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The Significance of Artificial Intelligence in Learning and Education Management in the Light of Philosophy of Education: A Critical Appraisal

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ABSTRACT: The integration of Artificial Intelligence (AI) into the framework of education has spelt out a remarkable landmark in the history of educational revolution. Both in teaching-learning methodologies and management practice, AI is rapidly becoming a pivotal indispensability. Employing qualitative methods of conceptual frame, content analysis and literature review, this paper critically evaluates the significance of AI in learning and education management in the light of philosophy of education. The highlights of the paper include the concepts of AI, learning, education management, and philosophy of education. Philosophical perspectives and ethical considerations in implementing AI technology are also discussed. The capacity of AI to inform personalized learning, enhance intelligent learning, and facilitate data-driven decision making is critically examined. The paper, going forward, explores the transformational role of teachers amid the reality of the AI environmental permeation and centrality, with a focus on the need for teachers to be adequately equipped with requisite skills that promote critical thinking, creativity and innovation. In the process of the critical appraisal, it is discovered that AI has great potentials to engender harmonized and customized learning experiences. It is also discovered that it equally brings, in its wake, hordes of challenges and concerns with regard to the possibility of stripping the human face of education in terms of depersonalization, ethical concerns, danger of data privacy and algorithmic bias. On the basis of the findings, the paper recommends, among others, that stakeholders in education should adopt a balanced approach to the issue of AI in learning and education management. In this model of approach, AI is to be given an ancillary position as a source of information and knowledge in the process of education. In this way, AI will play a complementary role to the time-tested traditional values through which education strives to offer and achieve a comprehensive development of the learner. This will go a long way in addressing the challenges associated with AI, thereby harnessing its transformative potentials in learning and education management.

KEYWORDS: Artificial Intelligence, Education, Learning, Management, Philosophy of Education

INTRODUCTION

There is no doubt that Artificial Intelligence (AI) has tremendously transformed all the fields of human endeavours, especially in the field of education. Obviously, AI has come to stay. Its technological incorporation into the system of education is not only now a common experience, but an apparent indispensability. In the face of such a reality, it is pertinent to assess its impacts or significance through the perspective of philosophy of education; and that is what this paper sets out to do. The attempt addresses some key philosophical ruminations concerning the acquisition of knowledge, the role of the teacher and the wider objectives of education.

The study is a qualitative one. Adopting methods of conceptual frame, critical analysis, content analysis and literature review, the paper delves into the importance of AI vis-à-vis the traditional educational approach in the education setting, highlighting both its transformative potentials and related challenges. The aim of the paper is to search for an approach to be adopted by the education stakeholders that justifies the integration of AI without a depersonalization of education, cognizant of the value of human reason and some ethical concerns.

CONCEPTUAL FRAME

Artificial Intelligence (AI)

Various conceptualizations of Artificial Intelligence (AI) have been put forward by various scholars, with significant overlapping references to machine learning, deep learning, language processing, computer vision and reinforcement learning as key variables in its understanding. Russell and Norvig (2021) see machine learning as a subset of AI which empowers machines to learn from data

and bring improvement to performance of actions without over or explicit programming. Predictions and decisions made in this process are based on algorithms which usually identify significant patterns in large datasets.

Apart from machine learning, deep learning is also associated with AI. Deep learning is as extension of machine learning. In deep learning, artificial neurons are employed to process data in in various layers. This application is used widely in carrying out complex tasks such as speech recognition images. According to Goodfellow, Bengio and Courville (2016), such application outperforms traditional machine learning, both in precision and speed.

In language processing, often referred to as Natural Language Processing (NLP), there is an interaction between computer and human language. Under this system, AI-powered NLP can, as argued by Jurafsky and Martin (2021), understand, interpret and generate human language as well as contribute to the solution of complex problems such as translation services and analysis of sentiments, emotions and feelings.

Another important concept of AI technology is computer vision. This refers to a technique of AI which empowers machines to interpret and understand visual information from the environment. Such information includes videos and images. This aspect of AI is essential in the areas of facial identification and recognition, autonomous driving and, imaging in the field of medical services (Szeliski, 2011). In this regard, one can think of CT scans, x-rays, and radiography, among others.

AI is also conceptualized in terms of reinforcement learning. Here agents can make some decisions on the basis of reward or punishment, gain or deprivation received by performing certain actions in the past. According to Sutton and Barto (2018), this AI technique is extensively applied in automated trading platforms, robotics and gaming.

