

AI versus Humanity a Two-edged Sword?

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AI CONCERNS

Artificial Intelligence (AI) has the potential to revolutionise our world, but it also raises significant concerns. Issues such as systematic leveraging, manipulation, and control need to be addressed. For instance, AI algorithms can be used to manipulate public opinion or control access to information, leading to ethical dilemmas and potential misuse. Recent studies highlight the potential risks associated with AI. For example, the World Economic Forum's Global Risks Report 2025 emphasises the growing apprehension about humanity's ability to control AI technologies. Additionally, a study from Stanford University warns of the risks in AI mental health tools, showing that AI therapy chatbots can introduce biases and failures that may result in dangerous consequences.

NEURAL CONNECTIONS AND EDUCATION

The educational system, which often focuses on career-oriented subjects, can compromise neural connections at puberty. Adolescents are preoccupied with screens and pseudo-activities, which may hinder their long-term development. Studies have shown that excessive screen time can negatively impact cognitive and social skills, emphasising the need for a balanced approach to education. A groundbreaking study published in *Nature* by scientists from the University of California San Diego reveals that learning physically rewires the brain's communication pathways, particularly between the thalamus and the motor cortex. This discovery underscores the importance of understanding how educational practices impact neural development.

PARENTAL INTERACTION

With mothers often engrossed in their phones, children miss out on crucial eye contact and interaction. This lack of appropriate engagement can affect their mental and physical development. Research highlights the importance of parental interaction in fostering healthy development, both mentally and physically. On the other hand Research led by Stanford education professor Jelena Obradović finds that too much parental involvement can undermine children's behavioural development. The study observed that children whose parents frequently stepped in to provide instructions or corrections displayed more difficulty regulating their behaviour and emotions.

TECHNOLOGY AND PARENTAL RESPONSIBILITY

Technology has advanced rapidly, sometimes outsmarting parental responsibility. From formative years to puberty, parents must navigate the challenges posed by technology to ensure their children develop essential life skills. A systematic review and meta-analysis published in *JAMA Pediatrics* found that parental technology use in a child's presence is significantly associated with poorer cognition and prosocial behaviour, lower attachment, and higher levels of internalising and externalising problems. This highlights the need for parents to be mindful of their technology use around children.

USEFULNESS OF TECHNOLOGY

No one can deny the progress brought by technology. Phones offer tremendous advantages, such as safety, cost savings, and the ability to connect internationally. They also reduce the need for physical travel and open up the world. However, it is essential to balance these benefits with potential drawbacks, such as over-reliance on technology. The World Economic Forum's Top 10 Emerging Technologies of 2024 report lists AI-powered scientific discovery and elastocalorics among the most impactful emerging technologies. These advancements demonstrate the potential of technology to drive significant progress in various fields.

AI AND CONTROL

The rise of AI raises concerns about losing control over our skills and neural connections. While AI can enhance our lives, it is crucial to ensure it does not diminish our ability to think critically and make independent decisions. Ethical considerations and regulatory measures are necessary to maintain control over AI development. A recent article in Forbes discusses the challenges of aligning and controlling modern AI systems. The article highlights the importance of encoding human values into AI models to make them reliable, safe, and helpful.

EXAMS AND LITERACY

The shift to multiple-choice exams may be a consequence of declining literacy standards. This format simplifies grading but may not adequately assess students' writing and reasoning abilities. Data suggests that traditional exams, which require written responses, better evaluate literacy and comprehension skills. A study featured in the Centre for Education Policy Research's review of significant education studies of 2024 suggests that English language learners (ELLs) benefit from participating in rich content and collaborative activities, challenging the conventional wisdom about delaying immersion.

PERSONAL ANECDOTE

Recently, I met a young lady who had achieved A-levels but struggled with basic literacy. This encounter made me question the current education standards and the role of technology in shaping literacy. It is essential to ensure that students develop strong writing and reasoning skills, regardless of technological advancements.

IMPACT ON WELL-BEING

Technology's impact on mental well-being is significant. Issues such as anxiety, depression, and even suicide are linked to the loss of control over technology. Research indicates that maintaining a healthy balance between technology use and real-life interactions is crucial for mental health. A major international study from the Oxford Internet Institute found that internet use is consistently associated with positive well-being across various indicators, including life satisfaction and social well-being. This research provides a balanced view of the impact of technology on mental health.

COMPLEXITY OF LIVING

As the world becomes more interconnected, the complexity of living increases. Many people feel overwhelmed by the rapid pace of technological change. It is essential to develop strategies to navigate this complexity and maintain a sense of control over our lives. An article in Scientific Reports explores the complex relationship between technology and cultural

transformation. The study highlights both the opportunities and challenges posed by technological advancements, such as the digital divide and the risk of cultural homogenisation.

CONTROL SYSTEMS

Controlling complex systems, such as the human body or AI, is challenging. These systems have numerous interacting components, making it difficult to predict outcomes. Real-world examples, such as managing health or AI development, illustrate the importance of understanding and controlling these systems. A recent editorial in *Frontiers* discusses the latest developments in control and automation systems, emphasising the importance of these systems in the context of Industry 4.0 and the digitalisation of production.

AI AND HUMANITY

AI has the potential to elevate humanity to new heights of achievement and creativity. However, it also poses risks, such as the potential for destruction. It is crucial to recognise AI's dual nature and develop strategies to harness its benefits while mitigating its risks. As Butler, Turing, and Weiner demonstrated, AI can be a powerful tool, but it requires careful management to ensure it serves humanity's best interests.

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Reading List

My own list of publications reflects a journey across diverse fields and methodologies, ranging from empirical research articles in peer-reviewed journals to thought-provoking editorials and comprehensive reviews. Each piece represents a milestone—an exploration of questions that matter and a commitment to advancing understanding within my areas of expertise. These works serve not only as contributions to scholarly discourse but also as stepping stones for future inquiry and collaboration.

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AI a two-edged Sword and Neural Plasticity

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