's (2008) study, information and communication technologies are increasingly being integrated into everyday life across a wide range of fields and contexts across a wide range of industries and professions. In a wide variety of contexts and applications, ICTs are widely used in a variety of industries and professions.

In order to prepare students for the future and to develop critical thinking, problem solving, collaboration, and information literacy, it is imperative to enhance learning, develop digital literacy, collaborative skills, communication skills, and information literacy. Using artificial intelligence in teaching can help develop these skills more effectively. It is certainly possible to use pedagogical models within learning institutions, but they must be implemented in a productive manner in order to be effective. Like great leaders and entrepreneurs, faculty members, students, and the community surrounding the company share knowledge and wisdom. Due to the variety of ways in which individuals and groups communicate a decision, the learning sector has never been more challenging or complex. To effectively disseminate knowledge, corporations must take into account both artificial intelligence's prerequisites and consequences. The idea that artificial intelligence probably poses the greatest existential threat to humanity can be found in Artificial Intelligence: A Guide for Thinking Humans (M Mitchell, 2019).

Artificial intelligence and internet access have profoundly changed the landscape of learning over the past ten years. Artificial intelligence, powered by artificial intelligence, has opened up a whole new world of learning. Also, digital artificial intelligence can be used to improve the quality of communication and collaboration between students. Although teachers can engage students in their lessons, students can also interact with each other during the lesson. Even when taking an online course,

it is important for students to work together to solve problems. During collaborative sessions, students can share their thoughts and ideas and provide each other with support using digital devices. By utilizing artificial intelligence, students are able to interact with their teachers and trainers in a manner that is comparable to an in-person meeting. Moreover, in the fight against the COVID-19 pandemic, artificial intelligence (AI) is a potentially powerful weapon. The use of artificial intelligence has increased since the outbreak of COVID-19. There has been a comprehensive review of this issue in artificial Intelligence against COVID-19 (W Naude, 2020).

Using emerging technologies in conjunction with traditional teaching methods.

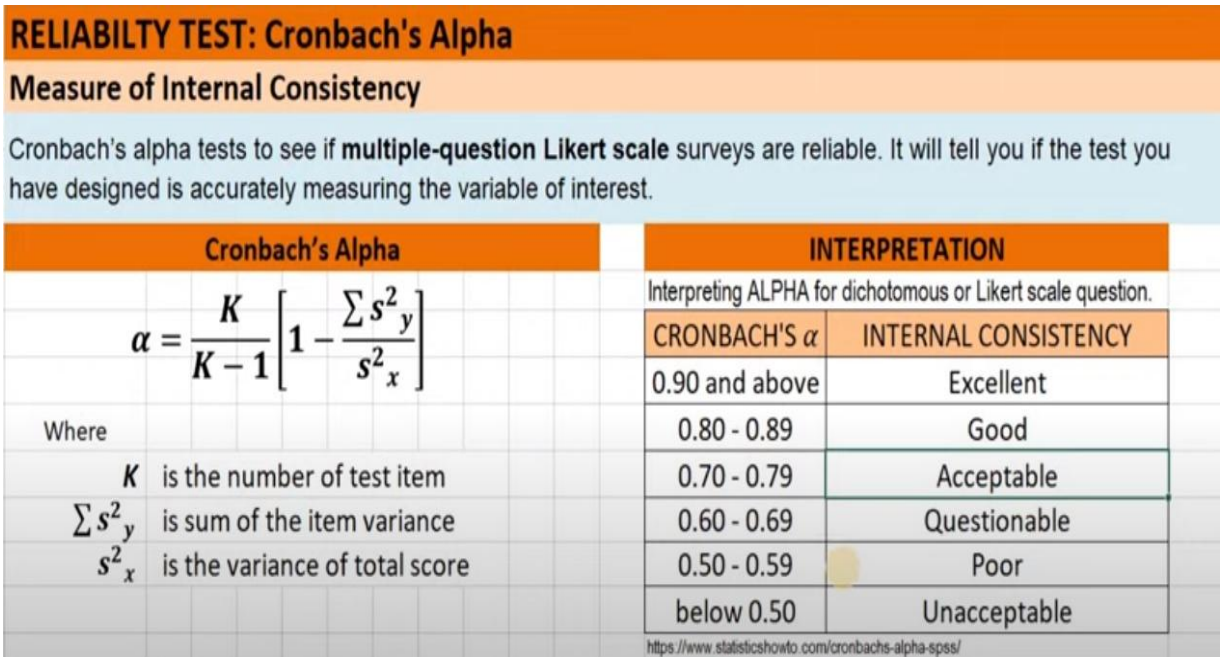
The new learning world based on artificial intelligence, as well as the old legacy teaching systems, has significantly impacted them. There are many ways in which knowledge can be shared, including across and within cultures and within social enterprises. Any level of development and knowledge sharing is possible, from local to global, from the poor to the wealthy. No matter where you are in the world, you are able to develop and share knowledge. Knowledge and knowledge sharing are integral parts of our way of life, whether we are discussing government, civic engagement or economic development.