There is still another conceptualization of AI, which Goertzel (2014) refers to as Artificial General Intelligence (AGI). AGI operates at the level of theory where machines have the ability to learn, understand, interpret and apply intelligence across a wide range of tasks in ways very similar to human cognitive abilities.

Learning

Learning is household word among the world citizens, especially in the school institutions. As such, the tendency is to take the term for granted. In the field of education, for instance, it can be taken for granted that once appropriate instructional materials are in place, learning will follow. In most cases learning, in this context, is measured by assessment models such as tests and examinations. Generally, learning is traditionally seen as a relatively change in behaviour as result of experience. In reality, learning appears to entail more than this popular definition. According to Kelly (2002), learning is a very individual and complex process, to some extent indescribable, as well as a complex social activity, and it is something we just do, often without giving much thought about it. In the same vein, Gopnik (2016) is of the view that much learning does not come through conscious and deliberate teaching, but rather from participation in life. Through participation in life, children learn from watching and imitating others, by listening to what others say about their views of life and the world. Psychologists refer to these as observational learning and learning from testimony respectively.

What can be taken from the above views is that learning covers a wider horizon than what goes on in school institutions. It cuts across a wide range of cultural traditions, historical delineations and geographical landscapes. However, in the context of this paper, without dispensing with the wider horizons, learning is used in reference to teaching and learning within the process of education through various learning episodes, including the use of machine technologies as aids and sources. In this respect, learning can be understood as an increase of knowledge through acquisition of information. It also embraces acquisition of relevant skills, covering motor skills, verbal information, intellectual skills, cognitive strategies and attitudes (Rogers, 2003). This understanding encompasses principles and applications of knowledge, ways of thinking and doing, problem solving and general attitudes by individuals. Application of AI technologies can enhance these aspects of learning, especially in the organized system of education.

Education Management

Management is a central question in any human establishment. Management has to do with the organization and execution of policies by making proper use of both human and material resources in order to achieve set goals. In education, management od of vital importance. It involves some defined measures aligned, synergized and implemented in one way or another for the purpose of attaining desired ends. Many scholars have viewed school management from a wide range of perspectives. For instance, Bush (2011) conceptualizes education management from the lens of educational leadership, which involves guiding and managing schools or educational institutions to foster an environment conducive to learning and development. In this concept decision making, strategic planning, and team work are essential factors in order to achieve set educational goals.

Education management can also be considered in terms of school governance. Here policies, structures and processes are put in place to determine the control and operation of educational institutions. The roles of governing boards, school departments and committees as well as parent-teacher associations are harnessed in the course of school decision makings (Sharma, 2022). In another dimension, Marsh and Wills (2020) talks about effective curriculum. This involves the planning, implementation and assessment of the educational content within school institutions. In doing this, effort is made by the curriculum planners and implementers to

ensure that there is an alignment with national standards and needs of students, while being open to new methods and technologies, including AI technologies.

In all human organizations, human resource management is always strategic for success. In education, the focus of attention includes hiring, sustaining and development of both the teaching and administrative staff. In human resource management, areas of emphasis include leadership training to improve quality of teaching and school effectiveness (Bush & Middlewood, 2013), professional development and self-updating, as well as evaluation of performance.

Not left out in education management are financial management, policy reform and quality assurance. Financial management ensures equitable allocation and judicious use of funds in support of the goals of school institutions. There is need for careful planning, budgeting, and auditing aimed at maximum utilization of the available funds. Bray (2019) argues that while maximization is being aimed at, accountability and transparency should always be maintained. Since every nation has its own education system, policies and reforms are bound to affect the operations of education. In this case, care should be taken to see that policy implementation and reforms are always at the service of educational improvement, especially in terms of accessibility, equity and quality. To these Ball (2017) adds the need for such policies and reforms to respond to global challenges such as digitalization and sustainability.

Finally, education management takes into account quality assurance and evaluation in education. Providing education is one thing; to ensure its quality is another. According to Harvey and Williams (2010), both internal and external evaluation methods are required. Such methods include assessments, analysis of students' performance and accreditation processes. All these are geared towards meeting not only the nation's standard of education, but also the global expectations and requirements.

