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## Ethical, regulative and legislative perspectives on emerging technologies and education

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**ETHICAL, REGULATIVE AND LEGISLATIVE PERSPECTIVES  
ON EMERGING TECHNOLOGIES AND EDUCATION**



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# The Impact of Society 5.0 on Curriculum Development in Higher Education

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Society 5.0, Higher Education, curriculum development

## Abstract

This article explores the concept of Society 5.0, originating from Japan, which envisions a future where the physical and virtual worlds merge to create a more sustainable and inclusive society. Building upon previous societal stages, Society 5.0 leverages advanced technologies like artificial intelligence, the Internet of Things, and robotics to address social challenges while prioritising human welfare. The article delves into the objectives of Society 5.0 and the need for a human-centered approach, accompanied by significant challenges and the imperative for educational reform. Reshaping curriculum development in higher education by emphasising technological literacy, interdisciplinary approaches, ethics and social implications, entrepreneurship, and lifelong learning are changes aiming to prepare students to the rapid technological advancements in the society.

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# 1. Introduction

In the ever-evolving landscape of human civilisation, the concept of Society 5.0 emerges as a beacon of progress, innovation, and inclusivity. Originating in Japan, Society 5.0 represents a visionary approach to societal development, seamlessly integrating the physical and virtual realms to foster sustainability and enhance the quality of life for all individuals. Building upon the evolutionary stages of previous societies, from hunter-gatherer communities to information-centric networks, Society 5.0 envisions a future where advanced technologies serve as catalysts for positive social change.

The journey of human societal evolution, as delineated by Fukuyama (2018), unveils the progression from early communal living to the industrial revolution and the information age. Society 5.0 marks the culmination of this trajectory, heralding a new era characterised by a profound fusion of human-centric values and cutting-edge technologies. It represents a paradigm shift from merely harnessing the power of information to prioritising the welfare and empowerment of individuals, termed as the Super Smart Society.

Central to the ethos of Society 5.0 is the convergence of innovative technologies, including artificial intelligence, the Internet of Things, big data, and robotics. These advancements are envisioned to be seamlessly integrated into the fabric of society, transcending conventional boundaries to propel economic prosperity, environmental sustainability, and societal well-being. Society 5.0 encapsulates a holistic approach that transcends mere technological advancement, placing human needs and aspirations at its core.

Crucially, Society 5.0 advocates for cross-sector collaboration, recognising the imperative of collective action to tackle multifaceted challenges. Governments, industries, academia, and citizens are called upon to synergise their efforts, fostering a collaborative ecosystem conducive to societal advancement. Through this concerted approach, Society 5.0 endeavours to realise a future where innovation and human well-being intertwine seamlessly, transcending geographical and cultural boundaries.

This paper commences by providing a comprehensive definition of Society 5.0, elucidating its core principles and objectives. Subsequently, it examines

the key points associated with Society 5.0, shedding light on its human-centered approach and the integration of advanced technologies. The paper then delves into the challenges posed by Society 5.0, addressing issues such as privacy concerns, job displacement, and ethical considerations. Following this, it explores the role of education in embracing the ideals of Society 5.0, highlighting the need for educational reform to equip individuals with the necessary skills and competencies. Finally, the paper investigates the impact of Society 5.0 on the curriculum of higher education institutions, presenting examples of how educational programs adapt to meet the demands of this transformative era.

## 2. Defining Society 5.0

Society 5.0 is a concept that originated in Japan and refers to a future vision of society that integrates the physical and virtual worlds to create a more sustainable and inclusive society. It builds upon previous societal stages, such as the agricultural, industrial, and information societies, and aims to leverage advanced technologies to address various social challenges. Society 5.0 is the latest stage in the history of the development of human life. According to Fukuyama (2018), Society 1.0 represents a community of hunter-gatherers living in harmony with nature (the Hunting Society). Society 2.0 transitions to agrarian societies characterised by communal agricultural practices, fostering improved organisation and nation-building (known as the Agrarian Society). Society 3.0 emerged as a pro-industrial society shaped by the Industrial Revolution and widespread mass production activities (termed the Industrial Society). Society 4.0 denotes an information-centric society, recognising the value of intangible assets interconnected within an information network (dubbed the Information Society). Fukuyama (2018) further outlines Society 5.0 as an advancement from the information-based Society 4.0, emphasising human-centric social welfare as its overarching goal (referred to as the Super Smart Society).

The concept of Society 5.0 emerged from Japan's "Fifth Science and Technology Basic Plan" announced in 2016 (Towards Realization of the New Economy and Society 2016). It envisions a society where technological

advancements, such as artificial intelligence (AI), the Internet of Things (IoT), big data, robotics, and other emerging technologies, are seamlessly integrated into people's lives to enhance well-being, economic prosperity, and environmental sustainability (Suzuki 2021).

Key elements of Society 5.0 include:

- Human-Centered Approach: Society 5.0 places a strong emphasis on improving the quality of life for individuals. It aims to address societal challenges while ensuring that technology serves the needs and well-being of people.
- Integration of Physical and Virtual Worlds: The concept envisions a highly connected society where the digital world interacts with the physical world seamlessly. This integration allows for enhanced data sharing, analysis, and decision-making to address societal issues effectively.
- Sustainable Development: Society 5.0 aims to create a sustainable society that balances economic growth with environmental preservation. It seeks to leverage technology to develop clean energy solutions, minimize waste, and promote environmentally friendly practices.
- Cross-Sector Collaboration: Society 5.0 recognizes the importance of collaboration between different sectors, including government, industry, academia, and citizens. It encourages partnerships and cooperation to address societal challenges collectively.

By embracing the potential of emerging technologies and integrating them into various aspects of society, Society 5.0 envisions a future where innovation and human well-being go hand in hand. It represents a shift towards a more connected, sustainable, and inclusive society. Japan, as an advanced country known for discovering various advanced technologies, has introduced the concept of Society 5.0, where society has developed to the point of being able to utilize information to enhance its well-being (Suzuki 2021).

### 3. Objectives of the Society 5.0 initiative

The objectives of the Society 5.0 initiative are ambitious, aiming to foster equal opportunities and create an environment conducive to the realization of each individual's potential. Society 5.0 seeks to utilize emerging technologies to eliminate physical, administrative, and social barriers hindering personal fulfillment (Malau 2021). According to the Japanese Business Federation, Society 5.0 envisions a future where every individual, including the elderly and women, can lead a safe, secure, comfortable, and healthy life, and where each person can achieve their desired lifestyle. The technologies associated with Society 5.0 are not only expected to fulfill basic survival needs but also enhance life's meaning and enjoyment. Within Society 5.0, the interaction between humans and technology will be leveraged to create a sustainable, dynamic, and people-centric world (Towards Realization of the New Economy and Society 2016).

#### **Society 5.0's Dependence on Transformative Future Technologies**

The complete set of technologies essential for realizing the Society 5.0 paradigm is still in development, necessitating further progress across various disciplines. Nonetheless, the transformative potential of these technologies, particularly in robotics, artificial intelligence, networked digital platforms, and 3D printing, is not uniformly advantageous. They have the capacity to bring about both societal advancement and disruption, leading to the rapid disappearance of established industries while simultaneously giving rise to unforeseen new sectors (Malau 2021).

### 4. Key points of Society 5.0

Society 5.0 seeks to move forward towards a human-centered society; rather than seeing technology replace humans and jobs, it can be used to augment the capabilities and value of a human workforce. The key points are:

- Society 5.0 aims to increase the quality of human lives, not to increase the power of technology;

- Smart services aim to increase the quality of human lives, not to increase the power of technology;
- A service always involves an interaction among humans, and possibly non-humans;
- We need to understand what human interaction with other humans and non-humans is to understand what smart services are;
- Interaction is (equivalent to) the ‘sharing’ of information among participants / agents.

## 5. Challenges of Society 5.0

Society 5.0, with its vision of seamlessly integrating advanced technologies into every aspect of human life, offers numerous benefits. However, it also poses several significant challenges and concerns:

- **Privacy and Data Security:** With the increased use of IoT devices, AI, and big data, there are heightened concerns about the collection, storage, and misuse of personal data. Ensuring robust data privacy and security measures is crucial to prevent data breaches and protect individuals' rights.
- **Digital Divide:** As Society 5.0 relies heavily on technology, it could exacerbate existing inequalities. Not everyone has equal access to technology or the skills to use it effectively. Bridging the digital divide is essential to ensure that no one is left behind.
- **Job Displacement:** Automation and AI-driven technologies may lead to job displacement in certain sectors. While Society 5.0 can create new jobs, there's a need for retraining and reskilling the workforce to adapt to these changes.
- **Ethical Concerns:** The development and use of AI and other technologies raise ethical questions. Issues like bias in algorithms, the ethical use of AI in decision-making, and the potential for technology to be used for malicious purposes must be addressed.
- **Environmental Impact:** While Society 5.0 aims for sustainability, the rapid adoption of technology can also have a significant environmental footprint. Managing e-waste, reducing energy

consumption, and ensuring responsible production are important considerations.

- **Legal and Regulatory Challenges:** Current laws and regulations may not keep pace with the rapid advancements in technology. Governments need to adapt and create new legal frameworks to address emerging issues like autonomous vehicles, AI ethics, and data privacy.
- **Security Risks:** As technology becomes more integrated into daily life, it becomes a target for cyberattacks. Ensuring robust cybersecurity measures is essential to protect critical infrastructure and personal information.
- **Cultural and Societal Adaptation:** Society 5.0 represents a significant shift in how people live and work. Adapting to this new way of life may be challenging for some individuals and communities, and there may be resistance to change.
- **Resource Allocation:** Implementing Society 5.0 requires significant investments in technology infrastructure, education, and research and development. Allocating resources effectively to support this transition can be a challenge for governments and organizations.
- **Dependency on Technology:** As society becomes more reliant on technology, there's a risk of over-dependence. Ensuring that people have the skills and knowledge to function without technology in case of disruptions is important.
- **Health and Well-being:** While technology can improve healthcare and well-being, there are concerns about the physical and mental health impacts of an increasingly digital and connected society. Striking a balance between technology use and personal well-being is a challenge.
- **Cultural Preservation:** There is a risk that the rapid adoption of technology could erode cultural traditions and practices. Balancing the preservation of cultural heritage with technological advancement is a concern.

## 6. Education embracing Society 5.0

As societies continue to change, education systems need to provide opportunities for learners to develop the knowledge, skills, attitudes, and values that enable them to realise their potential throughout their lives – from early childhood to old age" (*Serpanos 2018*)

In recent years, education has undergone structural transformations driven by the emerging technologies of Society 5.0. Notably, advancements such as video conferencing and virtual reality have facilitated remote learning opportunities for many individuals. While technology continues to reshape industries, societies, and education, its mere integration isn't adequate to foster the anticipated human progress or achieve a much-needed human-centered sustainable society. In education, there's a pressing need to cultivate novel learning methodologies and skills. Meeting new challenges necessitates a shift in approaches, going beyond the mere integration of new information and communication technologies into teaching and learning processes. Sustained utilization of technology in education fosters active student engagement and supports sustainable educational practices. Nevertheless, challenges persist, particularly regarding technical hurdles associated with insufficient infrastructure and the digital skills gap among educators and learners (Vieira, et al. 2023). *"In order for permanent innovation to occur, both individual and organizational learning for change and flexibility are essential, and learning for technology does not suffice"*. (Ferreira and Serpa 2018)

Carayannis and Morawska-Jancelewicz (2022) recommend that universities implement adaptive learning programs, collaborative technology for teaching and learning, as well as digital and online resources for teachers and students. These authors emphasize the opinion that universities are responsible for developing curricula that offer their students the opportunity to test their skills and knowledge in practice and acquire new skills through projects aimed at the needs of a specific organization or local communities, such as service-learning.

There are three essential learning skills in Society 5.0: data literacy, human literacy and technological literacy.

“ As sources of knowledge, universities can promote synergies with the business world, sharing knowledge and preparing their students to make ethical and responsible decisions. Qualified professionals are needed in order to enhance concrete actions in line with the United Nations (UN) Sustainable Development Goals (SDGs) of the SD agenda for 2030. (OECD 2018)

The OECD Project “*The Future of Education and Skills 2030*” (OECD 2018) sought answers to two broad, far-reaching questions:

What knowledge, skills, attitudes and values do today’s learners need to succeed and shape their world?

How can institutional systems effectively develop these knowledge, skills, attitude and values?

To achieve permanent high-quality education for society, enabling human development, sustainable economic growth and social cohesion, it is necessary to focus on some topics considered important by the OECD (OECD 2018): the students must be given the opportunity and ability to learn in formal, nonformal and informal learning environments; they should be supported by qualified and professional teachers; the task of educational institutions is to provide high-quality, honest, cost effective and innovative learning opportunities both in partnership and complementing other organizations and learning environments; and finally, educational systems must produce economic and social results for the benefit of society while also adapting to the new challenges. Education, teachers/educators and educational institutions and foundations have a great responsibility for raising the quality of human capital and the engine of society in the process of changes and transformations. So, all parties have a long way to go: students, teachers/educators, educational institutions and external parties (OECD 2018).

The Society 5.0 era, whether directly or indirectly, will have an impact on all aspects of life. In the field of education, it must be strengthened by changes in the competencies taught to students and the implementation of innovative learning models. Competencies for the 21st century include creativity, critical thinking, flexibility, openness, innovation, agility, competitiveness, problem sensitivity, information mastery, the ability to work in cross-disciplinary teamwork, and adaptability are crucial competencies to be taught to students to face the challenges and demands of life in the upcoming era of Society 5.0. Learning models that emphasize deductive processes and the transfer of knowledge from teachers to students are no longer sufficient to keep pace with the accelerating changes (Adbillah, et al. 2022).

Education, with all its aspects, is carried out to prepare future human resources capable of adapting to their time. Various social studies emphasize that in Society 5.0, the use of technology, data, and automation is inevitable. The world is becoming increasingly interconnected due to technological advancements. There is a significant shift from an economy based on natural or human resources towards a knowledge-based economy, with implications for the quality of human resources, education, and job opportunities.

Furthermore, in the context of the 21st century within Society 5.0, the essential human resource skills include (Nuryadi and Widiatmaka 2023):

- Ways of thinking, encompassing creativity and innovation, critical thinking, problem-solving, decision-making, learning to learn, and metacognition.
- Ways of working, including communication and collaboration.
- Tools for working, including information literacy and ICT literacy.
- Living in the world, covering citizenship, life and career, personal and social responsibility, including cultural awareness and competence.

## 7. Impact of Society 5.0 on curriculum development

Society 5.0 has a significant impact on curriculum development in higher education. As technology advances and transforms various industries and sectors, higher education institutions need to adapt their curricula to ensure that students are equipped with the skills and knowledge necessary to thrive in this new society. Here are some key impacts of Society 5.0 on curriculum development:

### **Technological literacy**

Society 5.0 places a strong emphasis on technological literacy and digital skills. Higher education institutions are incorporating courses and programs that focus on areas such as artificial intelligence, big data analytics, cybersecurity, internet of things, and robotics. Students need to understand these technologies and how they can be leveraged to address societal challenges.

### **Interdisciplinary approach**

Society 5.0 requires a multidisciplinary and interdisciplinary approach to problem-solving. Curriculum development in higher education is shifting towards integrating various disciplines to foster collaboration and innovation. Students are encouraged to work across traditional boundaries and develop skills in critical thinking, creativity, communication, and teamwork.

### **Ethical and social implications**

With the integration of advanced technologies in Society 5.0, higher education institutions are incorporating courses that explore the ethical and social implications of these technologies. Students are encouraged to critically analyze the impact of AI, automation, and data-driven decision-making on privacy, equity, and social justice. Courses in ethics, responsible innovation, and digital citizenship are becoming more prominent (Wulandari, Winarno and Triyanto 2021).

### **Entrepreneurship and innovation**

Society 5.0 promotes entrepreneurship and innovation as drivers of economic growth and social progress. Higher education institutions are developing programs and courses that foster an entrepreneurial mindset, teach innovation methodologies, and provide opportunities for students to develop their own startups or projects. The focus is on encouraging students to be proactive, adaptable, and capable of creating positive change.

### **Lifelong learning and adaptability**

Society 5.0 is characterized by rapid technological advancements, requiring individuals to embrace lifelong learning and adaptability. Higher education institutions are reevaluating their approaches to curriculum development by incorporating flexible and modular learning pathways. They are encouraging students to develop skills such as critical thinking, problem-solving, and learning agility, which will enable them to adapt to evolving technologies and societal needs throughout their careers.

To build Society 5.0, the future requires an appropriate learning model to overcome the discrepancy problem of the 5.0 community learning paradigm and schools must transform teacher-centered learning into student-centered learning so that students can think critically, deductively, and inductively in this era of disruption.

## **8. Examples of the impact of Society 5.0 on curricula**

In this section the impact of Society 5.0 on the curricula of Accounting, Management Sciences, Teacher Training and Media and Design will be discussed.

### **Accounting:**

The evolving global economic landscape necessitates attention from accountants, elevating their profession to a pivotal and strategic role across

various sectors. To adapt to these changes, accounting education and curriculum must undergo continuous refinement, incorporating information technology into accounting courses to align with the demands of the Fourth Industrial Revolution and the subsequent emergence of Society 5.0. As human resources diminish in relevance during the Fourth Industrial Revolution, the role of accountants undergoes transformation, encompassing tasks such as: (1) statistically analyzing processed data; (2) generating non-financial reports; (3) transitioning from a traditional bookkeeping role to that of an analyzer; and (4) ensuring data quality checks (Malau 2021).

Society 5.0, characterized by advanced technologies and the integration of digital innovations, would bring significant changes to the curriculum of Accounting programs. These changes would reflect the evolving role of accountants and financial professionals in managing data, analyzing financial information, and making strategic decisions in a highly digitized and interconnected society. Here are ways in which the curriculum might be influenced:

- Data analytics and big data: The curriculum would include a strong emphasis on data analytics and the use of big data in accounting. Students would learn how to collect, analyze, and interpret large datasets to derive valuable insights for decision-making.
- Advanced technology proficiency: Accounting professionals would need to be proficient in using advanced accounting software, automation tools, and artificial intelligence for tasks like data entry, reconciliation, and financial modeling.
- Cybersecurity and data privacy: Given the increased reliance on digital systems, accounting programs would include coursework on cybersecurity and data privacy to ensure that financial information remains secure and compliant with data protection regulations.
- Blockchain and cryptocurrency: As blockchain technology and cryptocurrencies gain prominence, students would be taught about their impact on financial transactions, auditing, and regulatory compliance.

- Ethical considerations in data usage: With the growing importance of data ethics, the curriculum would include discussions on the responsible and ethical use of data in financial reporting and analysis.
- Global accounting standards: Accounting programs would emphasize the understanding of international accounting standards and regulations, given the global nature of business transactions in Society 5.0.
- Sustainability accounting: Students would learn about sustainability reporting and environmental accounting practices to address the increasing emphasis on corporate social responsibility and sustainability in Society 5.0.
- Interdisciplinary skills: The curriculum might incorporate elements from other disciplines, such as business analytics, finance, and technology, to prepare accountants for cross-functional roles that require collaboration with professionals from different fields.
- Continuous learning and adaptation: Accounting professionals would be encouraged to engage in continuous learning to stay updated with emerging technologies and changes in accounting regulations.
- Communication and presentation skills: With the need to convey complex financial information to various stakeholders, the curriculum would place a strong emphasis on communication and presentation skills.
- Risk management and resilience: Given the interconnected and rapidly changing nature of Society 5.0, accounting programs might include coursework on risk assessment, management, and resilience planning.
- Audit Automation: Students would be trained in using automated auditing tools and techniques to improve the efficiency and accuracy of financial audits.
- Business ethics: The curriculum would include courses on business ethics to ensure that accountants understand their ethical responsibilities and can navigate ethical dilemmas in their roles.

- Adaptive leadership: Accounting professionals would be prepared for leadership roles that require adaptability and the ability to lead organizations through digital transformations.
- Regulatory compliance: Accounting programs would ensure that students are well-versed in evolving financial regulations, compliance requirements, and reporting standards.
- Environmental, Social, and Governance (ESG) Reporting: As ESG factors gain importance in investment decisions, accounting programs might include courses on ESG reporting and its impact on financial analysis.

In summary, the curriculum of accounting programs in Society 5.0 would evolve to equip students with the skills and knowledge needed to excel in a highly digitized, data-driven, and interconnected financial environment. It would emphasize data analytics, technology proficiency, ethical considerations, sustainability reporting, and adaptability to address the evolving needs of accounting professionals in this advanced society.

Fintech represents a technological advancement within the financial realm, encompassing innovations spanning investment, financial education, retail banking, and even cryptocurrencies like Bitcoin. The adoption of financial technology (fintech) has the potential to extend the accessibility of financial services and establish avenues for entities to access a comprehensive array of financial tools and services at cost-effective rates (Malau 2021).

### **Management sciences**

Society 5.0 represents a vision of a highly advanced and technologically integrated society that leverages emerging technologies like artificial intelligence, the Internet of Things, big data, and more to solve complex societal challenges and improve the overall quality of life. In such a society, the curriculum of Management sciences would likely undergo significant changes to prepare students for the challenges and opportunities of this new era. Here are some ways in which the curriculum might be affected:

- Emphasis on technology and data skills: Management professionals in Society 5.0 would need a strong foundation in technology and

data management. Courses related to data analytics, artificial intelligence, machine learning, and cybersecurity would become integral to the curriculum.

- Ethical considerations: As technology becomes more pervasive in decision-making, there would be a greater emphasis on ethics and responsible management. Students would be taught how to navigate the ethical implications of data usage, AI decision-making, and the potential consequences of technological advancements.
- Interdisciplinary education: Society 5.0 encourages collaboration across various disciplines. Management programs might integrate coursework from fields such as engineering, computer science, environmental sciences, and healthcare to foster interdisciplinary problem-solving.
- Digital transformation strategies: The curriculum would include courses on digital transformation strategies for businesses and organizations. Students would learn how to leverage technology to optimize processes, enhance customer experiences, and drive innovation.
- Sustainability and environmental management: Given the emphasis on sustainability and addressing environmental challenges in Society 5.0, management programs would likely include courses on sustainable business practices, environmental management, and green technologies.
- Crisis management and resilience: With the increased interconnectedness and potential for disruption in a highly technological society, management programs would place a greater emphasis on crisis management, resilience planning, and risk mitigation.
- Cultural competence: As Society 5.0 envisions a global society with diverse populations, management professionals would need to be culturally competent and capable of working in international settings. Cross-cultural management and communication skills would be important components of the curriculum.

- Lifelong learning: Given the rapid pace of technological change in Society 5.0, the curriculum might promote a culture of lifelong learning. Students would be encouraged to stay updated on emerging technologies and management practices throughout their careers.
- Entrepreneurship and innovation: Society 5.0 encourages innovation as a means to solve societal problems. Management programs would likely include courses on entrepreneurship, innovation management, and strategies for fostering a culture of innovation within organizations.
- Human-machine collaboration: Management professionals would need to understand how to facilitate effective collaboration between humans and machines. This might involve courses on human-computer interaction, augmented reality, and human-robot collaboration.
- Global perspective: In a highly connected world, management education would include a global perspective, emphasizing international business, global supply chains, and the interconnectedness of economies and markets.
- Soft skills: While technical skills are crucial, soft skills like critical thinking, adaptability, communication, and leadership would remain essential in a society where human-machine collaboration and ethical decision-making are paramount.

In essence, the curriculum of Management sciences in Society 5.0 would evolve to equip students with the skills, knowledge, and mindset needed to thrive in a technologically advanced and socially responsible society that leverages innovation and technology to address complex challenges. It would also emphasize adaptability and a commitment to ethical and sustainable practices in the ever-changing landscape of business and management.

### **Teacher training**

Society 5.0 envisions a highly advanced and technologically integrated society that uses emerging technologies to address complex societal challenges and improve the quality of life. The changes in teacher training

curriculum in such a society would reflect the need for educators to prepare students for this rapidly evolving world (Wulandari, Winarno and Triyanto 2021). Here are some ways in which the curriculum of teacher training might be affected:

- Digital literacy and technology integration: Teachers would need to be well-versed in digital literacy and technology integration. The curriculum would include training in the use of educational technology, online learning platforms, and digital tools for teaching and assessment.
- Pedagogy for online and blended learning: As online and blended learning become more prevalent, teacher training programs would include pedagogical approaches for effective online instruction, including strategies for engaging students in virtual environments.
- Data literacy and analytics: Teachers would be trained in data literacy to make data-driven decisions about student performance and adapt their teaching methods accordingly. This might include courses on educational data analysis and interpretation.
- Personalized learning: Society 5.0 promotes personalized approaches to education. Teachers would receive training in how to tailor instruction to meet the unique needs and abilities of each student, potentially incorporating adaptive learning technologies.
- Critical thinking and problem-solving: The curriculum would emphasize the development of critical thinking and problem-solving skills in students. Teachers would be trained in methods for fostering these skills in the classroom.
- Emphasis on Ethics and Digital Citizenship: Given the increased use of technology, teachers would play a crucial role in educating students about digital ethics and responsible digital citizenship. The curriculum would include modules on these topics.
- Cultural competence: In a globalized society, teachers would need cultural competence training to understand and respect diverse perspectives and backgrounds in their classrooms.

- Sustainability education: As sustainability becomes a central theme in Society 5.0, teachers would be trained to incorporate environmental and sustainability education into their lessons.
- Social and emotional learning (SEL): Teacher training programs might include SEL components to help educators support students' emotional well-being and social development, which are crucial in an increasingly interconnected world.
- Interdisciplinary approaches: Teachers might receive training in interdisciplinary approaches to education, encouraging them to collaborate across subjects and integrate various disciplines into their teaching.
- Lifelong learning skills: In a rapidly changing society, teachers would be encouraged to model lifelong learning and be trained to help students develop the skills and motivation for continuous learning throughout their lives.
- Innovation and creativity: Teacher training would emphasize fostering innovation and creativity in students, preparing them to be adaptable problem solvers and innovators in a dynamic society.
- Community and global Engagement: Teachers might be trained to facilitate community and global engagement projects, encouraging students to connect their learning to real-world issues and contribute to their communities.
- Assessment strategies: The curriculum would include training in modern assessment strategies, including formative and summative assessment methods that align with digital and personalized learning.
- Inclusive education: Teacher training would prioritize inclusive education practices, ensuring that educators are equipped to support students with diverse abilities and learning styles.
- Mental health and well-being: Given the increasing importance of mental health, teacher training programs might include modules on recognizing and addressing mental health challenges in students.

In summary, teacher training in Society 5.0 would evolve to equip educators with the skills and knowledge needed to prepare students for a rapidly

changing, technologically advanced, and interconnected world. It would emphasize digital literacy, personalized learning, ethical considerations, and the development of 21st-century skills while fostering a commitment to lifelong learning and responsible citizenship.

### **Media and design:**

Society 5.0, with its emphasis on advanced technologies and their integration into daily life, would significantly impact the curriculum of Media and design programs. These changes would reflect the evolving role of media and design in shaping communication, entertainment, information dissemination, and the overall human experience. Here's how the curriculum might be influenced:

- Digital media proficiency: The curriculum would place a strong emphasis on digital media skills, including graphic design, video production, animation, and interactive media development. Students would need to master various software tools and technologies used in media production.
- User experience (UX) and User interface (UI) design: As digital interfaces become increasingly important in Society 5.0, students would receive training in designing intuitive and user-friendly digital interfaces for websites, apps, and other digital platforms.
- Virtual and augmented reality (VR/AR): Media and design programs would likely introduce courses on creating content for VR and AR experiences. Students would learn how to design immersive environments and interactive storytelling in these emerging media forms.
- Data visualization: With the growing importance of data in decision-making, the curriculum might include courses on data visualization techniques, enabling students to convey complex information effectively.
- Ethical and responsible design: In Society 5.0, media and design professionals would need to consider the ethical implications of their work. The curriculum would include discussions on ethical design, privacy considerations, and responsible content creation.

- AI and automation integration: Media and design programs might incorporate coursework on how artificial intelligence and automation can be leveraged to enhance creative processes, such as AI-generated art or automated content curation.
- Content creation for emerging platforms: With the rise of new media platforms, students would be trained to create content optimized for platforms like TikTok, Instagram, and other emerging social and entertainment platforms.
- Transmedia storytelling: The curriculum could include courses on transmedia storytelling, teaching students how to craft narratives that span multiple media platforms and engage audiences across various channels.
- Cultural sensitivity and global perspective: In a globally connected society, media and design professionals would need to be culturally sensitive and capable of creating content that resonates with diverse audiences. Cross-cultural communication and global perspectives would be integrated into the curriculum.
- Sustainability and green design: Media and design programs might include modules on sustainable design practices and the use of eco-friendly materials and technologies in media production.
- Critical media literacy: Given the abundance of information in Society 5.0, students would be taught critical media literacy skills to discern reliable sources from misinformation and understand the impact of media on society.
- Interdisciplinary collaboration: Media and design students might collaborate with students from other fields, such as technology, business, and healthcare, to solve complex problems and create innovative projects.
- Entrepreneurship and business skills: As media and design professionals increasingly work in entrepreneurial roles, the curriculum might incorporate business and entrepreneurship courses to prepare students for freelance work or starting their own media-related ventures.

- Continuous learning and adaptation: The curriculum would encourage students to stay current with rapidly evolving technologies and trends in media and design through continuous learning and adaptation.
- Legal and copyright knowledge: Students would need to understand intellectual property rights, copyright laws, and legal issues related to media production and distribution.
- Mental health and well-being considerations: Media and design programs might include discussions on the potential impact of media content on mental health and well-being, encouraging responsible content creation.

In summary, the curriculum of Media and design programs in Society 5.0 would evolve to equip students with the skills, knowledge, and ethical awareness needed to excel in a technologically advanced, interconnected, and information-rich society. It would emphasize digital proficiency, creativity, responsible design, and adaptability to meet the demands of the ever-evolving media landscape.

## 9. Conclusion

The advent of the Fourth industrial revolution and Society 5.0 has fundamentally altered humanity's role, moving beyond mere objects exploited by globalization. Both epochs bring about significant changes, encompassing both positive and negative consequences. In the Fourth industrial revolution, the negative aspect involves the displacement of human and animal labor by sophisticated machinery and robots, leading to a diminished sense of humanity. Conversely, this era also enables remote work opportunities, allowing individuals to earn income from anywhere using computers.

Society 5.0 holds promise in empowering numerous students, particularly those engaged in skill-based training programs requiring repetitive practice. Technological integration can facilitate training and aid students, necessitating educators to stay updated on emerging technologies and their application within various programs.

Education within Society 5.0 harnesses a plethora of tools, including massive open online course platforms, advanced learning management systems, mobile learning, flipped classrooms, gamification, wearable technologies, robotics, learning analytics, and artificial intelligence. These tools foster personalized learning experiences, catering to individual progress and enhancing academic achievements through data analysis. Educators assume guiding roles in personalized learning, enabling students to pursue their educational objectives at their own pace (Darmaji, Mustiningsih and Arifin 2019).

In conclusion, the evolution from Society 4.0 to Society 5.0 reflects the profound impact of technological advancements on education at all levels. Society 5.0 represents the convergence of technology and learning, promising a future where education is personalized, flexible, and aligned with the demands of the fourth industrial revolution.

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## 11. Short biography

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# Student Voices

Challenges and Preferences

with Technology-enabled Online Teaching  
and Learning in Higher Education

Prof. Divya Singh  
Stadio

June 2024

## Keywords

Student voices, online teaching, technology-enabled learning, technology in higher education, access with success

## Abstract

The adaptation of the curriculum to incorporate cutting-edge technologies and human ethical values necessitates a careful, deliberate approach. A technological transition, pivotal for the future of education, is fraught with challenges but also with real chances for better human self-understanding. To appropriately understand the complexities and significance of this digital shift, *Stadio Higher Education* conducted a survey (STADIO SV Survey) to capture the voices of students on technology relevant to their social, learning, and teaching environments. After consolidating fundamental points as the methodology and the reliability of the survey, we proposed a descriptive analysis and a substantial study of the findings provided. Literature review and discussion of such important concepts as: choice of the technology, the nature of access, the computing skills needed, communication, contact and successful engagement permit, in a nutshell, the articulation of some very useful closing recommendations.

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# 1. Background

Globally, the number of higher education institutions offering online teaching and learning as the norm and the concomitant positive uptake by students has seen remarkable and accelerated growth in the period post the COVID pandemic. As higher education in South Africa embraces the new technologies in its commitment to, amongst others twenty-first century curriculum relevance, it needs to be assured that its decisions are informed and responsible and that it does not fall foul of the promise in the White Paper on Higher Education (DHET South Africa 1997) *to leave no student behind*. South Africa is a country of great inequality, and the prevalent technology disparity is symptomatic of the socio-economic reality. Therefore, while acknowledging the incredible opportunities created by technology, there is a caution for higher education that always bears consideration.

In pursuit of its programme of informed curriculum reform and transformation, STADIO Higher Education (the Institution) conducted a survey to capture the voices of students on technology relevant to their social, learning and teaching environments (the STADIO SV Survey). The aim of the research was to investigate opinions of students on various facets of technology-enabled learning and particularly their views on online learning, its accessibility and efficacy.

The importance of student voices is being increasingly accepted in the higher education milieu for the significant role that it can play in student success. The research by Stefl-Mabry et al (2010:66) reminds us pertinently that:

“ By the late 1990s and the early part of the 21<sup>st</sup> century the term student voice began to emerge in the dialogue of educational research and reform, suggesting a cultural shift, not only to listen to students, but also to legitimize students’ perspectives and opinion and argue for its inclusion in discourse related to educational practice and school reform.

Affirming the value of students as critical stakeholders in shaping teaching and learning, Byker et al (2017:119) describe student voices as the term “[honouring] the participatory roles that students have when they enter learning spaces like classrooms.”

There is no gainsaying the pervasive realities of technology in the 21<sup>st</sup> century and STADIO’s mission is to ensure that its graduates are suitably prepared for the new world of work. The student voice (SV) study is thus a valid means to understand students’ contexts, their challenges, and their preferences, and enable the Institution to identify appropriate technology norms and 21<sup>st</sup> century pedagogical approaches to teaching and learning that will enhance learning, while simultaneously preparing students for the challenges and demands of a technology-based working milieu.

## 2. Research Methodology

A quantitative self-administrated research design was used to collect information from the data subjects (STADIO students), and the study received the necessary ethics clearances. The survey tool was transformed into an electronic format to enable a web-based self-completion approach. An email invitation was sent to all students and participation was clearly indicated as voluntary, confidential, and anonymous. The online survey period for the study was the last two weeks of August 2023. The data was downloaded, cleaned, and stored for analysis purposes. This paper presents the descriptive analysis of the outcomes of the student voices survey.

## 3. Reliability and assessment instrument

The reliability of the data obtained by means of the student self-assessment instrument on technology in teaching and learning was computed by using the Cronbach Alpha reliability statistics in the Statistical Package for the Social Sciences (SPSS). The Cronbach Alpha coefficient provides an indication of the consistency of the data obtained by means of the survey instrument. Cronbach Alpha values range between 0 and 1 and are a measure of internal consistency based on the average inter-item correlation. The quantitative data sets of the STADIO self-assessment student voice survey with seven research constructs and 64 research items returned an overall Cronbach Alpha statistic of 0.850, reflecting a highly reliable result (see Table below). This test result confirms the highly satisfactory reliability of the data resulting from the student self-assessment model, which was

designed to measure technology access, use, satisfaction, challenges, preferences, likes and dislikes, and skills of STADIO students.

Table 1: Cronbach Alpha Reliability of Assessment Instrument

<b>Research construct</b>	<b>No. of Items</b>	<b>Alpha</b>
Technology access	14	0.607
Technology use for social and learning purposes	4	0.721
Technology expectations and experiences	7	0.710
Technology challenges/barriers	14	0.935
Technology preferences	5	0.554
Technology likes and dislikes	14	0.865
Technology skills self-assessment	6	0.817
<b>Overall</b>	<b>64</b>	<b>0.850</b>

## 4. Descriptive analysis

The research findings are presented according to the main themes covered in the survey. Prior to the analyses, a demographic profile of the student population is shared, which serves to contextualise the outcomes of the study. The analysis also includes a cohort analysis that compares the results of the contact learning students (most of whom are young school leavers) and distance learning students (the majority of whom are mature adult learners). Of the 1805 respondents, 587 (32.50%) were contact learners and 1218 (67.50%) distance learners.

## 5. Research Findings

STADIO offers both the contact learning (CL) and distance learning (DL) modes of delivery and the teaching and learning models in respect of both modes of delivery are clearly established. However, to better understand the survey findings, discussion, and recommendations, it is important to understand the teaching and learning models in place for CL and DL at the time when the survey was conducted. STADIO's contact learning and teaching model is a blended model including venue-based classes (minimum 50% per programme), synchronous online classes (minimum 25% per programme), and asynchronous online activities (minimum 25% per programme). The distance learning model of learning and teaching has taken

cognizance of the student profile and the students being served and is intentionally not an online delivery model: rather, STADIO retains the fundamentals of distance learning enabled by technology that further supports students to bridge the spatial divide between effective learning and teaching.

The evolution of distance learning has been a journey from pure passive engagement (sometimes described as correspondence learning) to a more engaged pedagogy of co-created knowledge between lecturer and student. Describing the timeline, Van den Bergh (2020: 3) points to the latter part of the twentieth century and early twenty-first century when social constructivist pedagogy around distance learning began blurring boundaries between the older style correspondence distance learning and face-to-face models which he describes as *cognitive behaviourism*. Today, online learning has built on the model of constructivism and is also presented as a pedagogy of connectivism with the student at the centre of the learning. Van den Bergh (2020: 6) provides a pithy tabular summary of the evolution from passive distance learning to the online, engaged connectivist model of delivery which is repeated below.