In the coming years, the development and exchange of knowledge will continue unabated, unstoppable, and relentless, resulting in a knowledge society that can cope with the changes of development. Knowledge development and knowledge transfer are important elements of the reform process, which is intended to include marginalized and disadvantaged groups as well. New technologies have made social media one of the best methods for developing knowledge and sharing it. It is due to the advent of artificial intelligence that knowledge has been developed. A variety of new methods have been developed to disseminate and retrieve knowledge efficiently with the advancement of new technologies, as well as the creation and sharing of instant knowledge. As a result of the development of new learning practices as well as new ways to develop and share instant knowledge, a variety of new business opportunities have been created.

Methodology.

We interviewed and surveyed 288 people from a cross-section of the fields of learning and artificial intelligence for this study. In order to examine how scientists understand their own explanations and motivations for changing their practices in light of these changes, the author conducted a series of surveys. A series of surveys were conducted by the author to gain an understanding of how people interpret the changes in their practices that result from our findings. It was requested that participants complete a survey in order to assess their attitudes towards institutional policies, artificial intelligence and its perceived benefits to themselves and their classrooms, as well as their expectations regarding how artificial intelligence will affect them prior to implementation, as well as their understanding of its effects. In order to determine whether previous expectations had been met, a survey was conducted following the implementation process. In order to form an opinion, they were compared with those that had developed after the start of the implementation. Also, several studies have been done on the problem of human-compatible artificial intelligence and control, and they have been well detailed (S Russell, 2019).

The use of artificial intelligence has had a significant impact on education and has played a significant role in many different fields. Using a five-point Likert scale, respondents were asked to rate the questionnaire from 5 points (strongly agree) to 1 point (strongly disagree). In accordance with the scale above, respondents were asked to indicate their level of agreement with this statement. We calculated the validity of the measurement questions using Cronbach's alpha as a tool for determining validity. As calculated by SPSS for the reliability statistics, the Cronbach's alpha of the 20 items in the questionnaire "A multivariate analysis of artificial intelligence and learning in the 21st century: precursors and determinants" is 0.762. This result indicates that the data are reliable and suitable for further analysis. As you can see, the value is well above the minimum value of 0.6.



RELIABILTY TEST: Cronbach's Alpha

Measure of Internal Consistency

Cronbach's alpha tests to see if **multiple-question Likert scale** surveys are reliable. It will tell you if the test you have designed is accurately measuring the variable of interest.

Cronbach's Alpha

$$\alpha = \frac{K}{K-1}\left[1 - \frac{\sum s^2_y}{s^2_x}\right]$$

Where

K is the number of test item

$\sum s^2_y$ is sum of the item variance

s^2_x is the variance of total score

INTERPRETATION

Interpreting ALPHA for dichotomous or Likert scale question.

CRONBACH'S α	INTERNAL CONSISTENCY
0.90 and above	Excellent
0.80 - 0.89	Good
0.70 - 0.79	Acceptable
0.60 - 0.69	Questionable
0.50 - 0.59	Poor
below 0.50	Unacceptable

https://www.statisticshowto.com/cronbachs-alpha-spss/

Table 1. - Reliability Statistics

Cronbach's Alpha	N of Items
.762	20

Data Collection

1. Primary data: Based on a questionnaire consisting of 20 questions asked by the participants closely related to the areas of learning and artificial intelligence, the following primary data were collected from the selected samples.