From the exploration of various concepts as highlighted so far, it can be clearly understood that education management entails a whole lot of issues. Education management is, therefore, the harnessing of various management variables, both in human and material resources, policy making and implementation to ensure sustainable education enshrined in quality assurance and other indices that promote effective education and facilitate the achievement of educational goals at all levels and in all dimensions.

Philosophy of Education

Philosophy of education is generally understood as the application of philosophy to the system of education. It brings philosophical methods and principles to bear on the examination of the nature, purposes and methods of education. It is concerned about raising fundamental questions about what education is, what it is designed to achieve, and how teaching and learning should proceed. It scrutinizes both the theory and practice of education with the use of philosophical tools. According to Urakpa (2007), Philosophy of education is primarily concerned with the critical analysis of such concepts as freedom, authority, democracy, rights among other concepts as well as address issues and problems of education more rationally for better results. For Okpara (2022), "there seems to be a consensus among philosophers as what constitutes philosophy of education. They agree that philosophy of education is concerned with the application of philosophical principles, approaches and tools to solve educational problems. Also, they affirm that philosophy of education illuminates educational practices through the analysis and interpretation of meanings, ideas and concepts which help teachers and other stakeholders to have a wider understanding of the day-to-day educational problems and prospects" (p. 59).

In dealing with education, philosophy of education draws from the wider traditions of philosophy and applies same to issues in education such as educational goals, the nature of knowledge, development of curricula and ethical concerns in teaching and learning, in addition to personal growth, civic responsibility and career preparation. Philosophy of education incorporates the different schools of thought in philosophy and examines their respective approaches to teaching and learning. Such philosophical schools of thought include idealism, realism, naturalism, existentialism, pragmatism, perennialism, and progressivism, among others. Through these schools of thought, philosophy of education provides avenues for a clearer understanding of the values and ideals that underpin education systems, and thus helps in guiding decision makings in school systems, institutions and other educational matters, both in theory and practice.

Philosophical Perspectives on AI: Its Opportunities and Challenges

In education, there is emphasis on enhancing efficiency and learning outcomes. Incorporating AI into the education system is a practical step towards achieving that. Pragmatists are particularly concerned about this. For instance, Dewey (1916), in his educational philosophy, emphatically advocates learning through experience or learning by doing. This view is in alignment with the potentials of AI to offer interactive learning atmosphere where students simultaneously engage with simulations and the real world and its uncertainties. Despite its emphasis on the practical results, pragmatism also promotes the social nature of learning, and this could be compromised by the tendency of AI tools to reduce opportunities for interpersonal relationships among teachers and learners.

The use of AI can also raise some questions among the humanistic and existential philosophers of education. For instance, Freire (1970) argues in favour of valued dialogue and human interaction as the epicentre of the learning process. Such dialogue can be subverted by the increasing use of AI. There is a palpable concern that such dialogue may be replaced with algorithm-driven content

delivery. This can result to depersonalization of education system, a situation where the role of the teacher as a catalyst and promoter of critical thinking, emotional maturity, moral rectitude and character molding can be undermined (Biesta, 2010), frustrated and rendered irrelevant.

Further concern is raised about the possibility of AI to exacerbate the existing inequalities in education. This is because the socio-economic status of the individual determines, to a large extent, their access to advanced AI tools and technologies. There is the risk that of widening the gap of inequalities between those who can afford these tools and those cannot (Williamson & Eynon, 2020). This further raises an ethical question on whether AI aids the democratization of education or contributes to the current disparities.

Ethical Considerations Regarding the use of AI in Learning and Education Management

From the point of view of ethics, it is necessary that the application of AI in education should be approached with caution in order to prevent such issues as bias, violations of data privacy, and inequitable access. The increasing use of AI in decision-makings such as student admission matters and performance evaluations has led to raising of some questions bordering on transparency, accountability, honesty and truthfulness. There is the notion that AI could replace key human roles in education, including teaching and mentoring. According to Selwyn (2019), this raises further ethical dilemmas regarding the essence of the educational process.

There is also the issue of privacy. AI gathers and analyzes large amounts of data, thereby risking the possibility of exposing sensitive data if not carefully handled. Holmes et al. (2021) are of the view that this risk underscores the importance of robust data security measures and informed consent. Baker and Hawn (2020) caution that educational tools can unintentionally promote bias, which can lead to treating some students unfairly, especially if there are unrepresentative datasets. The same Baker and Hawn, therefore, advocate transparency in AI algorithms and regular auditing of systems as right steps in the direction of ensuring the application of ethical principles in the use of AI.

