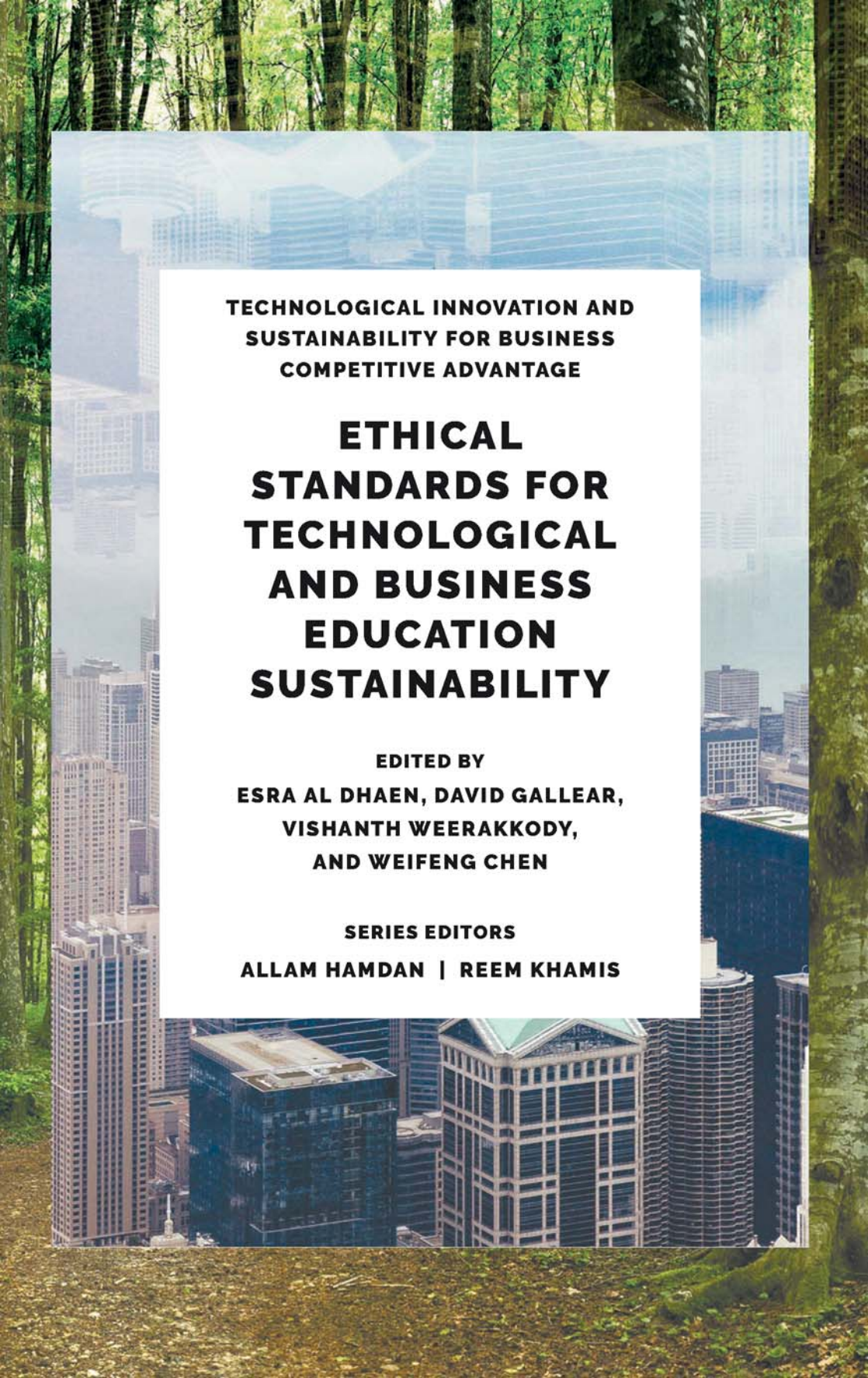

TECHNOLOGICAL INNOVATION AND SUSTAINABILITY FOR BUSINESS COMPETITIVE ADVANTAGE

ETHICAL STANDARDS FOR TECHNOLOGICAL AND BUSINESS EDUCATION SUSTAINABILITY

EDITED BY

ESRA AL DHAEN, DAVID GALLEAR, VISHANTH WEERAKKODY, AND WEIFENG CHEN

SERIES EDITORS

ALLAM HAMDAN | REEM KHAMIS

Ethical Standards for Technological and Business Education Sustainability

TECHNOLOGICAL INNOVATION AND SUSTAINABILITY FOR BUSINESS COMPETITIVE ADVANTAGE

Series Editors: Allam Hamdan and Reem Khamis

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EDITED BY

ESRA AL DHAEN
Ahlia University, Bahrain

DAVID GALLEAR
Brunel University of London, UK

VISHANTH WEERAKKODY
University of Bradford, UK

AND

WEIFENG CHEN
Brunel University of London, UK

United Kingdom – North America – Japan – India – Malaysia – China

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About the Editors

Esra Al Dhaen holds a Doctorate from Brunel University London, in the area of strategic decisions and quality in the context of higher education, currently an Executive Director Strategy, Quality and Sustainability as well as an Associate Professor at Ahlia University Bahrain. Appointed external reviewer and conducted various QA reviews as part of Oman Academic Accreditation Authority (OAAA), Bahrain Education and Training Quality Authority (BQA) for National Qualification Framework validation and National Commission for Academic Accreditation and Assessment (NCAAA) KSA. As HEA Principal Fellow and an expert in curriculum review, design and mapping to the National Qualification Framework as well as alignment of cross boarder qualifications was able to set Assurance of Learning (AOL) framework to evaluate and assess student direct and indirect learning and chaired the AOL committee at college level. Highly experienced in HEIs in various counties such as the United Kingdom, Kingdom of Bahrain, KSA, UAE and Oman, along with the gained diverse background enable to transfer and share knowledge and experience from multiple aspects. In particular to institutionalise and streamline various adapted QA standards into one quality management system supporting all the HEI targets such as international accreditation and ranking. This area was activated through becoming an active member at governance level which enable revising, implementation, assessing and further planning for the university strategic plan towards achieving the mission and vision of the university that includes setting targets and key performance indicators (KPIs) have also been practiced and highly performed focused on Teaching and Learning Excellence, Research Impact and Societal Contribution. An expert in strategic planning, measurement and evaluation for higher education including assessment of internal and external environment. Leading sustainable development initiatives in collaboration with United Nations for promising future and a member of multiple national and international society tackling sustainable development and quality improvements. Published and awarded best papers by Emerald Publishing in various research areas including strategy, sustainable quality management teaching and learning.