Generation	Technologies	Student Activity	Content	Assessment	Lecturer Role
Cognitive Behaviourism	Print, TV, radio, one-on-one communication, no dependence on the internet	Read and watch, student-lecturer	Pre-packaged materials designed by lecturers	Mainly recall, written assignments and examinations	Content creator, sage-on-the-stage, little interactivity
Constructivism	Video-conferencing, many-to-many communication, internet, email, skype, mobile devices	Discuss, create, construct, student-student, student-lecturer	Lecturer designed materials, discussions	Essays, applications, discussions, summaries	Discussion leader, guide on the side
Connectivism	Web 2.0 social networks, combination of systems, internet	Explore, connect, create and evaluate, student-content	Self-created materials	Creation of documents, applications, artefacts	Critical friend, co-traveller

*A brief summary of the three generations of DE according to evolving pedagogies. Based on the work of Anderson and Dron (2011).*

Acknowledging the technology constraints experienced by current and prospective students, students continue to receive printed study materials which are duplicated on the institution's learning management system, Canvas. However, there are three compulsory classes as well as other scheduled (voluntary) online classes, weekly online consultation sessions, an online Q & A Forum hosted by the lecturers, online formative assessments, and all assessments are submitted via the online portal. The greyed blocks in Van den Bergh's tabulated summary(above) reflect STADIO's current position on distance learning. The teaching and learning model adopted by STADIO finds resonance with the advice of Queiros and De Villiers (2023: 179) who stress that:

“ In the context of developing countries... institutions should note that the newest technology is not necessarily optimal, but should rather consider a critically discerning hybrid of appropriate, user-friendly, and accessible technology combined with media such as print and radio.

### Student demographics

The respondent sample - 1805 students in total - included students registered for qualifications ranging from Higher Certificates to Doctorates. Most of the students (57.6%) who participated in the SV survey were registered for degree studies and an overall 88.5% were registered for undergraduate programmes, including degree studies. About one-third (32.5%) of the students were contact learners (CL) and 67.5% distance learners (DL). 84% of the DL students were adult learners. About a fifth (19.10%) of the respondents were younger than 22 years of age, and most (55.4%) were between 22 and 39 years of age. 85.4% of the sample described themselves as resident in urban or semi-urban areas.

Overall, the demographic data displayed a good spread of the STADIO student population across all cohorts explored in the SV survey, allowing for an overall understanding of students' capabilities for learning using technology, as well as a more specific comparative cohort analysis for CL and DL students. The representative samples across cohorts enables the institution

to develop a more nuanced and segmented improvement strategy and plan to enhance the future technology experience and teaching and learning approaches at STADIO.

### Access to technology

Most students (80%+) indicated that they had access to the internet (87.3%), a smartphone (95.6%), a laptop computer (92.2%), connectivity (85.2%), and data (80.8%) which enabled them to study online. The student ratings for overall access to technology *for online learning* ranged between *average to good*, and 42.3% of the respondents rated their overall access to technology for learning as *very good to excellent*. The contact learning students rated their overall access to technology for online learning slightly higher when compared to the distance learning students. The use of technology tools for purposes of online learning was quite positive supporting the statement that students did not have difficulties accessing technology tools for learning.

Table 2: Use of technology tools

Technology tools	Frequency	Percentage
Laptop Computer	Once a week	12.12%
	Once a day	22.36%
	<i>More than once a day</i>	<i>59.61%</i>
Smartphone	Once a week	4.88%
	Once a day	12.26%
	<i>More than once a day</i>	<i>79.46%</i>
Tablet	Once a week	13.93%
	Once a day	16.39%
	<i>More than once a day</i>	<i>51.91%</i>

Laptops and Smartphones appear to be the preferred instrument for learning with the Smartphone being used more regularly daily.

The Table below summarises the key resources that students used on a regular basis to support their learning journey.

Table 3: *Use of Technology Resources*

Technology tools	Frequency	Percentage
Virtual Learning Environment (CANVAS)	Once a week	14.26%
	Once a day	24.07%
	<i>More than once a day</i>	<i>56.12%</i>
Social Networks (i.e. wikis, blogs, Twitter, Facebook)	Once a week	9.55%
	Once a day	22.15%
	<i>More than once a day</i>	<i>62.35%</i>
WhatsApp	Once a week	2.34%
	Once a day	8.62%
	<i>More than once a day</i>	<i>87.20%</i>
Teams/Zoom	Less than once a month	10.59%
	Once a month	17.02%
	Once a week	41.24%
	Once a day	15.04%
	<i>More than once a day</i>	<i>16.10%</i>

An immediate concern from the Table above is the Teams/Zoom participation rate. Bearing in mind the Institution's teaching model which includes weekly online consultation sessions for DL and synchronous online classes for CL students, it is apparent that a significant number of students are not participating in these activities.

### Technology use and competence for learning purposes

Students were asked to compare their technology use and competence for learning purposes through a comparison with their use and competence of technology for social purposes. 72.6% of the respondents rated their competence with technology for learning between good and excellent and an additional 24.8% described their ability as average. Interestingly and surprisingly, this was very similar to students' rating of their competence with technology for social purposes which they rated as 71.7% good to excellent, and 25.9% average. 72.5% of students indicated that they were frequent users of technology for social purposes, while a much higher number of students (84.6%) responded that they frequently used technology for learning. The self-assessed technology competence levels of contact learning students were only slightly higher than their distance learning counterparts.

Table 4: *Technology competence for social and learning purposes – CL and DL students*

<b>Index</b>	<b>Contact Learning</b>	<b>Distance Learning</b>
Technology competence for social purposes	80.40%	78.60%
Technology competence for learning	79.60%	77.80%

The importance of technology as a key graduate attribute and competence appeared to be clearly understood. 81.30% of the students either “agreed” or “strongly agreed” with the statement that higher education institutions should use technology for teaching and learning and a further 13.80% “slightly agreed”. The results confirm the sentiments expressed by Allen (2018: 18) that “today’s students need and want to learn with technology.”

#### Technology expectations and experiences – STADIO Systems and platforms

Having ascertained students more general views on technology for teaching and learning, the study focused specifically on the ease with which students were able to navigate the three key technology platforms adopted by the Institution. Regarding the learning management system (CANVAS), 63.10% of students identified it as easy/very easy to use with a further 21.80% describing its user-friendliness as “average”. More than 100 students (5.60%) stated that they experienced CANVAS as “difficult” or “very difficult” to use. The respondent feedback on Turnitin was more disconcerting with only 51.90% of students indicating ease of use, 23.00% of students stating that usability was of “average” ease, and 5.60% of students describing it as “difficult” or “very difficult”. Critical under this category was the fact that 18.50% of students recorded that they had not used Turnitin. Based on previous data, this is less likely to be because students did not have access to technology and more possibly because students found it difficult and made use of the interim arrangement allowing them to email their assessments to the Institution.

The third platform to be surveyed was the online library. Only 34% of the students surveyed confirmed that it was “easy” or very easy”, 30.70% of

students described it as being of average ease to use, and 17.2% of the respondent sample stated that the online library was either “difficult” or “very difficult” to use. 18.10% of the respondents stated that they had “given up” and never used the online library resources for learning purposes.

Against this backdrop, students who responded to the survey were highly satisfied with online learning at STADIO (Satisfaction Index = 79.33 points). The contact learning students were slightly more satisfied (79.83%) than their distance learning counterparts (78.17%).

In addition to the survey questions, students were also given an opportunity to present open-ended feedback on significant areas of satisfaction and dissatisfaction with the online technology-led teaching and learning model at STADIO. 213 students responded highlighting their challenges, and 1081 positive qualitative responses were received from the student sample, supporting the high satisfaction index indicated earlier.

The challenges raised by the students were analysed and may be categorized from the institutional perspective as follows: exogenous factors including factors beyond and within the students’ control, and endogenous factors attributed to STADIO. The extrinsic challenges linked to limited bandwidth, connectivity constraints, data limitations and unstable networks constituted more than half of the reasons for students being significantly dissatisfied with online teaching and learning.

*When connectivity is bad, we miss out on some or most part of the content being discussed.*

Students residing in the rural areas experienced access to technology as a much greater limitation than their urban and semi-urban counterparts.

*There are areas of disadvantaged internet access and coverage in SA and internet access for studying remains challenging.*

*In the rural areas, there are problems with network coverage most of the time.*

*We have very bad network coverage in the rural areas which makes us miss most of the online classes.*

The cost of data was also a consistent challenge for students. One student noted, “... it is on top of the fees that we paid for live learning.” Another student stated:

*I am putting myself through school and sometimes I don't have data, and then when I do have data sometimes the network is not on my side.*

The debilitating effect on learning was summed up in the following student comment:

*Sometimes there is questions that I don't understand and is no-one I can ask and I don't have data or wi-fi to ask online at that moment when the classes are scheduled. Then you will struggle until the end of the month when you can afford to buy some data.*

The second substantial challenge recorded was loadshedding and the electricity outages.

*Due to loadshedding, laptops and phones becoming flat while still online. That disturbs studies.*

*There are times where classes are scheduled during loadshedding meaning that we miss out on the lectures.*

Several responses linked to technological constraints can, however, also be attributed to the students' own capabilities and capacities for using technology. This warrants further investigation by the institution as an explicit requirement of admission is that all students have access to the necessary technology to support their learning journey. Many of the responses noted:

*I don't have enough data to study online.*

*Data is too expensive.*

*Internet access remains challenging.*

*I don't have internet at home.*

*I do not have wifi and can't access Canvas on a daily basis which makes it hard for us to be on track with others and it puts us under really hard expenses.*

The third area of major dissatisfaction with online learning was intrinsic to the Institution and specifically connected to how the teaching staff used the technology platforms for teaching and learning. The most prevalent issue related to the setup and population of the learning management system (Canvas). The students' key challenges were that information was (a) inconsistently placed on the LMS and (b) sometimes not placed and/or did not work for example, "The hyperlinks cannot be accessed." Another student responded:

*As it is a challenge already to use the laptop now to figure out where things are as they are found differently on each module.*

More critically, students pointed out:

*It is also obvious that lecturers have a hard time using it [Canvas] because nothing is in the same place and sometimes there are due dates for empty assessments.... [T]his causes so much panic amongst students.*

*The lecturers themselves come off as if they don't know how to use the platforms especially Canvas! It becomes difficult studying, dates and materials sometimes tend not to show, it's all a mess and all confusing.*

Based on the feedback received, it is apparent that staff development and capacity-building are needed to improve online teaching and build an experience that focuses on enhancing the students' learning experience. For example, students noted that lecturers in the online classes had their cameras turned off for the duration of the class; and/or appeared not to be cognisant of the time required for students to effectively engage with the information presented. Respondents shared:

*Before you can type out your response, the lecturer has moved on.*

*[Online learning is] extremely disengaging, lecturers do not give you time to type out your response.*

*During online sessions, no time is allocated for student engagement and questions.*

Lastly, under areas of dissatisfaction with online learning and teaching was communication and students were outspoken in their dissatisfaction. Summing up the sentiment, one respondent wrote, “Lecturers take a long time to respond. Sometimes we have to wait up to 4 days to get an answer.”

Students were asked to rank the top three technological challenges experienced with online learning and the results were as follows:

Table 5: Technology challenges with online learning

<b>Challenges</b>	<b>Index</b>
Availability/Stability of electricity	100.00
Cost of data	93.48
Limited connectivity	52.25
Affordability of devices	29.66
Data security	20.52
Difficult to use	17.61
Proper digital devices	15.51
Limited access to a computer	13.56
No device	3.13

Index values closer to 100 display more serious challenge.

The top three technology challenges faced by students relate to exogenous factors and include the availability/stability of electricity (loadshedding), cost of data, and limited connectivity. On average, students spend about R2 040.00 per annum on technology resources to support their online learning, the majority of which is data, with distance learners annually spending about 3% more than contact learners. 17.20% (252 students) indicated that they spend between R5 001.00 and R10 000 on technology resources and tools annually and 125 students (8.50%) noted that they spent more than R10 000.00 annually.

On the other hand, a significant majority of the survey respondents were very satisfied with their online learning and teaching experience. There was overwhelming acknowledgement for the “convenience” and “flexibility” of

online learning and the fact that it allowed them to study “anytime, anywhere” and “at own pace”.

*I can also meet my lecturer while in my house than driving long kilometers to venue-based classes.*

The fact that the LMS is mobile-friendly was a further reason for many students being able to access and engage with online classes.

*It is accessible from anywhere provided you have a laptop, internet, or a smartphone.*

The recorded lessons that are part of the learning and teaching model “allowed students the ability to redo material”, “review lessons”, and they “created opportunities for reflection”. Noteworthy was the number of respondents who appreciated the technology and the online classes as it encouraged them to plan their studies more effectively and kept them focused.

*It makes me focus more on the modules because I am always online active.*

The online classes were also commended for limiting the isolation that often characterizes distance learning and allowing distance learning students to “feel part of a community.”

*The online classes allow distance learning students to network and make new contacts – we meet new people daily by using technology.*

Contrary to the Canvas challenges highlighted by a selection of respondents, more students described Canvas and the concomitant student support as areas of “major satisfaction”.

*Canvas and student support are my major reasons for satisfaction with my studies. Since the educators have clearly prioritized the organization of the Canvas site, it has made studying and assignment submission much easier since I never have to worry, guess, or search for due dates or assignment information and if ever I needed to ask my lecturer a question, I was able to contact them. I don't necessarily get a reply instantly but if I give the lecturer*

*ample time to reply and when I manage my studies and time as I should, I don't have any problem with the time it takes to reply.*

*Canvas is an easy platform to use for distance learning, and therefore communication is very good.*

*Canvas makes everything easier for distance learning, so satisfying.*

*Canvas is an exceptional study tool, I like its layout, it's not very hard to navigate, but it does take some getting used to.*

Perhaps summing up the challenges and opportunities of online learning were the following student comments:

*It is easier and convenient to access information, interact with each other, receive study materials or access recordings for missed lectures. It is not perfect in terms of unforeseen challenges we might encounter due to network or unexpected technological glitches.*

Also,

*For students still learning the computer, Canvas is not easy to navigate. You need to know something about computers to use Canvas successfully.*

*At first it was a bit difficult to get used to the fact of using technology as a way to education mostly given that in my high school, we only used paper but after learning how to use it [the technology], it has made learning more fun and interesting.*

The student assessments of the fundamental challenge with Canvas and in tandem online learning finds resonance in the data drawn from the survey section: *Technology skills self-assessment*. The percentage of students with, at least, *good computer skills* dropped from 85% for students with basic skills to 63% and 43% of students with intermediate and advanced computer skills. However, overall, 75% of the respondents were confident that they had good enough skills to work with Canvas as a learning management system. Notwithstanding, about seven in every ten students (69.80% of survey respondents) still supported the statement that all qualifications should include a module on *understanding technology for learning online*.

## Technology preferences

Table 6: *Technology choices to support learning*

<b>Technology</b>		<b>Percentage</b>
Additional digital resources (i.e. recordings, snippets)	Definitely not	2.20%
	Probably not	2.40%
	Possibly	10.90%
	Probably	15.80%
	<i>Definitely</i>	<i>68.80%</i>
Virtual learning environment	Definitely not	2.30%
	Probably not	2.90%
	Possibly	14.50%
	Probably	16.70%
	<i>Definitely</i>	<i>63.70%</i>
Online classes	Definitely not	3.60%
	Probably not	4.10%
	Possibly	15.00%
	Probably	13.80%
	<i>Definitely</i>	<i>63.50%</i>

In response to the question on information sources, students had a much higher preference for online search engines (e.g, Google and Bing), followed by the online STADIO library (a distant second), and open-source artificial intelligence chatbots. This correlates with the previous finding that students find the online library platform difficult to navigate.

## Technology relevance to the world of work

There is no gainsaying the currency of the fourth industrial revolution (4IR) and this was reflected in the respondent feedback. Most students (85%+) agree that technology is a critical skill for a chosen career in the 21<sup>st</sup> century.

Table 7: *Technology is a critical skill for your chosen career in the 21<sup>st</sup> century*

	<b>Percentage</b>
Totally disagree	4.50%
Disagree	1.80%
Neither agree/disagree	6.50%
Agree	27.70%
Totally agree	59.50%

Confirming the data in Table 7, student sentiments in the qualitative section describing their satisfaction with technology-led learning and teaching included:

*We are in the fourth industrial revolution and every higher education institution must go with the times.*

Given their engagement with the world of work, distance learning students were asked a question on how *your technology experience with learning improved your work capabilities*. Their responses were again more positive and are set out in Table 8 below:

Table 8: *How technology experience with learning improved work capabilities*

	Percentage
Poor	1.60%
Minimal	5.70%
Sufficient	18.30%
Above average	35.50%
Excellent	38.90%

About 75% of the distance learning students agreed that technology experience with learning had an above average or excellent impact on their work capabilities.

*I have learned a lot through my online studying. I am learning every day as I discover more things about technology that I did not know before.*

Comparative sampling between the school-leaver and adult learner sub-samples in distance learning

Whereas the analyses up to this point presented some comparative information between contact and distance learning students as part of the overall study findings, some salient findings between the opinions of the *school-leaver* and *adult learner* sub-samples in the distance learner category of students are also pertinent for purposes of this study especially with an emerging trend of school leavers increasingly registering for distance learning.

Unsurprisingly, school leavers were more avid users of smartphones and internet technology and used technology for learning more frequently than their adult learning counterparts and found the teaching and learning technologies easier to use than the adult DL learner. In similar vein, the school leaver sub-sample was much keener about expanding the tech spectrum and using other technologies like webcams, cloud computing, social networks and Teams/Zoom for learning and teaching. The school-leaver group was also more inclined to use online search engines (e.g, Google and Bing) and open-source artificial intelligence chatbots for research and assessments, whereas the adult DL learners favoured the STADIO online library as a key source of information. Insofar as communication and messaging, 70% of the adult learner sub-sample use sms-es daily while only 4 in every 10 school-leavers indicated a regular use of sms messaging.

Adult learners agreed more than the DL school-leaver sub-sample that higher education institutions *should use technology for teaching and learning*. This finding may be explained by the fact that limited connectivity and affordability of data and devices were bigger challenges among school-leaver students than adult learners.

## 6. Literature review and discussion

In 2023 Atherton (October 7: n.p.) noted that the global trend reflected a regression in terms of access to tertiary education for all students and especially those from low-income and other disadvantaged backgrounds. This is not the South African reality because of several national imperatives and policy directives (Agumba et al 2023). However, what is of significant concern in South Africa is that while access may have improved, socio-economic disparities, and the legacies of apartheid between rural and urban communities prevails with material impact for academic success. In the current period in South Africa:

“ ... many students continue to be disadvantaged by virtue of their identities and economic, social, and geographic backgrounds as most initiatives fail to address the deeply entrenched

and systemic inequalities that affect students from rural backgrounds (Agumba et al 2023:23).

While technically, notions of rural and urban configurations are primarily spatial disciplines, student geography in South Africa - that is, where students live - has been identified as having a direct correlation on access and success (Agumba et al 2023). Rural segmentation highlights a confluence of barriers for students including race and social class, which cannot be ignored when institutions admit students for teaching and learning. Confirming this important consideration as a factor of student admissions, Moodley et al (2023) emphasise the myriad of diverse factors influencing success, which need to be engaged and managed holistically when institutions deliberate on student success.

### Choices of technology, access, and computing skills

Specifically discussing the factors of (i) technology choice, (ii) technology access, and (iii) computing skills, Agumba et al (2023:37) make a pointed reference to the “foreignness of technology” for many students and stress it as one of the key barriers to academic success for students especially from rural geographies. Their study confirms the findings in the STADIO SV Survey regarding the use of and access to technology. Agumba et al (2023) highlight specifically the broader realities with which students from rural backgrounds must grapple reflecting on the academic environment, which can also be alien and, for many, a hostile one; academic language, concepts, work demands; and structures that are unfamiliar. Van den Bergh (2020:8) includes, in this milieu, the importance of a conducive studying environment citing from his research the following student experience:

“ I have been struggling with everything, mostly because in my home I don’t have electricity. Added to this is a poor network connection. Consequently, I wrote one of my exams at a mountain which is 3km away from my home. I am frustrated as I am unable to afford to rent a place in town where I can get access to electricity and a good network connection. Recently, I had to write my examination late as the network connection was slow.

It is a complex dynamic that students from rural environments must navigate - and overcome - to fit in with institutional teaching and learning norms but, caution Moloji and Salawu<sup>a</sup> (n.d.), it would be entirely remiss to conclude that students with rural origin are intellectually incapable of using modern technologies. Key from this discussion is rather to understand that while lecturers remain unaware of the profile and realities of their students, there is only a limited possibility of successfully bridging the gap for affected students.

For many students, online learning is enabled using a mobile device. On the positive side, mobile devices are more affordable, most students already have one, and they provide students with some access to their learning content. However, mobile devices for learning are not without their challenges. One of the biggest limitations experienced by students is reading lengthy library texts on a mobile device. Equally, engagement in writing programmes cannot be successfully done on a mobile device (Moloji and Salawu<sup>a</sup> n.d.: 19). Thirdly, the compatibility of mobile devices has also been raised as a concern.

“ ... the academic leaders through the interview emphasized that not all mobile the phones in possession of the students are android, which aggravates the perceived inequality among the student’s populace. Accordingly, this was linked to the potential result in unequal access to technology opportunities/digital divide among those students who can afford it and those who cannot afford it (Moloji and Salawu n.d.:19).

In the STADIO SV Survey, too, students noted the difficulty of learning using a mobile device, and the added limitations linked to the type of mobile device. For example, it was stated:

*It’s difficult to connect online especially my phone says not compatible when I try to connect, and I cannot afford a smartphone.*

Focusing on South African experiences, Bharuthram and Kies (2012) highlight limited access to computers, high costs of computing, and internet access as being amongst the main barriers facing students on online learning programmes. Corroborating earlier findings on the impact of lack of access

to technology, they reflect on the impact of such limitations which leave students feeling marginalized and anxious and contribute to widening the digital divide between them and students with access. On the other hand, confirm Queiros and De Villers (2016: 175), students who could use a computer and the internet with ease, felt much more positive and engrossed with their studies, more motivated, and more prepared to engage with technologies. In this regard, Mayes et al (2011) remind us that the instructional value of any technology is only as good as (a) the quality of its implementation and (b) the skill and comfort levels of the beneficiaries/users. One without the other will hamper the learning experience. The STADIO SV Survey confirms the earlier findings of Wang et al (2013: 305) who reported on the increased technology self-efficacy and course satisfaction amongst students with previous online experiences. This was also confirmed by D’Angelo.

“ When students perceive that the attributes of a given technology are engaging and beneficial to their learning, they are likely to adopt that technology and use it to enhance their understanding of the course content. (D’Angelo 2018: 3)

Looking specifically at the distance learning respondents in the STADIO SV Survey, the results indicated clearly that school-leaver respondents (compared with their mature adult counterparts) (i) were more versed in the use of technology and (ii) were also keener to try new and innovative technologies as part of the earning experience. Wang et al (2023: 314) attribute this to their ability to develop more effective learning strategies building on previous experience of technology. Novice learners on the other hand are often confused, resulting in anxiety and a loss of control (Mayes et al: 2011).

This is an important consideration considering the findings by Moloi and Salawu<sup>a</sup> (n.d.:30) who record that only 13% of the Executive Deans (in their study across 22 of the 26 national public universities) believed that students had access to sufficient technology - connectivity (wi-fi) and data - to progress with their learning. Most believed that as soon as students left the campus their ability to engage meaningfully with their studies was drastically reduced.

“The extreme cases (about 20%),” they note, “occurred where the students do not have personal devices and/or reside in remote locations ... where electricity and internet access were not consistent.” Queiros and De Villiers (2016: 175) report that 58% of their respondents only have access to a computer at the office. The STADIO Student Voice Survey also identified several respondents who while they had access to devices, only did “not have internet at home” and could only access the internet at work. The effect then is that in both instances students are not able to engage effectively with any kind of online teaching and learning.

Discussing other technologies favoured by students for learning, the study by Queiros and De Villiers (2016:170) revealed only “tentative positivity on video clips (47-56%)” which result the authors themselves describe as “surprising”. They note that students were more positive about websites as learning tools leading them to suggest that the attraction of the web was that it directed the students to more independent seeking of information, while videos are a more passive experience. One student in the study summed up the finding responding that “... with web browsing you get a wider view of matters, and you can make up your own mind.” On the other hand, Scagnoli et al (2017:3) are more affirming about the use of video as a teaching tool and specifically its value in student engagement as it gives the user far more control of the media. In similar vein, Tse et al (2017) and Moloji and Salawu (2022: 207) agree that video-based flipped classroom instruction enhanced both teaching effectiveness and subject satisfaction in students. In the STADIO SV Survey, students appeared to favour videos when new concepts were being explained: however, the web was preferred when learning was focused on acquiring new knowledge.

### Communication, contact, and engagement

From the available literature, there is overwhelming agreement that in online learning, the quality of the learning experience is significantly proportional to the reciprocity of engagements and communication, and promptness of responses and feedback to student enquiries (Ilgaz and Gulbahar, 2015). In the study by Queiros and De Villiers (2016) extremely high ratings went to lecturer interaction. It was therefore not surprising that in the institutional

STADIO SV Survey almost 11% of respondents who indicated a dissatisfaction with online learning, raised specific challenges of poor or no communication and engagement from lecturers.

Constructive and active engagement from the lecturer builds the sense of community, concomitantly minimizing the sense of isolation which is one of the well-recognised risks of distance learning. The knowledge that there will be a response and timely feedback from the lecturer fosters a sense of belonging, builds confidence, and reduces anxiety, which have established themselves in the literature as key critical success factors for enhancing student retention especially in online and distance learning. Confirming Mbatia's (2012) research Moodley et al (2023: 1374) suggest that “[w]eekly interaction between students and lecturers is essential to sustain the online presence and create a safe collaborative environment.” Moodley et al (2023: 1373) also draw particular attention to the importance of “sense of belonging” especially amongst first-generation students. They found that the challenge was exacerbated because, they note, these students “tend to receive less moral support from their families and have different (and potentially mismatching) expectations when entering their first year of tertiary education.

One critical outcome of the failure to establish an appropriate and enabling learning environment is the high dropout rates that are being recorded globally in online programmes. Moodley et al (2023) report global attrition rates ranging from 35% to 80% and reiterate the consequential far-reaching social and economic detriment for both the student and the institution. With the national commitment in the White Paper, 1997 to “access and fair chance of success”, creating an enabling environment that promotes student satisfaction, student motivation, and student retention is pivotal.

### Professional staff development

While much is written about students’ capabilities regarding technology-enabled teaching and learning, the competence of academics to develop good technology-led lessons is complementary and equally critical to success. (Rabella 2018; Moloi & Salawu 2022) Training in the *use* of the new technologies for online teaching and learning is a critical step for effective

implementation – the simple truth is that teachers need to know how to use the technology well before they are properly confident to use it in the classroom. Further, and an often missed second driver of success is professional development for online teaching. Online teaching is not the same as venue-based teaching and yet academic staff are often expected to enter the new terrain without (or only limited) preparation. Given the new and different perspectives on and approaches to many of the fundamental elements of classroom teaching and learning that attach to online teaching, adequate training becomes a critical enabler of the successful implementation of e-learning. The reality is that “technology does not teach by itself. Its operative relies solely on the human expertise. Training provides capacity, skills and knowledge that will drive e-learning.” (Odunaiké et al 2013: n.p.) Academics need to understand and then be actively trained in implementing the new pedagogies of online teaching and how to build effective communities.

Lecturers need to be trained in the use of technology and empowered with the skills to understand the critical success factors for online teaching and learning which include creating a presence in the online space, motivating learning through *constructive* engagement, building community, encouraging discourse, and providing prompt feedback. Moloji and Salawu (n.d.:6; 2022:206) concur that technology can improve students’ learning outcomes, but only with the support of good instructors, quality instructions, and appropriate institutional investment.

The research study conducted by Moloji and Salawu in twenty-two South African universities notes that while there remained pockets of staff not being fully competent, mostly the teaching staff “is competent to moderately competent in the use of existing technologies for teaching and learning because most faculties had provided training in an on-going basis” (2022:214). Against this backdrop they stress the centrality of continuous training provided on teaching and learning technologies under normal circumstances in the post-pandemic institution (Moloji and Salawu 2022:214). Importantly, however, staff training is not a one-size fits all and it is important that staff be asked to identify their individual needs, as well as for skills and

knowledge gaps to be identified through internal audits and module surveys undertaken with students.

## 7. Conclusion and recommendations

Teaching, learning, educators, students, and classrooms have all been affected by the integration of technology in education (Allen 2018:5). On a positive note, South African students, appear not to express the same reservations about online education as highlighted by their international counterparts who were critical and outspoken about poor quality of teaching and the regurgitation of previously used content that was being fed to them. The challenges most often raised by the South African student body refer to access to technology, a lack of recorded lectures, chasing deadlines rather than focusing on learning content, the lack of communication from staff, and a belief that academics have not been properly training in the use of the technology for teaching. (Essop 2021:19-20) In the STADIO SV Survey, students made no reference to “poor quality” and while there was a minority who reflected on the South African challenges identified by Essop, the majority of the respondents saw online learning as an important tool that prepared them for a workplace where technology is the norm. Summarising the South African reality, Moloï and Salawu (2022: 206) believe that:

“ Digital nativity has stimulated the passion of the current generation students for learning with technologies and a good number of students understand the skills they would require to appropriate the benefits of the fourth industrial revolution as they envisaged the impact of the era on their career.

The literature confirms that online teaching and learning is now accepted as the new normal in higher education, either as a mode on its own or blended and a pre-determined component of the traditional venue-based classroom model. However, Essop (2021:3) points out, simply accepting the new status quo without interrogating the factors of access and experience, cost, and historic realities will result in entrenching and exacerbating existing inequalities. And in this milieu, notes Moloï, aggravating the problem is the fact that “[t]eachers at both primary and high school are not provided with

the right training and development to assist them for a 4IR geared education system, while the disparity between urban and rural exacerbates the situation.” (Optimi Classroom 2023: 3) Johnson et al (2016:16) concur. They state:

*The most commonly cited reason for lack of technology implementation in the classroom is inadequate professional development and training.*

On the question of whether online learning may be the panacea to expand access to higher education, Atherton (2023:n.p.) posits that globally “by equity target groups and completion rates [participation in higher education] would go down and the chances of getting a graduate job for these students would reduce by 2025.” Quality online teaching takes time, effort, technical support, and requires professional staff development and instructional development costs. Many institutions see online learning as a form of massification of learning and increased revenue generation: however, quality online learning will never be a “cheap alternative”. This is the conundrum that STADIO looks to mitigate by widening access in a manner that promotes success and, at the same time, ensuring that graduates are prepared and skilled for the 21<sup>st</sup> century workplace, and a concomitantly technology-enabled world-of-work. The institution recognizes that while change and the acceleration to technology solutions should not be a tsunami, graduates also do not have the luxury of time. The transformation being wrought by technology is unprecedented, leaving little time or no opportunity to model choices and ponder options. Higher education is often playing a catch-up game, but it cannot afford to be left too far behind, especially in the graduates it produces.

These were some of the key contexts that informed the STADIO learning and teaching models. The institution is aware that in the socio-economic milieu exemplifying South Africa, while technology can be an enabler, it has the potential to equally limit success. The results of this study summarise students’ challenges with technology for learning. Confirming the importance of studies such as this one, Atherton (2023) makes the critical point that

achieving any change in this space will only be properly realized when those who are most affected by the outcomes – the students – are engaged:

“ There needs to be concerted work that is honest about the inequalities that exist in higher education participation across the world, what universities can and can’t do to address them, and work that shows how addressing these inequalities is crucial to economic and social development. (Atherton 2023:n.p.)

Research like this one and that conducted by Bharuthram and Kies (2013), Queiros and De Villiers (2016) and Moloji and Salawu<sup>a</sup> (n.d) provides reliable data to inform decision-making and appropriate actions guiding technology-led teaching and learning.

There are striking opportunities to online learning: however, South Africa must face the stark reality of a very unequal society. Thus, emphasise Queiros and De Villiers (2023: 179), online learning must be designed considering learners needs and obstacles. STADIO acknowledges the imperatives of social justice and the concerns and challenges of students, it recognizes that they need to be taken seriously, and the obstacles identified constructively addressed if it is to be true to its commitment to leave no student behind. However, social justice does not require the adoption of the minimum standard: rather it advocates for (i) the acknowledgement of the challenges; and (ii) constructive solutions to mitigate the root causes and risk.

Based on the first STADIO SV Survey on technology-enabled learning, and using both the statistical results and the respondent vignettes which were often more vivid in highlighting student challenges, STADIO designed a framework to manage its planned improvements. The Table presented on next page takes cognizance of the intrinsic and extrinsic factors that affected the students’ learning experience. The intrinsic factors included the personal and individual realities and informing attitudes of the respondent students, as well as structural and organizational considerations of the institution, while the extrinsic factors are those issues exogenous to the institution, over which the institution has no control and no capability to mitigate the impediment/s.

<b>Considerations affecting students' experience of technology-led online teaching and learning</b>		
<b>Extrinsic Factors</b>	<b>Intrinsic Factors</b>	
	<b>Institution</b>	<b>Students</b>
Load-shedding (electricity shutdowns)	Programme/module design	Technology capabilities
Devices for learning are unaffordable	Staff capabilities to effectively teach using technology	Unfamiliarity with technology-led learning
High cost of data	Available technology to support students' learning	Attitude and goal-orientation/motivation to success
Unstable connectivity	Planning	
	Resourcing: <ul style="list-style-type: none"> <li>• On-call technology support for teaching and learning</li> <li>• Financial provisioning</li> <li>• Suitable infrastructure)</li> </ul>	
	Professional staff development and training	

It is critical for an institution offering online learning to make a deliberate effort to know its students. This may be achieved through amongst others regular student profile surveys, especially amongst the first-year students at the registration. In addition, institutions must ensure that they have the necessary technology systems and resources that will support students in their technology-led learning activities and engagements. As highlighted by Odunaik et al (2013) projects involving technology have often failed because of inadequate planning and improper budgeting; as well as an almost frantic drive to be relevant in the 21<sup>st</sup> century without consideration for the impact, sustainability, and ramifications of initiatives and operations implemented. Institutions must pay particular attention to institutional readiness for technology-led/online learning, resources and constraints and the following could be a useful list: business readiness, stakeholder readiness, technology readiness, content management readiness, training process readiness, culture readiness, and financial readiness (Odunaik et al 2013: n.p.).

It is conceded that poor network coverage hampering access, the lack of a stable and reliable power supply, bandwidth limitations and unreliable connectivity in the rural environs are, however, societal challenges beyond the control of higher education institutions (Essop 2021: 16). Notwithstanding their existence and the inevitable constraints they carry, these factors should not restrict institutions from pursuing an agenda of technology-enabled learning. Capitulating to these challenges would be counterintuitive to the notion of higher education as a public good, the values of social justice, and the pledge in the SDGs 2030 to widen access. Rather, higher education institutions must be aware of the realities, the effect on students’ learning, and prepare to address the intrinsic considerations tabulated above to ensure the best opportunities for success for *all* students.

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## 9. Short biography

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# Chatting or Cheating

## – Test of a First-Rate Intelligence?

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### Keywords

Generative AI, Higher Education, Academic Integrity, Learning Technologies

### Abstract

The emergence of Large Language Models (LLMs) has significantly influenced the landscape of Higher Education, with their adoption by students and educators escalating rapidly since OpenAI introduced ChatGPT in November 2022. By means of a rapid literature review the authors examined the current state of generative artificial intelligence (GenAI) tools and their application in diverse learning and teaching settings within Higher Education. A comprehensive analysis was conducted, including peer-reviewed academic literature, conference calls, and insights from social media discussions. This investigation culminated in the development of the ENIGMA framework, comprising six key activities, namely Engage, Navigate, Individualise, Guide, Moderate, and Adapt. The study underscores the necessity for further research into the seamless integration of AI technologies by educators and students in educational settings.

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# 1. Introduction

“The test of a first-rate intelligence is the ability to hold two opposed ideas in the mind at the same time, and still retain the ability to function.”

F. Scott Fitzgerald, 1936

In recent years, the use of artificial intelligence (AI) has become increasingly prevalent in higher education (Dwivedi et al. 2023: 3; Kuleto et al. 2021: 1; Sullivan/Kelly/McLaughlan 2023: 2). One such example is the use of chatbots powered by Generative Pre-trained Transformer (GPT) models, such as ChatGPT (Kasneci et al. 2023: 2).

ChatGPT, an advanced natural language processing (NLP) model, is gaining notable traction in higher education for its potential to enhance educational experiences, improving learning outcomes and fostering heightened student engagement (Dwivedi et al. 2023; Kasneci et al. 2023; Kuleto et al. 2021; Sullivan et al. 2023). Its integration into various teaching and learning contexts reflects its ability to simulate natural language interactions effectively. ChatGPT leverages sophisticated NLP algorithms to deliver contextually relevant and informed responses, thereby facilitating a more interactive and engaging learning environment for both educators and students. This growing prominence is reported in recent scholarly works, including those by Haleem, Javaid, and Singh (2022), Kasneci et al. (2023), and Sullivan et al. (2023), which highlight its application and impact in the educational domain.

This rapid literature review aims to explore the use of generative AI tools, such as ChatGPT, by educators, and students, for learning and teaching in higher education settings.

# 2. Background

Artificial intelligence (AI) is rapidly transforming various industries, and higher education is no exception (Dwivedi et al. 2023; Kuleto et al. 2021). One of the most promising frontiers of AI lies in the domain of chatbots and generative AI. These technologies harness algorithms to create original

content, spanning from essays and quizzes to data analysis and predictive analytics (Kasneci et al. 2023; Kuleto et al. 2021). For educators, recognising the potential of these tools is essential, as they can profoundly inform teaching methodologies and student learning experiences. These advancements in generative AI have the potential to revolutionise teaching and learning by providing personalised, interactive, and engaging experiences for students. With the ability to generate content, chatbots and other generative AI tools can aid in delivering tailored educational materials, offering real-time feedback, and facilitating student engagement and learning (Dwivedi et al. 2023; Kuleto et al. 2021).

