The Role of Artificial Intelligence in the future of E-learning and Project Management

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Abstract

Artificial Intelligence is one of the technological innovations that has been greatly hyped in many research studies as well as in mainstream media. The 21st century has become notorious for the drastic change introduced to the way tasks are done, how people think, e-learning and project management have not been spared from the changing terrain courtesy of technology expansion. Advancement in technology has presented immense growth potentials to organizations and brought about efficiency in operational procedures. Today, E-learning has to take the title of the contemporary paradigm of education, this is largely due to its ability to allow people to acquire learning following their own pace without necessary putting a hold on other times demanding aspects of their lives. Project management, on the other hand, has received a boost as most routine jobs are becoming automated, thus reducing error chances. Judging from the numerous benefits which can be accrued from the AI, It is assumed that AI innovation would be received with open arms by all, however, in reality, this may not be the case as current research has established the existence of controversies surrounding the adoption of AI. One among the controversies is based on the expression of an innate fear that the full introduction of artificial intelligence might mean lesser jobs for humans. if not the uttermost displacement of humans by machines. This paper, therefore, focuses on exploring the impact which AI will have on e-learning and project management in the future.

Keywords: Artificial intelligence, Electronic learning, Project management, Innovations.

Introduction

Technology is changing every aspect of human existence ranging from the way we think, behave and do things. Advancement in technology has presented immerse growth potentials to organizations and as well brought about efficiency and effectiveness in many operational procedures and processes. Specifically, advancement in computing technology to a large extent is creating a less stress characterized environment which makes life easier for people at both individual and organizational levels and has brought about a considerable amount of convenience to the execution of many task and processes which traditionally requires human effort and time. This has become increasingly possible through the adoption of artificial intelligence (AI) which has the ability to perform such human oriented task like decision making machine learning (a Collaborative, Mohanty, and Vyas, 2018).

Today, the area of applicability of artificial intelligence has received a remarkable expansion, as artificial intelligence (AI) now have its applicability in virtually all aspect of the human society ranging from the healthcare system, economics, oil & gas sector, security and defense, communication sector, education, and most evidently in project and organizational management. The need to accelerate accuracy, predictability, and efficiency have been noted to be the major factors driving the increasing adoption of artificial intelligence. AI innovations have been said to harbor great potentials in breaking the barriers to effective teaching and learning, especially as it relates to electronic learning.

The continued applications of AI may result to the automation of many skills, which previously considered to be essential, while many occupations will either become transformed thereby requiring more advanced skills or become obsolete and lose its relevance

in the labour market, on the other hand, the increased use of artificial intelligence will translate to an increase in demand for skilled labour, especially for employees that are AI inclined, this could significantly lead to seven-figure salaries and sign-up fees. Many developed nations have foreseen the future of the world economies in the wake of AI innovations, hence, such countries as China, the United States as well as EU has increased her effort in taking due advantage of this innovation. It was reported the Chinese nation has made her intention to become the global leader of artificial intelligence known and thus, is working towards growing a 150 billion AI ecosystem by 2030.

Significant efforts have also been recorded in the United State, as studies have reviewed that the United States through her Department of Defense invested about 2.5 billion USD in the development of artificial intelligence in 2017, and today, it is believed that the total private investment in the United States is over 20 billion USD per annum. Efforts from the European side has accounted for the establishment of about 1200 artificial intelligence startups in the year 2017 (House of Lords, 2018), this effort is projected to be doubled as the European Commission has expressed her desire to accelerate the volume of both public and private investment in artificial intelligence in the European Union to account for a minimum 20 billion Euros prior to the end of the year 2020 (EC, 2018).

Artificial intelligence is already altering traditional norms and setting the new pace at which many institutions will function as well as impacting the ways in which task are been executed. For example, evidence in Tuomi (2018), reported that artificial intelligence was adopted in making a diagnosis of 14 typologies of medical conditions through the use of frontal-view X-ray images, thus, exceeding the human diagnostic accuracy for pneumonia by researchers at Stanford. Another miracle of artificial intelligence was reported in the event of 2017, which saw the achievement of a superhuman level of play in the games of chess, shogi, and Go within 24 hours, by an AI neural network system termed Alpha Zero, designed with no domain knowledge except the game rules (Rajpurkar, Pranav, Jeremy, Kaylie, Brandon, Hershel, & Daisy, 2017). Furthermore; the year 2018 also saw another magnificent demonstration on the power of artificial intelligence, this was demonstrated by the Chief Executive Officer of Google, Sundar Pichai in his keynotes. Sundar showcased an artificial intelligent system nicknamed Duplex, which autonomously had the ability to mimic such human performed secretarial roles like scheduling appointments via phone, thus, deceiving people to think they are discussing with their fellow human (Silver, David, Thomas, Julian, Ioannis, Matthew, Arthur, & Marc, 2017).

