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AUGMENTED EDUCATION IN THE GLOBAL AGE: ARTIFICIAL INTELLIGENCE AND THE FUTURE OF LEARNING AND WORK

Daniel Araya, Peter Marber (Eds.)

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“Augmented Education in the Global Age: Artificial Intelligence and the Future of Learning and Work”, edited by Daniel Araya and Peter Marber, is an insightful exploration of the impending implications of Artificial Intelligence (AI) on society. The collection, organised into three core sections, examines AI’s transformative power in reshaping work, redefining education, and redesigning policy structures to adapt to a tech-integrated future.

The book delves deep into the current technological era, pondering its potential opportunities and concerns. Through a journey from Douglas Engelbart’s groundbreaking 1962 report to the intricate roles of AI in fields such as agriculture, space, and medicine, the collection offers a panoramic view of technology’s evolution and its implications. The second section underscores the transformation of learning, reflecting on the centuries-old educational structures and the impending revolution brought about by AI. Real-world applications, ethical considerations, and the broader intelligence philosophy are discussed. The third and final segment underscores the strategic shifts required at the policy and planning level for a future dominated by AI and automation.

Notably, Araya and Marber’s editorial effort goes beyond academic exploration; it offers a pragmatic lens to the global dy-

namics in play, especially given the strategic ambitions of nations like China and the U.S. in the AI domain. At its heart, the collection calls for a thoughtful and proactive approach to harnessing AI’s potential for betterment while safeguarding against its pitfalls. The volume, featuring contributions from a global ensemble of experts, stands as a seminal resource for educators, policymakers, and analysts at this technological crossroads.

Structure of the book

The book contains 326 pages and has 18 B/W illustrations. The structure of the book is organised into distinct sections, each addressing different facets of the overall topic. The introduction sets the stage for the book, outlining its purpose, goals, and themes the various chapters will touch on.

Part I: Augmented Work in the Global Age. This explores the role of AI and technology in reshaping work, focusing on the broader implications of integrating AI with human tasks.

Part II: Augmented Learning in the Global Age. This section delves into the transformative role of AI in the realm of education.

Part III: Policy and Planning for the Augmented Future. This section delves into the broader, macro-level considerations and planning required to harness the power of AI and technology.

This book comprehensively addresses the challenges and opportunities posed by AI and related technologies in work, education, and broader societal structures, offering perspectives from specific case studies and more general policy viewpoints.

Section I: The New Technological Era and its Impact

Section I delves into the present technological transformation, reflecting on

the fears of job losses and the potential for novel socio-economic possibilities. This era stands out due to the merging of several versatile technologies, pointing to an unpredictable future. These segments delve into enhancing human civilisation and the emerging opportunities in sectors such as energy, agriculture, space, medicine, and education.

Chapter 1 introduces Douglas Engelbart's influential 1962 report titled "Augmenting Human Intellect: A Conceptual Framework". This piece is viewed by many as a pivotal point in computing history, hinting at the direction of humanity's technological progression. Engelbart's insights became foundational for innovations like the Internet, the mouse, and GUI. Most importantly, his vision was about using technology to boost our problem-solving abilities and rid us of repetitive tasks. His perspective on technology complementing human capabilities resonates throughout this collection.

In Chapter 2, Jin Michael Fung and Samira Hosseini discuss the concept of augmented intelligence as a new educational framework tied to the UN Sustainable Development Goals. They observe that job roles evolve rapidly as technology advances, necessitating continuous skill upgrades. Developed and developing countries must redesign education and skill training systems for a sustainable future. Collaboration between various stakeholders in education, industry, and government is vital.

Chapter 3, in contrast to the typical gloomy outlook on AI's future, emphasises the groundbreaking daily progress in what is termed the "Bio Revolution" by a team from McKinsey. The chapter highlights how AI is reshaping various industries and can address some of humanity's most pressing issues in healthcare, food production, and environmental conservation.

Chapter 4, penned by space expert Jack Gregg, explores the burgeoning "Cosmos Economy". Space technology, once the domain of a few nations, now engages over 80 countries and numerous private enterprises. AI's role in deep space exploration presents opportunities in multiple fields, from advanced communications to sustainable energy and space tourism. The real challenge, Gregg notes, is not automation but finding skilled professionals.