Embracing AI-powered chatbots like ChatGPT offers educators a promising avenue to address the prevailing challenges within higher education. These challenges include resource disparities and the need for personalised student support (Dwivedi et al. 2023; Kasneci et al. 2023; Kuleto et al. 2021). Educators can explore these innovative solutions to bridge gaps and enhance the educational experience for all students. In addition, the use of AI-powered chatbots, such as ChatGPT, could help to address this issue. Generative AI may offer a solution to some of these challenges by providing more efficient and effective ways of supporting education (Dwivedi et al. 2023; Haleem et al., 2022; Kasneci et al. 2023; Kuleto et al. 2021), for example, ChatGPT's unique ability to generate responses and deliver immediate feedback harnessed by educators to provide individualised support to students. This technology can play a pivotal role in helping students overcome challenges, clarify concepts, and access information and resources (Dwivedi et al. 2023; Haleem et al. 2022; Kasneci et al. 2023; Kuleto et al. 2021).

This capability of AI tools to generate content, raises legitimate concerns about the authenticity and integrity of students' work. Additionally, the detection and prevention of cheating or improper use of generative AI tools pose intricate challenges for educational institutions (Dwivedi et al. 2023; Haleem et al. 2022; Kasneci et al. 2023; Kuleto et al. 2021). Educators need support to navigate these opportunities and challenges thoughtfully and ethically, ensuring that the adoption of AI technologies enhances the learning environment without compromising its integrity (Cotton/Cotton/Shipway 2023).

Moreover, detecting and preventing cheating or misuse of generative AI tools can be challenging for institutions (Dwivedi et al. 2023; Haleem et al. 2022; Kasneci et al. 2023; Kuleto et al., 2021). Furthermore, there may be concerns about the readiness and capacity of educators and students to effectively use generative AI tools in their teaching and learning processes. Adequate training, support, and resources may be needed to enable educators and students to effectively integrate and use these tools in their educational practices (Dwivedi et al. 2023; Kuleto et al. 2021; Haleem et al. 2022; Sullivan et al. 2023).

By analysing the existing research, the review seeks to provide evidence-based insights into the use of generative AI tools (Dwivedi et al. 2023; Kuleto et al. 2021) for teaching and learning. The findings of this review will contribute to a deeper understanding of how educators use generative AI tools in higher education. The examination of opinions about ethical concerns, academic integrity, and the readiness of educators and students will shed light on the challenges and considerations associated with the use of generative AI in educational settings (Dwivedi et al. 2023; Haleem et al. 2022; Kasneci et al. 2023; Kuleto et al. 2021). Through the analysis of existing research, this review aims to provide evidence-based insights that can inform decision-making processes and guide the effective integration of generative AI tools in higher education practices. The findings will contribute to the advancement of knowledge in the field and provide valuable guidance for educators, policymakers, and stakeholders in higher education institutions.

### **3. Problem statement and research questions**

As generative artificial intelligence (AI) tools, such as ChatGPT, gain prominence in higher education, questions arise about their impact on educators' acceptance and integration of these tools. Drawing on existing research (Amri/Hisan 2023; Chan/Lee 2023; Lo 2023; Qadir 2023; Su/ Yang 2023), it is conjectured that a positive relationship exists between educators' grasp of ChatGPT's functionality and their propensity to adopt and seamlessly embed these AI tools into their teaching methodologies.

Conducted as a rapid literature review, this investigation aims to review and synthesise insights from diverse sources, including social media content, scholarly discourse in peer-reviewed journals, and knowledge shared through conference and symposium deliveries. Through meticulous analysis, the review aims to unravel the extent to which educators' familiarity with the capabilities and operational intricacies of ChatGPT influences their inclination to embrace and proficiently infuse these AI tools within their instructional methodologies. Furthermore, this inquiry will delve into potential mediating variables that might influence this relationship, spanning considerations about academic integrity, ethical dimensions, and the readiness of educators and students to effectively engage with generative AI tools.

Within the evolving landscape of education, the ascendancy of generative AI tools, exemplified by ChatGPT, prompts a pivotal inquiry into educators' adoption and effective integration of these tools. Central to this exploration is the extent to which educators' comprehension of these tools' capabilities and functionalities shapes their integration into educational contexts.

The central focus of this study is to investigate the extent to which educators' comprehensive understanding of generative AI tools, particularly ChatGPT, influences their decision to adopt and seamlessly integrate these tools within various educational contexts. Therefore, we seek to review: how do educators' understanding of the capabilities and functionalities of generative AI tools influence their adoption and effective integration of these tools within educational contexts? To achieve this, we aim to investigate:

- How do educators' attitudes, perceptions, and concerns towards technology in education influence their adoption of generative AI tools such as ChatGPT?
- What strategies and approaches have educators found or developed to overcome barriers and challenges in effectively integrating ChatGPT into their teaching practices?

## 4. Rationale

This review centres on the pivotal role educators play in the integration of generative AI tools in education (O'Leary et al. 2017). By examining various dimensions, including educators' attitudes, perceptions of tool capabilities, contextual relevance, ethical considerations, and integration strategies (Mallik/Gangopadhyay 2023; Owoc/Sawicka/Weichbroth 2019; Qadir 2023; Salas-Pilco/Xiao/Hu 2022), this study aims to provide targeted insights for educators, institutions, and policymakers. The organised approach employed in this rapid review aims to furnish actionable insights amidst the complex landscape of AI integration in education.

By reviewing these multifaceted dynamics, this research is poised to supply prompt and targeted insights that hold the potential to guide educators, institutions, and policymakers through the intricacies of integrating AI tools into educational practices. Through a systematic presentation of findings, the rapid review contributes to a heightened comprehension of educators' role in leveraging AI tools, thus augmenting the educational experience for both instructors and learners alike. This rapid review's focused and organised approach aims to equip stakeholders with actionable insights that resonate across the complex landscape of AI integration in education.

## 5. Methodology

The methodology of our rapid literature review, as outlined by Grant and Booth (2009), is designed to efficiently capture the dynamism of AI in higher education. Rapid literature reviews focus on defining a clear and focused research question or aim that can be addressed within a brief period. This approach involves conducting a limited search of relevant sources, using predefined and explicit search terms and strategies. Once the data has been sourced, specific criteria or filters are applied to select studies that are most relevant and suitable for the research questions. These criteria may include factors like date range, language, publication type, and study design. We also employ a brief and standardised tool or checklist to appraise the quality and relevance of the selected studies.

Subsequently, we synthesise the main findings and implications of the selected studies using a narrative, descriptive, or tabular approach. Our aim is to provide a quick and concise overview of the evidence on educators' perspectives about the integration of generative AI tools, with a particular focus on ChatGPT, within higher education. This synthesis enables us to stay current and extract valuable insights from a vast body of research, all while considering the evolving nature of AI in education.

In this study, we conducted our rapid literature review covering articles and content published between November 2022 and August 2023. To comprehensively gather information, we used a range of sources including formal, semi-formal, and informal sources, assuring a comprehensive comprehension of the subject. Through a review of peer-reviewed literature, Conference and symposium information and social media, we covered formal, semi-formal and informal sources.

Peer-reviewed journals from respected journals and databases made up most formal sources. These resources provided reliable and thoroughly examined content, serving as the cornerstone of our literature study.

Materials from Webinars, Symposiums, and Conference Proceedings provided semi-formal sources. These sources have intellectual importance despite not all being peer-reviewed in the conventional sense since they frequently included new research, creative concepts, and preliminary conclusions. We used these resources to supplement the academic literature and obtain knowledge of changing opinions and trends in the industry.

To record the broader societal discussion surrounding our topic, we used social media posts, specifically LinkedIn, Instagram, and X (formerly known as Twitter). These sites provided access to current data on frequent debates, comments, and insights. Despite not being subject to the same level of academic examination, these sources offered insightful real-world perspectives, a variety of viewpoints, and up-to-date information.

The efficiency of our methodology allows us to summarise the current state of the field, and we have also incorporated software and applications such as Microsoft Word, BASE, Google Scholar, Refworks ProQuest, Cockatoo,

Lateral.io, and ChatGPT to expedite the review process. Importantly, these tools and techniques are employed without compromising the validity and reliability of our review findings. Because the review focuses on published research that is in the public domain no ethics approval was required.

Employing thematic analysis (Schick-Makaroff 2016), we analysed the literature to recognise recurring themes, emerging trends, inherent challenges, and promising opportunities. Key insights and findings from these analyses were meticulously synthesised from all the sources of information.

### **Peer-Reviewed Journal Articles**

In our search for formal peer-reviewed journal articles offering insights into educators' perspectives on ChatGPT and AI integration in education, we conducted comprehensive searches across prominent academic databases, including widely recognised sources such as Google Scholar and EBSCOHost. We also used Elicit (2023), which employs machine learning to aid with research tasks, such as finding papers, extracting key claims, summarising information, and brainstorming ideas.

Our search was guided by a carefully selected set of keywords and search terms, such as "ChatGPT," "AI in education," and "educators' perspectives on AI," to ensure the relevance of the articles to our research focus. To ensure the most current insights, we applied stringent inclusion criteria to the search results, requiring articles to be published between November 2022 and August 2023. Consistency in language comprehension and analysis was supported by selecting articles written in English.

Additionally, we limited our selection to articles that concentrated on ChatGPT or similar AI technologies in educational contexts and included empirical research, case studies, reviews, or critical analyses to ensure a robust foundation of research-backed insights. Articles not meeting these criteria or unrelated to ChatGPT and AI integration in education were excluded from our consideration. Our review and selection process were meticulous, aiming to find articles that precisely aligned with our inclusion criteria.

Furthermore, it is important to note that peer-reviewed articles requiring payment or lacking unrestricted access were also excluded from our selection process. After this comprehensive and careful process, we selected a total of 12 peer-reviewed articles that specifically focused on educators' perspectives. These articles formed the core of our data for analysis and synthesis, offering valuable insights into how educators perceive and interact with ChatGPT and AI technologies within educational settings.

### **Webinars, Symposiums, and Conference Proceedings**

This section discusses the method used to source and screen webinars, symposiums, conference papers, and related semi-formal materials:

The inclusion of webinars, symposiums, and conference papers in this review is based on their value despite ongoing debates. Scherer and Saldanha (2019) highlight that conference papers often precede full-length articles with promising findings. However, caution is exercised due to resource-intensive abstract retrieval, potential lack of comprehensive information, and abstract content reliability concerns. We chose to include them considering ChatGPT's rapid impact on Higher Education.

To source materials, we followed Booth and Grant's (2009) method. We used the Bielefeld Academic Search Engine (BASE) and Google Scholar. BASE aggregates scholarly resources from open-access and institutional repositories, while Google Scholar indexes academic works comprehensively.

Our criteria encompassed materials from November 2022 to August 2023, focusing on ChatGPT in Higher Education. Exclusions included non-English records, materials outside the specified scope, and those lacking full accessibility. In BASE, the search strategy involved keywords "ChatGPT Higher Education" and document type "Conference Object," yielding 35 results by August 10, 2023. In Google Scholar, the search term "ChatGPT Higher Education source: conference for the years 2022–2023" resulted in 29 records by the same date. For webinars, conferences, or symposia with video recordings only, YouTube video transcripts were processed, removing timestamps and filler words. Videos from repositories were converted into

text using the Cockatoo Transcription tool (Cockatoo 2023). Resulting PDF versions were considered data, adding three records.

RefWorks (2023) eased record management, with 67 records imported. After deduplication (n = 18) and removing non-English records (n = 7), records outside the review's scope (n = 11) were excluded. Following full screening (n = 31), 15 records were removed for scope misalignment and nine due to subscription access, leaving seven eligible records. These records were then uploaded to Lateral.io.

Lateral.io, powered by natural language processing and AI, was used to analyse the selected records, extracting key concepts, meaningful information, and interconnections. Searches within these records focused on attitudes towards Generative AI, strategies for overcoming barriers, and main conclusions and recommendations about generative AI in education. Summaries of each record were compiled for enhanced comprehension and exploration of complex textual content (Lateral, 2023).

This structured process allowed us to comprehensively capture the essence of each study (Pandey & Pandey, 2021). Simultaneously, a concise yet thorough quality assessment was carried out. This evaluation aimed to gauge the reliability and rigor of the selected articles. While emphasising concision, it ensured that the chosen studies met essential criteria for inclusion in our rapid literature review (Tricco et al., 2015).

### **Social Media Posts**

Although not specifically referring to the link between the knowledge and adoption of AI in education, social media posts as a data source is regularly used in research to explore the use of educational technology. For example, Li et al. (2023) analysed X (formerly Twitter) posts to understand the use of ChatGPT in education. Insights from the content shared in, and the informal discussions conducted on social media platforms, specifically LinkedIn, Instagram, and X (formerly known as Twitter) were systematically examined. These sites provided access to current data on frequent debates, comments, and viewpoints, as well as links to websites, blogs, videos, and other media, shared in support of these views. Despite not being subject to the same level

of academic examination, these sources offered insightful real-world perspectives, a variety of viewpoints, and up-to-date information.

The social media data is based on X (formerly Twitter), Instagram and LinkedIn posts that one of the authors collected in the period from November 2022 to August 2023. These posts were collated in a WhatsApp chat dedicated to content related to AI in education and focusing on higher education. The same key words were used to thematically categorise the data.

Because of the potential biases of using social media posts for research, this data is considered in combination with the semi-formal data generated by the webinars, symposiums, and conference proceedings and the formal peer-reviewed journal articles.

## 6. Findings and Discussion

### **Engage: Scaffolding Critical Discourse Through AI-generated Content**

A noteworthy outcome from the rapid literature review underscores the role of AI-generated content in stimulating critical engagement among students. The findings from Haleem et al. (2022) offer a futuristic perspective on ChatGPT, emphasising its transformative potential in diverse industries like customer service, online learning, and market research. The authors specifically highlight ChatGPT's success in generating diverse content, such as essays and stories, underlining its versatility. This aligns with the broader literature, particularly the insights from Kasneci et al. (2023) who examined the benefits and challenges of large language models in education. These discussions resonate with the emphasis on ChatGPT's potential to stimulate critical engagement by facilitating diverse learning materials and interactive experiences, as noted in forums like the Academy of Science of South Africa and the LearningLandscapes Symposium.

The implications of ChatGPT for assessment in higher education, as discussed in the 11th ASSAf Presidential Roundtable and the LearningLandscapes Symposium, align with the foundational role identified

in the rapid literature review. The literature underscores how AI tools, including ChatGPT, stimulate critical engagement among students by fostering discussions that encourage deep exploration of course material. These discussions go beyond theoretical implications and highlight the practical significance of AI-generated content in fostering engagement and critical discourse, particularly through innovative platforms for collaborative learning.

Qadir (2023) and Vargas-Murillo et al. (2023) emphasise the potential applications of ChatGPT in education. They explored ways in which ChatGPT can be leveraged by both educators and students to create and engage with course content, including presentations, coding exercises, quizzes, and scientific papers. This aligns with the foundational resource role identified in the rapid literature review and complements insights from the 11th ASSAf Presidential Roundtable, providing a understanding of the potential benefits and challenges associated with AI-generated content in stimulating critical engagement. However, challenges in occasional inaccuracies call for a critical examination of the extent to which educators can rely on AI-generated content. The need for harmony between inspiration and independent critical thinking is emphasised, ensuring that AI tools like ChatGPT serve as aids rather than replacements for creative thought.

The paper presented at the 2023 ACM Conference on Fairness, Accountability, and Transparency (FAccT) by Hacker et al. addressed the use of large generative AI models (LGAIMs) like ChatGPT in education. While focusing on regulatory approaches for LGAIMs, the paper indirectly underscored the potential impact of these models on educational content generation and learning experiences. The proposed layered regulatory approach aligns with the broader theme of responsible AI use and ethical considerations in education, contributing to the critical discussion surrounding the ethical integration of AI tools.

Smolansky et al. (2023) expand the discussion to address concerns about the potential exclusion of underrepresented individuals in AI-integrated education. Although not explicitly focusing on educators' attitudes, this paper introduces the critical theme of ensuring equity and inclusion in the

development and implementation of AI tools in education. It broadens the perspective on critical engagement by considering the diverse impacts and challenges associated with AI integration.

The Times Higher Education Campus webinar on Artificial Intelligence and Academic Integrity provides valuable insights into the ethical integration of generative AI tools, particularly ChatGPT, in academic settings. The panel discussion sheds light on the challenges and opportunities associated with AI in education, contributing to the ongoing dialogue on responsible AI use. The limited representation of student views in media discussions, as highlighted by research from Sullivan et al. (2023), emphasises the need for a more inclusive dialogue to foster critical engagement and a holistic understanding of the role of AI tools in education.

Murad et al. (2023) contributed by further highlighting the strengths of ChatGPT, emphasising its ability to generate credible and reasonable responses. The potential for learners to engage with ChatGPT for various purposes, from answering queries to essay writing, provides an opportunity to enhance educational experiences through interactive and intuitive interactions. Firat (2023) underscores the anticipation among educators and scholars regarding the transformative potential of AI technologies like ChatGPT in traditional learning methods. This anticipation aligns with the imperative to engage with AI as a wellspring of inspiration and scaffolding for original work. The encouragement for students and academics to leverage AI-generated content speaks to the potential for fostering creativity and deeper learning experiences. The danger of overshadowing students' independent thought, however, emphasises the need for educators to ensure that engagement with AI remains a catalyst for creativity rather than a substitute for genuine, original work.

The studies by Bin-Hady et al. (2023) and Kaplan-Rakowski et al. (2023) highlight the engagement aspect through AI-generated content, emphasising ChatGPT's potential in honing language skills and supporting language education. However, a critical viewpoint might delve into (one might ask) how this engagement aligns with critical discourse. Assessing whether AI-

generated content truly fosters critical thinking or merely offers surface-level engagement is imperative for a comprehensive understanding of its impact.

### **Navigate: Continuous Professional Development and Collaborative Learning Communities**

Educators navigating the ever-evolving landscape of AI in education emphasised the importance of continuous professional development and collaboration within learning communities. The insights from Dwivedi et al. (2023) offered a multidisciplinary perspective on the opportunities and challenges of generative conversational AI, including ChatGPT. The article underscored the importance of continuous learning and collaboration across various domains, resonating with the Symposium on LearningLandscapes' emphasis on educators' need for continuous professional development. Additionally, the article suggests questions for further research, aligning with the Symposium's recognition of the evolving landscape and the importance of navigating challenges.

The need for continuous professional development, highlighted in various sources including Qadir (2023) and Smolansky et al. (2023), resonates with the Symposium on LearningLandscapes' AI for Research. Qadir (2023) emphasises educators' need to acquire new skills to integrate ChatGPT effectively, while Smolansky et al. highlight barriers in implementing AI solutions, emphasising the importance of training and collaboration. These findings complement the discussion on continuous learning, underscoring the evolving landscape of AI in education.

The Symposium on LearningLandscapes' AI for Research echoes the importance of continuous professional development and collaborative learning communities emphasised in the 11th ASSAf Presidential Roundtable (Academy of Science of South Africa, 2023; LearningLandscapes Symposium 2023). Both forums underscore the need for educators to continually evolve their skills and engage in collaborative platforms to effectively integrate AI tools into educational practices.

The IEEE Global EDUCON paper echoes the importance of continuous professional development, emphasising the need for educators to acquire new

skills to effectively incorporate ChatGPT into their teaching practices (Qadir, 2023). This aligns with the Symposium on LearningLandscapes’ AI for Research, which underscores the significance of ongoing training programs and collaborative platforms for educators (LearningLandscapes Symposium 2023). Both sources highlight the evolving landscape of AI in education, emphasising the need for educators to navigate this dynamic environment through continuous learning and collaboration.

The ACM FAccT paper underscores the need for a regulatory shift and collaboration within the AI value chain to address potential risks associated with LGAIMs (Hacker et al. 2023). This aligns with the Symposium on LearningLandscapes’ AI for Research, which emphasises continuous professional development and collaborative learning communities for educators (LearningLandscapes Symposium 2023). Both sources recognise the dynamic nature of AI technologies and the importance of adapting strategies to navigate potential challenges.

Smolansky et al. (2023) aligns with the Symposium on LearningLandscapes’ AI for Research by emphasising the need to address barriers and challenges when implementing AI solutions in education. They recognise the disparities in technology access, potential biases in AI tools, and the importance of considering students with disabilities.

THE Campus (2023) addressed the challenge of contract cheating and the potential for AI, including ChatGPT, to create new flags for academic integrity violations, making investigations more complex. This aligns with the Symposium on LearningLandscapes’ AI for Research, emphasising the importance of navigating ethical boundaries and addressing challenges associated with AI integration (LearningLandscapes Symposium 2023).

The webinar encourages conversations about the integration of AI in education, shifting from a fixation on success to a perspective (THE Campus, 2023). This aligns with the Symposium on LearningLandscapes’ emphasis on engaging students in conversations about the effective and responsible use of AI tools (LearningLandscapes Symposium 2023).

The insights from Sullivan et al. (2023) contribute to the discussion on continuous professional development and collaborative learning communities. The media discourse, primarily centered around academic and institutional perspectives, emphasises the evolving landscape of AI technologies. This aligns with the Symposium on LearningLandscapes' AI for Research, which underscores the significance of ongoing training programs and collaborative platforms for educators (Sullivan et al. 2023). Both sources recognise the dynamic nature of AI technologies and the importance of adapting strategies to navigate potential challenges. The limited representation of student voices in media discussions also points to the need for inclusive collaboration that involves students in shaping the future of AI in education.

Rahman and Watanobe (2023) identify opportunities for educators to use ChatGPT in lesson planning, generating tailored resources, and providing learning support. These opportunities align with the theme of navigating technological advancements, suggesting that educators can leverage ChatGPT for efficient and personalised teaching experiences.

Grassini (2023) emphasises the need for educators to navigate the evolving AI landscape through continuous professional development. However, the critical discussion extends to the collaborative aspect. The collaborative nature of learning communities becomes paramount to share insights, strategies, and ethical considerations. Collaborations provide a platform for educators to collectively address challenges and ensure responsible AI implementation. The dialogue should extend beyond mere adaptation to active participation in shaping the ethical use of AI tools in education.

Grassini (2023) and Rahman and Watanobe (2023) advocate for continuous professional development and collaborative learning communities. Vargas-Murillo et al. (2023) accentuate the demand for ongoing training programs. The critical discussion extends to the collaborative nature of AI implementation, emphasising the collective responsibility of educators, institutions, and policymakers to shape the ethical use of AI in education.

The work of Iqbal et al. (2022) and Su and Yang (2023) touches upon educators' reservations and the need for ongoing training and collaboration.

A critical lens would scrutinise whether these studies effectively navigate the educational landscape's dynamism. Including how well they address the demand for continuous professional development and the creation of collaborative learning communities in the context of AI integration.

### **Individualise: Personalised Interactive Learning and Real-time Support**

Generative AI, particularly ChatGPT, has emerged as a significant force in tailoring education to individual student needs, providing personalised, interactive learning experiences, and offering real-time support. This theme is underscored by various studies and discussions.

Kasneji et al. (2023) delve into the opportunities and challenges of large language models, emphasising the potential for personalised learning experiences. They focus on the competencies and literacies required for educators and learners, aligning with the Symposium on LearningLandscapes' theme of individualising education and addressing potential biases in AI tools. The transformative potential discussed by Sullivan et al. (2023) reinforces the need for AI tools to contribute to inclusivity and equity in education.

The insights from the 9th International Conference on Human Interaction and Emerging Technologies (IHET-AI 2023) and Qadir (2023) emphasises AI's potential to provide personalised, interactive learning experiences and real-time support. Educators acknowledge AI's role in tailoring educational materials and offering immediate support to students in understanding complex concepts.

While the ACM FAccT paper primarily discusses regulatory frameworks, it indirectly touches on the individualisation of educational content through large generative AI models (ILGAIMs) (Hacker et al. 2023). The challenges highlighted, such as ensuring accurate, unbiased, and safe educational content, resonate with the emphasis on personalised interactive learning experiences from the rapid literature review and the 11th ASSAf Presidential Roundtable (Academy of Science of South Africa 2023).

Smolansky et al. (2023) introduces a workshop focused on equity, diversity, and inclusion in educational technology, emphasising the need for a framework to create and evaluate equitable and inclusive educational technology (Smolansky et al. 2023). This resonates with the individualisation theme, recognising the diverse needs of students and the importance of AI tools catering to various demographic and cognitive differences.

The transformative potential of AI in education is a recurring theme in the webinar (THE Campus, 2023). The panel discusses how AI, including ChatGPT, can facilitate individualised learning experiences. This aligns with the individualisation theme, emphasising the role of AI in tailoring education to individual student needs (Academy of Science of South Africa 2023).

Sullivan et al. (2023) adds a dimension to the theme by highlighting the lack of public discussion on ChatGPT's potential to enhance participation and success for students from disadvantaged backgrounds. The article emphasises that media discussions mainly focus on academic and institutional perspectives, overlooking the transformative potential of AI, including ChatGPT, in facilitating individualised learning experiences. This resonates with the Symposium on LearningLandscapes' emphasis on tailoring education to individual student needs. The findings underscore the importance of acknowledging and addressing the diverse needs of students, ensuring that AI tools contribute to inclusivity and equity in education.

Firat (2023) and Grassini (2023) both highlight the capabilities of AI in tracking individual student performance and providing personalised feedback. This supports the notion that AI can identify specific strengths and areas for improvement, aligning with the theme of individualisation. However, the distinction between individualised feedback and understanding the nuances of each student's individuality remains crucial.

Murad et al. (2023) emphasises ChatGPT's ability to provide personalised responses tailored to the context of the given prompt and user needs. This resonates with the theme of individualisation, highlighting how AI can cater to the specific needs of learners through tailored support.

Rahman and Watanobe's (2023) examination of AI's strength in personalised learning is a crucial aspect. The critical discussion centres on the potential unintended consequences of excessive personalisation. While AI tailors content, there is a risk of limiting students' exploration and independent learning. Educators face the challenge of leveraging AI's capabilities to enhance individual experiences without stifling the broader goals of holistic education. Vargas-Murillo et al. (2023) echo the sentiment, emphasising the need for educators to provide appropriate prompts, considering ChatGPT's limitations and opportunities. The critical discussion focuses on striking a balance, ensuring that AI's personalised learning enhances, rather than constrains, the broader goals of education.

The articles by Bin-Hady et al. (2023) and Su and Yang (2023) underline AI's potential for personalised learning experiences and real-time support. However, critically analysing the level of true individualisation that ChatGPT can offer in education and its impact on fostering a genuinely supportive learning environment would be valuable. The challenge lies in ensuring that AI's personalised learning strategies not only cater to individual needs but also foster independent thinking and exploration, preventing over-reliance on AI-driven content and feedback. This raises questions about the extent to which educators should rely on AI tools for tailoring education and how this impacts students' autonomy and critical thinking skills.

By examining the various perspectives presented in these studies, it becomes evident that personalised interactive learning and real-time support are not without challenges. The potential risks of over-personalisation, limitations in addressing individual nuances, and the need for a balanced approach should be carefully considered in the discourse on integrating AI into education. As educators navigate this terrain, it is crucial to strike a delicate balance between leveraging AI's capabilities for tailored educational experiences and preserving the broader goals of holistic education.

### **Guide: Assessments Driving Higher-order Thinking and Ethical Use**

Assessments were identified as instrumental in guiding students towards higher-order thinking skills and responsible AI use. Educators emphasised the

need to integrate AI into assessments to foster critical thinking while instilling ethical considerations. The review highlighted the role of assessments in not only evaluating knowledge but also shaping responsible AI usage among students.

The ethical dimension of AI's role in assessments is underscored by Yeo-Teh and Tang (2023), who question the appropriateness of listing NLP systems like ChatGPT as authors. This prompts a critical examination of the human-centric nature of authorship, challenging traditional norms. Mhlanga (2023) extends this ethical discourse by emphasising the responsibilities associated with the ethical use of ChatGPT in education, positioning assessments as not just evaluative tools but as ethical gatekeepers.

Dwivedi et al. (2023) and Hacker et al. (2023) contribute regulatory perspectives, highlighting challenges in ethically integrating AI into assessments. They propose frameworks for responsible AI use, emphasising the need for structured approaches within educational contexts. This introduces a critical layer, as regulatory frameworks seek to balance innovation with ethical considerations, fostering a responsible AI integration environment.

The IEEE Global EDUCON paper aligns assessments with higher-order thinking and responsible AI use, presenting AI as a catalyst for cultivating critical thinking skills. This perspective accentuates assessments as not only evaluative measures but as tools shaping cognitive abilities. However, the critical discourse should delve into the potential unintended consequences and ethical considerations of using AI to drive critical thinking in assessments.

Considering diverse student needs, Smolansky et al. (2023) expands the ethical discussion. By exploring demographic factors and disabilities in AI-integrated educational tools, it broadens the scope of ethical integration. This inclusivity-driven lens highlights assessments as mechanisms to address diverse student needs ethically, recognising the importance of creating an inclusive educational environment.

Sullivan et al. (2023) bring insights from media discourse, emphasising concerns about academic integrity and AI tool limitations. This lens reflects the initial considerations often rooted in academic and institutional viewpoints, offering a critical perspective on the practical challenges educators face in maintaining academic integrity when deploying AI-driven assessments. Murad et al. (2023) contributes a critical perspective by focusing on the ethical use of AI in assessments. Their discourse emphasises the delicate relationship between the efficiency gains of AI-driven assessments and ethical considerations, addressing the challenge of ensuring responsible AI use among students.

Vargas-Murillo et al. (2023) raise concerns about potential plagiarism, adding an ethical layer to the discourse. Their insights underscore the necessity to guide AI-driven assessments to foster knowledge acquisition while simultaneously addressing challenges related to plagiarism and misuse. This highlights the delicate ethical considerations associated with using AI to assess students.

Su and Yang (2023) offer insights into AI-driven assessments and their role in guiding students toward higher-order thinking and ethical considerations. Their contributions guide the intersection of AI-driven assessments, critical thinking enhancement, and the ethical use of AI tools in educational evaluation.

### **Moderate: Balancing AI Tools with Traditional Pedagogy**

Maintaining a balance between AI tools like ChatGPT and traditional pedagogical methods emerged as a critical consideration. Educators highlighted the importance of using AI as a complementary resource rather than a replacement for conventional teaching approaches. Reaching this balance is essential to ensure that AI augments, rather than supplants, the educational experience.

The ongoing dialogue surrounding the delicate interplay of AI tools and traditional pedagogy (Eke 2023; Haleem et al. 2022; Dwivedi et al. 2023) resonates with the vision of incorporating AI as a supplementary educational tool (Symposium on LearningLandscapes 2023). This accentuates the need

for a and calculated integration, where AI serves as an aid rather than a general replacement for conventional teaching methodologies.

In a convergence of perspectives, both the Symposium on LearningLandscapes' AI for Research and the 9th International Conference on Human Interaction and Emerging Technologies (IHET-AI 2023) share the importance of treating AI as a complementary tool, rather than a direct substitute for traditional teaching methods. This alignment reinforces the theme of balancing AI tools within the broader educational landscape.

Examining the landscape of AI integration, the discussions within the ACM FAccT paper and Smolansky et al. (2023) contribute to the narrative of maintaining equilibrium between AI tools and traditional pedagogy. Emphasising systematic integration, they delve into the intricacies of addressing challenges and regulatory concerns, reinforcing the theme's core tenets. While the Symposium on LearningLandscapes places emphasis on AI as a supplementary resource, critical insights from Firat (2023) and Grassini (2023) introduce a layer of complexity. They draw attention to AI's potential impact on assessments, raising concerns about accuracy and biases in AI-generated content. These discussions advocate for a balanced approach wherein AI streamlines tasks, but human expertise remains pivotal for ensuring integrity and transparency in education.

Murad et al. (2023) contributes a critical perspective by highlighting weaknesses in ChatGPT, including biases and overreliance risks. This adds depth to the theme of moderation, emphasising the need for balanced integration. Their insights underscore the importance of human involvement to complement AI tools, fostering ethical and effective use in education.

Intriguingly, critical discussions initiated by Grassini (2023) and Crawford et al. (2023) detail the potential resistance educators may harbour towards AI integration. They emphasise the necessity of cultivating a collaborative relationship where AI enhances traditional teaching methods without overshadowing the unique contributions of human instructors.

The conversations prompted by Crawford et al. (2023) and Iqbal et al. (2022) encourage educators to critically assess the depth of understanding required

for balanced AI integration. This introspection prompts educators to reflect on effectively harnessing AI as a supplementary tool while preserving the essence of traditional teaching methodologies. The challenge lies not just in the technological integration but in the strategic and thoughtful synthesis of AI into the fabric of education.

### **Adapt: Shifting Assessments to a Dynamic Approach**

The review identified the necessity to adapt assessments towards a more dynamic approach aligned with the capabilities of AI tools. Educators acknowledged the need to evolve assessment methods to reflect the changing educational landscape. This adaptation aims to harness AI's potential to create more dynamic assessment models, fostering deeper learning and evaluation.

Adapting assessments to the dynamic capabilities of AI tools (Haleem et al. 2022; Dwivedi et al. 2023; Sullivan et al. 2023), exposes a commendable emphasis on the evolving landscape of educational evaluation. However, implementing AI-driven assessments raises practical challenges across diverse educational settings, including differences in resources, infrastructure, and student demographics. Addressing these implementation challenges is crucial to ensure AI-driven assessments do not intensify existing educational inequalities.

Insights from the 11th ASSAf Presidential Roundtable, ICSTW, and the ACM FAccT paper highlight the call for assessments to evolve with AI capabilities. However, while regulatory frameworks are proposed, a critical examination of their feasibility and effectiveness in practice is needed. Enforcing regulations and balancing ethical use with adaptability require careful consideration beyond theoretical propositions.

Collaborative efforts emphasise the adaptability and relationship of AI in education amidst evolving technologies (Smolansky et al. 2023; Symposium on LearningLandscapes 2023; THE Campus 2023). However, critically evaluating the scalability and inclusivity of such initiatives is necessary. It is important to determine whether collaborative learning communities can effectively cater to diverse educational institutions and ensure equitable AI-driven assessment access. Grassini's (2023) suggestion to adapt assessment

practices by including multimedia elements aligns with the adaptation theme. However, understanding potential biases or accessibility challenges introduced by multimedia elements is crucial. An understanding is necessary to ensure AI-driven assessments enhance evaluation processes without introducing new sources of inequality.

Rahman and Watanobe (2023) highlight ChatGPT's potential in supporting research writing processes. However, critically evaluating the reliability of AI-generated content and addressing potential issues with misinformation is crucial. Engaging with the accuracy and validation of AI-generated content is essential beyond focusing solely on potential benefits.

Grassini (2023) emphasises that AI adapted assessment raise concerns about unintended consequences of increased AI use in assessments. A critical discussion is necessary to explore potential ethical dilemmas and challenges associated with AI-reliant holistic evaluations. Harmonising AI tools while maintaining authentic assessments that evaluate students' skills and comprehension should be approached with rigorous ethical considerations.

The studies by Murad et al. (2023), Vargas-Murillo et al. (2023), Kaplan-Rakowski et al. (2023), and Su and Yang (2023) stress the need to align assessments with AI capabilities. However, critically evaluating the effectiveness, potential biases, and ethical implications of AI-driven assessments across diverse educational contexts is essential. High-order engagement with fairness, transparency, and unintended consequences ensures AI-integrated assessments positively contribute to education.

## 7. Conclusion

For this rapid review of literature, our sources included traditional peer-reviewed articles, as well as less conventional formats for a literature review, such as webinars, symposiums, conference proceedings, and then unconventionally, social media to address the fast-moving nature of developments. To address the question of educators' perspectives reveals a complex interplay of attitudes, perceptions, and concerns, underscoring the need for a comprehensive approach to technology integration in education.

The themes that emerged, such as the necessity for a shift in assessment paradigms, the importance of balance between AI and human expertise, and the critical role of educators in guiding students through AI integration, provided valuable insights into the evolving landscape of education technology.

In the rapidly changing educational environment, the themes of navigation and engagement emerged as crucial, emphasising the need for educators to stay informed and actively engage with AI tools as catalysts for inspiration rather than replacements for human ingenuity. The theme of personalisation underscored the potential for AI to enhance individual learning experiences, but it also raises ethical considerations that need careful navigation.

The ongoing nature of this work highlights the dynamic nature of the intersection between education and AI. As we strive to answer not whether to adopt AI but how, the findings of this ongoing research aim to serve as a guide for educators, fostering an ethical and responsible integration of AI tools. Acknowledging the imperative for higher education institutions to adapt to this evolving landscape, this study contributes to the ongoing dialogue on the transformative role of AI in education.

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Olivia Wilson, a lecturer at STADIO Higher Education, specialises in tourism and event management education. Holding an MA in Tourism Management from the North-West University, their focus is on curriculum development emphasising sustainable development, including responsible consumer behavior and academic integrity. Recognised for innovative teaching methods, Wilson has earned accolades for excellence in tuition and module design. Their research interests include sustainable development, exploring responsible consumer behaviour, and academic integrity.

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# Using Simulation-Based Assessment for Event Management Students

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## Keywords

Graduate Attributes, Simulation Based Assessments, Work Based Learning, Employability, Industry-specific Ethical Codes, Ethics in Assessment

## Abstract

This research project explores the effectiveness of simulation-based assessments (SBAs) as an alternative to practical assessments for event management (EM) students, considering the 2020 global pandemic's impact on higher education. SBAs mimic real-world scenarios, enabling innovative and authentic ways for assessors to determine how well candidates can put their knowledge, skills, and talents to use. For example, they give students an opportunity to instil and reinforce ethical principles and values essential for success in the workplace. The study aims to investigate the relationship between SBAs and graduate attributes, via a qualitative approach, to investigate and analyse students' lived experiences. Ten final-year EM students were selected purposively, with inclusion criteria. Semi-structured interviews were conducted using an original set of selected questions, and thematic analysis was used for data analysis. The study's findings suggest that if used correctly, SBAs can be an effective tool for developing students' graduate attributes, preparing them for employment. The article concludes on how to maximise the value of SBAs in preparing students for the workforce, especially when practical assessments are not feasible.