From the above, it can be said that artificial intelligence will continue to impact the society in many ways which do not conform to traditional norms in the future to come, thus, highlighting the need for people to strive to understand the science, history and the present of artificial intelligence in order to have a grasp of what the future holds for various aspects of the human society, following the development and introduction more AI inclined systems and applications. This will also facilitate an understanding of the appreciation and possible challenges that may come along with this innovation.

Development in AI has been very significant in many aspects, for instance in the management of cybercrime, advancement in education, improvement in the practice of medicine among many others. Judging from the numerous benefits which can be accrued from the adaptation of AI, it is assumed that AI innovation would be received with open arms by all, however, in reality, this may not be the case as current research has established the existence of controversies surrounding the adoption of AI. One among the controversies is based on the expression of an innate fear that in the future the contributions of artificial intelligence to the labour force may exceed the humans (Maria, 2019) the full introduction of artificial intelligence might mean lesser jobs for humans if not the uttermost displacement of humans by machines. This concern is quite relatable owing to the increasing applicability of artificial intelligent in the world of work.

Therefore, this paper has attempted to analyze the various ways through which Ai can provide assistance to the processes of e-learners and project managers. This paper, therefore, focuses on exploring the ways in which AI will enable project managers to work smarter and also well

bring about positive change in the entire education system especially aspects burdening on electronic learning. The aim of this paper is not to provide final answers to the many questions relating on what AI can do and what it cannot; instead, this paper hope to provide background that will facilitate discussion on how the application of AI in education and as well in project management will shape the future of electronic learning as well as the roles of the project managers as AI has continued to secure increased visibility in the society and economy around us. Basically, the rest segment of this paper will progress under following subtitles; Literature Review, Methodology, Analysis, Findings, Study limitations and prospect for future research and conclusion.

Literature review

Artificial intelligence: meaning and origin

Evidence in research has revealed that the first attempt at assigning conceptual meaning to the term Artificial Intelligence is traced down to a funding proposal presented to the Rockefeller Foundation in the year 1955. This was influenced by the "conjecture that every aspect of learning or any other feature of intelligence can in principle be so precisely described that a machine can be made to simulate it." This early definition was not totally welcomed by everyone and thus led to the emergence of strong controversies. In Tuomi (2018), it was noted that the early developers of artificial intelligence saw such constructs as intelligence and thinking as logical statements underlined by mechanical processing, thus, by implication, human intelligence was seen as computation of truth values. This effort was traditionally associated with logical positivism and underlined the efforts towards formalizing mathematics using purely syntactic means. Be it as it may, this early interpretation of AI-created room for the emergence of essential inquiry into the philosophical foundations of artificial intelligence (Tuomi, 2018).

Basically, the goal of Artificial Intelligence was to develop technologies with the capacity to exhibit or mimic typical human behaviors such as talking, acting and thinking (Dave, 2017).Artificial intelligence as defined by Russell, & Norvig, (2010) refers to the designing and development of intelligent agents fully equipped with the ability to receive percepts from the environment and take subsequent measures geared towards maximizing its chances of securing success in the achievement of its goals and objectives.

Following the increasing popularity of modern technology and its innovations, several definitions have surfaced both on news dallies and research studies on what artificial intelligence is and what it is not. Thus, many newspaper headlines have defined artificial intelligence as a machine equipped with thinking ability, a machine that understands languages, provides solutions to problems, performs medical diagnoses, keeps cars on the highways, plays chess, and paints impressionistic imitations of van Gogh paintings (Toumi, 2018). It is a scientific discipline; focused on the events or activities purposefully directed towards the creation of machines with capacities to perform appropriately and with foresight in their environment (Nilsson, & Nils, 2009).