David Gallear (Brunel University London) is a Professor of Operations Management with expertise in sustainability considerations applied to stakeholder relationships in operations networks and supply/value chains. His work explores the determinants and facilitators of stakeholder partnership in private and public sector domains. It seeks to understand the mechanisms through which corporate responsibility and

circularity can be embedded and sustained, with a particular focus on inter-organisational knowledge transfer, stakeholder engagement and social capital. Between 2017 and 2023, he served as Vice Dean Research for the College of Business, Arts and Social Sciences (Brunel University London) leading research and knowledge transfer and research ethics, and between 2006 and 2016, he held numerous leadership positions with Brunel Business School overseeing curriculum, pedagogic and accreditation development, including as Deputy Head (Teaching, Learning and Accreditation) and Associate Head (Academic Operations).

Vishanth Weerakkody is an Associate Pro-Vice-Chancellor for Global Engagement and Partnerships at the University of Bradford and a Professor of Digital Governance. Since joining UoB in 2017, Vishanth has held multiple leadership positions in the Faculty of Management Law and Social Sciences including as Dean where he led the faculty through the COVID-19 pandemic, as Associate Dean Planning and Resources where he managed the implementation of a transformative change programme in the School of Management, and as Associate Dean International and Enterprise where he led a growth agenda for internationalisation through developing high-quality partnerships and mobility for the faculty across Europe, Asia, Middle East and Turkey. Although holding significant leadership responsibility, Vishanth maintains a healthy research track record and continues to publish in CABS 3/4* journals, led two impact case studies for REF2021 and continues to attract R&D funding. A passionate advocate of 'responsible internationalisation' in HE, Vishanth draws from several years of experience in multinational organisations such as BAT Industries and IBM to support the University of Bradford's global engagement agenda.

Weifeng Chen is a Reader in Innovation Management at Brunel Business School. His expertise lies in the realms of technology adoption, business model innovation, digitalisation and societal transformation. Currently, his research is centred on the profound influence of disruptive technologies, notably artificial intelligence and blockchain technology, on innovation, particularly concerning the development of novel business models and collaborative ecosystems within organisations spanning the public, private and third sectors, as well as across global value chains. Furthermore, he stands as one of the pioneering figures in the establishment of the Brunel Centre for AI.

About the Contributors

Sarah Aqeel Abdulaziz graduated from Ahlia University, Manama, Bahrain, and holds an MSc in Forensic Accounting.

Walla Abdulla graduated from Ahlia University, Manama, Bahrain, and holds an MSc in Forensic Accounting.

Zainab Abdulla graduated from Ahlia University, Manama, Bahrain, and holds an MSc in Forensic Accounting.