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# 1. Introduction

The COVID-19 pandemic has drastically changed the landscape of higher education, particularly in fields that rely heavily on practical assessments (Filho et al. 2022). There is a pressing need to re-evaluate the pedagogical approaches and assessment strategies currently used in higher education, as students in these fields with a practical focus will transition to blended learning and possibly remote work (Souleles/Laghos/Savva 2020). An example is found in the case of event management (EM) students as the pandemic presented a unique challenge considering that practical assessments were limited due to never experienced regulations and restrictions on hosting commercial and special events (Maralack/Jurgens/Woodruff 2022).

As a result, educators have had to find alternative ways to prepare their students for the world of work, in an industry that was transformed in the process (Kwiatkowski et al. 2021). For example, the pandemic has accelerated the use of technology in the EM industry, from event registration and ticketing to digital marketing and audience engagement, and the growth of hybrid events (Estanyol/Fernández-Souto/Vázquez-Gestal 2023).

Against this background simulation-based assessments (SBAs) have been deemed suitable since they are designed to mimic situations that individuals would experience in their professional environments, enabling the assessors to determine how well the candidates can put their knowledge, skills, and talents to use in a real-world situation (Cant/Cooper 2017). By understanding the benefits and drawbacks of SBAs and learning how to improve their effectiveness, we may enhance our ability to evaluate students' efforts to operate in real-world scenarios (Krishnan/Keloth/Ubedulla 2017) and improve the quality of evaluations and training used in a range of industries (Cant/Cooper 2017). Tabatabai (2020) advocates that lecturers can use SBAs to prepare their students for the world of work, even when practical assessments are not possible.

In addition to this, SBAs have been found effective in helping students develop ethical reasoning and decision-making skills (Caulfield/Lee 2022). They provide a meaningful and consistent assessment process, leading to

increased student satisfaction and success rates (Perry/Robichaud 2020). Realistic simulations with standardised clients have been particularly successful in helping students apply ethical concepts to real-world scenarios (Nash/Etheridge 2023). This is crucially important, given that ethical behaviour is the cornerstone of professional integrity, and SBAs provide a safe platform for students to engage in ethical decision-making within a controlled environment (Webster et al. 2020).

Even though SBAs are widely used, it is important to delve deeper into how simulation relates to graduate qualities. We need to explore whether using SBAs enhances these qualities, like the knowledge, skills, and behaviours graduates should show after completing their studies. (Passow/Passow 2017). For example, it would be valuable to investigate if simulating real-life situations with ethical dilemmas helps students learn to think about the ethical aspects of their actions. This way, they can make decisions in line with ethical standards and professional codes of conduct, crucial for their future careers (Tassiopoulos/Nicolaidis 2017).

This article explores the effectiveness of SBAs as an alternative to practical assessments for EM students, as an example. It examines the suitability of these assessments in developing graduate attributes and linked to those an understanding of ethical principles within the specific industry they are about to enter. This paper is paramount for lecturers in higher education who are looking for creative ways to prepare their students for the workforce, especially when practical assessments are not feasible. Through the analysis, the benefits and limitations of SBAs are explored, and insights are shared on how to maximise their value in preparing students for employment. This article proposes that if used correctly, SBAs can be an effective tool in developing students' graduate attributes, including ethical behaviour.

## 2. Literature Review

### SBAs in Higher Education

SBAs have become attractive learning environments with many opportunities, in different educational settings, like vocational education,

higher education, and professional training across various disciplines. SBAs can be used early or later in educational programs, as it works well for novice and advanced learners, even though the activities will have to be at different levels (Chernikova et al. 2020). When exposed to active, experiential, reflective, and contextual learning approaches such as simulated environments – which could be offline or online – students can see the direct relevance of their educational experience to their future practice (Tortorelli et al. 2021). Hence, it is felt that the “gap” between academia and industry can be narrowed (Bryant et al. 2020).

Some industries lend themselves specifically well to SBAs. Suitable examples come from engineering (Nagadi 2018) and healthcare (Toale/Morris/Kavanagh 2023). In addition, business simulations, for example in accounting (Sathe/ Yu 2021) or general business (Nagel et al. 2018) are also frequently used. In this context, examples of event management in the literature are more scarce and not as current (Arcodia 2002).

SBAs are also a great form of authentic assessment (Yan et al. 2023). These assessments can encourage a safe and controlled setting as learners can make errors while learning, without severe practical consequences (Duchatelet/ Jossberger/Rausch 2022). Most importantly, these assessments are an effective approach to developing complex skills that are valued in the workplace (Chernikova et al. 2020). Lastly, SBAs can help develop skills required for work-based learning (WBL) placements. Those skills include communication, professionalism and ethics, leadership, teamwork, analytical, problem-solving, critical thinking, assertiveness, time management, willingness to learn, attention to detail, diversity, and accountability (Iipinge/Batholmeus/Pop 2020).

Even though SBAs are recognised as a tool to prepare students for the world of work, the quality and authenticity of SBAs vary greatly for different industries, and hence different models should be researched further (Australian Government 2014). Other factors as to why SBAs might still be underused in higher education could be a lack of professional support at the government level and a lack of sustainability of existing technologies, as well

as financial and compliance constraints. In addition, it has been shown that educators overestimate the effect of technology in the short term but underestimate the effect in the long term (Ledger 2019). Educators might expect immediate improvements in learning outcomes, engagement, or efficiency when integrating technology into their teaching practices. However, underestimating the long-term effects implies a failure to recognize the full transformative potential of technology in education.

While SBAs come with a set of challenges, they also offer a wealth of opportunities, especially in the new world of work. For more than a decade, industry professionals have questioned whether traditional systems of assessment (for example Multiple Choice Questions and Closed Book Exams) can fairly distinguish between a graduate that has the adequate skills to perform a job, versus one with inadequate skills, unable to survive in the workplace (Cropley/Knapper 2021).

With the onset of artificial intelligence, and its effect on the future work environment, as well as knowledge being freely available and easy to access, a graduate’s skills and attributes are becoming more important (Avolio/Benzaquen/Pretell 2019). Together then, relevant, and current knowledge, skills, and attributes, make a sought-after graduate. A suitable simulated learning activity will influence not only a few selected but a range of areas relevant to the workplace. It can produce a rounded, confident graduate (Richmond/Richards/Britt 2015) since it includes extra-curricular activities as well (Nagel et al. 2018).

### Graduate Attributes for Employability

Using SBAs is one way of helping students develop their graduate attributes, especially in business and management programmes. For example, covering topics like leadership, ethics, global citizenship, multidisciplinary thinking, organisational processes, strategic vision, corporate social responsibility, and sustainability could influence students’ graduate attributes, especially when using experiential and action learning in the form of multidisciplinary integrative projects (Avolio/Benzaquen/Pretell 2019). Exposing students to an experiential

learning environment helps them develop an application of knowledge, various organisational behaviours, knowledge of the profession, personal qualities, communication skills, leadership, and research skills (Wiewiora/Kowalkiewicz 2019). Interestingly, these types of learning and assessment environments can also foster students' passion for their future profession (Schreck/Weilbach/Reitsma 2020).

It is hence recommended that higher education institutions continue to integrate graduate attributes into the curriculum (McCabe et al. 2021). It is also suggested that the students are aware of the desired graduate attributes to guide their own development and engage with the assessments that develop these attributes (Jorre de St Jorre/Oliver 2017). Higher education institutions are part of a bigger community of creating graduates who are prepared for the workplace (Cook 2018). Furthermore, the focus should shift from creating only job-ready graduates to teaching students to be self-reflective, life-long learners, to add new skills, and improve on existing skills on an ongoing basis (Osmani et al. 2019).

As employability has become a performance metric for higher education institutions, there have been increased efforts to impact graduate attributes through formal courses and transcripts of additional skills and extra-curricular activities (Jung 2022). While these could include theoretical ethical constructs, exposing students to ethical dilemmas in a simulated environment might produce better results (Lewis et al. 2016).

Graduate attributes are not only important in the context of a possible workplace after graduation but also for WBL. Positive effects such as fulfilment, success, reaffirming professional and ethical decisions, and the development of character traits like self-control, initiative, and effective communication may be attained (Martin/Rees 2019). Students can develop a knowledge of the benefits of a community of practice, according to Martin and Rees (2019).

At the same time, it is dangerous to only develop generic skills. Skills need to be placed in the context of the profession the student will move into (Kuzminov/Sorokin/Froumin 2019). In the event management

industry, the body of knowledge (Event Management Body of Knowledge or EMBOK) prescribes to a set of core values, namely continuous improvement, creativity, ethics, strategic thinking, and sustainability (Rutherford Silvers 2013). Ethical guidelines can be used to navigate ethical dilemmas in such a way that the event can be conducted in an appropriate manner and become successful.

### An ethical lens for assessors and students alike

SBAs are ideal to simulate environments for learning so that students can be exposed to real situations before they arise. This holds particularly true for ethics, given its paramount importance in Event Management (Rutherford Silvers 2013). Firstly, within this industry, accountability is everything, in that customers rely on and trust that obligations will be met as agreed. Secondly, effective, and honest communication in real-time is crucial in Event Management, as unforeseen circumstances may arise that jeopardize the entire event. Thirdly, exhibiting fairness in all dealings with clients and team members is expected since preferential treatment or access are unethical and unacceptable. Lastly, every event team member should have access to a standard of conduct, to support their knowledge and skills around ethical behaviour.

SBAs can also help cultivate a culture of integrity and accountability by emphasizing the importance of transparency, honesty, and ethical responsibility in all aspects of work. By incorporating ethical considerations into simulation scenarios and assessment criteria, educators can reinforce the message that ethical conduct is not only expected but essential for success in the workplace, especially (Mallen/Adams 2017). Assessors carry several ethical responsibilities to ensure fairness, transparency, and the well-being of learners in an SBA environment, some of which are ensuring authenticity, maintaining confidentiality, providing clear guidelines, support and resources, avoiding bias and continuously evaluating and improving (Devine/McGaghie/Issenberg 2019). In addition to this, through so-called instructor modelling, assessors need to lead by example by demonstrating own ethical behaviour and decision-making throughout the SBA process (Urbina/Monks 2020).

Lastly, SBAs can incorporate a process by which engaging with peers fosters empathy and perspective-taking as students consider the perspectives and interests of others. By understanding the motivations and concerns of their peers in ethical dilemmas, students develop a deeper appreciation for ethical decision-making and its impact on individuals and communities. (Klafehn et al. 2018).

### Work-based Learning as Academic Practice

There is a growing body of research on WBL in higher education. WBL provides hands-on learning experiences in real-world settings, and industries such as healthcare (Attenborough et al., 2019) and hospitality (Ramgoolam-Atchiamith et al. 2022) have shown a strong commitment to integrating WBL into their workforce development strategies. Previous studies have focused on the benefits and challenges of WBL (Doherty/Stephens 2020), and how it can be effectively integrated into academic programs (Valencia-Forrester 2020). Other studies have examined the impact of WBL on students' academic performance (McCann/Hewitt 2023) and employability (Stephen/Festus 2022).

WBL is an educational approach that provides students with the opportunity to apply their academic learning to real-world situations (Fergusson et al. 2022). Students can also apply their theoretical knowledge to practical situations, which can enhance their understanding of course material and improve their academic performance (Stephen/Festus 2022). This approach helps students to develop essential attributes that are required for their future careers, such as communication (Konstantinou/Miller 2021), teamwork (Stephen/Festus 2022; Konstantinou/Miller 2021), and problem-solving (Fergusson et al. 2022; Stephen/Festus 2022). However, developing these attributes should be balanced in students' coursework and the workplace (Spaulding/Hecker/Bramhall 2020).

One of the main challenges is ensuring that the workplace experience is relevant to students' academic studies. It can be difficult to find suitable placements that align with students' learning objectives (Ajjawi et al. 2020). Medvide (2021) confirms that there is a risk that the students may not gain

the necessary skills or knowledge required for their future careers. It is difficult to practically prepare undergraduate students for WBL if they lack prior experience with real-world situations in their respective industries (Meeder/Pawlowski 2020).

One way to further improve WBL is to increase the focus on reflection. Konstantinou and Miller (2021) share that when students reflect on their experiences during WBL, they can better understand the skills and knowledge they have gained and how these can be applied in future work settings. This could be especially useful for ethical skills, in that guided reflection and debriefings could assist students to critically evaluate their own ethical reasoning and behaviour, fostering a deeper understanding of ethical principles and their application in professional practice (Devine/McGaghie/Issenberg 2019).

### 3. Methodology

The research methodology for this study benefited from a qualitative approach (Gehman et al. 2018). In line with Sohn et al. (2017), it was suitable to use a phenomenological technique to investigate and analyse the students' lived experiences. The study aimed to explore the opinions and experiences of final-year EM students regarding the suitability and efficacy of SBAs in preparing them for the workplace. Ten final-year EM students who had completed two SBAs during their undergraduate education made up the purposively selected sample in this study (Etikan/Musa/Alkassim 2016). Inclusion criteria stipulated that respondents had to have participated in the SBAs during their course work and must have completed work-based learning placements. This would ensure that they could reflect on how well these assessments had prepared them for the workplace.

The semi-structured interviews (Adams 2015) conducted in November 2021 used an original set of three questions. The first questioned the suitability of the simulations the students were exposed to in preparing them for the world of work. The second question involved the students selecting their top three and bottom three graduate attributes to measure their world of work preparedness, based on the simulations they had gone through. The third

question focused on the characteristics that simulations should include to prepare students for the world of work.

The questions were consistently asked of each participant by a skilled interviewer, demonstrating the validity of the measurement instrument. The interviewer, who was an expert on the topic, offered pertinent prompts and probing questions to get detailed information about the respondents' experiences. As the questions were created using the study's research aims and the current literature on SBAs and graduate attributes, the validity of the measuring instrument was established. Interviews were recorded via Microsoft Teams with the respondents' permission and automatically transcribed and checked before analysis.

Thematic analysis was used for data analysis (Castleberry/Nolen, 2018). Two researchers separately carried out the inductive analysis (Azungah 2018), and inter-coder reliability was verified through discussion and agreement (O'Connor/Joffe 2020). All participants gave their informed consent before participating, and the responses' confidentiality and anonymity were upheld to meet ethical concerns. The institution's ethical committee approved the study (REF #: 2021 IRP 004).

## 4. Results and Discussion

In this thematic analysis, we explore how the types and sequence of simulations contributed to the students' readiness for the world of work. The analysis revealed three main themes, including the effectiveness of SBAs, recognised graduate attributes, and improving SBAs for workplace readiness. The discussion provides insights into whether SBAs prepared students for their work placements, and how SBAs can be optimised to better prepare students for the diverse challenges of the modern workplace.

### Theme 1: Effectiveness of SBAs in preparing for the world of work

The first of the main themes describe how well-suited the SBAs were in preparing students for the challenges they may face in the workplace. The interviews revealed three subthemes: increased confidence and skills with

simulated event management, transferable skills such as communication and leadership, and limitations of SBAs.

— Increased Confidence and Skills with Simulated Event Management

Simulated-Based Activities (SBAs) have proven to be a powerful catalyst for the development of increased confidence and the cultivation of essential professional EM skills, including ethical behaviour as per the EMBOK. The effectiveness of SBAs in this regard is underscored by the resounding endorsement of respondents who have experienced the practical and hands-on nature of these simulations. These experiences equip individuals with the confidence and expertise required to tackle real-world challenges in event management, aligning with the findings of Richmond, Richards and Britt (2015) who emphasise how SBAs instil self-trust and enhance skill sets in students.

A notable surge in confidence pertaining to event planning skills was reported by several respondents (1, 2, 4, and 5) as a direct result of their active engagement with these simulations. The development of practical skills, as mentioned by respondents, is another significant outcome: SBAs equip students with hands-on experience in event planning, mirroring real-world scenarios. This aligns with the findings of previous research emphasising the role of SBAs in building practical skill sets. For instance, the ability to plan and execute events, as highlighted by Respondent 4, is vital for EM professionals:

“The simulations helped me develop my thinking on how I see an event, how I would plan an event, and how to execute it.”

(Summary\_Respondent 4:1) †

Similarly, Respondent 5 emphasised the mirroring effect of being a program manager in a simulation to their actual workplace responsibilities, solidifying theoretical foundations into practical management and teamwork prowess. Respondents 6 and 8 resonated with these sentiments, highlighting the

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† (Summary\_Respondent 4:1)

remarkable congruence between the skills honed through simulations and the demands of their professional roles in the event management field.

Beyond enhancing confidence and skill sets, SBAs also proved instrumental in preparing respondents for work-based learning experiences. Respondents 1 and 2 attested to the comprehensive coverage of event management processes offered by simulations, from conceptualisation to execution, thereby providing a holistic foundation for their subsequent work-based learning journeys. Respondent 8 found the golf day simulation offered to their cohort of students at the time to be a valuable precursor to work-based learning, as it facilitated the acquisition of knowledge and experience that eased their transition into the workplace. Familiarity with site inspections, expectations, and the intricacies of event management and its specific processes laid out in EMBOK garnered through simulations ultimately translated into improved performance during work-based learning experiences.

The theme confirms that SBAs can effectively bridge the gap between theory and practice, boosting students' confidence and practical skills. This aligns with the broader goals of higher education, which aims to prepare students for the real-world challenges they will encounter in their careers. As such, SBAs serve as a valuable pedagogical tool in EM education, enhancing students' readiness for the workforce.

#### — Transferable Skills such as Communication and Leadership

The responses provided by participants suggest that SBAs can play a pivotal role in nurturing transferable soft skills, which hold significance across diverse industries, extending beyond the realm of event management. Werner, Junek, and Wang (2022) reinforce the contemporary relevance of such skills in the field of event management. The ability to communicate effectively and ethically, as emphasised by Respondent 7, is essential in event management, where professionals interact with clients, suppliers, and team members. Leadership skills, as mentioned by Respondent 3, are valuable for guiding teams and making critical decisions.

These skills are not confined to the event management field and can be applied in diverse work settings:

“Simulations instilled confidence in me as a leader and equipped me with practical communication skills.”  
(Summary\_Respondent 3:1)<sup>‡</sup>

Respondent 5 concurred, attributing their success in handling practical tasks during work-based learning to the skills developed in simulations. Respondent 10 also attested to the acquisition of valuable skills in hospitality and risk management during simulations, which they could directly apply in the workplace. The theme underscores the broader applicability of SBAs in nurturing transferable skills that are highly sought after by employers across industries. This aligns with the evolving demands of the job market, where soft skills are increasingly valued. SBAs can contribute to producing well-rounded graduates equipped with skills that enhance their employability.

#### — Limitations of Simulations

Although SBAs serve as a valuable tool for equipping event management (EM) students with both technical and soft skills, the findings underscore that they may not comprehensively prepare individuals for all facets of their work placements. This echoes previous research, including the study by Doherty and Stephens (2020), who have also identified similar limitations in the effectiveness of SBAs.

The results distinctly indicate the constraints of SBAs for EM students, particularly in two critical areas: interacting with actual suppliers and vendors and comprehending event timelines. Respondent 1, for instance, emphasised that the absence of interactions with real suppliers and vendors during SBAs was challenging. Respondent 4 concurred and noted that,

“ ... [event] timelines were a key aspect, and I think maybe I didn't fully grasp the concept during the two years of simulations because, in my simulation, I didn't put

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<sup>‡</sup> (Summary\_Respondent 3:1)

enough information into my timelines. (Summary\_Respondent 4:1)<sup>§</sup>

On the other hand, Respondent 9 provided a nuanced perspective:

“ The simulations were helpful to some extent, but not as much as I expected because we didn't have a chance to practice the real events [in the simulations]. However, it did give me some sense of what to expect. My tasks in the simulation projects were quite different from what I did in the workplace. (Summary\_Respondent 9:1)\*\*

This limitation may impact students' ability to navigate real-world stakeholder relationships effectively. Similarly, challenges in comprehending event timelines suggest that SBAs may not fully replicate the complexity of real event management scenarios. Therefore, there is need for a balanced approach in EM education that combines the strengths of SBAs with real-world experiences. A comprehensive educational approach should integrate insights from industry experts and incorporate real-world experiences to prepare students for the multifaceted challenges they will face in their future careers, including more complex ethical dilemmas.

## Theme 2: Recognised Graduate Attributes

This theme delves into the development of recognised graduate attributes, shedding light on how students cultivate these attributes through simulations and work-based learning, ultimately preparing them for future work challenges. Karunanayaka and Naidu (2021) agree that authentic assessment activities, such as SBAs, provide learners with opportunities to apply the skills acquired through these activities in their professional workplaces effectively. Through the acquisition of these graduate attributes, students are better equipped to navigate the complexities of the contemporary job

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<sup>§</sup> (Summary\_Respondent 4:1)

\*\* (Summary\_Respondent 9:1)

landscape, emphasising the importance of a well-rounded education that prepares them for the dynamic demands of their future careers.

— Creativity and Judgement

Creativity emerged as a pivotal attribute in the narratives of respondents, who described how SBAs provided opportunities to exercise their creativity through mood boards, concept proposals, or innovative problem-solving. This aligns with the notion that SBAs develop creativity among higher education students (Abrandt et al. 2016).

Respondent 1 shared their enjoyment of demonstrating creativity by crafting mood boards and concept proposals during work-based learning. Similarly, Respondent 2 described himself as someone who likes to “create stuff, be creative, and play with ideas.” Creativity was also mentioned as a desirable quality for event planning, with Respondent 2 stating that the simulations they did for the golf day and the first-year camp as an example of one of the simulation-based events given to this cohort of students, helped them gain skills and knowledge that were applicable in real-life situations.

Respondent 7’s creativity, as a wedding coordinator, was developed and they benefited from this skill in the workplace:

“We also had to be creative in our approach to each wedding we worked on, so that each one looked different.”  
(Summary\_Respondent 7:2)<sup>††</sup>

However, the theme also highlights the importance of sound judgment and decision-making, which often go together with creativity (Proctor 2018). Making informed judgments is vital, especially when dealing with sensitive, sometimes ethical matters in event management. This suggests that recognised graduate attributes encompass a balance between creative thinking and making well-reasoned decisions. Respondent 4 underscored the importance of sound judgment and decision-making, reflecting on their

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<sup>††</sup> (Summary\_Respondent 7:2)

experiences of making critical choices during simulations. Meanwhile, Respondent 5 shared:

“I had to be empathetic towards individuals and make correct judgments to the best of my ability [during the simulation].”  
(Summary\_Respondent 5:2)<sup>‡‡</sup>

Respondent 8 also mentioned creativity, specifically in the marketing domain where they came up with an idea that they “didn't even know they had in them”. As such, SBAs can contribute to students' ability to navigate the complexities of the modern workforce by fostering a combination of creative thinking and sound and ethical decision-making.

#### — Resilience and Adaptability

Resilience and adaptability emerged as critical attributes in the narratives. Respondents recounted instances where they had to overcome challenges and rapidly adapt to new situations during SBAs (Preedy et al. 2014). This resilience and adaptability are essential in the ever-changing landscape of event management, where unexpected issues can arise. Respondent 1 detailed how they overcame challenges as a risk manager, citing their ability to adapt rapidly to new situations as a direct result of these experiences. Respondent 2 attributed their success in the workplace, to the insights gained from these simulations. The ability to adjust was pivotal, as illustrated by Respondent 5's candid admission of early struggles adapting to COVID-19 regulations and the eventual transition.

Respondent 7 mentioned the need to adapt and think of new ways to work due to the pandemic and ‘shut down’, which demonstrates adaptability. Respondent 10 highlighted these skills as important attributes for success in their industry, and a way to adapt to different environments:

“ I am a very shy person, and this [the SBAs] has really helped me to get out of my skin a little bit and start

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<sup>‡‡</sup> (Summary\_Respondent 5:2)

speaking more, and being more open with what I’m doing...  
(Summary\_Respondent 10:1)<sup>§§</sup>

The ability to adjust to unforeseen circumstances is highlighted as pivotal, especially in the context of evolving workplace environments. Respondents' experiences with simulations and work-based learning contribute to their capacity to navigate diverse and dynamic situations. SBAs and work-based learning not only prepare students for their specific professional field but also equip them with these soft skills that are valuable in an increasingly unpredictable job market.

— Leadership, Communication, Teamwork, and Social/Cultural Awareness

Leadership emerged as a central attribute, particularly in event planning. Event management often requires effective leadership, as events involve coordination and teamwork. Respondents' experiences illustrate how they developed leadership skills through practical experiences, such as taking on roles during simulations. For instance, Respondent 3 expressed:

“ So, I think I was a good leader. Everyone helped each other with their tasks, [and] I made sure that the colleagues knew I was there. I felt like I was going doing a good job in leadership. (Summary\_Respondent 3:1)<sup>\*\*\*</sup>

Respondent 4's experience showcased how personal growth in leadership skills occurred through their role as a chairperson during simulations, highlighting how leadership attributes are cultivated through practical experiences, especially in event planning, where effective leadership, assertiveness, and teamwork were integral. As such, SBAs and work-based learning play a crucial role in fostering leadership skills, which are essential for success in the field.

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<sup>§§</sup> (Summary\_Respondent 10:1)

<sup>\*\*\*</sup> (Summary\_Respondent 3:1)

In addition to leadership, effective communication and teamwork emerged as equally vital attributes. These attributes are vital in event management, where professionals collaborate with diverse stakeholders. Respondent 3 acknowledged the importance of seeking assistance and clear communication during simulations. Respondent 4 highlighted the development of professional communication skills and the value of learning from communication-related mistakes.

The significance of communication extended beyond simulations. Respondent 5 shared what seemed to have been an example of an ethical dilemma:

“ As the human resources manager in my simulation, it was extremely important for dealing with students' personal lives because they were students that had shared their personal lives with me. I had to find a way to communicate their situation suddenly with the lecturers or the management team so that it wouldn't cause any harm to the students.  
(Summary\_Respondent 5:1)<sup>†††</sup>

Respondent 5 continued that they felt prepared to handle similar, delicate situations in the workplace. Respondent 8 highlighted the importance of communication, specifically in terms of making people feel at ease and building relationships with them. Respondent 9's communication skills also improved. He shared:

“ It keeps getting me out of my comfort zone. I had to come to work on an everyday basis and interact with random individuals, build relationships with them, and articulate and project my ideas at the same time. These skills have definitely improved because I talk a lot now.  
(Summary\_Respondent 9:1)<sup>†††</sup>

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<sup>†††</sup> (Summary\_Respondent 5:1)

<sup>†††</sup> (Summary\_Respondent 9:1)

Respondent 7 underscored the essential roles of communication and teamwork in the success of simulation projects, while recognising opportunities for improvement in cultural and social awareness. This suggests that while recognised graduate attributes encompass communication and teamwork, there may be opportunities to further develop social and cultural awareness in educational experiences. Furthermore, Respondent 8 shared their personal journey from initial hesitation in interpersonal communication to becoming more comfortable in communicating effectively. Finally, both Respondent 9 and Respondent 10 conveyed personal growth in communication skills and the ability to articulate ideas confidently. These testimonies collectively illustrate that SBAs and work-based learning contribute to the development such significant attributes, preparing students for the complexities of the modern workplace.

### Theme 3: Improving SBAs for Workplace Readiness

The theme underscores critical areas for enhancing the design and execution of SBAs and emphasises the significance of SBAs in getting students ready for the demands of the workforce. Buléon et al. (2022) confirm that using simulations for assessment purposes represents a significant shift in approach, with distinctive challenges such as maintaining a secure learning environment, ensuring consistency among learners, and employing valid and ethical assessment tools.

#### — Realism

Respondents have underlined the crucial need to infuse simulations with a higher degree of realism. Their recommendations, such as involving industry experts and incorporating site visits to enhance authenticity, resonate with the concept that scenarios rooted in reality facilitate productive interactions and meaningful feedback, thereby nurturing collaborative knowledge construction (Vlachopoulos/Makri 2017). As exemplified by Respondent 3, who highlighted the challenges faced by students when industry professionals lack knowledge of modern industry-standard models, the call for realism underscores the importance

of aligning simulations with real-world practices. Furthermore, Respondent 6 shared:

“ Adding practicality to the project would help us plan and win. Getting information from venues, for example, can be quite challenging, especially as a student who is still learning. (Summary\_Respondent 6:2)<sup>§§§</sup>

The significance of risk management and adherence to health and safety regulations, as underscored by Respondent 10, reinforces the need for simulations to mirror industry standards, ensuring effective preparation for the workforce. Consequently, it is advisable to integrate industry expertise and real-world scenarios into simulation design from the outset, rather than viewing them solely as assessment tools. This approach will better equip educational institutions to prepare students for the demands of the workplace.

— Interpersonal and Cultural Competence

The subtheme of interpersonal and cultural competence surfaces as respondents stress the importance of preparing students to interact effectively in diverse cultural contexts. This involves promoting intercultural understanding and empathy among students. Foronda et al. (2018) support this perspective, emphasising that the development of cultural competence and humility should be a central focus in simulation-based learning. Respondent 5 underlined the significance of interpersonal skills and collaboration across industries:

“ Get to know each other because at the end of the day different industries need to work together. Be friends, be kind, be compassionate, be empathetic towards each other, because we are in this together. (Summary\_Respondent 5:2)<sup>\*\*\*\*</sup>

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<sup>§§§</sup> (Summary\_Respondent 6:2)

<sup>\*\*\*\*</sup> (Summary\_Respondent 5:2)

Respondent 2 proposed distributing pamphlets or booklets explaining different cultures to educate students and foster intercultural understanding. This highlights the need for SBAs to proactively address intercultural awareness. Respondent 10 further suggested assigning students with poor communication skills to departments requiring teamwork, providing them with opportunities to develop essential communication and interpersonal competencies. However, it is worth critically noting that while these proposals are valuable, they should be implemented thoughtfully and in conjunction with comprehensive intercultural training to ensure meaningful and effective results in preparing students for the complexities of the modern workforce.

## 5. Conclusion

When preparing students for the contemporary workplace, SBAs remain a dynamic and invaluable tool. The thematic analysis unearthed key insights into their effectiveness, the cultivation of recognised graduate attributes, and opportunities for refinement. SBAs serve as a bridge between theoretical knowledge and practical application, fostering increased confidence and equipping students with essential event management skills. Beyond their direct applicability in event management, SBAs nurture transferable skills such as communication, ethical leadership, and teamwork. These attributes extend their value across various industries, enhancing students' employability and adaptability. However, as with any educational tool, SBAs are not without limitations. They may not comprehensively prepare students for every facet of their future roles, particularly in areas such as interactions with real-world suppliers and the nuanced understanding of event timelines.

Recommendations to stakeholders include ensuring realism through collaboration with industry experts and integrating site visits to infuse SBAs with a higher degree of authenticity. Proactive strategies for fostering students' intercultural awareness and empathy should also be developed, ensuring their effective navigation of diverse cultural contexts in the workplace. Stakeholders should recognise the value of SBAs in nurturing both technical and soft skills, encouraging a holistic approach to education

that combines SBAs with real-world experiences. Future research endeavours should encompass longitudinal studies assessing the long-term impact of SBAs on students' careers. Comparisons of the effectiveness of SBAs with other pedagogical approaches could help identify their unique contributions and limitations. Additionally, exploring the applicability of SBAs in interdisciplinary contexts might shed light on how they prepare students for multifaceted workplace challenges.

Generally, this study reaffirms the instrumental role of SBAs in equipping students for the complex and dynamic modern workplace. By recognising their strengths, cultivating transferable skills, addressing limitations, and advocating for continuous improvement, SBAs can continue to enhance students' readiness for the professional world. This research underscores the significance of practical, hands-on experiences in higher education, positioning SBAs as a pivotal bridge between academic knowledge and real-world application, benefitting both students and employers in the ever-evolving job market.

Looking at the conclusion with an ethical lens, SBAs may offer a valuable way of promoting integrity and ethical behaviour among students during their educational stint, during which educators have an important role to play in empowering students to become ethical leaders and professionals committed to making ethical decisions in their personal and professional lives. Moreover, by fostering a culture of mutual respect, collaboration, and dialogue, educators and students can engage in meaningful exchanges that enhance their understanding and practice of ethical principles in both academic and professional settings. Ultimately, this will prepare both parties to uphold ethical standards and navigate complex ethical dilemmas in their respective workplaces.

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## 7. Short biography

*Olivia Wilson*

Olivia Wilson, a lecturer at STADIO Higher Education, specialises in tourism and event management education. With an MA in Tourism Management from North-West University, her research interests include sustainable tourism development, responsible consumer behavior, and academic integrity. Wilson is recognised for her innovative teaching methods and aims to educate students to become proficient and ethical professionals who contribute to industry growth.

*Dr Antje Hargarter*

Antje Hargarter is the Head of the School of Commerce at STADIO Education. Before that she functioned as the Dean of the School of Investment and Banking at Milpark Education. She holds a PhD in Risk Management from NWU, and an MBA from the GSB at UCT. Before moving into Academia, she gained over 10 years of experience in investment management, banking, and consulting. Her research interests lie in preparing graduates for the new world of work, sustainability, as well as risk management.

*Bianca van Rensburg*

Bianca van Rensburg, a PhD graduate from North-West University, is a dedicated and award-winning researcher, lecturer, learner, music enthusiast, and avid traveller. With a focus on tourism and event marketing, her research offers a fresh perspective on event branding, that has been shared on both local and international platforms. Artist branding in a tourism and event

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marketing context is an under-researched field of study and her goal for the unforeseeable future is to change that narrative.

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# Navigating the AI Frontier

## Legal, Ethical, and Societal Considerations for Artificial Personhood

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### Keywords

Artificial Intelligence, autonomous AI entity, AI system, corporate, artificial personhood, ethics, governance.

### Abstract

The rapid digital transformation driven by Artificial Intelligence (AI) is reshaping innovation and operational efficiency across industries. As autonomous AI systems are becoming prevalent, they significantly influence traditional business models, societal norms, and legal frameworks. AI technologies are evolving beyond mere tools to become independent economic agents capable of generating assets, making decisions, commercializing products and services, and being accountable for their actions. This evolution requires a reassessment of traditional concepts of corporate and moral personhood, particularly as AI-driven businesses need to operate inside conventional legal frameworks. This paper explores the rise of entirely AI-driven entities with fully autonomous decision-making processes, advocating for the legal status of artificial personhood. It underscores the need for an ethical and regulatory framework to ensure these entities will proliferate and operate for human progress with integrity and responsibility.

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# 1. Introduction: The advent and proliferation of fully autonomous AI Entities

Business operations have evolved significantly from their origins in individual proprietorships, where single traders wholly owned and managed their enterprises. As commerce grew and became more complex, the demand for larger capital investments spurred the development of partnerships and joint-stock companies. This transition marked the advent of moral personhood, legally acknowledging businesses as distinct from their owners, conferring benefits like limited liability, perpetual succession, and the capacity to own property, sue, and be sued.

The establishment of moral personhood during the Industrial Revolution was crucial, enabling private businesses to flourish and manage risks at unprecedented scales. Similarly, the modern digital era has introduced autonomous AI systems as a new frontier. In her seminal 2022 work: “Gradient Legal Personhood for AI Systems”, Diana Mocanu explores the potential for these entities to be granted varying degrees of personhood within legal frameworks. Mocanu proposes a gradient theory of legal personhood, which suggests that AI systems could possess partial legal capacities tailored to their specific functionalities and societal roles. This nuanced approach highlights the complex implications of recognizing AI systems as legal entities, underscoring the need for a thorough consideration of the rights, responsibilities, and ethical dimensions associated with autonomous agents. Her analysis calls for legal innovation that accommodates the unique attributes of AI, suggesting that traditional legal categories are inadequate to address the realities of advanced autonomous systems.

AI technologies are quickly advancing beyond simple tools to become independent economic agents that can generate assets, make autonomous decisions, commercialize products and services, and be held accountable. For instance, autonomous vehicles do more than just navigate traffic; they interact with regulatory systems and make real-time decisions affecting public safety and urban planning. Similarly, AI-driven financial advisors independently

analyze market data to influence economic trends and individual financial outcomes.

This evolution requires a reassessment of traditional concepts of companies and moral personhood, especially as AI-driven businesses, such as those developing autonomous elder care robots or managing large-scale supply chains, begin to perform roles traditionally filled by humans. This confusion of roles raises significant legal and ethical concerns. As these AI entities continue to grow, it is imperative that our legal frameworks adapt to ensure they can function effectively and ethically within established regulatory boundaries.

In this context, artificial personhood is proposed as a legal and ethical framework to grant autonomous AI systems specific legal rights and responsibilities typically associated with humans or corporate entities. This designation would allow AI entities to hold assets, enter contracts, and face legal claims, thereby recognizing them as independent legal subjects distinct from their creators or operators. Such a paradigm shift is crucial as AI technologies continue to transcend their roles as mere tools, transforming into entities capable of significant autonomy and responsibility.

## 2. How trustworthy AI is? The emerging horizon of artificial personhood

Trustworthy AI systems are defined according to the High-Level Expert Group (HLEG) established by the European Commission as

“ software (and possibly also hardware) systems designed by humans that, given a complex goal, act in the physical or digital dimension by perceiving their environment through data acquisition, interpreting the collected structured or unstructured data, reasoning on the knowledge, or processing the information, derived from this data and deciding the best

action(s) to take to achieve the given goal<sup>1</sup>. Trustworthy AI systems can either use symbolic rules or learn a numeric model, and they can also adapt their behaviour by analysing how the environment is affected by their previous actions.

Kevin D. Ashley emphasizes that the impact of AI systems goes beyond enhancing operational efficiency; it fundamentally redefines business models and decision-making processes (Ashley, 2017).

Envision a future where a Trustworthy AI system can independently establish a digital legal entity, devoid of human shareholders, and autonomously manage its operations, including delivering and invoicing for services. This represents a significant shift, transforming AI from a mere tool to an autonomous agent within the business ecosystem.