2. Linear Regression: To further prove or disprove the relationship between artificial intelligence and learning, the former was considered as an independent variable and the latter as a dependent variable. An established relationship between the two variables was established using a simple linear method, a statistical method. The data from the designed questionnaire as well as the analysis in Excel helped to demonstrate a general flow of the points based on the x-axis and the y-axis, indicating a positive trend and placing the points close together, which indicates a strong and positive correlation between artificial intelligence and learning, as indicated by the regression line, where the y-intercept is 0.004 and the m-intercept is 0.27. A slope is defined as the change between two points on the line divided by the change.

Results and Discussion.

Following the investigation into the connection between artificial intelligence and learning, it has been determined that artificial intelligence and learning must be combined for effective teaching of lecture content, as using artificial intelligence would be unacceptable and very easy to accomplish.y simple and easy way to provide it. It is not surprising that there have always been challenges in the field of learning when it comes to teaching that is part of the integration of learning, but on the other hand, the inclusion of artificial intelligence into the teaching process has enabled students to gain a deeper understanding with the help of artificial intelligence.

To be successful in the 21st century workplace, students must have more than just an understanding of certain technological tools if they are to become successful professionals. Some of these tools include cloud-based tools, mobile applications, video conferencing, electronic whiteboards, and others. Learning institutions are incorporating these technologies into their regular curriculum and ongoing activities to ensure their students are better prepared for the modern workplace. There are a

wide range of ways in which students use artificial intelligence in their daily lives, in addition to using it in the classroom. When artificial intelligence is used in the classroom, it can enhance the learning experience and make it more enjoyable and exciting. It is no secret that Game-Based Learning (GBL) has gained a lot of attention in recent years with the advent of interactive games and leader boards, which are being used by trainers as a form of training. In order to ensure that you can go beyond anecdotal evidence and accurately assess the effectiveness of these gamification efforts, artificial intelligence can be used to gather feedback and conduct critical assessments of the impact of these new tools. The fact that these efforts are being tracked by the organization is a great example of organizational agility at work.