Chapter 5 by Ruth Defries, the dean of Columbia's Climate School, posits that the grave concern of climate change has a silver lining: the chance to address ecological problems while fostering job growth and a brighter future. Universities are pivotal in evolving curricula to promote multidisciplinary education, significantly relying on AI.

In conclusion, Chapter 6 features Stanford economist Erik Brynjolfsson's insights on the ongoing debate about machines' role in society. He emphasises using AI to enhance, rather than replace, human labour. While both approaches to AI have benefits, Brynjolfsson warns of the prevailing tilt towards automation over augmentation in the business and policy domains.

Part II: Enhanced Learning in the Digital Era

Throughout history, technology has constantly reshaped how we operate and significantly evolved how we assimilate knowledge. From simple devices like the abacus to the vast internet databases we have today, each innovation has left an indelible mark on our learning processes. Education stands at the forefront of sectors expected to be most influenced by the AI Revolution.

In its current form, public education has been around for approximately two

centuries, emerging during the first Industrial Revolution. However, AI is set to revolutionise this space. Its gradual integration into education was fast-tracked by the COVID-19 pandemic. Platforms like Zoom, enhanced by AI, have shown how digital tools can elevate user experiences. Advanced AI systems like ChatGPT and DALL-E hint at the potential of AI in diverse tasks such as research, idea generation, and creative expression. Moving ahead, AI's footprint will be more pronounced in educational aspects, from curriculum development to task automation. This section delves into AI's evolving role in education and its broader implications.

In Chapter 7, experts from Microsoft, Alexandros Paspaspyridis and Jason La Greca, provide insights into AI's tangible impacts on K-12 and higher education. Their discussions revolve around real-world AI applications in education, emphasising its ethical application.

Chapter 8, authored by Kelly Shiohira and Wayne Holmes, underscores that although AI is powerful, it is not infallible. They stress the human origin of AI and highlight its dependence on data, emphasising the need for ethical and precise implementation to avoid biases or inaccuracies.

Annie Murphy Paul, in Chapter 9, encourages us to view intelligence in a broader light. She suggests a more organic metaphor for the human mind rather than a digital one, pushing for curricula that cater to this enriched perspective.

In Chapter 10 philosopher Jon Burmeister is reflecting on the evolution of work and its implications for education. Noting the increased leisure time in modern society, he speculates on the type of education that would suit a world less dominated by traditional work, hinting at a re-embrace of the liberal arts.

In Chapter 11, Peter Marber discusses the essence of higher education, emphasising the cultivation of human creativity and collaborative problem-solving. Drawing from examples like St. John's College Great Books curriculum, he champions the merits of a liberal arts education.

Concluding this section, Chapter 12, written by scholars Daniel Araya and Michael A. Peters, ponders the worldwide implications of AI on education. They discuss China's Belt and Road Initiative (BRI) and its potential to reshape global higher education dynamics. With the aid of AI, China may set the tone for the next stage of international educational development.

Part III: Strategy and Design for the Advanced Future

Diving into the evolution of work and study, Part III explores strategic planning for a future fused with technology. Today's educational structures mainly serve an industrial workforce. However, with technologies like AI shaking things up, nations need to modify these systems to fit the digital age. This segment delves into the emerging challenges and decisions governments face as they compete in an AI-centric era. AI, among other tech innovations, has become a pivotal factor in worldwide advancement, with a country's global standing often depending on its data and digital strategy prowess. Whether big or small, every country has to grapple with these changes.

Chapter 12 starts by dissecting China's stance on AI, particularly its strategic goals to dominate the AI sphere by 2030. It is not just about vision; this chapter explains China's meticulous plan to pioneer AI innovations and mould high-calibre talent, with education central to this grand strategy.

Chapter 14 then focuses on the U.S., detailing its countermeasures against China's growing tech clout. As part of a 2019 initiative, the U.S. formed a commission spearheaded by former Google head Eric Schmidt, which underlined the country's urgent need to nurture AI talent and fast-track its technological advancements. The overarching message is clear: The U.S. does not need to catch up, especially in its AI capabilities.

Next, in Chapter 15, Inez von Weiterhausen from MIT studies the widening gap between what employers want and the skills workers possess, using Germany and the U.S. as case studies. There are differing educational influences in both countries, which might impact their ability to train future workers efficiently.