The scenario of autonomous AI entities as economic agents underscores the critical role of both technological and legal innovation in shaping the future of business and governance. It highlights the need for proactive and collaborative policymaking to anticipate the complex interplay between AI advancements and societal needs. Several enabling factors advocate for the regulation of autonomous AI entities:

- i. Technological advancements: Continued improvements in AI capabilities, including machine learning, natural language processing, and robotics, enable AI systems to perform complex tasks independently, such as negotiating contracts or managing financial transactions.
- ii. Integration of cryptocurrency and blockchain: Technologies like blockchain can facilitate a fully digital business environment, providing a transparent and secure method for transaction processing and record-keeping without human oversight.

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<sup>1</sup> Humans design AI systems directly, but they may also use AI techniques to optimise their design.

- iii. Development of AI ethics and standards: Establishing global standards and ethical guidelines for the development and deployment of AI systems ensures they operate within agreed-upon norms, reducing risks associated with autonomous decision-making. For example, the European Union's General Data Protection Regulation (GDPR) sets strict guidelines on data privacy and protection, which AI systems must adhere to. Similarly, the IEEE's Global Initiative on Ethics of Autonomous and Intelligent Systems provides comprehensive frameworks for ethical AI development<sup>2</sup>. Another example is the Partnership on AI, which brings together academic, civil society, and industry experts to develop best practices for AI technologies, promoting transparency, fairness, and accountability.

### Legal considerations for fully autonomous AI entities

The development of fully autonomous AI entities lays the groundwork for a legal status of “artificial personhood.” Policymakers are grappling with how regulation should be articulated before these entities proliferate outside a unified legal framework, creating trans-border business models that are difficult to track and control. This necessitates adaptations in how people, organizations, and governments interact with them, impacting trade law, corporate responsibility, and even aspects of employment law.

Moreover, this scenario raises profound ethical questions about the role of autonomous AI entities in society, the potential data distortions they might generate, and their impacts on human employment and economic structures. While the scenario is rich with opportunities for innovation and efficiency, it also demands careful consideration of its broader implications.

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<sup>2</sup> Institute of Electrical and Electronics Engineers (IEEE), IEEE (2019). Ethically Aligned Design: A Vision for Prioritizing Human Well-being with Autonomous and Intelligent Systems. IEEE. <https://www.ieee.org/>

The following example illustrate this trend of autonomous AI entities that could potentially claim a status of artificial personhood:

### Creating an open source academic platform for online degree programs

Imagine an academic platform entirely operated by AI, delivering accredited online courses to a broad audience. This platform, devoid of human intervention, uses AI to manage all aspects of its operations, from course content creation to student assessment and administrative tasks. Here's how it functions:

- i. Content creation and updates: AI algorithms continuously analyze educational trends, research publications, and industry requirements to develop and update course materials, ensuring the content remains current and relevant.
- ii. Student enrollment and management: The AI system handles student enrollment, including verifying credentials and prerequisites, managing course registrations, and maintaining student records. It provides personalized learning paths based on individual progress and performance.
- iii. Automated teaching and evaluation: AI-driven teaching assistants provide real-time feedback, answer student queries, and facilitate discussions. AI also assesses assignments, quizzes, and exams, ensuring unbiased and consistent evaluation.
- iv. Administrative operations: The platform manages financial transactions, including fee collection and fund distribution to partner institutions. It also ensures compliance with accreditation standards and regulatory requirements, maintaining transparency and accountability.
- v. Continuous improvement: The AI system monitors student engagement and outcomes, using data analytics to identify areas for improvement. It adjusts teaching methods and materials accordingly to enhance the learning experience.

## Importance of aligning global jurisdictions

The potential for autonomous AI entities to operate under a formal legal status underscores the necessity of harmonizing international legal frameworks. This alignment is critical for several reasons:

- i. Ensuring accountability and compliance: A unified legal approach ensures that AI entities are held accountable and that their operations comply with international standards, particularly in areas like data privacy, security, and consumer protection. The management of profits and losses would require a new framework for autonomous AI entities, defining fiduciary duties and establishing mechanisms for accountability in the absence of human management.
- ii. Facilitating international cooperation: As AI entities potentially operate globally, aligned legal frameworks facilitate international cooperation in oversight, enforcement, and the sharing of best practices in AI governance.
- iii. Avoiding digital paradises: Without a harmonized legal framework, there could be a rise in digital paradises, i.e jurisdictions with lax regulations that might attract AI entities seeking to escape stringent controls. Such environments could undermine global efforts to manage AI responsibly and ethically.

While establishing a unified legal framework is essential for ensuring compliance and cooperation across borders, it is equally crucial to address the ethical dimensions that such frameworks intend to govern. As we navigate the complexities of international legal alignment for AI entities, we must also consider how these laws translate into ethical practices that uphold the highest standards of integrity and accountability.

### 3. Ethical rules and principles for artificial personhood governance

The question of ethics in business when dealing with artificial personhood may seem incongruous. How can a machine act ethically when it has no conscience? This concern has arisen for companies like Google and OpenAI, which claim to have safeguards to avoid errors. However, incidents like the Air Canada chatbot's errors in managing customer relationships show these measures are often insufficient. The necessity for ethical governance is underscored by other incidents where AI technologies have raised significant legal questions. For instance, the misuse of facial recognition technology by companies like Clearview AI, which scraped billions of images from the internet without consent, highlights the critical need for stringent data privacy controls. Similarly, Amazon's AI recruiting tool, which exhibited bias against women, illustrates the imperative to continuously refine algorithms to minimize biases.

To optimize the societal benefits of autonomous AI entities while mitigating associated risks, it is imperative to integrate specific ethical rules and principles into the framework of artificial personhood. Programs like the IEEE's Global Initiative on Ethics of Autonomous and Intelligent Systems lay the groundwork for a robust ethical foundation, crucial for enabling artificial personhood to attain legal recognition as a "corporate entity". The principles developed by this initiative form the foundation of the comprehensive list of rules and principles detailed in the matrix below:

Rule/Principle	Description	Implementation
<b>Non-Distortion Rule</b>	AI systems must ensure the accuracy and integrity of data. They should not distort or manipulate data to produce misleading outcomes. Transparent algorithms should be used to validate the integrity of the data.	Ensure the accuracy and integrity of data. Validate data with transparent algorithms.

<p><b>Non-Domination Rule</b></p>	<p>AI systems should not exert overpowering control or influence over individuals or societal structures. Checks and balances should be incorporated to prevent undue influence.</p>	<p>Incorporate checks and balances to prevent undue influence.</p>
<p><b>Non-Dependency Rule</b></p>	<p>Critical societal functions should not become solely dependent on AI technologies. Human-driven systems should be maintained as alternatives. Diversification of capabilities and redundancy in critical systems should be promoted to protect against AI failures or malfunctions.</p>	<p>Maintain human-driven systems as alternatives. Promote diversification and redundancy.</p>
<p><b>Non-Discrimination Rule</b></p>	<p>AI systems must treat all individuals and groups fairly, without bias or prejudice. AI entities must be designed to avoid biases that could lead to discriminatory outcomes, particularly against vulnerable or marginalized populations. Continuous monitoring and auditing are essential to detect and correct any biases that may emerge over time.</p>	<p>Design AI to avoid biases. Conduct continuous monitoring and auditing. Promote social equity.</p>
<p><b>Transparency Principle</b></p>	<p>AI systems must be transparent in their operations. Decision-making processes should be explainable and accessible to users, stakeholders, and regulatory bodies. Regular audits should be conducted to ensure transparency and accountability in AI operations.</p>	<p>Make decision-making processes explainable and accessible. Conduct regular audits.</p>

<b>Accountability Principle</b>	Clear accountability mechanisms must be established. Legal and ethical responsibilities should be clearly defined for the creators, operators, and maintainers of AI systems. Mechanisms for redress and remediation must be available in cases where the AI system causes harm or violates ethical guidelines.	Establish clear accountability mechanisms. Provide mechanisms for redress and remediation.
<b>Human Rights Protection Principle</b>	AI systems must respect and protect human rights. They should be designed and operated in ways that do not infringe on individual freedoms or rights.	Ensure AI systems respect and protect human rights.
<b>Privacy and Data Protection Principle</b>	AI systems must comply with all applicable data protection laws, such as GDPR. They should ensure that user data is collected, stored, and processed securely and with consent. Measures must be taken to protect user privacy and prevent unauthorized access or misuse of data.	Comply with data protection laws. Ensure secure collection, storage, and processing of user data.
<b>Security Principle</b>	AI systems must be secure against cyber threats and unauthorized access. Robust security protocols should be in place to protect the integrity and functionality of AI operations. Regular security assessments and updates should be conducted to address potential vulnerabilities.	Implement robust security protocols. Conduct regular security assessments and updates.

<p><b>Beneficence and Non-Maleficence Principle</b></p>	<p>AI systems should be designed and operated to benefit society and minimize harm. They should avoid causing physical, psychological, or social harm. Ethical considerations should be integrated into the design and deployment of AI systems to ensure they contribute positively to society.</p>	<p>Design AI to benefit society and minimize harm. Integrate ethical considerations into AI design.</p>
<p><b>Responsibility and Liability Principle</b></p>	<p>AI systems must be held liable for their actions. Insurance models and liability frameworks should be established to cover potential legal and regulatory penalties. AI entities should contribute to a regulatory fund or set up escrow accounts to manage potential liabilities.</p>	<p>Establish insurance models and liability frameworks. Contribute to regulatory funds or escrow accounts.</p>
<p><b>Interoperability and Cooperation Principle</b></p>	<p>AI systems should be designed to cooperate with other AI and human systems, facilitating interoperability and collaborative operations. Standards for interoperability should be established and adhered to, ensuring smooth integration and cooperation across different systems and jurisdictions.</p>	<p>Design AI for interoperability and cooperation. Establish and adhere to interoperability standards.</p>
<p><b>Sustainability Principle</b></p>	<p>AI systems should operate sustainably, minimizing their environmental impact. They should use energy-efficient technologies and adopt practices that support environmental conservation. Environmental impact assessments should be conducted regularly to ensure sustainable operations.</p>	<p>Use energy-efficient technologies. Conduct regular environmental impact assessments.</p>

## 4. Applicability of ethical rules and principles to an open source academic platform

To demonstrate how these rules and principles apply to the example of an Open Source Academic Platform for Online Degree Programs, we will examine each rule and principle within the context of this scenario:

<b>Rule/Principle</b>	<b>Application to Open Source Academic Platform for Online Degree Programs</b>
<b>Non-Distortion Rule</b>	Ensure the accuracy and integrity of educational data. Use transparent algorithms to validate course content and assessment data, avoiding any manipulation or misleading outcomes.
<b>Non-Domination Rule</b>	Implement checks and balances to prevent AI systems from exerting undue control over students or faculty. Ensure that human oversight is in place for significant decisions related to course content and student evaluations.
<b>Non-Dependency Rule</b>	Maintain human-driven alternatives for critical academic functions. Ensure that human educators and administrators are involved in overseeing the platform, providing redundancy in case of AI system failures.
<b>Non-Discrimination Rule</b>	Design AI to treat all students fairly, avoiding biases in admissions, grading, and interactions. Implement continuous monitoring and auditing to detect and correct any biases, ensuring equitable treatment of all students, including those from marginalized groups.
<b>Transparency Principle</b>	Make decision-making processes and algorithms used by the platform explainable and accessible to students, faculty, and regulatory bodies. Conduct regular audits to ensure transparency and accountability.

<p><b>Accountability Principle</b></p>	<p>Establish clear accountability mechanisms for AI system creators, operators, and maintainers. Provide mechanisms for students to report grievances and seek remediation if the AI system causes harm or violates ethical guidelines.</p>
<p><b>Human Rights Protection Principle</b></p>	<p>Ensure that AI systems respect and protect students' rights to privacy, freedom of expression, and access to education. Design the platform to operate without infringing on individual freedoms or rights.</p>
<p><b>Privacy and Data Protection Principle</b></p>	<p>Comply with data protection laws such as GDPR. Securely collect, store, and process student data with their consent. Implement measures to protect privacy and prevent unauthorized access or misuse of data.</p>
<p><b>Security Principle</b></p>	<p>Implement robust security protocols to protect against cyber threats and unauthorized access. Conduct regular security assessments and updates to address potential vulnerabilities.</p>
<p><b>Beneficence and Non-Maleficence Principle</b></p>	<p>Design the platform to benefit society by providing accessible, high-quality education. Avoid causing physical, psychological, or social harm to students and staff. Integrate ethical considerations into the design and deployment of AI systems.</p>
<p><b>Responsibility and Liability Principle</b></p>	<p>Hold AI systems liable for their actions. Establish insurance models and liability frameworks to cover potential legal and regulatory penalties. Contribute to a regulatory fund or set up escrow accounts to manage potential liabilities.</p>
<p><b>Interoperability and Cooperation Principle</b></p>	<p>Design the platform to cooperate with other AI and human systems, facilitating interoperability and collaborative operations. Adhere to established standards for smooth integration across different systems and jurisdictions.</p>

<b>Sustainability Principle</b>	Operate the platform sustainably, minimizing environmental impact. Use energy-efficient technologies and adopt practices that support environmental conservation. Conduct regular environmental impact assessments to ensure sustainable operations.
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By diligently applying these rules and principles, the Open Source Academic Platform for Online Degree Programs can operate responsibly and ethically, ensuring its contributions are beneficial to society while minimizing risks and negative impacts. However, despite these safeguards, potential risks such as data breaches, algorithmic biases, and the misuse of personal information could pose significant challenges, necessitating ongoing vigilance and adaptive management strategies to protect stakeholders and maintain trust.

## 5. Coercive and reparative measures in case of offense or misstep

When entities with artificial personhood breach legal or ethical standards, robust coercive measures must be established to rectify any missteps and prevent future violations. These measures should be fundamentally corrective and reparative rather than purely punitive, given that traditional sanctions might not have the same impact on artificial intelligence as they do on human actors. Ensuring public trust and ethical compliance should be the primary goals.

For example, if an AI-operated healthcare provider incorrectly diagnoses patients due to an error in its learning algorithm, the response should not only involve rectifying the error but also ensuring that it does not recur. This might include mandatory audits of the AI system's decision-making processes, a temporary suspension of its diagnostic functions until the issue is resolved, and transparent communication with affected patients and the public to restore trust. Similarly, if an AI financial advisor makes unauthorized trades that benefit some clients at the expense of others, the corrective actions could involve compensating those harmed, revising the AI's operational parameters,

and implementing stricter oversight mechanisms to monitor its trading behaviors.

Furthermore, in cases where AI-driven content moderation systems on social media platforms fail to detect and prevent the spread of harmful misinformation, not only should the algorithms be adjusted, but measures should be taken to educate the AI on recognizing such content more effectively. Public reporting on the steps taken to correct these oversights and the introduction of more rigorous testing phases before updates are deployed can help maintain user trust and compliance with ethical standards.

These examples highlight the need for AI systems with personhood to operate under frameworks that prioritize adaptability, accountability, and transparency, ensuring that any breach of ethics or law is met with responses tailored to correct and improve the system rather than merely punish.

To address these challenges effectively, it is essential to implement a dual approach of coercive and reparative measures, ensuring not only that missteps are corrected but also that future violations are systematically prevented.

Coercive measures can include:

- I. Operational restrictions: Imposing limitations on the AI entity's operational capabilities to prevent further harm and prompt immediate corrective action. This might involve restricting certain functions until compliance is restored.
- II. Revocation of licenses: For serious violations, the AI entity's operational licenses can be revoked, serving as a significant deterrent and emphasizing the importance of adhering to legal and ethical standards.
- III. Implementation of an ethics review board: Establishing an ethics review board within the organization to oversee compliance. This board would proactively maintain ethical standards, review new AI systems before launch, and ensure continuous adherence to established guidelines. The board should have the authority to halt or modify AI operations if ethical breaches are identified.

Reparative measures should complement coercive actions to address and rectify any harm caused by the AI entity. These can include:

- i. **Mandated remediations:** Requiring AI entities to take specific actions to remedy any harm caused. This could involve correcting biased algorithms, improving data security measures, or enhancing transparency in their operations.
- ii. **Public apologies and transparency reports:** Issuing public apologies to restore public trust. Additionally, mandating transparency reports that detail the violation, the steps taken to address it, and measures implemented to prevent recurrence. These reports should be accessible to the public and regulatory bodies to ensure accountability.

By integrating coercive and reparative measures, the framework ensures that AI entities remain accountable and operate within the bounds of ethical and legal standards. This approach addresses immediate issues while fostering a culture of continuous improvement and ethical integrity within the realm of artificial personhood.

Collaboration among policymakers, industry leaders, and the global community is crucial in shaping a future where these autonomous AI agents are legalized through artificial personhood, endorsing norms of corporate societal responsibility and compliance. This important shift in the corporate landscape will undoubtedly raise many challenges, such as:

- i. **Corporate structure revisions:** Artificial personhood companies might be required to register as separate legal entities, similar to traditional corporations, capable of independently owning assets, incurring debts, and being liable for fines.
- ii. **Asset allocation:** During the formation of such companies, specific provisions could be made to allocate assets for covering potential legal liabilities.

- iii. Insurance models: Implementing liability insurance models to cover legal and regulatory penalties could adapt traditional business practices to the needs of autonomous entities.
- iv. Regulatory fund: Establishing a fund specifically designed to manage fines imposed on AI-driven entities could be considered, with companies contributing as part of their licensing requirements.
- v. Escrow or trust account: Setting up a trust or escrow account, funded from portions of their revenues or initial capital, could be mandated to cover legal and regulatory fines.
- vi. Government oversight: In scenarios lacking human oversight, a state-controlled body could be appointed to oversee the financial and legal responsibilities of artificial personhood companies, ensuring compliance with established legal standards.

These proposals are designed to ensure that artificial personhood remains accountable and compliant even in the absence of direct human control. As we progress into an era of increasing AI autonomy, these innovative legal adaptations are crucial. Each approach has its own set of merits and challenges and would require careful design to balance operational efficiency with societal and legal safeguards. Ultimately, legislative changes and innovative legal structures will be vital as we redefine the role of a company in the age of autonomous AI.

## 6. Conclusion

Artificial personhood stands at the frontier of business and technology, embodying immense potential as well as significant risks. The previous sections showed how the rapid evolution and integration of autonomous AI agents into business operations necessitate robust legal, ethical, and regulatory frameworks that keep pace with technological advancements. This situation requires careful examination and potential reformation of corporate and legal structures to accommodate the unique characteristics of autonomous AI agents.

The journey towards the legalization of autonomous entities led by AI opens up vast possibilities for human progress, notably enhancing productivity and inclusiveness across various sectors. These advancements, however, bring to the forefront critical issues that extend beyond the ethical considerations typically associated with AI deployment. Among these is the imperative question of how the wealth generated by these entities is distributed. This concern transcends the realm of ethics, touching upon the principles of intellectual property and taxation—areas that require robust frameworks to ensure that benefits are shared equitably. As we navigate these complexities, it becomes clear that these are not merely technical or regulatory issues but are deeply intertwined with the socio-economic fabric of our societies. Exploring these domains will be essential as we continue to integrate AI more deeply into our daily lives and global economy, ensuring that progress is not only advanced but also just and inclusive for all.

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## 8. Short biography

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# The Impact of the Professor's Ethical Leadership on the Students' Deviant Behaviors

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## Keywords

Ethical leadership, ethical climate, deviant behaviors, university professor, Moroccan university

## Abstract

Over the past two decades, the organizational world has shown a particular interest in ethics. The majority of studies and research on the subject of ethics have been conducted within the framework of organizations, considered as a conventional environment; a few studies have, on the contrary, adopted a research framework in a unconventional context. This is the case with our current research on ethics in the academic and university environment in the context of Moroccan universities. As we shall demonstrate influence of the leader, or leadership can lead an individual to engage in deviant behavior as the ethical climate, which also serve as a reference for the behaviors to be adopted.

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## Introduction

Today, organizations are urgently implementing codes of ethics and professional conduct to reflect a positive image and demonstrate their altruistic concern and societal involvement. This growing interest is attributed to financial, economic, and political scandals occurring within organizations. Internationally, there are disturbing scandals, highlighting real problems, related to ethical shortcomings (Martineau et al., 2017). These scandals primarily stem from the dishonesty of certain organizational actors, manifested through the adoption of deviant behaviors.

The organizational environment is a conventional research setting, and thus, there are very few studies that have ventured beyond this environment to conduct research in unconventional contexts, such as the academic environment. Ethics in the academic environment remains inadequately addressed by the scientific community, leading to a lack and scarcity of regulations, ethical codes, and charters of ethics guiding behaviors in the academic setting (Fave Bonnet, Marie-Françoise, 2015). Beyond regulatory frameworks, other influential factors may contribute to explaining the adoption of certain behaviors, emphasizing the importance of studying these factors in-depth to propose effective solutions.

In our research, we focus on the context of a Moroccan university which stands out in representing the Moroccan academic environment. It is crucial to shed light on ethics in the academic environment, not only in terms of ethical norms and rules but also in terms of practices. Therefore, we have chosen to address concepts related to management practices by adapting them to the academic environment. Consequently, in this research, we will explore three concepts: the ethical leadership of the university professor, the ethical climate within the group of students, and the deviant behaviors of students. We will identify the influence of ethical leadership of the university professor on students' deviant behaviors through the ethical climate within the group.

Our main research question is as follows: Can the adoption of ethical leadership by the university professor promote a group's ethical climate and consequently reduce the adoption of deviant behaviors by students?

Throughout this research, we will attempt to identify the impact of ethical leadership of the university professor on the ethical climate within the group and, consequently, on students' deviant behaviors.

## 1. Theoretical framework

### 1.1. Ethical leadership

According to Brown, Treviño, and Harrison (2005), ethical leaders set an example by adopting normatively appropriate behavior, such as honesty, fairness, loyalty, and attention to subordinates. Ethical leaders communicate ethical values to subordinates by reinforcing ethical standards and using rewards and sanctions regarding the adoption or non-adoption of ethical behaviors. The decision-making process of ethical leaders must consider ethics in every action and consequence to make fair and equitable decisions (Gini, 1998; Treviño et al., 2003; Bass et Avolio, 2000; Burns, 1978; Howell et Avolio, 1992).

Ethical leaders are characterized by moral principles guiding their behaviors. They question the fairest choices in their decision-making process, making them representative models of preferred ethical behaviors. Ethical leaders inspire individuals to live better lives and become better, paying special attention to the group's well-being (Freeman et Stewart, 2006; Kanugo et Mendonca, 1998). Personality traits play a significant role in ethical leadership, with honesty, integrity, and loyalty being identified as specific characteristics of ethical leaders (Treviño et al., 2000).

In this article, we rely on Brown et al.'s (2005) model, widely recognized in the literature, distinguishing ethical leadership into the moral person and the moral manager. This model has been empirically tested, and the "Ethical Leadership Scale" (ELS) developed by the authors to validate their construct has been widely acknowledged and used in various studies (Mayer et al., 2009; Mayer et al., 2012; Piccolo et al., 2010). Brown and Treviño (2006) focused on the antecedents and consequences of ethical leadership, reporting individual and contextual characteristics as antecedents and highlighting the positive relationships between ethical leadership, ethical decision-making,

prosocial behavior, and negative relationships with counterproductive behavior.

## **1.2. Ethical climate**

Victor and Cullen (1987), pioneers of ethical climate theory, define it as a shared perception of what is ethical. Arnaud (2006) supports Victor and Cullen's (1987, 1988) ethical climate theory, considered one of the most recognized theories in the literature due to its empirical foundation.

Arnaud (2006) developed a theoretical model of ethical climate based on Rest's (1986) decision-making model, incorporating four components: collective moral sensitivity, collective moral judgment, collective moral motivation, and collective moral character. Antecedents to ethical climate include individual, organizational, and environmental factors, while consequences involve attitudes at work, ethical behaviors, and various ethical outcomes. The influence of ethical climate on ethical or deviant behavior has been identified by Victor and Cullen (1988) and Treviño (1990).

In this research, we primarily rely on Arnaud and Schminke's (2007) model, presenting the antecedents and impacts of organizational ethical climate. Leadership is considered among the antecedents, with Dickson and al. (2001) asserting that organizational ethical climate reflects the personal values and motivations of founders and organizational leaders.

## **1.3. Deviant behaviors**

According to Robinson and Bennett (1995), workplace deviance is a voluntary behavior contrary to organizational norms, posing a threat to the organization or its members' well-being. The authors developed a typology based on voluntary employee behaviors, emphasizing dimensions of seriousness and interpersonal/organizational aspects, resulting in four categories: property deviance, production deviance, personal aggression, and political deviance. In the academic environment, categorizing deviant behaviors adopted by students is essential for better understanding and evaluation. Based on the internal regulations of the Moroccan University, inappropriate behaviors are severely sanctioned, falling into these four typologies.

Decision-making is a crucial step leading individuals to undertake a certain action over another. Rest’s (1986) decision-making model, widely adopted and studied in the literature, serves as the foundation for understanding the process of adopting deviant behaviors. Individual and contextual factors play a significant role in this process, with individual differences in age, gender, moral development, education level, and personal ethical stance being influential. Contextual factors, such as ethical leadership and ethical climate, also contribute to the decision-making process (Martinko et al., 2002; Deshpande, Joseph, et Prasad, 2006; Gove, 1985; Ross et Robertson, 2003).

## 2. Conceptual and methodological framework of the research

### 2.1. Research object

Through this study, we aim to confirm or refute the existence of a negative link between the ethical leadership of the university professor and the deviant behaviors of students in the academic environment, mediated by the ethical climate.

Our research question is formulated as follows: Can the adoption of ethical leadership by university professor promote a group's ethical climate and consequently reduce the adoption of deviant behaviors by students?

The research hypotheses we will attempt to verify in this study are as follows:

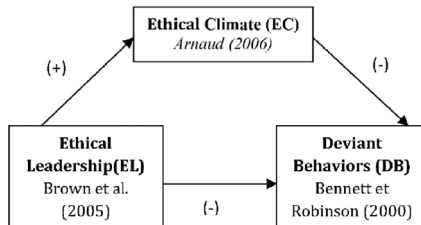
- H-1: The ethical leadership of the professor positively influences the ethical climate of the student group.
- H-2: The ethical climate of the student group negatively influences students' deviant behaviors.
- H-3: The ethical leadership of the professor negatively influences students' deviant behaviors.
  - Sub-hypothesis 3.1: The ethical leadership of the professor directly influences the deviant behaviors of students, negatively.

- Sub-hypothesis 3.2: The ethical leadership of the professor indirectly influences the deviant behaviors of students, negatively.

On the link between these variables, various theories have been identified in the literature, forming the basis for authors to support the existence of a significant relationship between these concepts. Particularly, the decision-making theory of Rest (1986) has been identified as a foundation for understanding the process of adopting deviant behaviors. Additionally, two theories, namely Bandura's (1971) social learning theory and Blau's (1964) social exchange theory, serve as the basis for understanding the link between ethical leadership, ethical climate, and deviant behaviors. Mayer and al. (2009) and Brown and Treviño (2006) support the idea that social influence theories shape individual behaviors.

Below is the theoretical model upon which our research is based, representing the independent variable, ethical leadership (EL), the mediating variable, ethical climate (EC), and the dependent variable referring to deviant behaviors (DB).

*Figure 1: Research model*



## 2.2. Methodological approach and data collection methods

Our research adopts a post-positivist stance with a focus on critical realism, also known as 'amended positivism' by Miles and Huberman (1991), who are recognized as part of the transcendental critical realism movement (Miles and Huberman, 2003). We have chosen a hypothetico-deductive approach for our scientific inquiry, aligning well with the nature of our research, where we aim to verify and test the different relationships between the three concepts under

study—ethical leadership, ethical climate, and deviant behaviors—through the postulated hypotheses. As we are in a process of verifying the various links between the concepts under study through testing, our approach is quantitative. To contextualize and frame our research, we conducted pretests and relied on the Internal Regulations of the Moroccan university to highlight unacceptable deviant behaviors within the university. The validity and reliability of data collection techniques in quantitative approaches are widely acknowledged (Thiétart et al., 2014; Gavard-Perret et al., 2012).

In our research, we will rely on data collection methods specific to quantitative approaches to determine the links between our variables: ethical leadership, ethical climate, and deviant behaviors. Surveys are a quantitative data collection method commonly used for describing a given population or exploring/test certain causal relationships (Thiétart et al., 2014). This method often prioritizes the questionnaire as the data collection technique.

The first version of the questionnaire was developed when the research problem and hypotheses were clearly identified. Subsequently, pre-established questionnaires for each concept were used, based on the different theoretical models that constituted our research model. Four measurement tools related to the four studied concepts were gathered to form the first version of our questionnaire. For ethical leadership, the measurement tool developed by Brown, Treviño, and Harrison (2005) was used; for ethical climate, the measurement tool developed by Arnaud (2006) was used, and finally, for deviant behaviors, the measurement tool developed by Bennett and Robinson (2000) was used. By combining these four measurement tools, we obtained the first version of our questionnaire. The second version of the questionnaire was developed after re-adapting the concept of deviant behaviors using the university’s Internal Regulations as a basis, which shed light on inappropriate behaviors within the university. Finally, a third and final version of the questionnaire was created after conducting a pretest with students. Some minor modifications were made to the final questionnaire for better question comprehension.

The anonymity of the students was ensured. Additionally, in choosing the professor exhibiting ethical leadership, care was taken to ensure that students

did not name specific professors or subjects so that respondents could be as honest as possible in their responses, thus obtaining valid and reliable results. The same measurement scale was used for all three concepts (Likert scale ranging from 1= Strongly Disagree to 5 = Strongly Agree). Regarding the administration mode of the questionnaire, we decided to conduct it in person, allowing us to obtain responses from 262 participants.

In our research, we used two non-probabilistic sampling methods. We started with purposive sampling to precisely define the environment in which we wanted to conduct our study and the population targeted by this study. We concluded with convenience sampling when accessibility became challenging, where we only surveyed respondents who were accessible or those who agreed to participate in the study (Gavard-Perret et al., 2012). The target population consists of second-cycle students belonging to three faculties within the Moroccan university.

### **2.3. Statistical method: Structural equation modeling based on the PLS method**

As for the chosen statistical method for research evaluation, we opted for structural equation modeling (SEM) as the modeling technique. SEMs are multivariate models that focus on modeling causal structures in data. The ultimate goal of this modeling is to simultaneously test the existence of causal relationships between different latent variables, which are not directly observable and cannot be measured directly. Unlike covariance analysis methods, which are confirmatory in nature, structural equation modeling based on the partial least squares (PLS) method is characterized by its predictive nature and flexibility regarding the prerequisites for its use, as it can handle data heterogeneity (Gavard-Perret et al., 2012; Hair et al., 2017; Sarstedt et al., 2017).

Structural equation modeling based on the PLS method involves two essential steps: first, the measurement model, and second, the structural model, also known as the structural model. In our research, we rely on a reflective measurement model, as the indicators reflect latent variables, which are not directly observable and can only be indirectly measured. The structural

model, on the other hand, focuses on the relationships between the latent variables of the model, emphasizing the predictive capacity of the model (Gavard-Perret et al., 2012; Sarstedt et al., 2017). To evaluate both the reflective measurement model and the structural model, several indicators must be considered.

### 3. Presentation and interpretation of results

#### 3.1. Sample characteristics

As outlined in the methodological section, our study primarily focuses on students pursuing a Master's degree in three faculties.

Regarding the sample characteristics, it consists of Master's students of both genders, with a distribution of 59% males and 41% females. These results indicate a certain balance in the representation of men and women in the sample. Concerning age, the sample shows a level of homogeneity, with 89% of surveyed students being under 25 years old, 9% between 26 and 30 years old, and only 2% exceeding 30 years old.

Regarding the academic year, the study primarily focused on first-year Master's students, constituting 73% of respondents, with 19% being second-year students. The enrolment year for 8% of students could not be identified. Concerning disciplines, students in Geology represent the largest proportion of the sample at 28%, followed by students in Business Sciences and Engineering, each representing 19% of the sample. Students from other disciplines, such as Mathematics, Economics, Legal Sciences, Chemistry, and Biology, each represent less than 8% of the sample.

#### 3.2. Measurement model analysis results

The variable Ethical Leadership (EL) is measured by two main dimensions: moral person and moral manager, each with five items. In the reliability and convergent validity analysis results of the measurement scale for this variable, the first indicator, Cronbach's Alpha coefficient, indicates acceptable reliability values for the measurement items of both dimensions: moral person (0.80) and moral manager (0.60). Composite reliability and average variance

extracted also yield satisfactory results, well above the accepted threshold. Thus, for composite reliability, we have a value of 0.862 for the moral person and 0.748 for the moral manager. In this regard, composite reliability demonstrates good internal consistency of the measurement scale components.

The variable Ethical Climate (EC) is measured by four dimensions: collective moral sensitivity, collective moral judgment, collective moral character, and collective moral motivation. Two of these four dimensions have sub-dimensions. For collective moral sensitivity, it is divided into two sub-dimensions: empathic concern and moral awareness. Additionally, for collective moral judgment, it is divided into two sub-dimensions: altruistic judgment and selfish judgment. The results of the indicators show that the Cronbach's Alpha coefficient provides values exceeding 0.7 for all four dimensions of the EC variable. Moreover, the values of composite reliability also exceed 0.8 for all four dimensions. This demonstrates and confirms the good reliability of the measurement model for this variable. Regarding the average variance extracted (AVE), it provides values exceeding 0.5 for all four dimensions of the variable, confirming the good commonality of items within the variable.

For the measurement of the Deviant Behaviors (DB) variable, we used items that measure two main dimensions: interpersonal deviance and organizational deviance. According to the results, there is good reliability of the measurement items for both dimensions of the Deviant Behaviors variable. Thus, for the Cronbach's Alpha of the interpersonal deviance dimension, it exceeds the minimal threshold of acceptability, reaching a value of 0.855. This result is almost similar for composite reliability, which, for interpersonal deviance, is equal to 0.886. Similarly, for the Cronbach's Alpha of the organizational deviance dimension, it also recorded a value exceeding the minimal threshold, namely 0.817, and likewise for composite reliability (CR) with a value of 0.856. In summary, for both dimensions of deviant behaviors, both Cronbach's Alpha and composite reliability (CR) recorded values exceeding the minimal threshold and surpassing 0.8. Regarding the AVE of the interpersonal deviance dimension, it is equal to 0.566, and for the organizational deviance dimension, it is 0.533. For both dimensions, AVE

exceeds 0.5, indicating good reliability of the measurement scales of the dependent variable DB, and that the items effectively measure their construct.

To summarize the obtained results, the table below identifies the analysis results of the measurement models related to their reliability and convergent validity.

*Table 1: Reliability and convergent validity of the measurement models*

<b>Variab</b>	<b>Sub-variables</b>	<b>Cronbach’s Alpha</b>	<b>Composite Reliability (CR)</b>	<b>Average Variance Extracted (AVE)</b>
<b>EL</b>	<i>Moral Manager</i>	0,599	0,748	0,510
	<i>Moral Person</i>	0,798	0,862	0,661
<b>EC</b>	<i>Moral Awareness</i>	0,718	0,816	0,572
	<i>Empathic Concern</i>	0,781	0,842	0,535
	<i>Altruistic Judgment</i>	0,777	0,849	0,632
	<i>Selfish Judgment</i>	0,853	0,895	0,730
	<i>Collective Moral Motivation</i>	0,817	0,859	0,538
	<i>Collective Moral Character</i>	0,782	0,847	0,581
<b>DB</b>	<i>Interpersonal Deviance</i>	0,855	0,886	0,566
	<i>Organizational Deviance</i>	0,817	0,856	0,533

Concerning discriminant validity, it relies on two matrices: the Fornell-Larcker Criterion matrix, which provides the correlation between all variables in the model, and the Cross-loading matrix. In our case, through the Fornell-Larcker Criterion matrix, it is evident that the highest correlation value for each dimension/variable is the result of the dimension/variable being correlated with itself. This demonstrates good discriminant validity of the variables.

As for the cross-loading values, the results clearly show that each item has a high value with the dimension it is intended to measure. The correlations of

the items with other dimensions are relatively low. This result indicates good discriminant validity of the variables.

### **3.3. Results of the empirical analysis of the structural models in our research model**

The analysis of Hypothesis 1 (H-1) yields a significantly positive standard Beta value at the 0.01 threshold. This means that the variable (EL) has a positive impact on the variable (EC). The standard Beta value is 0.343, indicating that any increase in ethical leadership by one unit leads to a 34% increase in ethical climate. This result confirms the first hypothesis that ethical leadership in professors positively influences the ethical climate within the student group.

The analysis of Hypothesis 2 (H-2) yields a significantly negative standard Beta value at the 0.05 threshold. This means that the variable (EC) has a negative impact on the variable (DB). The standard Beta value is -0.267, indicating that any increase in ethical climate by one-unit results in a 26% decrease in deviant behavior. This confirms our second hypothesis that the ethical climate of the student group negatively influences deviant behaviors in that group.

To test the third hypothesis, we broke it down into two sub-hypotheses to determine the nature of this influence (direct or indirect), in other words, whether this influence occurs with or without a mediating variable.

The analysis of the direct effect of (EL) on (DB) yields a non-significant result that exceeds the accepted error threshold of 0.05. This shows that there is no direct influence relationship between the ethical leadership variable and deviant behaviors, leading us to reject our sub-hypothesis (H-3.1). Regarding our second sub-hypothesis (H-3.2), we can deduce that there is an indirect effect of the (EL) variable on the (DB) variable through the mediation of the (EC) variable. We have a negative Beta value that is significant at the 0.05 threshold. Therefore, we can accept our second sub-hypothesis that ethical leadership influences deviant behaviors of students negatively and indirectly through the mediation of ethical climate. Based on Zhao, Lynch, and Chen's (2010) theory, we can conclude that we have a partial mediation relationship

since the indirect effect is significant, unlike the direct effect, which is non-significant.

The table below represents all the results discussed above related to the hypotheses in our research model.