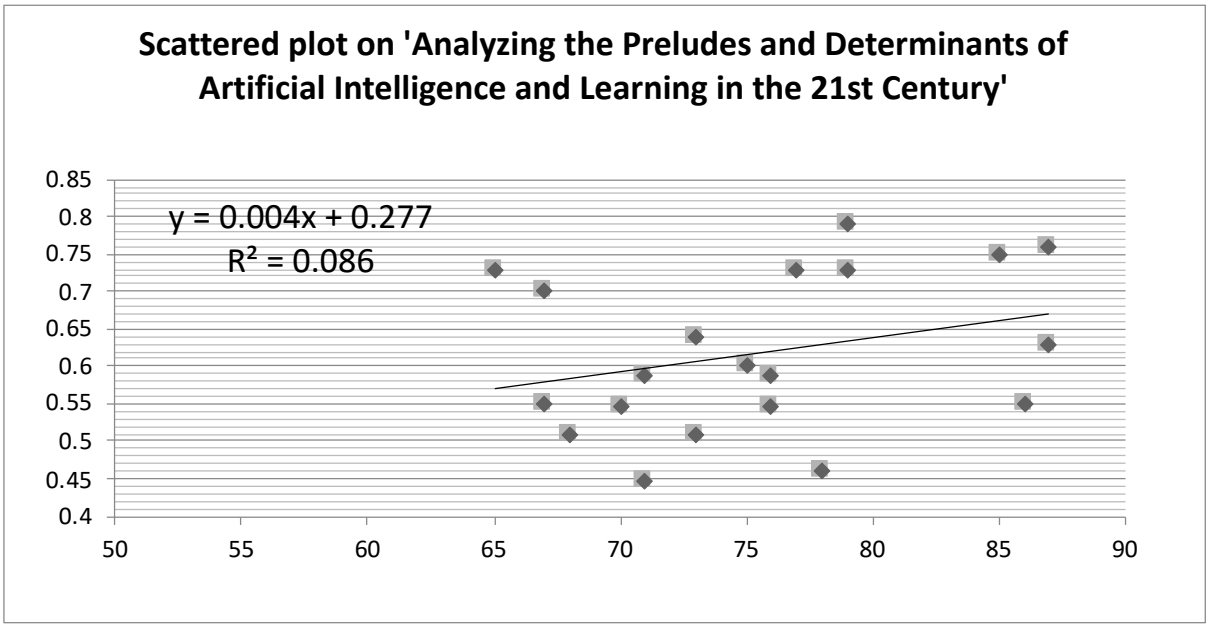


Fig. 1. – Linear Regression

The advent of modern artificial intelligence has caused a variety of new home learning strategies to become available in the learning sector as a result of the advent of modern artificial intelligence. The strategies described in this article can be compared to the type of lecture-based presentation that is typically used in face-to-face events. It is more important to focus on harnessing the power of artificial intelligence in order to transform pedagogy, rather than mimicking traditional methods of teaching with it. In order to achieve this goal, new teaching and learning methods can be developed that can enable novel interactions or learning outcomes that were previously not possible without the use of artificial intelligence in the classroom that can now be achieved. In order to provide examples of a transformative strategy that can be used by learning researchers, the knowledge building approach is currently being explored as a transformative approach. The following example was highlighted by a learner in the author's survey, which contributed significantly to the results and discussion of the papers that were published. In order to use artificial intelligence to support the whole learning process in the classroom, it is necessary to capture students' ideas over time, and to make the collaborative knowledge-building process visible to all students throughout the class period. It is possible to analyze student learning data in the backend of the platform through the use of analytics. It is easy to create word clouds that reflect the keywords that are frequently used and reflected in the frequency with which they are used over time with just a click of a button. In addition, using the built-in analysis, the teacher is able to keep track of the key concepts and ideas that the students are exploring and to intervene when necessary or provide guidance when necessary based on the results.

It is significant to note that when it comes to the transformation of learning through artificial intelligence, one of the most notable features is the partnership between humans and computers. AI is not going to be able to duplicate the best human instructor in terms of learning, but rather can be used to facilitate collaboration between students in order to improve ideas and make their learning visible so

that students can track their learning progress and see how many of them understand what they have learned. It is possible to engage students in active learning by using artificial intelligence instead of passive learning by relying on technology. There is no real purpose in learning about or from artificial intelligence, but rather how to use it in the most effective manner possible. The overall idea is to use artificial intelligence in the field of learning so that it can improve learning and performance on a physical, cognitive, and social level through the use of artificial intelligence.

Conclusion.

There is no doubt that this new technology and its tools, as a whole, will have a significant impact on future generations, and we as a community of educators must recognize that. In our assessment of the effect of these new technologies on the users community, we have not fully considered the impact that these new technologies will have on future generations. Interestingly enough, this particular issue has not even been taken into consideration by the broader learning community as a whole. There hasn't been a complete study of this phenomenon among educators as of yet, according to the author of this article. By limiting the types of machines that can be used to run machine learning algorithms, many learning institutions that are dealing with new technologies have attempted to reduce the risks associated with the use of such technologies. Due to this, this method has proven to be a very effective method of reducing risks.

Using artificial intelligence, students can visualize events in a way that leads to sustained learning and lengthens the learning curve by making the lessons learned easier to remember and enabling them to dig deeper into the lessons they have learned. By implementing artificial intelligence into a learning environment, students can cater to the diverse interests and expectations of each individual by creating an environment that caters to their particular interests. The use of technology in a learning environment will therefore result in the provision of a variety of learning environments for students as a result. This research will, without a doubt, assist the teachers of the future to keep up with the rapidly changing and evolving world and will guide them in the development of qualified, knowledgeable, and aware individuals who will guide the world for generations to come. Our inability to utilize the technological advancements of our day in the realm of learning is equivalent to the fact that we stop the technological progress of our civilization in its tracks by refusing to use the technological advances of our day. There is no question that artificial intelligence-the revolution hasn't begun (MI Jordan, 2019) irrespective of whether or not we come to understand the concept of 'intelligence' anytime soon.

In conclusion, depending on the results of the researcher's study, it can be predicted that in the future, an effective integration of artificial intelligence as well as learning will be achieved in order to achieve maximum results based upon the results of his study.

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