Looking ahead, the above ethical concerns are genuine. This is because the role of AI in education should be seen as complementary to human teachers, not as a replacement. Ai has the potential to enhance personalization and streamline the process of education, but its implementation should be guided by philosophical and ethical principles that prioritize students' well-being, critical thinking and social engagements that would yield positive results in all the dimensions of education and life in the society. This calls for a careful and thoughtful integration of AI into education. This is to ensure that technology supports human-centred learning and education management instead of disrupting or replacing this time-tested and proven human-centredness.

The Need for Teachers to be Adequately Equipped with Requisite Skills that Promote Critical Thinking, Creativity and Innovation in Learning and Education Management

Critical thinking, creativity and innovation have become essential skills in the 21st century education system. Competence in these skills is increasingly being viewed as fundamental to preparing students for life in a complex and dynamic world (Lucas & Spencer, 2021) in the light of the rapid expansion of knowledge-based and technology-driven economy. Consequent on this, there is an increased demand for teachers who have these skills and who can cultivate them in the students. However, McGuinness et al. (2019) argue that despite this increased demand, many teachers appear unprepared for effective integration of critical thinking and creativity into their classroom activities, thereby bringing about a disconnect between educational objective and practical teaching.

The importance of critical thinking, creativity and innovation in education cannot be overemphasized. Critical thinking empowers the learner to be discerning in their assessment of information. Creativity promotes their ability to think adequately and be able to solve perceived problems (Binkley et al., 2012), while innovation is a result of critical thinking and creativity. These skills are crucial in preparing students for life in the real world filled with challenges of all sorts. Educators should acquire these skills and encourage them in the students. This will provide support to flexible learning environment that cater for various needs of students (Wegerif, 2020). The fact that teachers are the facilitators of all education programmes underscores the imperative for them to be equipped with the ability to model and nurture these skills in their classroom environments and other places of encounter with students. There is a Latin adage which says, "Nemo dat quod non habet" (No one gives what they have not). So, if teachers do not have these skills themselves, they cannot give them to students.

Desirable as the acquisition of these skills is, teachers are faced with several challenges in their efforts to acquire them. For instance, Dumont et al. (2016) have observed that many teacher education programmes focus on conventional teaching methods, which limit opportunities for exploring innovative and critical thinking oriented techniques. On his own part, Runco (2014) argues that teachers often face limited access to ongoing professional development, coupled with administrative pressures, time constraints and lack of resources to implement new methods.

Teachers should be helped to overcome these challenges. One of the strategies is to place strong emphasis on techniques that encourage critical thinking, creativity and innovation in the course of teacher training programmes. Some of these techniques are project-based learning, questioning that promotes deep thinking, and collaborative problem-solving, which can significantly contribute to teacher skill development (Ritchhart, 2015). Harris and Jones (2020) also advocate that professional development programmes should focus on familiarizing teachers with technologies and tools that support innovative teaching and practices.

Policy makers and school administrators have some roles to play as well. They are expected to provide a conducive environment that facilitates the acquisition of these skills, both for teachers and students. They should also make provisions for needed resources as well as adequate time frame for carrying out required experiments. They should also allow teachers the autonomy to adapt their new findings and approaches that can help them to be more effective in meeting the diverse needs of their students (Fullan, 2013). Finally, leaders in education should promote a culture of ongoing learning and professional growth and promote collaborative environments where teachers can share ideas and sharpen their strategies for fostering critical thinking and creativity within the school culture, as these are essential steps to support innovative educational practices (Sahlberg, 2021).

CONCLUSION

The integration of AI into learning and education management presents both significant opportunities and challenges. While AI can enhance personalized learning and improve administrative efficiency, it is essential to ensure that these technologies are aligned with educational philosophies that prioritize the human aspects of learning, including interaction, equity and ethical development. A balanced, thoughtful approach to AI in education will ensure that it enhances the educational experience without compromising the core values that define meaningful learning.

RECOMMENDATIONS

In the light of the conclusion, the following recommendations are put forth:

1. Stakeholders in education should adopt a balanced approach to the issue of AI in learning and education management.
2. AI is to be given an ancillary position as a source of information and knowledge in the process of education.
3. AI should be channeled towards playing a complementary role to the time-tested traditional values through which education strives to offer and achieve a comprehensive development of the learner and well-being of the society.

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