

New Role of Leadership in AI Era: Educational Sector

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Abstract

Background:

Educators are required to adapt and adopt digital technologies, methodologies, and mindsets as Higher Education sector becomes more competitive. Digital transformation is essential to be successful in new digital world. AI is the main component in the digital world specially in Digital transformation. Artificial Intelligence yields tremendous opportunities not only in teaching & learning but also in leadership. Leaders in Educational sectors are expected to be more prepared, adaptable, updated and aligned with the new technologies. This article attempts to analyse how the Role of Leadership is going to change with the inclusion of Artificial Intelligence.

Aim: The main aim of this research article is to answer the following key questions.

- How is the Role of Leadership going to change with use of AI?
- What will be new set of competencies required by leaders in coming future?
- Does AI replace the Human role in leadership?

Research Methodology:

External Desk Research methodology is used here as the data is based on the material published in reports and similar documents that are available in public libraries, websites, data obtained from surveys already carried out, etc.

Findings: Artificial Intelligence (AI) have changed the role of leadership in the aspect of IQ and EQ. The use of robust data analytics grounded in AI and machine learning techniques reveal new insights for educational applications. Hence the leaders of digital era in Educational Sectors should have Hard skills like cloud computing and Data flow to manage new technologies and soft skills to manage team as a package to lead the Higher Education to the top level.

Key words: AI, Artificial Intelligence, Leadership, Educational Sector

1. Introduction

The Leadership paradigm is evolving with the inclusion of new technologies and skills. Artificial Intelligence is playing wider role in leadership and grows exponentially. Each leadership style has its own distinct feature and operates well within expected conditions. Nevertheless, AI is leadership-platform independent which means different leadership style such as (i)autocratic, (ii)democratic, (iii)

lassie faire, (iv)transactional, (v)transformational (vi) visionary can mingle with AI for better performance. Central Christian College (2018) states that AI will help in improving decision making part of leadership and still leaders need to focus on soft skills rather than hard skills. Hard skills are much easier to quantify and measure. Surgical proficiency, Business analysis, Cloud computing, Cryptography etc. are few examples of hard skills which are so important that they provide the backbone of the services that business provides or the products that it creates. For example, the Cardiologist without the hard skills to perform heart surgery, or someone to design a circuit without ECE knowledge or someone designing a curriculum without IT will yield fatigue results. Interpersonal skills like empathy, EQ, communication, integrity etc are few examples of soft skills which are unique to the humankind need to be considered richly by the education leaders to enrich the quality of Higher Education. A. P. J. Abdul Kalam, Aerospace Scientist and formal president of India says "The ignited mind of the youth is the most powerful resource on the earth. I am convinced that the power of the youth, if properly directed, will bring about transformed humanity by meeting its challenges and bring peace and prosperity in the world". Infosys report on 'Leadership in the Age of AI' (2018), Infosys, Bengaluru, India says that 66% of leaders said that leveraging AI technologies for business process automation helped to deliver quick improvements. Also, Infosys added that 9 out of 10 senior management executives have reported positive and tangible business benefits from AI applications.

2. Theory

Breuer & Szillat, (2019), says that "We are seeing a technological revolution, not a crisis. Technology is going to undergo disruptions and changes on a magnitude that we have never seen before." (p. 26). Accenture's survey (2017), as cited in De Cremer, (2019) discovered that 85% of CEOs who were questioned intended to make significant investments in AI-related technology during the course of following three years. The association of AI unto Education sector could be implemented in three ways (i) learning the concepts with AI powered tools (ii) learning AI and its technologies and techniques (iii) preparing ourselves for the potential impact of AI. Online learning, e-Learning, Kahoot, Virtual classroom, Byju Program, Blackboard, Moodle etc are the glimpse of AI in educational sector. Leadership in disruptive technologies is associated with the term "Digital Leadership". In Digital

Leadership, Sundar Pichai, CEO of google says that "Compassion is the only phenomena that can turn you into a good leader". The good leaders know how to handle the technology and technology is under their full control.