The notion of artificial intelligence is not a new concept, though it has been greatly emphasized in the 21st century due to the increasing adaptation and use of technological innovations witnessed in the century. Works of literature have revealed that the idea of artificial intelligence was birthed at a 1956 workshop, however, its application remained limited, thus today following over 60 years of systematic development, AI has achieved breakthrough development. The 21st century has witnessed a tremendous boost in technologies that are built on AI; the reason for this technological success secured in this century has been partly attributed to the availability of high-performance hardware and very large volumes of data generated by the internet. This century has also secured the implementation of diverse complex algorithms such as convolution neural networks (CNN), support vector machines (SVM), decision trees among a host of others (Wang, 2019).

Following further research by researchers into these technologies, the scientist has been able to come up with many more AI-centric applications that have accounted for success in the Information Communication Technology sector and other industries. Specifically, such features as face recognition, fingerprint, AI cameras as well as AI Power masters have become a core marketing features of many androids and smartphones been rolled into the market by such mobile giants as Samsung,

Apple, Huawei, Infinix, Techno and host of others. As well as such applications as image recognition, natural language processing, which have secured changes to various industries (Wang, 2019).

Artificial intelligence and the future of E-learning

The teaching and learning arena have also experienced her fair share of the technological evolution disrupting every aspect of society. The education system today is increasingly experiencing the introduction of computer software and applications in the execution of the teaching and learning processes in manners that defiles traditional norms. Thus, such programs as computer-aided learning (CAL), Computer-aided training (CAT) Computer-based Testing (CBT) and most significantly Electronic learning (E-learning).

Just as the name implies, E-learning is a form of teaching and learning arrangement in which learners at various locations are able to learn through the help of already programmed instructions accessed via an electronic device. Accordingly, Goyal, (2012) defined E-learning as the science that allows learning to take place without the use of paper printed instructional material. Goyal, further stated that E-learning as science involves the adoption and use of telecommunication technology to pass on information for education and training. Today, E-learning has presented significant potentials towards combating the challenges encountered in the traditional classroom arrangement. Advancement in ICT are among the factors driving the increasing acceptance of E-learning, today many issues associated with the traditional teaching and learning settings are said to be mitigated by E-learning. For example, such limitations imposed by time, and distance have been defeated as E-learning is the core driver of distant learning. Furthermore, the benefits associated with E-learning include cost effectiveness, liberating interactions between learners and instructors, cum the asynchronous and synchronous learning network model, as well as provide learners with 24x7 and 365 days year-round access to learning (Sun, Tsai, Finger, Chen, and Yeh, 2008).

E-learning has taken the title of the contemporary paradigm of education; this is largely due to its ability to allow people to acquire learning following their own pace without necessary putting a hold on other times demanding aspects of their lives such as work and child-raising. Today, employee training and development has form a central theme for organizations who wish to survival in the turbulent business environment in which modern organizations find themselves, hence, organizations mostly favor learning and training packages which still allows various employees to go about their daily functions while updating their knowledge on the job, this explains the increasing adoption of E-learning by many organizations today. Similarly, many universities in the world also offer a diverse range of degree, professional and certificates programs in various discipline via online, hence, learning has been brought to the doorsteps of Owing to the degree of the impact made by ICT on the development of E-learning, researchers have therefore opined that the adoption of AI will not only significantly impact E-learning but will also shape the future of education on a global scale (Stefan, 2017). Researchers learners (Goyal, 2012).such as Camilleri, (2017); Santos, (2017), has noted that the adoption of artificial intelligence in the development of e-learning are didactically significant, sequel to this, the introduction of This, in innovative changes in the educational environment is accelerated (Schulz, Ghislain, Maurice, Frank 2014; Pathak, 2016), which translate to increased motivation for new educational activities (Clark and Mayer, 2016, Rani, Srivastava, &Vyas, 2016), some researchers in their studies have advocated for the increased use of artificial intelligence inclined ideas and methods in e-learning, an example of these research studies includes the works of Redko, (2016) which focused majorly on the significance of adaptive behavior in an educational process. A further example is seen in the work of Weinstein Yulia, Shershneva, Victoria, Esin, Roman, Tsibulsky, Gennady, Safonov, Konstantin., (2018) which proposed the use of algorithms in the adaption of mathematical educational content, as well created options for their integrating into the system of e-learning. The results of the study by Yoshioka and Ishitani, (2018) which focused on the adaptive tests relevant to machine learning were in agreement with the ideas presented by Weinstein et al., (2018).