Amani Alaali is an Assistant Professor at Ahlia University, Bahrain, specialising in interior design and design education. She has a robust research portfolio that includes exploring the integration of technology into design education and examining the localisation of spatial experiences. Dr. Alaali's research often focuses on bridging the gap between theoretical frameworks and practical applications in design, making significant contributions to the understanding of global brand management and its impact on local spatial experiences.

Fatema Saleh Aldhaen is an Assistant Professor and a Researcher at Ahlia University, College of Business and Finance. She earned a doctorate in Operational Management and Information Systems from the University of Bradford in the United Kingdom after earning a Master's degree in Information Technology from Ahlia University. Fatema frequently publishes in high ranked journals including *Journal of Business Research and Information Systems Frontiers*, *Sustainability* and *International Journal of Advanced Research in Basic Engineering Sciences and Technology*, and she participated in many conferences in and outside Bahrain as a speaker and researcher.

Raghad Waleed Al-Farra graduated from George Washington University, USA, and holds an MSc in Engineering Management.

Muneer Al Mubarak is a Professor of Management and Marketing. He received his PhD in Business and Economic Studies from University of Leeds, UK. Prof. Al Mubarak's expertise is in strategic management, marketing management and relationship marketing. He has over 35 years work experience as he contributed well to teaching and training in areas such as leadership, strategic management, relationship marketing, marketing management, marketing communications, sustainability, corporate social responsibility, customer relationship management and service excellence. He has participated in many community activities over the

years and is in a number of advisory boards and a reviewer of high ranked international journals. He published several edited books in sustainability, innovation, management and marketing.

Ali AlQattan graduated from George Washington University, USA, and holds an MSc in Engineering Management.

Husain Ahmed Alshowaikh graduated from George Washington University, USA, and holds an MSc in Engineering Management.

Mariam Ali Al-Zain graduated from Ahlia University, Manama, Bahrain, and holds an MSc in Forensic Accounting.

Mohamed Mahmood is a distinguished academic and professional, holding a PhD in Management Studies from Brunel Business School, Brunel University of London. His academic journey includes serving as an Assistant Professor at the University of Bahrain and as an External Examiner for the Information Technology College. He has made significant contributions to research in areas such as digital transformation, government trust and ICT governance. His work has been widely published in reputable journals and academic books. His contributions have also been recognised through his role as an active peer reviewer for ABS-ranked journals and as a member of the editorial advisory board for notable academic publications. Professionally, Dr. Mahmood is the Chief Technical Officer at Bahrain Network (BNET), where he oversees the development, expansion and maintenance of Bahrain's national fibre network and leads the technical operations. Prior to this, he served in leadership roles at the Telecommunications Regulatory Authority (TRA) in Bahrain, where he contributed to developing regulatory frameworks and strategic projects. His expertise spans both the academic and telecommunications fields, making him a recognised leader in both sectors.

Fatima Nader Ali graduated from George Washington University, USA, and holds an MSc in Engineering Management.

Hanan Naser is the Provost at the American University of Bahrain. Having worked in higher education for many years, she has mentored and supported many learners and staff members in cultivating leadership competencies based on emotional intelligence and sustainable reasoning. Some of these subjects include leadership in the context of emotional intelligence and effects of evolving technological advancements on organisational behaviour, which interest her in conducting her research. She has participated in numerous academic projects within Bahrain, and her intention is to create a culture of innovation and emotional intelligence in leaders of tomorrow.

Sadaf Saeed holds a Postgraduate Diploma from the prestigious London School of Economics (University of London) and an MBA from the American University of Bahrain. With a vast background in education and over 15 years of teaching experience, she has a special inclination in organizational behavior, leadership, and emotional intelligence.

Committed to bridging the gap between leadership theory and practice, her research focuses on enhancing leadership dynamics within Bahraini higher education institutions. Her work explores the evolving nature of leadership in learning environments and business organizations, with an emphasis on the role of emotional intelligence in today's workplace. She is particularly interested in the shift from traditional top-down leadership models to self-organizing systems that foster adaptability and innovation.

This chapter marks her first publication, reflecting her dedication to contributing to the academic community. Passionate about exploring the mutual dynamics of emergent systems in human resource management, she continues to draw insights that shape modern leadership practices. With her strong academic foundation and extensive teaching experience, Sadaf remains committed to advancing education and leadership development.

Merlin Stone is Professor of Marketing and Strategy at St Mary's University, Twickenham. He has spent most of his career managing, researching, consulting and training in marketing, customer service and CRM. He is an Honorary Life Fellow of the United Kingdom's Institute of Direct and Digital Marketing, which he helped found, and was awarded their Derek Holder Lifetime Achievement Award (one of the Data IQ Talent Awards) in 2015. He has also followed a full academic career, holding senior posts and professorships at several universities He is on the editorial advisory boards of several academic journals, has a first-class degree and doctorate in economics and runs a university and school tuition business focusing on management, economics and mathematics.