Strong AI

Strong AI and Weak AI are the two main categories of AI, according to Terblanche (2020) and other authors of books on AI (Lasse Rouhiainen, David Brown, Joseph E. Aoun). Strong Artificial Intelligence allows machines to learn from the surroundings by collecting the data on its own. It collects the data and accumulates to the big yottabytes (YB) size and become big data and get its own reasoning and understanding to face the environment. Such advanced type of AI is called Strong AI. For example, the AI-Google's AlphaGo has won the grandmaster Ke Jie in 2017.

Weak AI

Weak AI is an application software which is able to solve problems in business and enterprise by performing the tasks intelligently and automatically (Terblanche, 2020). In 2022 the world is mainly dominated by the weak AI which performs the tasks what the software programmer or developer commands in the program coding. Current mass AI-technologies, in general, are not so strong to be able to become a threat to humankind. However, the AI technology should be a slave under the good master (i.e) good leader. "I do everything to make sure society is healthy. I would focus on not making money, but on making human values."- Jack Ma, Co-founder & Former Executive Chair, Alibaba. As per Kamphorst (2017, as cited in Terblanche, 2020) "end users of AI technologies should have confidence that the new AI technology will satisfy their requirements, can be aligned with existing practices, and that the benefits will outweigh the detriments" (p. 157).

3. Experiential Learning

The Computer Terminology "Artificial Intelligence" was first adopted by American Computer scientist John McCarthy at the Dartmouth Conference and was coined as an academic field. When we analyse the historical background of Revolution, we can say that AI is the main factor for Technological Revolution in the 4th Industrial Revolution.

Table 1: Technological Revolution year and description

Revolution	Year	Description
1	1784	Steam, water, mechanical production equipment
2	1870	Division of labour, electricity, Mass Production
3	1969	Electronics, IT, Automated Production
4	2022	AI - Technologies

When we navigate the above table, needless to say that these revolutions changed the work environment in previous centuries. Thus, pressing forward, AI will assist organizational leaders in decision-making process by providing more data (both in terms of quantity and quality) and in analysis for faster and data driven decisions, as well as in freeing up their employees from routine/monotonous work by giving more time and space for creative work.

AI in A'Shariyah University

During the Covid-19 pandemic, ASU cadres got the opportunity to analyse the applications of AI in educational software such as Moodle, Stream, SharePoint, virtual classroom software such as Team, Zoom, Google Meet, educational gamification software such as Kahoot, Quizizz, Quizlet, governance software LOGSIS which are beneficial in the area like (a) automatic marking, (b) learning outcome detection system for different levels of students. (c) Surveillance and invigilating the digital presence of the students by IP address, (d) preparation of online lecturing transcript, (e) helping individual student in learning the lessons at their own speed (f) preparing video materials with information graphics (g) analysing the availability of technological resources for Online learning etc. ASU Leaders of different hierarchical levels have executed digital leadership according to their access level which really helped to press forward successfully.

4. Employability

According to Jones (2018), "AI cannot equal the emotional and humanness of leaders" (p. 60). Jones (2018) continues that: A good leader often considers the emotional impact when contemplating a decision with negative or life-changing implications affecting one or more people and will use the human quality of empathy. Leaders are logical and often creative in their intelligence and decision making. Business leaders should implement strategies to prepare their organizations for a successful future with AI (p. 18). Plastino & Purdy (2018) conducted a survey by the global IT consulting company Accenture to measure "AI's Potential Financial Impact" over 16 industries. Their conclusions were that (i) AI can augment labour productivity by taking on low value-added or supporting tasks (ii) workers' knowledge can be focused on high value tasks. (iii) businesses in every industry will need to consider AI as a potential change agent in their investment, innovation, and human capital development strategies. (iv) new skills and technology change the paradigm of industry.

Digital Natives

In AI era, any individual can be either digital native or digital immigrant. Senior citizens might be in the category of digital refugee.

Table 2: Distribution of Supports/Does not support AI Technology-percentages by different survey

Participants	Survey	Supports AI	Does not Support AI
Senior Management Executives	Infosys	66	34
General	PwC 'CEO Pulse' survey	24	76
CEO	PwC's most recent Global CEO Survey	75	25
CEO	Accenture's survey	85	15

The table depicts that 75 % of CEOs are supporting AI technologies in their enterprises and 25% are against to the AI technologies. Since most of the CEOs welcome AI technologies, tremendous employability opportunities are there in the field such as Machine learning Engineer, Robotic scientists, Program developer, Data scientist, Big data analysts for digital natives in AI Era. The World Economic Forum's recent report predicts that jobs in AI will ascend to 58 million opportunities by the end of 2022.