From a broader perspective, artificial intelligence is increasingly gaining applicability in the educational system, as it is used to predict common problems associated with teaching and learning. For example, artificial intelligence has been adopted in diagnosing learner-centric problems such as issues related to learners' attention/attention span, emotion. AI has also been used to advance conversation dynamics in computer-supported learning environments, a clear illustration is seen in the formation of course development and management, in the generation of optimal groups for collaborative learning tasks, as well as in the recognition of patterns that predict student drop-out (Rosé, Carolyn, Roberto, Hoppe, Luck in, Mavrikis, Kaska, McLaren, and Benedict, 2018; Nkambou, Roger, Azevedo, and Julita, 2018).

Artificial Intelligence and the future of Project Management

Artificial Intelligence is one of the technological innovations of been greatly hyped in many research studies as well as in mainstream media. It has become rather an obvious fact that the 21st century has become notorious for the drastic change introduced to the way things/tasks are done, how people think, and project management has not been spared from the changing terrain courtesy of technology expansion. Project management is defined as a series of activities that involve the "planning, scheduling, and controlling of project activities to achieve performance, cost, and time objectives, for a given scope of work, while using resources efficiently and effectively" (brochure by Management Concepts, 1999). The application of artificial intelligence in project management has brought about such classification as Narrow AI (or Weak AI), Artificial General Intelligence (or Strong AI) (Wirth, 2018).

The narrow AI entails such AI as Deep Mind's AlphaGo and IBM's Deep Blue have superhuman skills in chess and thus, can defeat human players, but can practically fail at any other task. Hence, the narrow AI lacks flexibility which is reflected in their inability to handle different tasks, but are carefully designed to attend to a specific problem, and thus, maybe more powerful than humans in their domain. On the other hand, Artificial General Intelligence, or strong AI, is known for its vast flexibility, which

some researchers have likened to that exhibited by humans. Strong AI combines its flexibility with the advantages of a computer, and thus, with the help of large volumes of data is able to obtain more reliable answers and at the same time minimize risks (Wang, 2019).

Materials and methods

Qualitative research design will be adopted in this study. Qualitative research design as defined by Beverley, Elizabeth, & Kate (2007) is a research design which concerns it expanding discussions and understanding on how a phenomenon came to be, it tries to explore the origin of things in the social world came into existence. Hence, from above, the adoption of qualitative research design will therefore enhance the analysis of the various ways in which artificial intelligence will impact e-learning and project management in the future. Qualitative methodology also finds it suitability in this study in the sense that it examines phenomenon which is hard to measure by numbers as well allows for the creation of in-depth data which aids comprehension of the perceptions of the respondents of their lived experiences (Yin,2009; Parahoo, 2014).

Furthermore; Berg and Howard (2012), see qualitative research as a research design which accords meaning to phenomenon's, establishes perception, definition, and description of events and phenomenon. Thus, drawing inference from this point of view, it can be affirmed that qualitative research harbors all the tools which aids recall of ideas essential for problem-solving. Going forward, the vast research approaches accommodated in qualitative research design also enhances its adoptability especially in studies which tries to measure the impact of intangible phenomena on human behavior.

Discussion

Based on the information provided in literatures used in this study, it can be inferred that AI and its innovations is already changing the job of project managers as well as contributing to a more learner centric e-learning system. In the area of project management, some AI applications may be of great benefit that can help project managers in the coming future. Take for instance, such AI centric tools as crises dashboards are currently gaining more

acceptance in the world of work, as many organizations are beginning to adopt it. A mare looks at the crisis dashboard over the computer allows the project managers/ organizational executives to see the projects that are various challenges, to detect which of the metrics that falls above the accepted range as well as determine the critical level of some projects (Kerzner, 2018). Additionally, AI harbors the potential to allow for a more effective optimization of schedules, by identifying the entire organizational project, both current and in future rather than just considering some particular projects (Kerzner, 2018).

Methodology

This researcher did not employ the use of primary data; hence the major source of data for this paper is secondary sources. Data was sourced from journal articles, textbooks, periodicals and other research papers.