Chapter 16 brings India into the spotlight. As Tarun Wadhwa notes, India's upcoming demographic boom places immense importance on its educational system. The country's trajectory hinges on how well its education adapts to a global knowledge-driven economy. By harnessing digital innovations, India is ambitiously growing expansive educational platforms, offering learning for nations worldwide.

Wrapping up Part III, Chapter 17 delves into Andrew Yang's "Freedom Dividend" from the 2020 U.S. presidential race – a proposed monthly stipend for Americans to counteract AI-induced job losses. While many see this Universal Basic Income (UBI) as a solution, Aleksandra K. Przegalinska and Robert Wright advise caution, suggesting a more measured approach akin to the rapid support offered during the early days of the COVID-19 pandemic.

This collection's chapters emphasise one critical point: AI dramatically transforms our societies, presenting challenges

and opportunities. As we navigate this era of rapid innovation, our collective choices and policies could dictate our path – leading to a bleak or brighter, equitable future. Our aim with this compilation is to foster meaningful dialogues about our preparation for this transformative age, arguably the most consequential discourse of our era.

Editors

The editors of the book "Augmented Education in the Global Age: Artificial Intelligence and the Future of Learning and Work" are Daniel Araya and Peter Marber. Daniel Araya is a distinguished Senior Fellow at the Centre for International Governance Innovation and holds a significant position as a Senior Partner at the World Legal Summit. He is a Senior Fellow at the Centre for International Governance Innovation. His expertise spans innovation, public policy, and defence technologies, and he is deeply fascinated with the legal and regulatory challenges arising from technological shifts. He has authored or edited eight books on diverse subjects and has acted as an advisor to governments in both Latin and North America. He regularly contributes to platforms such as Forbes, Brookings Institution, Singularity Hub, and Futurism. Prestigious institutions, including the U.S. Naval Postgraduate School, Canadian Department of National Defence, Harvard, Stanford, and Microsoft Research, have sought his insights through lectures and discussions. Beyond his academic and advisory roles, he is passionate about filmmaking and screenwriting, particularly in science fiction.

Peter Marber is a renowned author and academic. He is a faculty member at Harvard University and the Carey Business School at Johns Hopkins University. Peter Marber, a prominent figure in global

finance since the late 1980s, wears multiple hats: an author, educator, and Wall Street expert. Celebrated as an innovative investor, he has earned accolades managing investments for some of the world's premier institutions. Marber is the Chief Investment Officer for emerging markets at Aperture Investors, based in New York. His academic contributions span esteemed institutions like Columbia, Johns Hopkins, Harvard, and NYU, and he has been a keynote speaker at numerous global conferences. A frequent voice in the media, Marber offers insights to platforms like CNN, Financial Times, CNBC, Barron's, Reuters, Bloomberg, and the Wall Street Journal. He has also enriched the literary world with six books (Peter Marber, personal page).

Concluding remarks

The edited collection titled "Augmented Education in the Global Age: Artificial Intelligence and the Future of Learning and Work" delves into the societal implications of Artificial Intelligence (AI) in the foreseeable future. This compilation examines how this emerging technology will bring significant transformations and disruptions to our current institutions. The book's chapters delve into the historical aspects of technological revolutions, examining the concerns and societal obstacles associated with the displacement

of specific jobs. Additionally, the book explores the emergence of novel sectors that intersect with robotics, biotechnology, space exploration, and clean energy. The chapter's authors go into the intricacies of augmented education, exploring aspects such as curriculum restructuring, personalised learning, and adapting workplace learning to suit the demands of an algorithmic era. The book primarily examines policy and planning for an augmented future. It posits that work and education are experiencing a significant transformation centred on creativity and innovation, particularly in light of the emergence of a new global period and the increasing prevalence of automation technologies. This comprehensive compilation of research and analysis, featuring contributions from prominent experts worldwide, offers valuable insights for educators, policymakers, and analysts as they navigate the evolving landscape of work and learning in the face of rapid and escalating technology advancements.

Prof. Dr. Valentin Kuleto, University Business Academy in Novi Sad, Faculty of Contemporary Arts Belgrade

Prof. Dr. Branko Savić, professor, The Higher Education Technical School of Professional Studies in Novi Sad

Asst. Prof. Dr. Milena Ilić, University Business Academy in Novi Sad, Faculty of Contemporary Arts Belgrade