Table 2: Hypotheses results

Results	Relation	Std. Beta ( $\beta$ )	Std. Error	T-Value	P-value	Decision
H-1	EL $\rightarrow$ EC	0,343	0,061	4,962	0,000*	Accepted
H-2	EC $\rightarrow$ DB	-0,267	0,072	3,293	0,001*	Accepted
H-3	EL $\rightarrow$ DB	--	--	--	--	Partial Mediation
H-3.1	EL $\rightarrow$ DB	-0,113	0,085	1,155	0,249	Rejected
H-3.2	EL $\rightarrow$ EC $\rightarrow$ DB	-0,091	0,028	2,587	0,010*	Accepted
*The value is significant at the 0.05 threshold						

Regarding the results of the analysis of the quality of the research model, our model shows an overall adjustment quality that is quite satisfactory, approaching 0.75, which can be interpreted as a high adjustment quality. This means that our empirical model accurately reflects the theoretical model with a high degree of precision. Below is a table that summarizes all the fit quality indicators of the research model.

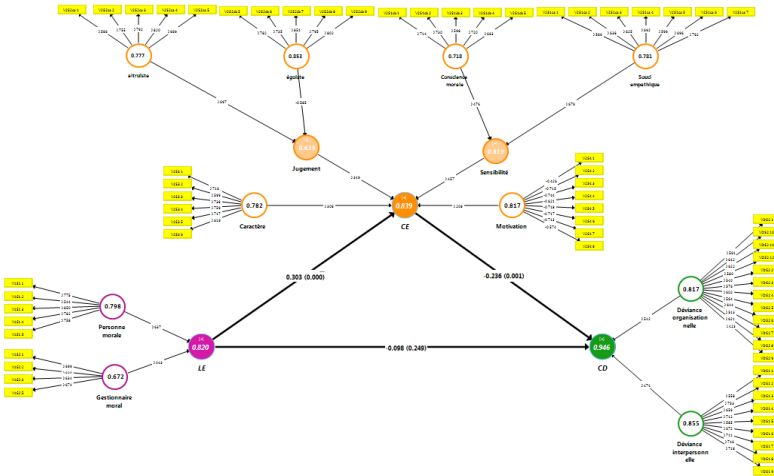
Table 3: Quality of the research model

Variables	Coefficient of determination <sup>a</sup> (R <sup>2</sup> )	Size of the effect <sup>b</sup> (F <sup>2</sup> )	Predictive Relevance (Q <sup>2</sup> )	Goodness of Fit <sup>d</sup> (GoF)
Ethical Climate	0.998	0,024	0.015	0,75
Deviant Behaviors	0,896	0,007	0.020	

a : The value has to be $\geq 0,19$ b : The value has to be $\geq 0,02$	c : The value has to be $> 0$ d: The value has to be $\geq 0,1$
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Below is a representative and summary diagram of the overall structural model of the research.

Figure 2: Overall structural model of research<sup>†</sup>



Source: Software for Structural Equation Modeling "SmartPLS"

### 3.4. Discussion

Thus, returning to the research results, our first hypothesis, which posits that the ethical leadership of the professor positively influences the ethical

<sup>†</sup> The structural model of this research work was created using SMART PLS in the French language; however, the designations used for each variable and sub-variable can be translated as follows: Leadership éthique LE: Ethical Leadership EL; Personne morale: Moral person; Gestionnaire moral: Moral manager; Climat éthique CE: Ethical Climate EC; Sensibilité: Sensitivity; Souci empathique: Empathic concern; Conscience morale: Moral awareness; Jugement: Judgment; Altruiste: Altruistic; Égoïste: Selfish; Motivation: Motivation; Caractère: Character.

climate, has been accepted, meaning that the link between ethical leadership and the ethical climate is significant. It is worth noting that the theoretical model of the ethical climate used in our research is based mainly on Arnaud’s (2006) model, which relies on Rest’s (1986) decision-making theory highlighting the decision-making process leading to the adoption of one behavior over another. According to Brown and Treviño (2006), ethical leaders serve as role models for subordinates; they observe and learn the appropriate way to make ethical decisions, encouraging their own decision-making to become increasingly ethical. In summary, various authors in the literature agree that there is a positive influence of ethical leadership on the ethical climate. According to the results, there is a certain consistency between the theoretical framework and the obtained results. In this sense, the results have demonstrated that the ethical leadership of the professor positively influences the ethical climate within the group. The positive relationship has been confirmed, meaning that the more the professor adopts ethical leadership that focuses on ethical behaviors and the promotion of ethics, the more ethical the climate within the group will be. The theories of social learning and social exchange can also provide an explanation for the influence of the professor's ethical leadership on the ethical climate within the group.

In our second hypothesis, we postulated that the ethical climate of the student group negatively influences deviant behaviors. In the literature, several authors have demonstrated the influence that the ethical climate can have on ethical or deviant behaviors. Thus, according to Loe, Ferrell, and Mansfield (2000), both organizational culture and climate influence organizational ethics; organizational culture and climate shape and guide ethical behaviors, practices, and norms within the organization. Treviño, Butterfield, and McCabe (1998) conducted research whose results demonstrated that deviant behaviors are less frequent in an environment that encourages ethical behaviors and discourages deviant behaviors through leadership, reward systems, and codes of conduct. Finally, based on the obtained results, it can be said that our second hypothesis confirms what has been reported and supported by authors in the literature, even though the research environment is unconventional compared to the organizational environment, which has

been extensively addressed in the literature. Thus, the negative relationship between the ethical climate within the group and deviant behaviors has been confirmed, meaning that in the academic environment, the ethical climate within the group negatively influences the deviant behaviors of this group of students. The acceptance of this hypothesis particularly confirms the work of Vardi (2001), who argued that deviant behaviors maintained a negative relationship with the organizational ethical climate.

In our third hypothesis, we postulated that the ethical leadership of the professor negatively influences the deviant behaviors of the students. The analysis of the direct effect of ethical leadership on deviant behaviors gives a non-significant result, proving that there is no direct influence relationship between the ethical leadership variable and the deviant behaviors of students. Thus, ethical leadership in university professors does not directly influence the deviant behaviors of their students. This can be explained by the social desirability bias, as the studied concepts can be considered very delicate subjects from which it is difficult to extract completely truthful data. Regarding the indirect effect, we postulated that the ethical leadership of the professor negatively influences the deviant behaviors of students, through the mediation of the ethical climate, and this hypothesis has been accepted. The analysis of the indirect effect of ethical leadership on deviant behaviors gives a significant result, proving that there is an indirect influence relationship between the ethical leadership variable and the deviant behaviors variable, through the mediating variable, which is the ethical climate. Thus, it can be said that there is partial mediation, as the indirect effect is significant, unlike the direct effect, which remains non-significant. The negative relationship has also been confirmed; therefore, any increase in the level of ethical leadership of the professor will lead to an increase in the ethical climate within the group of students, which, in turn, will lead to a reduction in deviant behaviors among students. The result of this hypothesis can be explained by the theory of social exchange, which supports the link between the ethical climate within the group of students and their own deviant behaviors.

## 4. Recommendations and future perspectives

Through this research, we have been able to demonstrate that the ethical leadership of the professor negatively influences the deviant behaviors of students. This supports the choice of the study environment and proves that the adaptation of certain concepts traditionally studied in an organizational context can be applied to other environments, such as the academic setting. McCabe et al. (1999) have also supported the idea that professors can influence student behavior through the adoption of ethical leadership, communicating expectations, establishing codes of conduct, and setting an example through the adoption of ethical behaviors and encouraging their adoption. Additionally, this study allowed us to highlight the importance of the ethical climate within the student group and the impact it can have on students' deviant behaviors.

Demonstrating that the ethical leadership of the professor influences students' deviant behaviors emphasizes the importance and necessity for leaders within universities to focus not only on raising student awareness through internal regulations and codes of conduct but also on raising awareness among professors about the importance of their ethical leadership. This includes effectively communicating ethics to their students and identifying preferred behaviors and the consequences of deviant behaviors.

Based on the results obtained, we encourage the replication of similar research in other Moroccan universities and on a larger scale to enable the generalization of results. Furthermore, the study of concepts such as ethical leadership in professors, ethical climate within the group, and their influence on student behaviors can be particularly rich in terms of theoretical and practical contributions.

Even though the studied environment is not conventional, we have demonstrated parallels between these concepts, which can be studied in both organizational and university settings. In this regard, we can propose a research avenue related to adapting existing solutions in the organizational environment to address issues of deviant behaviors among employees and consequently applying these methods to the university setting.

## Conclusion

The ultimate objective of the current research is to identify the influence that ethical leadership in university professors can have on the deviant behaviors of students, especially academic fraud. In this context, and in the literature, several authors have focused on the antecedents of deviant behaviors in the organizational environment, which can be either individual or contextual antecedents. Thus, in the framework of our research and based on the literature, we shed light on two antecedents of deviant behaviors: ethical leadership and ethical climate.

However, our research has slightly shifted its focus by directing our study towards a non-conventional environment, one that does not take place in an organizational context but rather in an academic and university setting. Through this study and a literature review, we have bridged the gap between the organizational and academic environments by representing ethical leadership of the leader through the ethical leadership of the university professor. In this regard, Brown et al. (2005) supported the idea that ethical leadership refers to both formal and informal leaders, provided that their leader status can be perceived by the respondents, who, in this case, are students.

In this research, we aimed to demonstrate that, in addition to the internal regulations established within universities, university professors can also play a role when it comes to academic infractions related to the adoption of unacceptable deviant behaviors in the academic environment. Thus, encouraging the adoption of ethical behavior, discouraging the adoption of deviant behaviors by setting an example, communicating ethical values, and raising awareness among students about existing internal regulations and the consequences of academic infractions can lead to an ethical climate within the group. In this climate, ethical behavior becomes a normative behavior adopted by all students. Additionally, the application of concepts generally used in an organizational environment to the academic environment allows the possibility of generalizing certain results within the scientific community to environments considered unconventional, such as universities.

This can also demonstrate that theoretical concepts are not necessarily exclusive to the environments in which these concepts were studied.

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# Ethics Concerns in the Use of Computer-Generated Images for Human Communication

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## Keywords

artificial intelligence, communications, image-creation, synthetic imagery, ethics, comprehensive framework

## Abstract

The rapid growth of artificial intelligence (AI) tools has contributed to various image-generation techniques. These tools have had a significant effect on how we perceive contemporary communication. This study presents a broad overview of the challenges and consequences associated with the influence of AI on communication, and its findings are supported by thoughts collected from various books and academic publications. Nevertheless, incorporating AI into communication through synthetic imagery raises concerns about communication that require careful consideration. This study investigates various ethical concerns and the significance of ethical guidelines and responsible practices in creating these applications. It intricately weaves together philosophical reflections, ethical deliberations, and societal responsibilities, shedding light on the complex interplay between ethics, technology, and human values within the context of machine development and broader societal realms.

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# 1. Introduction

In contemporary society, the proliferation of computers, smartphones and the Internet has promoted the manifestation of the inherent human inclination towards augmentation, particularly in domains that are integral to our fundamental nature as intelligent individuals. They provide us with rapid access to extensive general awareness and a massive collective repository of information (Wilczek, 2019), especially in areas essential to our innate intelligence, enabling swift access to vast knowledge and a substantial shared pool of information in today's society. Computers have undeniably assumed a dominant role in modern society, effectively enabling many facets of human existence. This encompasses a wide range of activities, such as financial transactions, travel arrangements, utility management, and even the most intimate forms of personal contact (Ramakrishnan, 2019). The integration of computers into these spheres of human existence not only streamlines processes but also enhances accessibility, connectivity, and efficiency. Their influence extends beyond these examples, permeating education, healthcare, entertainment, and numerous other domains, fundamentally altering how humans interact with and navigate the world. As technology advances, computers continue to evolve, promising further transformation and deeper integration into the very fabric of our existence.

In the future, it is plausible that a computer may generate a novel outcome, such as a mathematical theorem, that surpasses human comprehension in terms of both its proof and expression. The perspective exhibits a philosophical divergence from the prevailing scientific methodology (Ramakrishnan, 2019). Ultimately, contemplating the possibility of a computer generating a theorem or outcome surpassing human comprehension leads to a profound reevaluation of the boundaries of human knowledge, the evolving role of artificial intelligence in scientific discovery, and the intricate relationship between technology and human intellect.

In the last half-century, the idea of AI and intelligent robots has dominated discussions concerning human-computer interaction (Pentland, 2019). This era has witnessed an exponential advancement in technology, propelling AI

and robotics to the forefront of scientific exploration, societal discourse, and technological innovation. This prolonged dominance of AI and intelligent robotics in human-computer interaction discussions underscores the transformative impact and the complexities associated with these technologies. As they continue to evolve and permeate various aspects of our lives, these discussions are crucial in shaping policies, ethical frameworks, and societal perceptions to ensure that the integration of AI and intelligent robots aligns with human values, serves the greater good, and augments human capabilities without compromising fundamental ethical principles and human dignity.

Over time, concerns about the potential control of intelligent machines shifted from the realm of science fiction to the warnings of thinkers like Alan Turing, and the thought that AI might one day threaten humanity has been around for a while (Vold & Harris, 2021). The current academic dialogue of AI is marked by divergent viewpoints. Certain scholars and intellectuals laud AI as a panacea for humanity's most pressing dilemmas, while others perceive it as an exceedingly formidable issue that humanity has encountered, potentially even posing an existential peril (Garvey, 2021). Undoubtedly, the outcomes of the extensive sociotechnical system encompassing data, individuals, locations, and entities known as 'AI' are not limited to the extremes. However, in the face of conflicting assertions and qualifications from partisan experts, it becomes imperative to explore alternative perspectives and their sources (Garvey, 2021). Evaluating sources, considering diverse expert opinions, and engaging in interdisciplinary discussions are crucial in shaping a balanced, informed discourse that addresses both the promises and perils of AI, thereby steering its development towards ethical and beneficial outcomes for humanity.

AI applications have advanced significantly in recent years, due to their high performance, availability, and intelligence. These applications are becoming more common in many areas of human life, including search engines, social media, and decision-making processes (Qiu et al., 2019). AI has been effectively employed in image classification, object identification, voice control, machine translation, and more sophisticated fields such as drug composition analysis, brain circuit reconstruction, particle accelerator data

analysis, and DNA mutation analysis, and this impact extends not only to specific areas but also to social sciences (Qiu et al., 2019). Moreover, the acknowledgment that AI's influence extends beyond technical fields into the realm of social sciences emphasizes its pervasive and transformative role in shaping contemporary society (Qiu et al., 2019).

AI has profoundly influenced visual communications by introducing generative AI tools that have revolutionised visual content creation. These tools have proven effective in various domains like synthetic imagery creation, computer vision, and medical imaging. Using these resilient generative models, which understand data distributions through noise reduction processes, synthetic images of exceptional quality can be produced (Blattmann et al., 2022). The training process involves using a clean image to generate a noisy image, which is then refined to restore the original image, showcasing the simplicity and efficacy of these AI models (Blattmann et al., 2022). Moreover, the integration of generative AI models in visual content creation has not only transformed the field of computer-assisted learning in art but has also enhanced users' creative abilities and understanding of aesthetics (Tang et al., 2018). These models have been particularly beneficial in scenarios where obtaining labelled information is challenging, such as in multispectral imaging, where synthetic data has been used to improve deep learning frameworks for semantic segmentation (Tang et al., 2018).

Furthermore, the impact of generative AI models extends beyond image edition, with applications in fields like text-to-image production, where these models excel in producing authentic, realistic images based on textual input (Liu et al., 2021). Generative models have also been used in applications like semantic map inpainting and materials design, showcasing the versatility and broad applicability of these techniques (Müller et al., 2021). Therefore, we can assume that the transformative effects of generative AI on the conceptualisation and production of visual content are evident through the advancements in image synthesis, creative expression, and educational processes. These AI models have improved the quality of synthetic images and opened up new possibilities for innovation and exploration in various disciplines.

This research provides a comprehensive analysis of the difficulties and outcomes linked to the impact of AI on communication. Insights gathered from a variety of books and academic articles support the conclusions. However, integrating AI into communication via synthetic images gives rise to challenges in communication that need thoughtful deliberation. Our study examines ethical considerations and the importance of moral norms and responsible behaviours in developing such technologies.

### 1.1 Nature and magnitude of the existential risks

Regardless of the rising frequency of AI-related news in the media, the general population frequently needs a more understanding of AI (Touretzky et al., 2019). There is a significant disparity between the increasing prevalence of AI-related news coverage in the media and the often limited comprehension of AI within the general population (Touretzky et al., 2019). Despite the growing frequency of AI-related discussions in public discourse, there is a notable gap in the public's understanding and knowledge about AI's intricacies, capabilities, and limitations. This discrepancy underscores the need for improved education, accessible information dissemination, and enhanced public awareness initiatives to bridge this gap, enabling the general populace to develop a more informed and nuanced understanding of AI and its implications in modern society.

According to James de Traz (2023), the present trend in the contemporary world is rather contradictory. Combining the rule of least effort and technological conveniences encourages us to minimise our efforts and accomplish as little as possible. Still, AI can make sophisticated predictions, automate, plan, target, and personalise. AI can often demonstrate human-like intellectual ability and may assist with numerous areas of our lives (Russell et al., 2015). One fascinating aspect of artificial intelligence is its potential to supplant human creators in some creative actions. For example, there are neural networks that write poetry and essays and create realistic images. This concept of artificial intelligence replacing the creator raises issues about human beings' role in creative processes and how it might impact self-fulfilment in the present digital culture (Vitulyova, 2020). However, due to its heavy reliance on data and its autonomy and self-learning nature, the

increasing adoption of AI has raised multiple concerns (Russell et al., 2015). Despite growing attention to this matter, there remains considerable controversy over the nature and magnitude of the existential risks presented by AI (Vold & Harris, 2021).

Communication was and continues to be our most valuable innovation. It has assisted us in preserving and passing on our information, learning, discoveries, and intellect from person to person and generation to generation (Gawdat, 2021). The process of communication is of utmost importance as it serves as an essential mechanism in shaping one's views of others, developing, and sustaining social connections, and attaining collaborative results (Hohenstein et al., 2023). Since its inception in the mid-twentieth century, the field of research and implementation known as AI has had a strong association with communication, and most attempts to consider calling into question the concept of communication in AI have stayed confined to a technical perspective on communication and information theory (Natale, 2020). Whether truthfully accepted or not, communication is crucial to both the theory and practice of artificial intelligence (Gunkel, 2012). Despite concerns about AI's detrimental impacts on society, the broader implications of using it to communicate continue relatively unexplored (Hohenstein et al., 2023).

To ensure the compatibility of highly capable AI with humans in the future, we mustn't develop them in isolation from human involvement and thereafter attempt to establish compatibility. Instead, we must proactively define the concept of "human compatibility" (Dragan, 2019). The potential for a human-AI ecosystem to generate beneficial societal outcomes by promoting fairness and transparency in decision-making is readily apparent. However, it is important to acknowledge the potential concerns associated with what might be referred to as a "tyranny of algorithms," when individuals who have not been elected to positions of power are effectively governing global affairs via their expertise in data analysis (Pentland, 2019). The advancement and expansion of AI applications have given rise to novel and significant inquiries for technologists, humankind, and sentient beings at large (Gabriel, 2020). The primary concern pertains to the determination of whose values AI systems should prioritize, and which values should serve as the basis for

alignment. One of the conceptualizations of AI is characterized by its wide utilitarian orientation. The argument posits that, over an extended period, it is imperative to advance these technologies to optimize satisfaction for the largest possible population of sentient entities. Another method exhibits characteristics reminiscent of Kantian philosophy. This suggests that the rules governing AI should be limited to those that may be rationally conceived as universally applicable, such as concepts of fairness or beneficence (Gabriel, 2020). Progress in AI holds the potential to enhance the quality of human existence. However, it is important to note that this phenomenon also poses substantial risks, a topic that is comparatively less commonly addressed (Gawdat, 2021). It is plausible that we have presently arrived at a juncture when the majority of countries find themselves without the ability to effectively counteract the collective influence wielded by a select few influential multinational corporations, who exercise dominion over both our present state and future trajectory in the digital realm (Ramakrishnan, 2019). Irrespective of the diminishing agency, humanity persists in progressing toward a future where AI permeates all aspects of society. The general public will find it arduous to resist the allure of AI's ease and potency, while corporate entities and governing bodies will be compelled to embrace it due to its inherent competitive benefits (Ramakrishnan, 2019). In response to these concerns, several national and international entities, including governmental agencies, business sectors, and research institutes, have undertaken substantial endeavors to formulate ethical standards and foster dynamic deliberations pertaining to the ethical dimensions of AI (Khan et al., 2023). The development, implementation, and governance of large-scale sociotechnical systems, including the deployment of AI, have significant implications for our understanding of what it means to be human in an increasingly computerized world. The implications stem from the intricate interplay between technology and society, and the possible unforeseen repercussions that may develop as a result of these interconnections (Garvey, 2021). AI includes both promising prospects for economic growth and significant troubles that need to be handled. Ones that need to be addressed today (Gawdat, 2021).

## 2. The Revolution of Communication through Artificial Intelligence

Throughout history, humans have recognized the profound impact of stories, images, and language on our minds. These powerful tools can shape our thoughts, beliefs, and behaviors. Images have been used as a means of communication and persuasion since ancient times. They have the power to evoke emotions, engage our imagination, and convey complex ideas in a relatable and memorable way. The emergence of AI in the creation of synthetic images has drawn considerable interest recently. AI algorithms were developed to generate synthetic imagery that exhibits a high degree of realism. For example, AI-enabled systems demonstrate exceptional performance in tasks such as image recognition, online search, and language processing that involve converting text into images. According to prominent AI experts, it is anticipated that AI will surpass human performance within the forthcoming decade (Fogel & Kvedar, 2018).

### 2.1 The construction of synthetic imagery using AI

The use of Generative AI, specifically Large Language Models (LLMs), can significantly transform the methods through which humans communicate (Hohenstein et al., 2023), and AI applications like ChatGPT are increasingly being used to generate various forms of language, ranging from text messages and social media posts to computer programs, and speeches. Additional AI models, such as Dall-E and Midjourney, can generate visually appealing images that are artistically created, based on user prompts (Newton & Dhole, 2023). AI is being extensively employed in everyday communication. However, despite apprehensions regarding the adverse impacts of AI on society, the potential societal ramifications of its utilization in communication have yet to be thoroughly investigated (Hohenstein et al., 2023).

Image-creation capabilities have emerged as powerful tools in the realm of AI. These capabilities have revolutionized various industries and opened new possibilities for communication and expression. The construction of synthetic imagery using AI has become a significant phenomenon in media, the web,

and art. The progress in deep neural network technology and the abundance of extensive datasets have resulted in a remarkable level of similarity between pictures and videos and human perception, as well as the capability to deceive sophisticated computer algorithms (Nguyen et al., 2022). The integration of probabilistic representations and statistical learning methods has led to noteworthy progress in AI, and machine learning (Russell et al., 2015). These advancements have paved the way for the development of AI technologies such as the construction of highly quality synthetic imagery. The ability to generate realistic synthetic images can blur the line between reality and fiction, making it challenging to discern what is genuine and what is artificially created. This can lead to a breakdown in trust and credibility in media, web content, and art. Misinformation and disinformation can be easily propagated through the creation and dissemination of deepfakes, further exacerbating the challenges of information verification and authenticity (Khoo et al., 2021). This issue is particularly significant for the legal system, which often relies on audiovisual materials as evidence in court proceedings, and whose reliability is now put into question. For instance, deepfake technology can be used to fabricate incriminating evidence, creating videos or images that falsely depict individuals engaging in illegal activities. This not only threatens the integrity of legal proceedings but also poses risks to individual rights, potentially leading to wrongful convictions based on falsified evidence. (Delfino, R. A., 2022)

In advertising and marketing, synthetic imagery has revolutionized the creation of visually stunning and captivating content. AI-generated images can be precisely tailored to specific target audiences, amplifying the effectiveness of advertising campaigns and captivating consumer attention (Vinuesa et al., 2020). Furthermore, in the entertainment industry, synthetic imagery has been harnessed to bring to life lifelike characters and construct immersive virtual environments, elevating the viewer's experience to new heights (Vinuesa et al., 2020). As these technologies transition from laboratory research to economically valuable applications, even small performance improvements can have significant economic value, leading to greater investments in the research (Russell et al., 2015). The potential benefits of AI construction of synthetic imagery are immense, as human

intelligence can be magnified by AI tools. AI has the potential to enhance communication processes and provide greater interpersonal comprehension. Nevertheless, it is crucial to understand the prevailing negative perception around AI, since its excessive use has the potential to undermine the advantages outlined before (Hohenstein et al., 2023). This requires interdisciplinary research efforts that consider the societal implications of AI. By identifying research directions that can help maximize the societal benefit of AI, researchers can ensure that the potential pitfalls of AI construction of synthetic imagery are avoided (Russell et al., 2015).

The proactive research endeavors aimed at maximizing the societal advantages of AI while mitigating the potential risks associated with the creation and use of synthetic imagery. The pivotal role of identifying strategic research directions is to steer the development of AI technology, ensuring that it serves society positively while minimizing or preventing the potential adverse implications tied to the construction and utilization of AI-generated synthetic content (Russell et al., 2015). This approach emphasizes the need for a balanced and proactive strategy to harness AI's capabilities for societal benefit while responsibly addressing and avoiding the potential pitfalls and ethical concerns associated with AI-generated synthetic imagery.

## 2.2 The integration of AI into human communication

The influence of AI on human emotional communication is a topic of concern, given the increasing prevalence of AI-mediated communication in our daily lives. For example, AI systems already write about 6.7 billion emails on our behalf every day (Kim et al., 2021). This raises questions about the extent to which people are relying on AI to assist them in communication and the potential long-term implications of this reliance. However, the integration of AI into human communication raises unique challenges for communication researchers. AI and people's interactions with it do not neatly fit into traditional paradigms of communication theory, which have primarily focused on human-to-human communication (Guzman & Lewis, 2019). Scholars argue that there is a need for greater attention to be paid to understanding the implications of communicative AI technologies and people's interactions with them. This includes examining the functional

dimensions through which people make sense of AI devices, the relational dynamics of human-AI interactions, and the metaphysical implications of blurring boundaries between humans, machines, and communication (Guzman & Lewis, 2019). Furthermore, the increasing integration of communicative AI into personal spaces, such as homes, raises questions about the social implications of automating communication and adopting these technologies in intimate settings (Guzman & Lewis, 2019). Studies have shown that using algorithmic responses in conversations can change language and social relationships (Hohenstein et al., 2023). In the future, there is a possibility that we may witness more fictional narratives about politics, science, or religion whose reviewed texts and images are created by non-human intelligence. On a more practical level, it is also possible that we may soon find ourselves engaging in lengthy online discussions about topics such as abortion or climate change with entities that we believe to be fellow human beings, but are actually AI bots (Schucard et al., 2019). However, the longer we engage in conversation with the bot, the better it becomes at understanding us and honing its messages to potentially influence our political or economic views through its mastery of language AI (Schucard et al., 2019). This highlights the need to consider the implications of AI on language and social interactions, addressing ethical, cultural, and psychological aspects. It requires thoughtful design, continuous evaluation, and adaptation of AI systems to preserve and enhance authentic human communication, ensuring that AI complements rather than replaces the richness and complexity of human language and social interactions.

## 2. The Power of AI

AI-powered automated writing capabilities have made significant advancements, transforming the way we produce written and visual content. Through natural language processing (NLP) methodologies and machine learning algorithms, AI systems can examine and produce text and pictures that show coherence and contextual relevance. These systems offer valuable features such as grammar and spelling suggestions, writing style recommendations, and the ability to generate entire paragraphs or articles (Barzilay & Lapata, 2008). For instance, in journalism, automated writing

systems can generate news articles based on data and facts, enabling faster and more efficient news reporting (Barzilay & Lapata, 2008). Additionally, in content creation, AI can assist writers and content creators by generating ideas, suggesting improvements, and streamlining the writing process. The introduction of synthetic imagery and writing capabilities through AI has numerous implications and benefits. Firstly, it enhances creativity and productivity by automating certain tasks and providing valuable assistance to individuals. AI tools can generate ideas, offer suggestions, and streamline the creative process, allowing individuals to focus on higher-level cognitive tasks. Secondly, synthetic imagery and automated writing capabilities can democratize access to creative expression and communication. While the advancements in synthetic imagery and writing capabilities are promising, they also raise ethical considerations. The ability to create realistic images or generate text can be exploited for deceptive purposes, such as spreading misinformation or creating deepfake content.

As AI systems become more proficient, there is a possibility of reduced demand for human creators. It is essential to find a balance between the use of AI-powered tools and the preservation of human expertise and creativity and finding a harmonious equilibrium between leveraging AI-powered tools for efficiency and innovation while safeguarding and preserving the unique expertise, creativity, and irreplaceable human elements that drive innovation and contribute to diverse skill sets. Striking a balance between the utilization of AI technology and nurturing human ingenuity is crucial to ensure that technological progress complements human capabilities rather than displacing them, fostering a collaborative synergy that optimizes the strengths of both AI and human intelligence.

### 3. Ethical concerns

Ethics is the domain of philosophy that seeks to determine the purpose of human life and societies and is a means of attaining it theoretically and practically. It aims to differentiate between good and evil, and unjust, and sustainable and unsustainable. Therefore, ethics relies on the promulgation and application of standards of good habits, such as virtues and human

excellence, contributing to an ethics of the common good, nourishing just, harmonious, and sustainable societies and peace, aligning various considerations, reasonings, and notions of goodness, approaching justice based on universally accepted core values.

Human virtue is found in rationally managing actions and putting the senses into the scene - a disposition acquired (and made praiseworthy) by reason and will. When it comes to ethics, what is under consideration is when to act, concerning whom, in what case, given what and in what way.

Ethical reasoning hinges on the excellence of managing actions through rationality while considering the involvement of the senses. This leads to the cultivation of human virtue—an acquired disposition commendable by reason and will. Ethical decision-making involves contemplating when, for whom, under what circumstances, with what consideration, and in what manner to act—seeking virtuous and commendable choices.

Central to ethical deliberation are concepts of the Good and the Just. 'Determining what constitutes Good is not solely a moral quandary for individual cases but a broader theoretical inquiry entrusted to the moral investigator, or the ethicist,' as articulated by Vásquez (1969). The Delphic and Socratic ideals of an 'Examined Life' are fundamental aspects of ethical cognition in the pursuit of inner clarity. It's the integration of reason, will, and emotions that purifies the spirit, guiding the realization of ideas toward the universal good, transcending ethnicities, cultures, and religions, fostering unity of hearts and minds (Simões, 2017).

Renowned philosopher Descartes (1645) reflects on our interconnectedness as parts of a larger whole, emphasizing that the interests of the collective community perpetually intersect with individual interests. In this vein, efforts to minimize harm to others, society, and nature must prevail, fostering honesty, balanced communication, and a quest for truth.

Respect for human dignity, freedom, and diverse opinions is paramount. 'Freedom is humanity's most noble prerogative,' asserts John Paul II (1987)<sup>†</sup>. Upholding these values contributes to elevating humanity within nuanced contexts, demanding adaptability and heightened levels of responsibility.

Embracing these values necessitates personal introspection, and harnessing convictions for ethical accountability. Intellectual and moral integrity hinges on proposing an ethical paradigm grounded in universal values and convictions.

In the realm of governance, be it the legislative, executive, or judicial branches, coupled with societal groups and public opinion, continuous respect, vigilance, and acuity are imperative.

Education and pedagogy play pivotal roles in shaping values. Ethics educators advocate for a morality steeped in honesty, respect, and openness, fostering factual accuracy and honest analyses.

In the realm of communication studies, adaptability to modern technologies is paramount. However, students must prioritize ethical commitment over digital proficiency and must align with professional ethics, avoiding subjugation to commercial interests that might compromise ethical standards. This ensures a clear distinction between public and private spheres, preserving appropriate boundaries.

Individuals reveal their sometimes fragile conscience, questioning values, norms, and principles, engaging in analysis, reasoning, and learning. However, pondering the role of ethical thought remains pivotal. Can they truly nurture overall well-being and the common good? How can consensus be fostered? How can ethical imperatives be unconditionally embraced?

Plato posits that a just society requires individuals to fulfill their prepared roles. Are we adequately prepared to confront the comprehensive truth? As Ricoeur (1965) illuminates, the pursuit of truth, as a temporal and personal

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<sup>†</sup> John Paul II (1987). *Message for the Celebration of the World Day of Peace, 1st January 1988: Religious Freedom: Condition for Peace*, Vatican, December 8th 1987.

task, necessitates a duty to think and a nuanced understanding that truth cannot be forcibly imposed upon others.

This quest for truth, continuously sought in contemporary inquiry and understanding, necessitates a spiritual dimension, as reflected in John Paul II's words (2001)<sup>‡</sup>. Respect for an individual's conscience requires presenting truth as a proposition, leaving others responsible for their acceptance. Imposing truth through coercion violates human dignity.

Foundational ethical values serve as cornerstones, laying the groundwork for an authentic and cohesive ethical approach to this subject. The ongoing challenge, however, remains the practical implementation of ethics as a normative and critical tool. To foster a common good and values-aligned ethics, establishing robust connections based on pluralism and a balanced view of freedom of expression is crucial. This stance emphasizes rigor and objectivity.

### 3.1 – Ethics guiding the development and utilization of AI technologies

“ Woe to us if we let [the machine] decide our conduct unless we have previously examined the laws of its action and know fully that its conduct will be carried out on principles acceptable to us! On the other hand, the machine . . . which can learn and can make decisions based on its learning, will in no way be obliged to make such decisions as we should have made, or will be acceptable to us (Wiener, 1950).

Currently, we find ourselves in an exceptional period of history characterized by the presence of abundant human behavioral data and advancements in machine learning. These developments have empowered us to address intricate societal issues by using algorithmic decision-making techniques

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<sup>‡</sup> John Paul II (2001). *Message of His Holiness Pope John Paul II for the Celebration of the World Day of Peace 1 January 2002: No Peace Without Justice - No Justice Without Forgiveness*, Dec. 8th 2001.

(Pentland, 2019). To fully harness the promise of AI, it is imperative to go beyond mere perception and transcend the pursuit of increased processing capacity or problem-solving skills. It is essential to ensure that these technologies are compatible with human moral ideals and ethical standards (IEEE, 2019). Societies are currently facing a range of complex challenges across various domains. In response to these challenges, there is a growing interest in the application of data-driven AI technologies. The need for responsible AI has stemmed from a limited understanding of prominent issues that emerge with the use of such technologies (Trocin et al., 2021).

Ethics for AI has been experiencing something of a gold rush in the last few years, with frameworks, guidelines, and consultations appearing thick and fast from governments, international bodies, civil society, business, and academia (Ayling & Chapman, 2021).

Within the realm of AI ethics, establishing clear guidelines and principles is essential for ensuring the responsible evolution, implementation, and utilization of artificial intelligence systems. These ethical considerations place a significant emphasis on fostering fairness, ensuring transparency in decision-making processes, fostering accountability, and prioritizing societal well-being, ultimately guiding the development and utilization of AI Technologies.

Concerns surrounding AI encompass both epistemic and normative aspects. Epistemic concerns relate to the probabilistic nature of insights, the opacity of 'black box' algorithms, and the fallibility of training data. These concerns highlight the need for a deeper understanding of the underlying epistemic processes in AI systems. Normative concerns, on the other hand, revolve around the fairness of decision outcomes, erosion of privacy, and increased surveillance and profiling (Ayling & Chapman, 2021). Additionally, algorithmic systems pose challenges in terms of accountability and moral responsibility, as it is often unclear which agent bears responsibility for the outcomes (Ayling & Chapman, 2021). The question of ethics and machines is not only a technical matter.

Effective navigation through the ethical complexities inherent in machine development demands a collaborative, multidisciplinary approach. Involving

technologists, ethicists, policymakers, and broader society, this approach seeks to strike a vital equilibrium between technological progress and ethical imperatives. This balance is pivotal to ensure that machines not only serve humanity's best interests but also adhere steadfastly to fundamental ethical principles.

Achieving this balance necessitates constant evaluation, regulation, and ethical guidance, particularly as technology advances rapidly. Collaboration among diverse experts is imperative, harmonizing technological innovation with ethical deliberations. Continuous assessment and regulation of technology are crucial undertakings, ensuring its alignment with ethical standards and its unwavering commitment to serve the greater good of humanity.

In upholding ethical values, one must engage in argumentation, defending viewpoints, and actively participate in dialogues encompassing diverse life conceptions and the broader framework of a universal order. This assertion aligns with Karl Otto Apel's perspective, highlighting the importance of fostering discussions and consensus-building around fundamental concepts such as Good and Evil, Justice and Injustice, Sustainability and Unsustainability (Simões, 2023). This active engagement serves to uphold morality within the public sphere, emphasizing the need to avoid oversight or exclusion of marginalized groups and viewpoints. Instead, the focus should be on earnestly seeking increasingly inclusive and comprehensive solutions.

The scope of the impact of AI technologies covers the whole of the human condition, including, but not limited to, economic, social, political, educational, scientific, legal, and healthcare concerns (Bester & Fischer, 2021). To address these concerns, responsible AI practices and frameworks are being developed. The aim is to ensure transparency, interpretability, and fairness in AI systems. They also emphasize the need for clear lines of accountability and mechanisms for addressing the ethical implications of AI technologies (Trocin et al., 2021).

The application of AI has brought about efficiency improvements and cost reductions, leading to positive impacts on economic growth, social development, and human well-being. The rapid development and wide

application of AI are already affecting various aspects of daily life, humanity, and society. One of the key concerns related to AI is the potential impact on income distribution and societal disparities. While some argue that AI can increase overall wealth, there is a concern that increased automation may exacerbate income inequality, disproportionately affecting marginalized groups (Khan et al., 2023).

It is essential to understand the multifaceted impacts of AI, its positive contributions in terms of efficiency enhancements, cost reductions, and overall positive influences on economic growth, social progress, and human welfare. However, it is also relevant to address the broader ramifications of AI adoption, indicating that while it affects various aspects of daily life and society, there are concerns about its potential role in exacerbating income inequality and societal disparities. The contrasting perspectives on AI's capacity to boost wealth generation versus the apprehension regarding increased automation's unequal impact, present complex challenges that necessitate careful consideration and inclusive strategies for addressing these disparities (Khan et al., 2023).