Digital immigrants

The skills such as cloud computing, data generation from server, online access and network security are required for digital immigrants. Digital immigrants have good employability. In educational sectors, the digital immigrants will go for continuous training and development to compete with digital natives. Here the leader in this AI era has to execute and implement required needful to bridge the gap between digital immigrants and digital natives.

5. Methodology

Desk-based research methodology is implemented here. This methodology uses existing data from completed survey reports of researchers to support or validate the research outcomes and conclusions. The popular research survey such as (i) Capgemini survey, (ii) Infosys survey, (iii) PwC's Pulse survey, (iv) Central Christian College-AI Survey, (v) Accenture Survey are considered to synthesis the data and to analyse the results. Oman Government data published in UNESCO; Prospect customers data are also used for the survey.

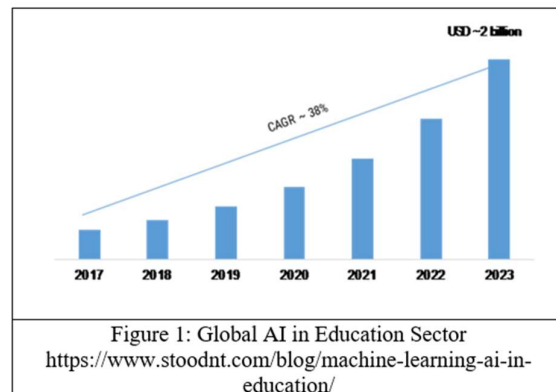
6. Findings

6.1. AI is Unavoidable

Dr. Mahmood Al Abri, Assistant Secretary, Commission for Education, Culture and Science, Oman states that Oman has taken the important steps in the field of AI including the international conference organized by the Ministry in 2019 and its active involvement in the Beijing Consensus on "AI and Education". The Sultanate of Oman also took part the same year in the discussions at the 40th UNESCO

General Conference in Paris on the importance of adopting an international charter on the ethics of AI.

Fig 1: Global use of AI in Education Sector



The above graph says that Compound annual growth rate (CAGR) is 38 % which is quite high for the past 5 years and it proves that AI disruptive technology is unavoidable in the future including educational sector.

[CAGR = (Future Value/Present Value)^(1/n)-1
 n- number of years]

6.2. Digital Knowledge is essential

In 2017 PwC 'CEO Pulse' survey states that 76% of respondents cited that AI Technologies in the organization brings lack of transparency (both in terms of potential biases and derivations) which is hinderance to adopt AI in their enterprise. In the same survey it has been added that 73% of respondent raised the necessity of rules and governance to have control over AI Technologies. PwC's most recent Global CEO Survey found that (i)Over three-quarters of CEOs think that AI is "good for society," (ii) 84% CEOs agree that AI-based decisions need to be explained in order to be trusted. (iii) 52% CEOs said that they are fearful that leadership will have less transparency into their business due to AI and automation. Less transparency leads to less control over outcomes.

Nearly 64% of C-level executives agreed that they are hesitant to invest in Modern AI technologies because of their fear over insecurity or lack of privacy. Nevertheless, the surveyed C-level executives are competitive and excellent in their operational success.

All the above survey results are explicit evident for the lack of required digital knowledge among the managing cadres. A sound digital knowledge will help the managing cadres to cope up with AI Era and overcome the existing insecurity and opaqueness problems of AI technologies.

6.3. Bridging the gap between technology and people

AI will bring continuous change as the technologies improve and evolve. One of the Infosys studies states that 77% of C-level executives in IT sectors are assured that they can train the employees to the new set of skills that AI will bring to the organization. The secret of successful

organization is adopting a culture of long-lasting and long-life learning and facilitating the employees to continuously develop productive new skills towards the mission. AI is not equipped to the deal “Don’t embrace change; but celebrate it” – a motto solely for the mankind. Establishing such a culture starts at the top.