Analysis

Tools Provided by AI to E-learning

Artificial intelligence can be used to greatly eliminate the many arguments surrounding the actual impact of e-learning on learners. Such issues as boredom, isolation, blockade as well as the inability of the online learning resources to meet the emotional and cognitive needs of learners. Researches such as Hachem, Elkaber & Cherif (2017), in their study, proposed the use of an emotionally intelligent Tutorial System called ASTEMOI whose architecture is as follows:
- Tutor agent: this is the agent responsible for managing the courses and cognitive status of the e-learner. (Brusilovsky, 2001).
- Style agent: this agent is charged with the duty of determining the learning style which is most appropriate for the individual learners. This decision is made based on the Felder Questionnaire (Derouich, 2011).
- Emotional agent: The duties of the emotional agent are to ascertain the current emotional status of individual e-learners which would be based on the results of the voice analysis and the feedback. According to Hachem, Elkaber & Cherif (2017), the ASTEMOI system will to a large extent take into consideration the diverse learning needs of learners as well as their areas of comparative advantages and weakness, due to the major position these construct occupy

in the advancement of e-learners performance as well as in the improvement of the quality of e-learning applications.

Tools Provided by AI to Project Managers

There are different tools that are provided by Artificial Intelligence, project managers can use these tools for getting more assistance.

Chatbot Assistant (CA)

This form of AI is known for its ability to efficiently handle menial jobs such as organizing a regular meeting, analyzing the emotion of people and answering some simple questions. Chabot Assistant is also beneficial in asking the members of a team different things like 'What is urgent? 'Show that what the team is working on?' and 'What is happening at this day?' (Danysz, Cicirello, Mingle, Assuncao, Tetarenko, Mockute, Abatemarco, Widdowson, and Desai, 2018).

Machine Learning-Based Project Management (MLPM): This form allows AI to assert influence on the decision. To analyze a project, AI will rely on the availability of large volumes of past case data which can be a form of "experience" for AI. Following the imputation of data pertaining to the current project by project managers, AI can draw reference from the data on past events to evaluate the progress of the new project, make decisions regarding if the cost exceeds the standard, forecast the likelihood of a possible setback in the execution of the new task and as well proffer possible diagnosis of problems that may arise in the future. AI is quite notable for its ability to efficiently and accurately identify slowly ramping trends in the stream of data while humans are not. Notably, the amount of data AI receives influences the reliability of its outputs; this simply means that the higher the data, the more reliable its analysis results are. Reports of artificial intelligence are greatly perceived as a feasible solution to the project managers based on the analysis results, though AI analysis produces the result, the responsibility of making a final decision is still in the hands of humans (Wang, 2019).

Strategies: Strategies perform similar function to development team of Agile software as integration of Slack. It is projected that similar types of Siri-like tools can become even more prevalent in the near future (Maria, 2019).

Zivebox: Basically, zivebox is used in predicting the time/period in which a tasked would be completed, it also assists project managers to determine and analyze the productivity of each and every member of a team in the organization. Zivebox helps project managers in sorting through the communication databases at enterprise-level (Flick, 2015).

Rescoper: this tool enables team members in an organization to stay more targeted by lending a helping hand in handling the tedious management parts. Basically, Rescoper can be used in scheduling tasks, though; this depends on the duration of tasks and workload. The tool is designed to produce alert in events where the system thinks that the project may encounter some challenges or if it will be handled within the given budget (Maria, 2019).

Clickup: though this tool is quite new in the market, but its relevance in project management has been widely acknowledged. Glesne (2015), have reviewed that algorithms used in ClickUp could help the project manager to know the member of a team whose most suited for the execution of a particular task. Its functions do not only end with accurately predicting the best man for the job, it goes ahead to assign the jobs to the selected team members. Clickup also helps in giving accurate time estimates need for the execution of a given task as well as the prediction of deadlines that cannot be met. It also helps in making correct time estimates of specific tasks.

Conclusion

In the end, it can be concluded that Artificial intelligence is changing very fiber of the modern world, this change has brought about an increasing change in the various aspect of society. Thus, to avoid the feeling of fear of displacement in any occupation, people and institutions should as a matter of need key into the technological evolution by acquiring relevant IT skills. AI is changing the health sector, Agriculture, Industries, Education, Communication and Organizational/Project Management and this change is projected to be maintained in a disruptive manner, artificial intelligence has come to stay and to alter traditional norms and procedures.

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