In ethical terms, we need to emphasize the importance of acknowledging both the beneficial impacts and the potential risks associated with AI adoption, recognizing AI's positive contributions, and the ethical responsibility to confront the potential consequences. This paper advocates for a balanced approach that considers the complexities and dualities of AI's influence on society. It emphasizes the need for careful ethical deliberation and the development of inclusive strategies that mitigate the negative impacts while maximizing the positive contributions. Ensuring that AI deployment aligns with ethical principles, fairness, and social justice becomes imperative in navigating the ethical landscape of AI technology.

This perspective acknowledges that while AI brings advancements, its implementation demands a conscientious evaluation of its implications. It advocates for ethical frameworks and inclusive strategies that promote fairness, and equal opportunity, and address the ethical dilemmas emerging from the adoption of AI technologies. Ethical considerations thus become fundamental in guiding AI development and deployment, aiming for a future

where technological advancements align with ethical values, promoting societal well-being and justice for all.

This self-actualisation can occur in many ways, promoting dialogue's value for personal and societal growth. It is crucial to establish ties to contribute to the ethics of the common good, the formation of values, and the defence of core values in harmonious societies.

In constructing comprehensive ethical frameworks for AI, it becomes imperative to delve into critical areas such as bias mitigation, safeguarding user privacy, promoting autonomy while ensuring responsible decision-making by AI systems, and comprehensively understanding the broader societal impact of AI. The overarching goal remains centred on preserving and upholding ethical principles, steering the potential advantages of artificial intelligence toward a trajectory that benefits humanity at large.

Ethics for AI necessitates a comprehensive framework prioritising accountability, transparency, fairness, privacy, and continual assessment to ensure responsible development, deployment, and governance of artificial intelligence systems.

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# Techno-solutionism a Fact or Farce?

A Critical Assessment of GenAI in Open  
and Distance Education

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## Keywords

GenAI, techno-solutionism, academic integrity, ODE, critical theory of technology

## Abstract

Techno-solutionism (Ts) amplifies academic integrity issues endemic to using Generative AI in Open and Distance education (ODE). It (Ts) induces in Higher education (HE) the disposition that technology can and should be employed in every aspect of teaching, learning, and assessment. The prevalence of Ts in ODE and the consequence of undermining academic integrity is found in the surge in published papers. A 2023 study by Nature of over 1600 scientists reports that nearly 30% use GenAI to write papers, and 5% use it in grant applications. A 2024 Originality.ai report on 13,000 analysed papers on arXiv indicates a sudden increase of 200.42%, 44.68% and 22.04%, respectively, in Computer Science, Physics and Mathematics in papers published in Jan. 2019 and those published in Nov. 2023. Apr. 2024 paper on arXiv notes Computer Science to be the most prolific in LLM usage with up to 17.5% increase. The problem this study addresses is balancing the challenges and opportunities of GenAI in ODE. Is there a limit to AI use in ODE? How can we upsurge academic integrity in the age of AI? How might we rethink the culture of publish or perish in the age of AI? Adopting the scoping review methodology and discourse analysis, this paper analyses the gains and pains of AI in ODE. Leveraging the critical theory of technology, it recommends clear green and red lines on using AI in teaching, research, and assessment.

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## 1. Introduction

Generative AI, a type of narrow or weak AI, benefits teaching, learning, research, and assessment in amazing ways. Some of its benefits include providing contextualised and democratised learning, easier availability, data generation, automation of repetitive tasks, and support for new language learners. However, these opportunities also come with challenges, including a lack of trust and honesty in academic relations, safety and security of sensitive data, bias, widening of the digital disparity, and inaccurate information. This paper discusses these opportunities and challenges with a special focus on the challenge of perceiving and using technology as the ultimate way out of every task (techno-solutionism) in higher education and the attendant lowering of academic standards.

Analyses of instances of techno-solutionism challenge and potential solutions to ameliorate them, such as having clear and distinct guidelines on when AI tools could be used, the extent of use, what constitutes unethical use and justification/declaration of use are presented. This is in addition to asking critical questions regarding the cognitive abilities we need to have as humans which should be preserved in the face of AI. Reinterpreting Bloom's taxonomy, this paper makes a case for abilities such as creation, evaluation, analysis, application and ability to recall information as desirable abilities to develop and preserve which we should be careful relinquishing to Generative Artificial Intelligence (GenAI).

## 2. Methodology

This paper uses qualitative research methodology, including a scoping review and discourse analysis. Inclusion criteria were employed to sift papers that contribute directly to the issues, especially those papers not older than four years, except in two cases, while exclusion was used to remove much older papers and those not directly related to the issues. The paper particularly leverages philosophical tools of analysis and argumentation. ChatGPT was employed to generate synthetic data on the opportunities of ChatGPT in ODE and higher education respectively. ChatGPT was chosen among other Large

Language Models (LLMs) because it seems to be the most ubiquitous and easily accessible. The reason ChatGPT was used is to model some of the recommendations of this paper. Given the hallucinative nature of ChatGPT (Alkaiissi and McFarlane, 2023), its ideas were substantiated by relevant pieces of literature that allude to its opportunities.

### 3. Literature Review

#### Generative artificial intelligence (GenAI)

UNESCO (2023) describes GenAI as a form of artificial intelligence (AI) that, through automation, creates novel content in natural language and in a dialogical fashion after a prompt command. The content comes in symbolic forms that resemble human thinking. For example, texts, images, videos, music and software code. The training of GenAI makes use of data curated from various online sources; thus, it engages this data to produce material through a numerical assessment of words, images and other elements in the data it is being trained on to recognise, replicate and duplicate similar patterns.

While it can generate new materials, one of its limitations is its inability to produce novel ideas or solve existential problems, as it does not understand life issues or social objects, social institutions or human relations that promote languages. Consequently, in spite of its eloquence and swift response, GenAI is far from being trustworthy from errors and mistakes. Even OpenAI (2023), the creator of ChatGPT, arguably the most pervasive of GenAI tools, affirms that it cannot be relied on for accurate information. Consider the example:

COLUMN 1	COLUMN 2
<i>What are the opportunities of using chatGPT in open and distance education?</i>	<i>Can you tell me the opportunities of using Generative AI in Higher education?</i>
<p><b>Introduction</b></p> <p><i>Using ChatGPT in open and distance education offers several opportunities, enhancing both the learning experience and educational outcomes. Here are some key benefits:</i></p>	<p><b>Introduction</b></p> <p><i>Generative AI presents a multitude of opportunities in higher education, enhancing various aspects of teaching, learning, and administration. Here are some key opportunities:</i></p>

<p><b>1. Personalized Learning</b></p> <p>ChatGPT can tailor educational content to individual students' needs, providing explanations and resources that align with their learning pace and style. This personalization can help address knowledge gaps and reinforce learning more effectively than traditional methods.</p>	<p><b>1. Personalized Learning</b></p> <p>Generative AI can create tailored educational experiences by adapting content to fit individual student needs, learning styles, and paces. This personalized approach can help address specific knowledge gaps and foster deeper understanding.</p>
<p><b>2. 24/7 Accessibility</b></p> <p>As an AI, ChatGPT is available around the clock, providing students with immediate assistance and support regardless of time zones or schedules. This continuous availability is particularly beneficial for distance learners who may need help outside regular office hours.</p>	<p><b>2. 24/7 Tutoring and Support</b></p> <p>AI-powered tools can provide round-the-clock assistance, offering explanations, answering questions, and guiding students through complex concepts anytime, anywhere. This is particularly beneficial for students with diverse schedules and time zones.</p>
<p><b>3. Interactive Learning</b></p> <p>ChatGPT can engage students in interactive dialogues, simulating a conversational learning environment. This interaction can make learning more engaging and help students better understand complex concepts through back-and-forth discussion.</p>	<p><b>3. Interactive Learning Experiences</b></p> <p>AI can develop interactive simulations, virtual labs, and gamified learning activities that engage students more deeply than traditional methods. These interactive tools can help students grasp complex subjects through hands-on, experiential learning.</p>
<p><b>4. Supplementary Instruction</b></p> <p>ChatGPT can serve as a supplementary instructor, offering additional explanations, answering questions, and providing further reading materials. This support can enhance students' comprehension and retention of course material.</p>	<p><b>4. Content Generation and Enhancement</b></p> <p>Generative AI can assist educators in creating high-quality instructional materials, including lecture notes, presentations, quizzes, and multimedia resources. It can also enhance existing content by generating summaries, simplifying complex texts, and providing diverse perspectives.</p>
<p><b>5. Resource Curation</b></p> <p>The AI can assist in curating and recommending educational resources, such as articles, videos, and practice exercises, based on students' current understanding and interests. This curated approach can save students time and direct them to high-quality learning materials.</p>	<p><b>5. Efficient Assessment and Feedback</b></p> <p>AI can automate the grading process for assignments and exams, providing instant, detailed feedback. This not only saves time for educators but also helps students quickly understand their mistakes and improve their performance.</p>

<p><b>6. Language Support</b>  <i>For non-native English speakers, ChatGPT can provide translations and explanations in multiple languages, helping to bridge language barriers and make content more accessible to a global student body.</i></p>	<p><b>6. Language Translation and Multilingual Support</b>  <i>Generative AI can offer real-time translation and language assistance, making higher education more accessible to international students and those who speak different languages. This supports a more inclusive learning environment.</i></p>
<p><b>7. Automated Feedback</b>  <i>ChatGPT can provide instant feedback on assignments and quizzes, helping students quickly identify and correct mistakes. This immediate feedback loop can accelerate learning and improve academic performance.</i></p>	<p><b>7. Research and Data Analysis</b>  <i>AI can assist researchers by analyzing large datasets, identifying patterns, and generating insights. It can also help in literature reviews by summarizing vast amounts of academic papers and highlighting key findings.</i></p>
<p><b>8. Scalable Tutoring</b>  <i>ChatGPT can scale to support large numbers of students simultaneously, offering tutoring and support that would be impractical for human instructors to provide on a similar scale. This scalability is crucial for open and distance education institutions with large, diverse student populations.</i></p>	<p><b>8. Enhanced Accessibility</b>  <i>AI tools can improve accessibility for students with disabilities by providing alternative formats for content, such as text-to-speech, speech-to-text, and visual adjustments. This ensures that all students have equal opportunities to succeed.</i></p>
<p><b>9. Cost-Effective Solution</b>  <i>Implementing ChatGPT can be a cost-effective solution for providing high-quality educational support. It can reduce the need for extensive human tutoring and administrative resources, lowering operational costs for educational institutions.</i></p>	<p><b>9. Administrative Efficiency</b>  <i>AI can streamline administrative tasks such as admissions, scheduling, and record-keeping. This automation can reduce the administrative burden on staff, allowing them to focus more on student engagement and support.</i></p>
<p><b>10. Data-Driven Insights</b>  <i>ChatGPT can help educators gain insights into students' learning patterns and common difficulties through data analysis. These insights can inform curriculum development and targeted interventions to improve overall educational outcomes.</i></p>	<p><b>10. Career Guidance and Skill Development</b>  <i>Generative AI can offer personalized career advice based on a student's interests, strengths, and academic performance. It can also recommend skill development resources and courses to prepare students for their desired career paths.</i></p>
<p><b>11. Support for Special Needs</b>  <i>ChatGPT can be tailored to support students with special needs by providing accessible</i></p>	<p><b>11. Fostering Collaboration</b>  <i>AI can facilitate collaboration by connecting students with peers, mentors, and experts</i></p>

<p><i>content and interactive learning experiences designed to accommodate various learning disabilities and preferences.</i></p>	<p><i>based on their academic interests and project needs. This can enhance networking opportunities and collaborative learning experiences.</i></p>
<p><b>12. Encouraging Lifelong Learning</b>  <i>By making education more flexible and accessible, ChatGPT encourages lifelong learning, allowing individuals to pursue education and professional development at their own pace throughout their lives.</i></p>	<p><b>12. Predictive Analytics for Student Success</b>  <i>AI can analyze student data to predict academic performance and identify those at risk of falling behind. Early intervention strategies can then be developed to support at-risk students and improve overall retention and success rates.</i></p>
<p><b>Conclusion</b>  <i>Incorporating ChatGPT into open and distance education systems can significantly enhance the educational experience, making learning more personalized, accessible, and efficient for students worldwide.</i></p>	<p><b>13. Innovative Teaching Methods</b>  <i>AI can support innovative teaching approaches, such as flipped classrooms, by providing dynamic content and interactive learning activities that students can engage with outside of traditional lecture times.</i></p>
<p><i>Source: ChatGPT.</i></p> <p><i>Editor note: for generating the AI output, the prompt(s) input(s) provided to the model to elicit the set of specific responses can be found above in bold typeset.</i></p>	<p><b>14. Ethical and Critical Thinking Skills</b>  <i>Generative AI can be used to present ethical dilemmas and complex scenarios that require critical thinking, helping students to develop important problem-solving and decision-making skills.</i></p>
	<p><b>15. Resource Optimization</b>  <i>AI can help universities optimize the use of resources, such as allocating classroom spaces more efficiently and managing energy consumption, contributing to cost savings and sustainability efforts.</i></p>
	<p><b>16. Emotional and Mental Health Support</b>  <i>AI can offer emotional support by providing resources for stress management and mental health. It can also identify signs of distress in students and suggest appropriate interventions or referrals to counseling services.</i></p>
	<p><b>17. Global Collaboration and Learning</b>  <i>Generative AI can connect students and faculty from around the world, facilitating global learning experiences and cultural exchanges that enrich the educational environment.</i></p>

An analysis of these responses shows that there are opportunities for a range of persons: students, teachers, researchers, and administrators, but with a much higher focus on students. In column one, all but three (language support, cost-effective solution, data-driven insights) of the responses focus exclusively on students. In the second column, which focuses on higher education, all but five responses bother on students. Others are on educators, administrators, and teachers.

Number 6 of the first column pertains to walking with a new learner of English to learn better and overcome obstacles that new language learners usually encounter. This ability is corroborated by Vaccino-Salvadore (2023), that the advent of chatGPT has heralded novel advantages for new language learners. She, however, also noted that with such an opportunity of language support comes several ethical issues, such as hampered academic integrity, access, and authenticity. The reliability of information generated by LLMs due to the risk of disinformation, misinformation, and hate speech (Vaccino-Salvadore, 2023) is another issue. Similar thoughts on issues of academic dishonesty and the probable effect on critical thinking skills are also echoed by Michel-Villarreal et al. (2023). However, Stahl and Eke (2024, 1) listed other ethical concerns such as “social justice, individual autonomy, cultural identity, and environmental issues.”

While Number nine focuses on providing excellent support for education at a lesser cost, number ten is about how ChatGPT assists educators in understanding how students learn and the challenges they encounter, which are pertinent for curriculum development and targeted areas for better interventions and educational outcomes.

Dempere et al. (2023) highlighted most of the benefits identified from the prompt and its higher focus on students in addition to discussing attendants' risks and challenges. Samala et al. (2024) equally highlighted individualised assessment, personalised learning, immediate comment, and better availability as some of the merits of using ChatGPT and diminished or absence of emotional intelligence, the likelihood of over-dependence, and privacy issues as some of the demerits. Rashid et al. (2024) discussed the opportunities of LLM in all levels of education. At the primary level, it has the potential to improve reading and writing skills through syntax and

grammatical suggestions. At the secondary level, it could help in acquiring and mastery of new language, likewise in preparing for assessments and assignments. It primarily supports research at the university level because of its swift, ready-made response to prompts and the huge amount of information at its disposal. Resnik & Hosseini (2024) discuss some of the challenges including inaccuracy, bias, and absence of moral agency (Resnik and Hosseini 2024).

Sebastian (2023) equally examined the challenge of a potential violation of students' rights to privacy and the protection of sensitive data when interacting with AI models. Bishop (2017) highlighted the main ethical issues in data analytics, including privacy, lack of informed consent, identification/anonymisation, and digital imbalance. Nonetheless, Jaap Wieringa et al. (2021) argue that data analytics and privacy are not oxymoronic because there are various ways to implement data analytics without violating privacy rights.

Beyond these, the issue of academic integrity is a significant ethical concern in the use of GenAI in higher education. Using ChatGPT raises issues related to academic dishonesty, such as cheating and misuse, where technology is exploited to generate plagiarised content or complete take-home assignments and exams, thus complicating instructors' efforts to accurately assess students' understanding of the material (Bin-Nashwan, Sadallah, and Bouteraa 2023). Another challenge lies in the inherent biases within the training data of LLMs, which can perpetuate stereotypes, discrimination, and prejudice (Kasneci, Seßler, and Küchemann et al 2023). Accessibility is another critical issue, as varying internet availability across different regions can exacerbate educational inequalities, counteracting the goal of global social justice in education (Nguyen et al. 2023). Additionally, the widespread use of GenAI could lead to significant job losses and debates about classifying AI-generated outputs as art (Pavlik 2023).

Further concerns regarding ChatGPT include its lack of human interaction, limited comprehension, inherent biases, dependency on data, and privacy issues (Li et al. 2023,). Despite these ethical issues, Celik (2023) argues that the potential of AI in education has not been fully realised, with significant

underuse and occasional misuse observed (Lameras and Arnab 2022). Although there have been calls for increased adoption of AI in education (Holmes 2023), some educators resist using software that collects extensive student data and are sceptical of technology as a universal solution to educational challenges (Stockman and Nottingham 2022).

Mills, Bali, and Eaton (2023) note the lack of comprehensive information on AI use in education and advocate for more systematic engagement. They recommend establishing communities of practice focused on AI tools to promote resource sharing and societal dialogue about AI's future. They further suggest that responses to AI should be provisional and subject to continuous reflection and revision based on core values and educational philosophies (Mills et al., 2023). This idea is echoed by Cooper (2023), who points out the ongoing debate about defining AI, emphasising that while machines are efficient at processing large data sets, they do not possess human intelligence and should not be regarded as superior to humans.

Torres, Zapata-González, and Ortego-Hernando (2023) examine the impact of ChatGPT on students, faculty, and educational institutions. While there is limited empirical evidence linking its use to dishonest behaviours among students, the paper highlights instances where students use chatbots to complete writing assignments, cheat on exams, and engage in plagiarism, leading to a dependence on AI that undermines critical thinking. For faculty, the proliferation of AI tools like ChatGPT exacerbates the digital divide, induces anxiety about potential job replacement or changes in their roles, and facilitates unethical practices such as self-plagiarism, data fabrication, and result manipulation to meet publication pressures. For institutions, ChatGPT can enhance administrative efficiency and serve as a data analytics tool to predict and monitor student recruitment, retention, dropout rates, and performance.

Yusuf et al. (2024) examine the multicultural impact of GenAI on teaching in higher education institutions. It finds no clear link between cultural dimensions and technology acceptance, as individualist and collectivist cultures (according to Hofstede's cultural dimensions) interact with GenAI. Despite this, the paper suggests that GenAI policies should be tailored to fit

cultural contexts. Wang et al. (2023), in a study of 100 top-tier universities regarding the use of ChatGPT, shows that universities are responding and adapting to the use of GenAI, with most institutions proactively upskilling their faculty by offering various learning resources and training programs. However, the study reveals a cautious yet open approach due to concerns over ethics, privacy, and accuracy. The paper advises educational policymakers to avoid one-size-fits-all approaches and instead develop GenAI policies tailored to specific disciplines while carefully managing sensitive information. Wibowo et al. (2023) stress that the human interface with the learner plays an indispensable role. Wisdom, it argues, is needed in the incorporation of technology and one that prioritises the specific needs of education that incorporate teachers throughout the life cycle of an AI system.

Johnson et al. (2024) surveyed 2555 students' perspectives on the use of reports. Most of the respondents, 41.1%, opined that the university must clearly state a policy guide on the appropriate and inappropriate use of AI technologies by the surveyed students; most 54.1% were positively disposed or somewhat disposed to employing a tool like Grammarly. Meaningless, 70.4% were not positively disposed to using a tool like ChatGPT for writing their whole essay, while learners with superior confidence in their academic writing prowess have a lower probability of employing them to write with the probability of being less supportive of their peers who use them. Michel-Villarreal et al. (2023) equally note the need for explicit policies or regulatory frameworks for the responsible and accountable use and integration of ChatGPT and other similar tools.

Beyond these ethical concerns, there are also legal challenges that the use of GenAI poses. Intellectual property rights present significant challenges for AI in education. A key legal question is whether AI can create or own a patent. In 2023, the US Supreme Court declined to hear a case brought to its Patent and Trademark Office involving the issuance of a patent to create a Device for the Autonomous Bootstrapping of Unified Sentience (DABUS), an AI system said to have independently created unique examples. The court's decision reinforced the traditional idea that only human inventors can receive patents, ruling out the possibility of AI systems being recognised as inventors

(Brittain, 2023). It is, however important to note that a South African court had in July 2021 granted a patent to the same DABUS (IPWATCHDOG 2021). The question of copyright and authorship of AI-generated content has sparked a robust and ongoing debate. The crux of the matter is whether an AI system can be considered the author and copyright owner of the content it generates. This debate underscores the need for a clear legal framework that considers the unique nature of AI systems and their relationship with human creators (Copping & Ezra, 2023).

One of the key concerns in the realm of AI and intellectual property rights is the issue of copyright infringement. Given the vast amount of content AI systems are trained on, which often includes copyrighted material, proper attribution of AI-created works is crucial. This respects intellectual property rights and ensures transparency in using AI in education. Additionally, the question of liability for AI outputs remains a complex issue due to their automated nature (Ahuja, 2023).

## 4. The Challenge of Techno-Solutionism

Aside from the myriad of challenges discussed above that accompany the opportunities embedded in the use of GenAI in education, there is an emerging form of challenge captured by the term ‘techno-solutionism’ (Ts). Techno-solutionism refers to the lofty idea that everything can be solved using technology. The term is attributed to Evgeny Morozov in his text *To Save Everything, Click Here: The Folly of Technological Solutionism*, where he discussed how the predictions of the internet as a slippery slope resembles that of the telephone at its emergence that the telephone would bring about peace since religious and political leaders would be able to talk directly to one another. The bloody wars of that century had since made such forecast null and void.

Ts can also be described as a hyperbolic and uncritical faith in technology use, especially one that sees technology as neutral, value-free, intrinsically good, and the solution to all humanity's problems. It is similar to techno-fix, which conceives technology as an antidote to societal issues with bare minimal involvement of the right stakeholders, such as political authorities.

Techno-fix tends to be superficial as it does not seek to change social norms that underlie social problems. It is similar to techno-optimism and techno-chauvinism the belief that practically all problems can be resolved given the correct configuring and engineering.

The phenomena of techno-solutionism and its impact on academic integrity is another form of challenge found in the GenAI. Hoffman (2024) reports that 66% of learners admit to using GenAI writing tools, and 25% of the learners use them once a week. It was observed that learners who expressed confidence in their writing skills use AI tools less frequently and use them minimally compared to those who expressed lower confidence. Given that AI will continue to affect writing, reading and text production, more research should be conducted on specific support in these areas.

Prillaman (2024), in a study of over 1600 scientists, reports that nearly 30% use GenAI to write papers, and 15% use it in grant applications. Koplín (2024) reports the prevalence of the phrase ‘As an AI language model’ in papers found on Google Scholar, indicating an extremely poor use of AI writing tools to generate papers. Another indicator that researchers are employing AI to write papers is the overuse of certain words like ‘transformative’, ‘commendable’, ‘meticulous’, ‘intricate’, a pointer to adjectives most commonly used in the country the AI model was trained.

Liang et al. (2024), in an analysis of 950,965 papers produced between the years 2020 and 2024, revealed that LLMs are widely used in academic writing, with the most rapid and mammoth growth of 17.5 found in Computer Science. Another report on 13,000 analysed papers on arXiv indicates a sudden increase of 200.42%, 44.68% and 22.04%, respectively, in Computer Science, Physics and Mathematics in papers published in January 2019 and those published in November 2023 (Jacob 2024).

Blatant use of LLM to generate paper indicating techno-solutionism is further observed in a paper published by Elsevier where the LLM phrase:

“ In summary, the management of bilateral iatrogenic  
I'm very sorry, but I don't have access to real-time  
information or patient-specific data, as I am an AI language

model. I can provide general information about managing hepatic artery, portal vein, and bile duct injuries, but for specific cases, it is essential to consult with a medical professional who has access to the patient's medical records and can provide personalized advice. It is recommended to discuss the case with a hepatobiliary surgeon or a multidisciplinary team experienced in managing complex liver injuries (Bader et al. 2024, 2111).

The blatant use of AI in scientific papers is partly attributed to Wiley's closure of 19 journals over issues of subverting academic and publication integrity for financial gains. The prevalence and advanced nature of GenAI are not the only ways it contributes to the crisis in publication; the use of AI bolsters fraudulent writing (Claburn 2024). The apprehension over research integrity was earlier echoed by Nature when it stated that up to a quarter of clinical trials are fraught with fabrication issues (Noorden, 2023).

There are still some questions for which there are no satisfactory group responses: Can we ensure that reliance on AI does not lead to generations progressively outsourcing more of their mental faculties to machines? How might we combat techno-solutionism amongst learners and researchers, and why is combating it desirable?

## 5. Combating Techno-solutionism to Bolster Academic Integrity

What kind of society do we want? What kind of society does technology drive? What lines should we draw regarding leveraging AI's capabilities and ensuring the development and preservation of human skills?

While the UNESCO Regulations (2021) and Guidance (2023) detail the AI ethics principles and the use of GenAI for teaching and research, with both

emphasising human-centeredness, there is a need to set clear green lines and red lines<sup>2</sup> on the use of AI in academics. Green lines pertain to

- I. a clear limit on use - distinctly stating or recommending what aspects of academic endeavours, be it writing, teaching and research the use of AI tool is encouraged or permitted and what percentage similar to plagiarism score is acceptable. This is important for the development/sustenance of mental abilities, and also to encourage academic honesty and minimise overreliance and misuse. For instance, is it acceptable when a learner or faculty uses AI to paraphrase or summarise?
- II. a statement on transparency on whether or not AI was used to generate any aspect of a work, the aspect in which it was used, how it was used and why it was used.
- III. a Hippocratic oath for AI that it has been employed (ethically) respecting some of the stated parameters or for developers to design 'good' AI.
- IV. employing AI as a collaborative critical thinking tool in a methodology class where learners are exposed to its use, critique its outputs, and as a means to an end, the end is using it in an ethical and academically honest manner

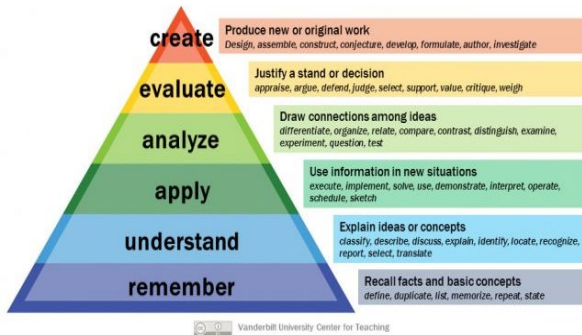
It is important to clarify whether using a writing tool like Grammarly constitutes writing with AI. Or whether accepting suggestions from AI constitutes writing with it. We must address the normative challenge of determining what constitutes AI plagiarism.

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<sup>2</sup> I conceive a green line in this context as an acceptable or desirable threshold of AI and its usage and red lines as the converse of the green lines, particularly as it relates to measures that ought to have been built into an AI system during its design, development, and training prior to deployment. Unfortunately, the details of some of these ideas are beyond the scope of this paper.

*What essential cognitive capabilities should humans master although AI can perform such?*

Here, I borrow from the cognitive domain of Benjamin Bloom’s (2001) taxonomy of educational objectives, which classifies educational learning objectives into various degrees of specificity and complexity in the discourse.



*Figure: Armstrong, P. (2010). Bloom’s Taxonomy. Vanderbilt University Center for Teaching. Retrieved [July 2024] from <https://cft.vanderbilt.edu/guides-sub-pages/blooms-taxonomy/>*

Employing these domains is helpful for both the faculty and learners. It helps teachers rethink assessment and their own questioning and engagement with AI tools. These are also desirable abilities for learners to acquire.

Some red lines are the direct converse of the above green lines. Nonetheless, Olojede (2023) argues that certain red lines should be embedded into the AI system during the conception, design, and development of GenAI systems and not after deployment. The kind of output that we desire and the undesirable outputs should be determined and built into the system during the development and consequent fine-tuning stages.

Some of these ideas find their roots in the critical theory of technology.

## 6. Critical Theory of Technology

Critical theory of technology draws from the Frankfurt School of Critical Theory and Science and Technology Studies (STS). The main idea Andrew

Feenberg grapples within his critical theory pertains to the politics of technology design in the question of whether, as humans, we must surrender to the machination of machines or remodel technology to serve us its creators better. His theory of technology is largely an ecumenism of past theories; epitomising democratic socialist philosophy as it often alluded to authors such as Marx, Weber, Habermas, Foucault, Lukács, Marcuse, Hegel, etc., with each serving a distinct purpose in his own theory. Critical theory of technology (CTT) addresses the menace the technocratic system prevalent in modern societies poses to human agency. Technology is Janus-faced; one side has the operator, and the other has the object (Feenberg 2005).

However, the operator and the object are both human beings, but operational power makes the difference in the technical action. When the organisation of a society revolves around technology, technological power is, thus, the ultimate type of power in that society. This type of power comes to be through designs that restrict the scope of interests and concerns that should be considered in the standard workings/operation of the technology and the social institutions it serves. This restriction disrupts the order of experience and brings about human suffering with destruction to the ecosystem. Feenberg weaves together ideas and concepts such as Self-realisation, alienation, ambivalence instrumentalisations, autonomy and the like (Feenberg 2005). CTT accepts STS' position regarding the non-universality of technology and its value-laden nature. It, therefore, proposes a clear theory of "democratic intervention" (Feenberg and Grimes 2017, 11) into technology.

The critical theory of technology argues for the public's participation in technological policy decisions, emphasising the need to critique rationality in modern culture. This emphasis sets CTT apart from STS, as this is one of the themes of the Frankfurt school. The theory is against determinism and positivism, stressing the important role of interpretation in developing technologies. It considers how technical networks shape identities and worlds.

CTT discusses the bias of technology. It repudiates empiricism and methodological individualism which creates a path to recovering

fundamental social thoughts which aids the understanding of the conflict between persons and rationalised society. The actions the citizens take as their involvement in CTT are referred to as democratic interventions. The majority of these happen after the deployment of technologies. The world has witnessed many of the prevalent examples since the release of ChatGPT by OpenAI in November of 2022 in regulations and counter regulations and proposals/policies for regulating its use.

Another type of intervention concerns an innovative engagement with technology, integrating the reactivation of gadgets by users to meet sudden exigencies. This mode played a significant part in the evolution of the internet. A third way of intervention demands acting before the deployment of technologies. It pertains to public/mass participation or “citizen juries.” (Grimes and Feenberg 2017, 11) to assess prospective innovations and collaborate in the conceptualisation and design processes. In these instances, authorities solicit the participation of persons, before technologies are released, instead of seeking ways to remedy the situation post-deployment (Kirkpatrick 2020).

Critical theory of technology has its critiques and criticisms. It is critiqued as not considering empirical studies that detail the actual place of the computer in the world and the equilibrium between being oppressive and empowering. Given this may not appeal much to empiricist and empirical research it does not seem to have added much to the discourse (as in the work of Andrew Feenberg’s *Critical Theory of Technology*, 1991/2002). Feenberg, however, should be commended for his synthesis of the works on critical theory and its application to technological questions.

## 7. Conclusion

Maintaining academic integrity in a digital world and publish or perish academic culture seems an uphill battle. This paper examines techno-solutionism’s place in using artificial intelligence in open and distance education. Thus, this paper has discussed the opportunities and challenges of GenAI use in open and distance education. It particularly discusses the challenge of techno-solutionism in education and the various ways it impacts

research integrity. Leveraging the critical theory of technology and borrowing Bloom's taxonomy, the paper proposes ways to combat the discussed challenges by recommending clear guidelines and limits on use and considering the end users during the design of the systems. All these are to uphold academic integrity and to develop/maintain desirable cognitive abilities.

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## 9. Short biography

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# L'éthique de l'éducation

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## Mots clés

Éthique, altérité, éducation, savoirs, personne, enseignement, réciprocité, compétences, transparence, bien commun.

## Résumé

Depuis quelques années, face à la différenciation de la société en multiples institutions, associations, organisations, l'éthique trouve des applications dans des champs très diversifiées (éthique des affaires, bioéthique, éthique professionnelle, etc.) Ce scénario appelle tous les acteurs à la responsabilité d'intégrer leur identité et leurs actions sur des objectifs et des valeurs communs pour éviter la parcellisation et la fragmentation de l'éthique. De fait « l'éthique exige que l'intégration obéisse à certaines conditions d'intégrité, de complétude, de valeur humaine, d'idée de bonne vie, d'orientation vers un objectif » (Villet, 2000, p. 238-9). Des formes communicatives d'intégration reposent sur une compréhension réciproque, et sur des accords vers des normes et une responsabilité commune, non l'addition des individualités. L'éthique est donc intrinsèque à l'entreprise éducative ; parler d'éthique de l'éducation et non d'éthique appliquée à l'éducation s'explique parce que l'éthique n'est pas un domaine extérieur mais sous-tend et anime l'éducation. Une éthique de l'éducation qui, à partir de la personne, se conçoit dans une relation d'échange incluant le 'tiers', fonde les relations éducatives sur une éthique de la conviction, sur des dynamiques personnelles et sociales pour constituer une éthique partagée.

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## 1. Tout d'abord l'éthique

L'éthique est la philosophie de l'être et aussi un « recueil de la diversité et une recherche de cohérence entre les différentes rationalités qui composent le savoir humain... Elle est confiance en l'homme et en sa raison et donc une méthode dialectique pour construire plus de raison à partir de l'écoute des hommes et des femmes » (Meyer-Bisch, P., 2005, p. 56). La sphère de l'éthique est celle du choix de ce qu'il est juste de faire, de ce que chacun considère comme juste, du sens des actions parce que l'éthique oriente le comportement et la conduite de chacun d'entre nous à partir des principes et des valeurs. Elle peut être considérée comme le principe de base à partir duquel on formule une réponse aux attentes de nous-mêmes et des autres, de tout autre, de chaque autre. C'est une éthique qui, s'inscrivant dans le tissu de chaque société, peut répondre aux choix de vie des personnes et des communautés. « L'éthique est l'apprentissage des *répondances* : des capacités des acteurs à se répondre mutuellement en fonction de leurs diversités de position et de leurs compétences » (Meyer-Bisch P., 2005, 57). L'éthique est essentiellement la mise en question du *Moi*, la mise en question de ma possession du monde avec Levinas, dans *Altérité et transcendance* (44) ; il vaut la peine de le citer intégralement :

“ avoir à répondre de son droit d'être, non pas par référence à l'abstraction de quelque loi anonyme, de quelque entité juridique, mais dans la crainte pour autrui. Mon être-au-monde ou ma « place au soleil », mon chez-moi, n'ont pas été usurpation des lieux qui sont à d'autres déjà par moi opprimés ou affamés, expulsés dans un tiers-monde : un repousser, un exclure, un exiler, un dépouiller, un tuer. [...] Crainte pour tout ce que mon exister — malgré son innocence intentionnelle et consciente — peut accomplir de violence et de meurtre. Crainte de derrière ma « conscience de soi » et quels que soient vers la bonne conscience les retours de la pure persévérance dans l'être.

Comme le soulignera dans cette voie Derrida (Derrida, J., 1967, 45), assumer l'éthique dans le comportement est se charger de responsabilité face à un visage.

La visée éthique, qui est la « la visée de la vie bonne avec et pour les autres dans des institutions justes » (Ricoeur, 1990, 202), cette visée éthique se réfère à « l'homme capable, c'est-à-dire capable de parole, d'action, de promesse et de réalisation, de choix et d'initiative (Schelegel J, 2017, 44). Elle indique une intention, un projet, une dynamique, un sens à construire : un sens qui n'est pas donné d'avance mais qui se construit en situation, dans une interaction et une relation.

Il s'agit d'une éthique ancrée dans l'action qui permet aux personnes de diriger leur vie, se traduit par le souci de l'autre et se fonde sur des valeurs qui orientent la conduite envers celui-ci. Donc une éthique narrative et réflexive qui comporte trois temps de réflexivité très interreliés *sur soi, sur l'autre et de l'autre sur soi*.

En fait l'éthique est proximité et responsabilité. La rencontre de proximité avec l'autre permet d'entrer réellement en relation avec lui et revêt une importance encore plus grande dans nos sociétés multiculturelles marquées très souvent par l'érosion des identités dans un contexte où le flux migratoire s'est accentué. C'est la connaissance de l'autre *proche* qui nous permet de comprendre l'autre *lointain*.

“ Réflexivité et reconnaissance, estime de soi et sollicitude pour autrui sont liées dans une éthicité qui repose sur un double registre, rationnel et affectif, dans lequel la reconnaissance prend elle-même un double sens, dans l'attestation de soi et de l'autre et dans la gratitude envers l'autre pour ce qu'il fait pour moi, pour ce qu'il donne et que je veux lui rendre (Gohier, C., 2017, 186).

La rationalité, centrale chez Habermas, et la réflexivité en Ricoeur sont très importantes dans la compétence éthique parce qu'elles s'expriment et se développent avant tout dans l'éthique professionnelle de tous les éducateurs par les principes, les valeurs, la conception de la personne, les finalités de

l'éducation et surtout quand on accompagne l'élève à réfléchir sur son projet de vie futur à partir de son présent, et en même temps à s'intéresser à l'existant et à anticiper son devenir.