6.4. Emotional Intelligence

According to a Caggemini survey emotional intelligence is an essential skill set for the age of AI. The survey found that 74% of the executives believe that EI will become a must-have skill and the demand for it is expected to increase by as much as six times. Ethical judgment, Intuition, Compassion are the qualities that are innate to human beings that no AI can match, and no AI can be programmed.

7. Conclusion

To conclude, A successful leader should have hard skills and soft skills collectively as a package to lead the institution to its peak. Soft skills which are very crucial to the organization that provide heartbeat to the organization whereas hard skills are like backbone to the organization. AI leadership skills of the future that managers need are heavily oriented towards integrating soft skills and technology along with long-term decision making and vision.

8. Appendix 1

Table 3: Acronyms and Expansions

Acronyms	Expansions
ECE	Electronics and Communication Engineering
IT	Information Technology
EQ	Emotional Quotient
IQ	Intelligent Quotient
CEO	Chief Executive Officers
ASU	A’Sharqiyah University
UNESCO	United Nations Educational, Scientific and Cultural Organization.
Digital natives	who have born after 1980
Digital immigrants	who have born before 1980
C- Level	High Ranking

References

- Breuer, S., & Szillat, P. (2019). Leadership and digitalization: Contemporary approaches towards leading in the modern-day workplace. *Spisanie “Dialog” “Dialogue”: e-Journal*, 1, 24–36.
- Brown, D. (2019). *Artificial Intelligence for Business: Understand Neural Networks and Machine Learning for Robotics. A Step-By-Step Method to Develop AI and ML Projects for Business*. Independently published.

- De Cremer, D. (2019). Leading Artificial Intelligence at Work: A Matter of Facilitating Human-Algorithm Cocreation. *Journal of Leadership Studies*, 13(1), 81–83. <https://doi.org/10.1002/jls.21637>
- Abbatiello, A., Knight, M., Philpot, S., & Roy, I. (2017). Leadership disrupted: Pushing the boundaries. *Global human capital trends*. London: Deloitte University Press. Accenture Research. (2017). The future has arrived, 10, 343-362.
- Terblanche, N. (2020). A design framework to create Artificial Intelligence Coaches. *International Journal of Evidence Based Coaching and Mentoring*, 18(2), 152–165. <https://doi.org/10.24384/b7gs-3h05>
- Jones, V. K. (2018). Voice-activated change: Marketing in the age of artificial intelligence and virtual assistants. *Journal of Brand Strategy*, 7(3), 233-245.
- Plastino, E., & Purdy, M. (2018). Game changing value from artificial intelligence: eight strategies. *Strategy & Leadership*, 46(1), 16-22.
- Effective Leadership Skills You Need in the Age of AI By Great Learning Team accessed on Aug 13, 2021 <https://www.mygreatlearning.com/blog/effective-leadership-skills-you-need-in-the-age-of-ai/>
- Leadership in the Age of AI Adapting, Investing and Reskilling to Work Alongside AI <https://www.infosys.com/age-of-ai/documents/age-of-ai-infosys-research-report.pdf>
- Current Trends and Future Scopes of Machine Learning and AI in the Education Sector <https://www.stoodnt.com/blog/machine-learning-ai-in-education/>
- Oman embarks on development of K-12 AI curricula with support of UNESCO and RCEP <https://www.unesco.org/en/articles/oman-embarks-development-k-12-ai-curricula-support-unesco-and-rcep>
- Emotional intelligence– the essential skillset for the age of AI <https://www.caggemini.com/wp-content/uploads/2021/02/Report-Emotional-Intelligence-1.pdf>
- Human-led, tech-powered solutions for a secure digital world <https://www.pwc.com/gx/en/consulting-services/information-security-survey>
- The Role of Artificial Intelligence (AI) in Leadership by CCCC Online accessed on August 13, 2022, <https://myonline.centralchristian.edu/news/2018/08/17/role-artificial-intelligence-ai-leadership>
- Tatjana Titareva, (2021), Leadership in an Artificial Intelligence Era, <https://commons.lib.jmu.edu/cgi/viewcontent.cgi?article=1012&context=leadcc>