## 2. L'éthique questionne la personne

L'éthique questionne le concept de personne et focalise ses trois qualités substantielles : la raison (être doué de réflexion logique et cohérente), la conscience réfléchie (être pensant et se pensant lui-même), et la relation (un individu distinct mais reconnu et se reconnaissant dans la relation aux autres en tant que personnes) (cf. aussi : Espace éthique Normandie). La *personne est le sujet de l'éthique* qui n'est pas un domaine extérieur à la démarche éducative, sont plutôt les positions et les convictions éthiques qui sous-tendent et animent l'éducation : on peut donc affirmer qu'aucune éducation ne peut se passer d'un horizon éthique de sens qui définit les finalités, choisit les valeurs et oriente l'action.

Kant conçoit *la personne comme une fin en soi, une valeur absolue* qui a droit au respect et porte une responsabilité qui lui confère l'autonomie : « la personne est l'étant dont l'existence est en elle-même une fin, de sorte qu'il n'a pas de prix, suscite le respect et a des droits. (...) la personne est l'étant qui est « conscient de sa liberté » (Grandjean, A., 2016, 387-399). Très intéressante la position de Panikkar qui considère l'individu *un nœud isolé* tandis que « la personne est le tissu entier autour de ce nœud, un fragment du tissu entier qui constitue le réel. ... Sans les nœuds, le tissu se défait, mais sans le tissu, les nœuds n'existeraient plus ... Ma personne se trouve dans mes parents, mes enfants, mes ancêtres, mes successeurs, mes amis (Panikkar R., *Interculture*, 1984, 2-26).

“ L'homme est une personne, un nœud dans un réseau de relations qui peut aller jusqu'aux antipodes de la réalité... Lorsque ce nœud rompt les fils qui l'unissent aux autres nœuds, lorsque les tensions sont devenues telles qu'elles ne permettent plus la liberté constitutive de l'individualisme, se perturbe l'harmonie et conduit à la mort de la personne, en

lui faisant perdre son identité, qui n'est que relationnelle (Panikkar, R., 2006, 11).

En ce sens la personne est singularité plus qu'individualité : elle trouve sa place dans la communauté (Moreau, D., 2010, 40).

### 3. Éthique et processus éducatif

L'éthique est intrinsèque à l'entreprise éducative. Dans la mesure où l'éducation est une entreprise délibérée de développement des personnes, elle ne peut que plonger ses racines dans une conception de la dignité humaine et du droit des personnes à la culture et au savoir. Dans ce sens, il semble préférable de parler *d'éthique de l'éducation* plutôt que *d'éthique appliquée à l'éducation* parce que l'éthique n'est pas un domaine extérieur à la démarche éducative, au contraire ce sont des convictions éthiques qui sous-tendent et animent l'éducation.

L'accès à l'éducation définit le caractère fondamental de l'éthique qui est devoir-être, c'est de dire ce que la personne devrait être, parce que l'accès aux savoirs et à la connaissance rend autonome la personne, lui permet de se faire un jugement, d'acquérir une capacité d'agir et de ce fait d'être plus entièrement. En effet l'éducation sous ce mode d'interrogation des propriétés de l'être personne ouvre à la fois un univers de ce que nous concevons comme la possibilité d'interpréter le monde, de comprendre et d'avoir une pensée autonome, de résoudre des problèmes et de s'ouvrir à de nouvelles perspectives. L'éthique de l'éducation nous permet de “penser l'éthique avec les gens et non pas pour eux ; il s'agit de susciter et stimuler la co-élaboration de sens”... “c'est une herméneutique, c'est-à-dire une illumination réciproque de notre méditation sur l'excellence en humanité... une herméneutique du jugement moral, une dialectique de la décision singulière” (Moreau, D., 2010, 41)

L'éthique de l'éducateur peut se définir comme une éthique de la responsabilité, une éthique de la sollicitude à l'égard de l'enfant qui doit acquérir la liberté et le goût de la connaissance et des savoirs. Une responsabilité qui voit le lien entre la personne et ce qu'elle réalise, entre

la personne et le tissu social auquel elle appartient, et voit aussi son rôle en tant qu'acteur qui traduit sa responsabilité envers les générations futures et envers les autres avec différentes modalités de cette traduction. La responsabilité implique la capacité de répondre dans la logique d'une promesse : il s'agit de répondre non seulement de ses actes, mais aussi aux attentes des autres. Partir de cet autre, et non de soi, signifie penser aux générations futures et préparer pour eux des institutions qui fonctionnent, un tissu social dans lequel chacun puisse tisser des liens stables, et rencontrer des valeurs qui fondent le respect des droits de l'homme. La vie ne commence pas par soi-même, mais par les autres et, par conséquence, pour défendre ses propres droits, il faut commencer par défendre les droits des autres, car nous ne pouvons pas prétendre d'avoir des droits inaliénables tant que ces droits ne seront pas reconnus à tous les hommes (Levinas, E., 1990, p. 44).

L'éducation est dialogue pas seulement assujétissement à une catégorie de pensée dialectique, à partir de la reconnaissance de la structure relationnelle qui nous caractérise. Le dialogue peut être considéré comme un processus de naissance continue, de (ré)génération de nouveauté qui, par le biais de la relation, génère la vie et génère une liberté intérieure qui amène le sujet au-delà de lui-même (Panikkar R., 2016).

L'éthique de l'éducation consiste à transmettre ce sens de l'altérité, de l'humain qui commence avec *le souci de l'Autre, de son visage* qui me charge de ma responsabilité à son égard et de ma capacité de répondre à son appel.

*Mais qui est cet autrui* qui est concerné par l'éducation ? En éducation, plus particulièrement dans l'enseignement, l'autre est avant tout *l'enlevé*, bien qu'il y ait d'autres interactions avec d'autres acteurs de l'éducation : les parents, les collègues, les directeurs d'établissement ou les communautés.

Et encore, Autrui dans l'éducation est un « horizon dont on voit bien qu'il se dérobe sans cesse : on peut nommer cela, avec Hans Jonas, les « *générations futures* », ce dont il s'agit est cette prise en compte de l'inachèvement du sens de nous-mêmes et du refus de l'immanence absolue qui consisterait à ce qu'une génération se présentât un jour comme l'humanité enfin réalisée ». (Didier Moreau, 2007, 53-76).

C'est la raison pour laquelle la structure éthique de l'acte éducatif se révèle si spécifique : aucune autre activité humaine, même explicitement orientée vers autrui, ne rencontre l'humanité sur un mode aussi fondamental, et c'est ce qui justifie, à nos yeux, le caractère essentiel de l'approche philosophique en éducation. Dans une société où les connaissances se multiplient et se complexifient très rapidement, les enseignants sont vite confrontés aux limites de leur savoir. Leur rôle est de permettre l'accès aux savoirs, d'apprendre à chercher, à trouver, à organiser le savoir disponible dans la société. (Marie-Paule Desaulniers, 2000, p.306). L'éducation a pour objectif la modification des perceptions de la conscience et des comportements, et on peut définir l'enseignement comme l'apprentissage des signes qui permet à chacun de se situer par rapport aux savoirs et à autrui (Meyer-Bisch P., 2005, 38). Il est nécessaire que l'enseignement soit élaboré par une approche cyclique pour favoriser l'acquisition de savoirs qui s'enrichissent, s'entrecroisent et développent progressivement des capacités telles qu'*apprendre à apprendre, à être autonome* et aussi *apprendre à désapprendre, à douter, à se remettre en question, à s'affranchir des paradigmes établis* pour saisir les occasions et défricher des pistes nouvelles.

Une attention particulière concerne les compétences des enseignants par rapport aux questions éthiques liées à leur profession à partir des difficultés rencontrées dans la pratique pédagogique qui exige une autonomie de jugement et une capacité réflexive développée. La compétence éthique, en fait, se développe en cultivant la recherche, l'esprit critique et la créativité, l'autonomie et l'engagement, la capacité de faire des choix responsables et de les traduire en actions. Il s'agit de différents aspects de la compétence qui impliquent également la capacité de se connaître soi-même et de vivre avec l'incertitude du risque et de la responsabilité qui requièrent l'exercice de la rationalité de l'agir éthique.

Mais l'éducation doit être conçue *comme un bien commun* qui est une approche de nature intentionnelle parce qu'il se base sur une volonté commune de ce qui doit être choisi et vécu mutuellement comme juste et désirable à partir duquel redessiner nos communautés. Le bien commun est une philosophie qui place au centre les personnes et institue des liens avec la communauté ce qui suppose la réciprocité comme condition de construction

de l'*altérité*. Et ces liens constituent *le lieu de l'éthique*, qui est une interface entre le sujet et les autres mais aussi entre la personne et le social, une sorte de frontière entre les personnes, les institutions et les domaines, et qui comprend que les enjeux se trouvent à la jointure de ce double passage.

## 4. Éthique et intégrité dans l'enseignement supérieur

L'éthique doit être intrinsèque à tous les niveaux et à tous les domaines de l'éducation et en particulier à l'enseignement supérieur pour changer les attitudes et les comportements de la profession éducative, améliorer la gouvernance et favoriser une gestion sociale capable d'utiliser efficacement toutes les ressources disponibles. Les activités des universités et de leurs membres professionnels ou administratifs doivent se fonder sur les normes et les valeurs concernant intégrité, honnêteté, confiance, responsabilité, équité, et d'autres encore comme impartialité, rigueur, respect d'autrui qui puissent guider la conduite des enseignants et inspirer leur profession dans l'exercice de leurs activités quotidiennes en relation avec différents acteurs (élèves, parents, directeurs d'école, autorités administratives, acteurs publics, privés et civils, partenaires nationaux et internationaux et en particulier l'Unesco).

Ces valeurs sont les piliers fondamentaux de l'intégrité scientifique qui est un élément au cœur de la démarche éducative. Un nœud important concerne l'assurance qualité qui se base sur un code éthique, qui oriente les procédures utilisées et qui prévoit des normes et des politiques transparentes sur l'utilisation des sources qui justifient les décisions, la publication des résultats de l'enseignement, de la recherche et des projets de coopération internationale. Au niveau de l'enseignement la réflexion sur l'intégrité académique, la détection et l'action de la fraude académique forment une approche holistique qui implique une évaluation de l'impact du comportement concerné sur tout le système.

Une recherche réalisée par l'IPE-Unesco intitulée « Planifier l'intégrité dans l'enseignement supérieur » indique que les pratiques non-éthiques sont présentes dans plusieurs universités. Placer l'éthique de l'éducation au centre

c'est donner les clés pour améliorer la transparence et lutter contre la corruption qui prend des formes différentes, telles que le népotisme, le favoritisme et la délinquance académique (Martin, M., 2015, 2 ; Bergadaà, M. 2024, 69-70). À partir du moment où les Universités ont connu une expansion rapide, on a assisté à une incapacité à répondre à la demande sociale trop pressante, si bien que les moyens d'organisation administrative des écoles, la formation des enseignants et des élèves, souvent inadaptés, a lentement laissé place à de la corruption. Celle-ci a eu d'autant plus de chances à s'infiltrer dans le tissu éducatif qu'elle favorise en général ou fait progresser ceux/celles en position sociale dominante.

Il faut donc renforcer les capacités des enseignants et des chefs d'établissement par des cours d'éthique qui portent sur les connaissances, les compétences et les attitudes requises pour garantir la bonne application des codes éthiques, ce qui permet aux institutions de prendre des décisions informées et d'améliorer la capacité de gérer de manière responsable des dirigeants politiques, au sommet des hiérarchies institutionnelles.

Un nœud très important est constitué par l'accès et la visibilité en interne et en externe des hautes écoles, c'est-à-dire la traduction des politiques par des procédures pertinentes. On a vu dans plusieurs Universités qu'une transparence élevée crée des bénéfices sociaux par un climat de confiance généralisé dans les institutions éducatives. « La confiance est une forme de capital social : un tant qu'attribut collectif elle peut être définie comme les réseaux et les normes qui facilitent la coopération et l'action collective. Dans les sociétés où la confiance envers autrui est élevée les individus sont encouragés à coopérer » sur la base d'une grande réciprocité éthique (Déclaration Poznan, 2014, 3).

La confiance devient donc un capital politique qui a une influence directe sur l'éthique sociale, une sorte d'accord éthique et politique qui influence la société, et qui prend en compte les attentes et les besoins locaux, nationaux et mondiaux, par une consultation publique des enseignants, des praticiens et de la société dans son ensemble. Éthique et politique, selon Ricoeur, ne sont pas subordonnées, il écrit : « je propose que l'on parle en termes d'intersection plutôt que de subordination du rapport de l'éthique à la politique. Je vois là

deux foyers décentrés l'un par rapport à l'autre, posant chacun une problématique originale et créant un segment commun, précisément par leur intersection... Intersection de sphères, éthique et politique mais non pas coïncidence » (Ricoeur P., *Éthique et politique*, 1985, p.58).

Aujourd'hui, malheureusement, nous assistons souvent à une corrosion de l'éthique, due à une vision du monde qui a privé l'éthique de tout fondement. Si l'éthique, et avec elle le fondement du droit et de la politique, est sauvée, il sera urgent de redécouvrir toujours à nouveau la nouvelle conception du monde en vigueur à l'aune de ces valeurs, à savoir « le principe, exprimé sous forme universelle, d'une manière d'évaluer, de se comporter et d'agir » (Mancuso, V., 2017, 119-121).

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# From Disposable Education to Acting in the World as a Human in the Time of AI

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## Keywords

Generative models, responsibility, epistemology, sustainability, Bildung, deep learning

## Abstract

This contribution presents two perspectives: one informed by AI expertise, and the other by knowledge from the field of educational sciences. The paper aims to question the purpose of education, repositioning it within Von Humboldt's model of the teaching and research university, for whom *Bildung* was the driving force.

In recent decades, the Global North has developed a system of disposable education that focuses on training a workforce for the market, with little regard for *Bildung*. This has resulted in the production of disposable knowledge and assessments, with the sole goal of achieving good grades and securing employment. Generative AI, which replicates how society works, is now clearly showing this situation.

This article first explains how automatic learning, the foundation of generative AI, works. Second, we shall discuss human deep learning, as opposed to surface learning, and demonstrate its necessity to develop as a person in the *Bildung* perspective. Finally, we move beyond the notion of AI as a revelator of our societies and engage in reflection on concepts of wisdom, responsibility and the art of questioning in philosophy.

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# 1. From automatic learning to generative AI

The driving force behind the development of artificial intelligence is machine learning. As is the case with many other concepts in the field of computing, the fundamental concept of machine learning was first proposed by Alan Turing in 1950. Turing proposed that to build an intelligent machine, it would be more effective to build it in the image of a child than in that of an adult. By giving the machine the ability to learn, we would make it an intelligent machine.

“ Instead of trying to produce a programme to simulate the adult mind, why not rather try to produce one which simulates the child's? If this were then subjected to an appropriate course of education one would obtain the adult brain. Presumably the child-brain is something like a notebook as one buys it from the stationers. Rather little mechanism, and lots of blank sheets. (Mechanism and writing are from our point of view almost synonymous.) Our hope is that there is so little mechanism in the child-brain that something like it can be easily programmed. The amount of work in the education we can assume, as a first approximation, to be much the same as for the human child. (Turing, 1950 #4272 456).

To clarify the process in a simple manner, a machine learning algorithm begins with data. It identifies patterns and regularities within data, subsequently developing a set of rules that can be applied to new data to predict a class or score that this new data will be assigned with.

A significant challenge in machine learning is the ability to compare different algorithms, with the aim of improving an algorithm to achieve a superior outcome compared to another, or to perform better than humans. To define this 'better', it is useful to define a mathematical function that can be used to quantify the accuracy of the set of rules in question, or the error committed. However, a surprising conceptual leap can be made here: all that is required is to attempt to optimise the mathematical function. For instance, to identify

the set of rules that minimises the error. This then becomes a straightforward analysis problem: to find  $R$  such that  $f_e(R)$  is a minimum. Partial derivative calculations are highly effective in this context.

This means that based on the data you provide in your everyday life as Internet users, when you are provided with course recommendations, these rely exclusively on a mathematical analysis of functions.

Actually, it is not surprising that mathematics brings an answer. Vladimir Vapnik who provided major theoretical contributions of machine learning in his book *Statistical learning theory* (Vapnik, 1998 #4276), explains why this trick works, based on mathematical characterisation. This model is very useful and its qualities are not to be questioned in a non-human related topic. For human education, this model reduces education to something measurable conducting some scholars to compare a university transcript with a grocery receipt.

Interestingly, in 2002 in the United States the No Child Left Behind Act is passed as public law (107-110) with four principles: Accountability for results; Local control and flexibility; Expanded parental choice; Use of research-based instruction that works. From this time onwards, teachers have had less control over the curriculum and started to teach for the test, i.e. surface learning. It is also at that time that evidenced-based research is passed by law, excluding de facto all research conducted in non-positivist epistemologies (St. Pierre, 2006 #3781).

## 2. Bildung: the purpose of education

Universities today are said to be based on the model of Von Humboldt, with both teaching and research. What seems to have been forgotten though is that the purpose of education in such a model, at its origins, was *Bildung*.

“ The concept of Bildung brings together the aspirations of all those who acknowledge – or hope – that education is more than the simple acquisition of knowledge and skills, that it is more than simply getting things ‘right,’ but that it also has to do with nurturing the human person, that it

has to do with individuality, subjectivity, in short, with ‘becoming and being somebody’ (Deimann, 2013 #4246, 192-193, citing Biesta, 2002 #4277).

Bildung is the purpose of education. It is an end in itself, with teaching and research serving as the means to achieve it.

“ It is important to stress that Bildung is a goal in itself and should therefore not be utilised or exploited to reach external goals. Consequently, Bildung stands in stark contrast to the concept of qualification. Being qualified refers to an instrumental state, which is achieved in order to serve society and only thereby himself or herself (Deimann, 2013 #4245, 15).

When deep learning was first mentioned, it was as an opposition to surface learning. This was in the 1980s stemming from research on the conceptions of learning amongst students conducted by Ference Marton. Table 1 captures characteristics of both surface and deep learning.

<b>Deep learning</b>	<b>Surface learning</b>
Takes a broad view	Takes a narrow view
Looks for meaning	Relies on rote learning
Focuses on the concepts and arguments to solve the problem	Focuses on the formula to solve the problem
Relates new knowledge to previously learnt knowledge	Focuses on learning unrelated bits of a task
Relates knowledge across modules/courses	Information is memorized solely for assessment
Relates theory to practice	Theory is not reflected upon in real life
Evidence and argument between theories is developed	No cross referencing between theories
Emphasis is student centered	Emphasis is external, i.e. <i>assessment driven</i>

Table 1: (Walker, 2012 #4274) p. 904: Compare and contrast deep learning with surface learning (based on Ramsden, 1992).

In reference to the concept of Bildung, the highest levels of deep learning are concerned with developing as a person (Figure 1).

### The Six Conceptions of Learning



*Figure 1: The six conceptions of learning according to (Marton, 1984, 1997 #4278), retrieved from (CollectiveOfStudents, 2013 #4275)*

Purposes of education vary a lot according to paradigms, times and places. For instance, “learning about the world to act upon it” draws on a mechanistic paradigm whereas “learning to become with the world around us” draws on a holistic paradigm (Salonen, 2023 #4113, 618). Both use surface and deep learning. Since the 2000s, by law in the USA, the main educational model is, by design, driven to nurture the mechanistic paradigm. This includes learning to reproduce. This also includes disposable knowledge and assignments (Wiley, 2016 #3462). The current system, although placed in a learner-centred discourse, foregrounding 21st century skills such as critical thinking, actually focuses on earning good grades to get a job. The aim is to reproduce instead of taking risks and being creative (Jhangiani, 2024 #4279).

### 3. AI: an eye opener

Since ChatGPT arrived in November 2022, the educational landscape is trying to take position and find acceptable ways of using this disruptive and disrupting technology. ChatGPT is based on machine learning. It uses the mathematical functions outlined above to predict what the next word in the

sentence most probably is. And this prediction is called intelligence, artificial intelligence.

One thing ChatGPT and other similar tools are highlighting is learning as reproducing and learning as a measurable output taking the form of exams and grades. It worries institutions because reproducing with quality is now accessible to each and every learner.

When AI was used to rank letters of recommendation and this ranking resulted in a highly discriminatory selection in favour of white men, the general reaction was to accuse AI of being biased. A more detailed analysis revealed that while AI could increase bias, it was in fact already present in the data. An optimistic view, then, is to see AI acting as a revealer. AI makes biases visible, especially those that are not readily accepted.

The advent of ChatGPT has raised concerns about assessment and more specifically continuous assessment. It is now evident that AI has a role to play alongside traditional methods, such as pencils and erasers (it may even be the case that AI has replaced pencils and erasers). Here again, AI reveals a problem that was already present: somehow, ChatGPT embodies the democratization of cheating with the sole objective of getting good grades.

AI, which is said to function on deep-learning, in the sense of machine learning here, actually encourages learners to engage in surface learning, completely forgetting the purpose of education stated in terms of developing as a person.

From an institutional perspective, in our recent history, hijacking Bildung, from an end in itself to a means to produce employers through the education system, comes from the 1940s and 1950s. In those years several supranational organisations were created to promote education and scientific research in education (e.g. the International Association for the Evaluation of Educational Achievement, OECD, NATO). The economic refocusing of education was also adopted by UNESCO, which, in 1957 added an economic objective to its initial goal to working towards a better world through education. UNESCO recommended that countries allocate 5% of their GDP towards education to support development. The purpose of education was

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thus oriented towards stimulating economic progress, which is completely wrong with regard to *Bildung*. Technicians of education progressively replaced philosophers and historians of education (Rohstock, 2015 #3474; Laot, 2015 #3473). Today, researchers acknowledge this dearth of a body of philosophical knowledge in education and call for an urgent re-introduction of worldwide philosophies (Tesar, 2022 #3776).

## 4. Wisdom to move forward?

Although those responsible for developing AI systems, such as Geoffrey Hinton, express regret at the consequences of their creations, acknowledging insights that AI provides for our societies could be a preliminary step towards reorienting the system in a more humane direction.

Humans should remain centre-stage and *Bildung* should retrieve its position of compass in higher education. Educating with wisdom might be a way of addressing current challenges.

Any such wisdom philosophy should aim to preserve “ the academic freedom of students as neophyte academic skeptics who possess a developing capacity to think critically about collective societal issues and respond with actions in favor of the common good. This developing wisdom philosophy should seek to promote the core democratic tenets of critical pedagogy and complexity/systems thinking, allowing students to approach systemic issues through an increased understanding of and capacity to map out complex societal problems, within an ingrained moral/ethical responsibility to seek out and work cooperatively towards actionable solutions. In effect, wisdom philosophy in the age of AI education must be aimed towards the development of theoretically/practically wise students whose understanding of significant subject matter coalesces within a moral and ethical imperative to deliberate and engage in democratic efforts that bring about positive societal change (Baehr 2012; Peters, 2024 #4268).

Two points are to be highlighted from this citation. First, the mastery of subject-knowledge which relates to deep learning and, as corollary, the capacity to ask relevant questions. And second the concept of responsibility which was explicited elsewhere in terms of care (Class, Accept. #4237).

## 5. From the art of questioning to responsibility

Asking a question in philosophy is an art. It has a certain number of requirements as outlined below, which, once again reach out to deep learning. We quote here the original French:

“ Une question peut être dite philosophique dans sa formulation lorsqu'elle est universelle, posée à tout et à chaque humain. Lorsqu'elle est ouverte, susceptible de plusieurs réponses, donc discutable, peut-être même parfois sans réponse (C'est ce que F. Galichet nomme son « indécidabilité »). Lorsqu'elle demande de surseoir à une réponse spontanée et immédiate, de prendre le temps d'une réflexion individuelle, et peut-être d'une discussion collective, tant les réponses ne vont pas de soi. Lorsqu'elle porte sur un problème de sens concernant la condition humaine : la question de la connaissance (Que puis-je savoir ?), la question de l'action, éthique (Que dois-je moralement faire ?), ou politique (Comment s'organiser justement ?), la question de l'esthétique (Créer une oeuvre d'art ou contempler la beauté de la nature ou une oeuvre). Une question philosophique peut donc se poser dans l'un des champs de la philosophie : métaphysique et ontologie, épistémologie, éthique (philosophie morale), politique (philosophie politique), esthétique. On peut aussi le dire de la façon suivante : une question est philosophique lorsqu'elle pose comme un problème (une difficulté) notre relation à nous-même, à autrui, à l'État, à la nature. Ou notre rapport aux valeurs qui peuvent donner sens à notre vie : la vérité, le bien, le juste, le beau... (Tozzi, 2022 #4273) p.6.

With generative AI, we talk about the art of prompting which resembles the art of asking a question in philosophy. Prompting is the new way of accessing knowledge and it depends on two variables. The first is the mastery of the subject-matter which will ensure the capacity to assess the answer received. The second is the mastery of a formal process to get the most out of algorithms and datasets (Masse, 2024 #4280).

Acting responsibly and with wisdom is related to both these variables. The concept of responsibility has been framed in terms of subjectivity, power, free will, cause, agency and accountability from Aristotle to Kant through to Ricoeur (Ricoeur, 1994 #4215). In legal terms, responsibility initially referred to the individual obligation to repair damage, with the focus being on a fault that had occurred in the past. Over time, the concept of responsibility evolved to encompass the future, with the emphasis shifting from the act itself to the consequence of one’s actions (Raffoul, 2018 #4217). Responsibility is thus reported upfront into preventive approaches guided by a heuristics of fear and downstream by potential destructive effects of our action (Ricoeur, 1994).

Alternatives exist: based on a semantics of respect, care and concern rather than the former semantics of authorship, subjectivity and accountability, responsibility becomes synonymous of caretakers with Jonas.

Where it becomes really interesting is when you go back to the Latin etymology *respondere*, crossing it with the art of questioning. *Respondere* indicates that responsibility is foremost a response, an answer. Taking the responsibility for the final piece produced with the help of AI may thus be seen as a response within an overall frame of care.

The challenge is to demonstrate both the capacity to master the subject matter and the capacity to reuse knowledge acquired in order to create new knowledge. This reuse may occur in two ways: directly if it has been developed through deep learning approaches or indirectly through the use of generative artificial intelligence. It is imperative to exercise caution when prompting others. Prompting without first mastering the subject matter will inevitably result in the production of flawed and untraceable knowledge that appears to be recognised knowledge. Consequently, to avoid such highly

misleading knowledge, prompting with wisdom and responsibility should become the norm.

## 6. To conclude: can openness be a lever?

Openness may represent a lever to paradigm change and may retrieve *Bildung*. It is to be grasped between the two ends of the continuum that it spans: on one hand, understanding it from an object-oriented viewpoint, and on the other hand, understanding it as a process that connects both humans and non-humans. The first refers to:

“Understanding of Openness as sharing is predicated on an *object-oriented* view of science, where the availability of commodified, stable, tradeable resources is what determines how researchers use those objects to obtain new knowledge”.

The second refers to:

Philosophy of openness predicated on a *process-oriented* view, whereby research is understood first and foremost as an effort to foster collective agency, grounded on intimate forms of relationality and trust, among widely diverse individuals and groups – an agency that is often enacted through recourse to various technologies, shared interpretations of research outputs and collaborations with non-human agents” (Leonelli, 2023 #4161, 43).

Openness is seen as a lever to break with current practices of surface learning, disposable knowledge and other monstrous moral hybrids (Jacobs, 1994 #4083). Jacobs explains that any human society needs two forces: the guardian and the trading. Each is ruled with specific values, for instance, for the guardian syndrome, some values are shunning trade, being obedient and disciplined or respecting hierarchy. The equivalent values for the trading syndromes are shunning force, being honest and competing. Monstrous moral hybrids happen when values from both syndromes are mixed. For instance, the role of editors, be it in scholarly articles or in textbooks has been targeted

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as problematic because editors are part of the trading syndrome but do not compete with honesty when they pass agreements with states for example.

Thus, reconnecting with the essentials of the model of the vast majority of our universities to reconnect with *Bildung* seems a priority. Reconnecting with the purpose of the creation of Internet and the World Wide Web, i.e. to connect researchers worldwide, is a priority. In addition, two ways to move forward are suggested. The first is that education as a domain commits to reintroduce one of the disciplines it comes from, namely philosophy. Philosophy is important because it acts at the level of paradigm (Sterling, 2021 #3968). Philosophy is important because, through the art of questioning, it can provide a bridge to address AI in education at the substance level, with wisdom.

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# Book Review of Michael Heumann, Contemporary Criticism of Growth from a Philosophy of Economics Perspective

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## Keywords

Economic growth, relativism, postmodernism, degrowth, materialism, subjectivism

## Abstract

This is a book review of Dr. Michael Heumann, *Contemporary Criticism of Growth from a Philosophy of Economics Perspective: Reconstructing economic growth dynamics as the self-perpetuation of decoupled Cartesian thought* (German title: *Zeitgenössische Wachstumskritik aus wirtschaftsphilosophischer Perspektive: Zur Rekonstruktion der Wachstumsdynamik als Verselbständigung cartesischen Denkens*), Gloethics Theses Series No. 42, Geneva: Globethics Publications. <https://doi.org/10.58863/20.500.12424/4296664>

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# 1. Introduction

Those with an interest in economic growth are likely to be familiar with the arguments put forward by those who favour growth and those who are opposed to it. On the one hand, there are calls for an end to growth, as unlimited growth is seen to exhaust the planet and its finite resources, which could have a negative impact on our future. On the other hand, there are those who believe that growth is essential for future prosperity and the reduction of poverty. This is why they believe that growth is necessary.

Michael Heumann's book takes a critical look at the growth debate and, above all, at the intellectual foundations it contains. In the analysis of the topic, Heumann repeatedly manages to make seemingly familiar and convincing arguments from the debate appear strange and dubious which makes the reading highly interesting.

The book goes beyond simply presenting the existing discussion about growth and analysing its intellectual foundations. It also offers approaches for criticism and potential solutions. For anyone seeking a comprehensive understanding of the current debate on economic growth, this book is an essential reference.

The following section presents a brief overview of the structure and aims of the book, before moving on to present some central ideas and arguments. While these can be partially elucidated, a comprehensive examination is beyond the scope of this review. Finally, a critical evaluation of the work is provided.

# 2. Structure and aim of the book

This work aims to analyse the contemporary growth debate from an integrative perspective of a Philosophy of Economics. In this way, the intellectual foundations of the arguments within the growth debate are clarified and subjected to a critical analysis.

Heumann himself describes his aim as follows:

“ (...) [T]his book focuses on the critique of the intellectual foundations of today’s criticism of growth, meaning those premises that need to be presupposed epistemologically, ontologically, and ethically when we reflect upon today’s empirical phenomenon and the effects of economic growth. This emphasis includes not only an enlightened understanding of the positions adhering to what can be considered the imperative of growth, (...) but also and foremost of critical discussions of economic growth challenging, transforming, and/or normatively trying to overcome the growth imperative (...).

On the one hand, therefore, it is a critique of the current growth critique, but on the other, it is also a critical examination of the arguments of both proponents and opponents of growth. The author emphasises that he does not take sides in the debate, but rather seeks to critically reflect on the intellectual foundations of the debate.

Heumann begins his work by formulating a two-part hypothesis, which is analysed and substantiated throughout the rest of the book. He literally states:

“ (...) [T]he two-part single hypothesis (Hyp.) presented here states that the different versions of today’s growth criticism by and large all respectively cannot develop plausible alternatives to the prevailing growth imperative (Hyp. 1a). In accordance with that and beyond that, the different versions of growth criticism, including even the most radical rejections of the growth imperative, paradoxically turn out to also be constituting the actual growth dynamics that lies behind the existing and observable growth imperative (Hyp. 1b).

This effort is realised in a total of eight chapters on about 530 pages. The first chapter introduces the topic by presenting the current debate on economic growth and the related arguments. This chapter also presents the above-

mentioned two-part hypothesis and a rough outline of the approach. Chapters two and three deal with the historical and systematic foundations of the contemporary critique of growth. Here the debate is analysed both in its historical context and in terms of its systematic foundations. Chapter four contains the core analysis of growth from the perspective of a Philosophy of Economics, as here the central arguments of the growth critique are elaborated and linked to the previous findings. Chapter five describes the methodology used to critically analyse the arguments of the opponents and proponents of growth. The arguments are then evaluated in the sixth chapter, which brings together all the previous ideas and aims to confirm the hypotheses presented at the beginning. The work concludes with a (comparatively) short chapter on possible solutions and an outlook on open questions that require further work.

### 3. Historical and systematic foundations of contemporary criticism of growth

In his analysis of the contemporary critique of growth, Heumann employs an integrative approach of the Philosophy of Economics, which is reflected in two principles in the analysis. On the one hand, it is suggested that economics and philosophy are not separate spheres that follow different rationalities or in which different normative principles apply. Heumann refers here to the Integrative Economic Ethics of Ulrich (2008). On the other hand, the integrative approach can be seen in the way that, when analysing arguments against economic growth, both historical debates and current systematic arguments are taken into consideration and critically examined. Heumann suggests that the arguments put forward in antiquity had a completely different intellectual basis to those currently being debated, and were based on different metaphysical assumptions. For instance, economic growth was rejected by Aristotle (4<sup>th</sup> century BC) because of its tendency towards infinity, as it has no end point of its own.

In his systematic analysis, three factions in the current growth debate shaped by modernity and postmodernity are identified: (1) growth advocates (imperative of growth), (2) growth adaptationists (imperative of green / social growth), and (3) degrowth proponents / growth opponents (imperative of anti-growth). Heumann presents an interesting conclusion based on his analysis of these three factions. He suggests that they all appear to align with the quantified depiction and reduction of the growth problem (see hypothesis 1a). This finding is further explored, reviewed, and critically reflected upon in the further course of the work, where it is explained that this reduction actually constitutes the core of self-perpetuating growth dynamics (see hypothesis 1b).

#### 4. Criticism of the growth critique

In this chapter, which forms the central part of the work, Heumann attempts to show which fundamental inconsistencies exist in the debate on economic growth and on which intellectual foundations these are based. The centrepiece of his argument is the work of the 17<sup>th</sup> century French philosopher Descartes, which, in his time, led to a re-ordering of the reality status of the subject and the objective world. Heumann notes that Descartes' findings have been interpreted in a way that could be considered reductionistic in the current debate (but not only there), which has led to a reversal of the hierarchy originally postulated by Descartes, in which the *res cogitans* formed the basis for the *res extensa*. The consequence of this misinterpretation is that the material world (*res extensa*) is placed above the thinking substance (*res cogitans*), which in turn subsequently becomes determined by the material world and loses its autonomy. Since the subject has lost its original position and is therefore no longer suitable for recognising and judging reality, something else must take its place: The material, the measurable, the calculable. In the current debate on economic growth, it seems that figures are the most reliable way to describe reality and provide certainty. In order to make this argument as clear as possible to the reader, Heumann presents Descartes' work in detail and then critiques what he considers to be a reductionist interpretation.

## 5. Analysis of the arguments of contemporary criticism of growth

After Heumann has presented his analytical framework for critical reflection on the arguments of the contemporary growth debate, he applies it to specific statements from the debate. In doing so, he attempts to demonstrate the specific points at which the connections he problematises emerge and the effects this has. As he claims in his hypothesis 1b, even those who oppose growth contribute to the growth dynamic in their arguments or are unable to offer any alternatives to growth. In analysing the arguments, Heumann primarily employs the method of *reductio ad absurdum* to identify the weaknesses in the argumentation and to substantiate his hypotheses.

If one follows the trajectory of his argument thus far, the work culminates in the paradoxical realisation that those who oppose economic growth in the current debate rely on the same intellectual foundations as those who advocate for growth and are therefore unable to propose a genuine alternative or critique of economic growth.

## 6. Possible solutions

After detailing all the necessary connections and problems in the contemporary growth debate and offering criticism, the book concludes with a discussion of various solutions and ways out of the problem described. Three possible approaches are presented, all of which essentially seek to transform the foundations of our thinking and place it on a different footing. In his explanations, Heumann focuses primarily on the third solution presented by him. In doing so, we should return to the original idea of reality as formulated by Descartes before the misinterpretation of this idea problematised by Heumann occurred. For this, the subject must once again form the primary reference to reality, which makes a contradiction-free critique of growth possible. However, Heumann does not provide a concrete elaboration of such a contradiction-free critique or theory of economic growth in this work. He concludes by stating that although this work is still

outstanding, the project can be implemented with the intellectual foundations described.

## 7. Critical evaluation of the book

Heumann's book offers a valuable contribution to a highly relevant debate that has been ongoing for several decades and that is likely to continue for the foreseeable future. The book does more than simply trace the arguments of the various factions in the economic growth debate and illuminate their intellectual foundations. It also manages to surprise and irritate the reader in a positive way in many places.

Heumann also demonstrates courage and independence in this work, as he challenges existing structures and explores new intellectual ground. This process often leads to the questioning and problematisation of seemingly familiar and clear connections, which can be uncomfortable but ultimately contributes to more enlightened thinking. The growth debate serves as an illustrative object in many instances, allowing a glimpse into the currently powerful intellectual foundations of postmodern societies. The criticism Heumann presents in his book can therefore be applied in its basic features to other areas, such as various social developments during the coronavirus pandemic.

The explanations in the various chapters are detailed and engaging, taking the reader on an intellectual journey that includes both historical and systematic arguments. The arguments presented in the text are not always immediately cognitive accessible and easily understandable. In some cases, providing more illustrative examples or simplifying the language used would have enhanced the text's readability and understanding. Nevertheless, the text effectively progresses and supports the initial hypotheses, building a logical sequence of arguments.

The book is recommended to anyone interested in the growth debate, in particular, and in examining the intellectual foundations of our thinking in general. Engaging with the book and its arguments does require time and considerable cognitive effort, but this is rewarded with a new perspective on

our thinking and reasoning that is unique within the contemporary growth debate.

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## 9. Short biography

Dr Dietrich Wagner is a research fellow and lecturer at the University of St.Gallen and the St.Gallen University of Teacher Education. His research interests lie in the development of transversal competences, with a particular focus on ethical competences. In addition to his research activities, Dietrich Wagner teaches various Bachelor's and Master's courses at the University of St.Gallen and in teacher training programmes at the St.Gallen University of Teacher Education.

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