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Foreword

I am pleased to write this foreword for the book entitled *Ethical Standards for Technological and Business Education Sustainability*, which deals with very topical and salient issues that are transforming the higher education landscape today. Although the term artificial intelligence (AI) goes all the way back to 1956, when it was first coined by a young American computer scientist John McCarthy, the term has turned into one of the biggest buzzwords of recent times. Despite the term's widespread usage and pervasiveness, little is actually known about the true extent of, and capacity for, AI to be a disruptor in the medium and long term. Given the rapid pace of development of AI and the proliferation of AI tools and use cases, the lines, demarcations and limitations vis-à-vis good academic practice are, arguably, becoming increasingly blurred. There exists the potential and possibility for serious consequences that pose a de facto threat to the integrity of the academic process, from curriculum design, assessment methods, teaching and learning practices, extending all the way to scholarship and research.

The use and integration of technology in academia is nothing new. Universities and higher education institutions (HEIs) with mature governance systems, and rigorous quality assurance processes, have many policies and procedures in place to safeguard the integrity of the academic process. One common practice employed is the use of AI-based tools, such as Turnitin, to assist in the detection and prevention of academic malpractice, such as plagiarism. These tools, as the name suggests, are meant to be just that, tools, and not solutions or a one-size-fits-all approach to dealing with academic misconduct. Hence, an understanding of the extent of usefulness, accuracy and limitations in general is essential in order to truly promote good academic practice and deal with emerging challenges.

Learners are increasingly resorting to the use of AI tools such as ChatGPT both inside and outside the classroom, where such usage can, on the one hand, be a powerful and personalised aid to the learning process, while on the other hand, a device for academic misconduct, which may be either intentional or unintentional. Whereas some HEIs, such as the top-ranking French school Sciences Po, had reportedly banned the use of ChatGPT as far back as January 2023, with some exceptions such as in the case of instructor supervised formative coursework, others have blocked access to the software entirely on their school networks. Most of the world's leading HEIs are still exploring ways to regulate the usage of AI in education, with some going as far as encouraging student-based exercises in the usage of AI in specific pieces of academic coursework as a learning device to discover and correct the 'hallucination' effects that large language

models suffer from. Regulating AI usage, whether in academia or beyond, remains a serious and exigent challenge that begs the attention of researchers, scholars and practitioners.

Accordingly, this book will serve as one useful point of departure, and an important reference point, to any future works focused on developing new compliance guidelines and ethical standards to govern education in general, and business education in specific. The ideas, concepts, propositions and recommendations presented will add value to future efforts by academicians, policymakers and leaders of all sorts in the academic community. We need to collaborate, cooperate and work together, in a proactive manner, to stay ahead of anything and everything that threatens the integrity of the education landscape. It is my sincere hope and belief, together with the editors and all those who contributed to this book, that the works contained herein can serve to shape and inform future ethical frameworks that are robust enough to deal with a multitude of academic domains. Any future efforts will need to consider various dimensions, from the economic to the cultural, towards effectively addressing this issue from a multidisciplinary perspective that affords due attention and regard to the specificities of different disciplines.

Ammar A. Alhawaj, CMktr
Executive Director for Communications and International Relations
Coordinator for Master of Science in Engineering
Management and PhD (WR)
Ahlia University

Preface

The book will include insight of new policies and procedures to be developed to ensure academic integrity, quality of education and avoidance of academic misconduct specifically for technological and business education. With the recent trends and technology advancement, academics are finding a difficulty to maintain academic and ethical integrity in the learners' produced assessments.

Equipping learners with technological skills is a requirement to support lifelong learning; however, the key aspect is how to use such technological advancement towards the advantage of the academic journey.

Business education is considered a driver of change through integrating multidisciplinary skills and knowledge as part of teaching and learning. However, the nature of technological advancements used in teaching, learning and assessments varies in different contexts.

For instance, cultural sensitivity may be triggered while using artificial intelligence tools. Practices in relation to *Ethical Standards for Technological and Business Education Sustainability* may vary between different regions depending on the level of quality assurance standards maturity that is applied within the region.

However, is it visible that there is an urgent demand to establish clear policies and procedures need to be established to deal with the recent advancement of technology to maintain ethical and quality standards.

The book will explore practices of different use of technology including revising pedagogical standards, innovative teaching methods, inclusion of technological advancement as part of lifelong learning, use of technology as part of formative learning and assessments, etc.

The outcome of the book will support policymakers, leaders of higher education, academics and regulators to set a new dimension of policies and standards to support development of clear guidelines to maintain ethical use of technology in business education.

Editors
Dr. Esra Al Dhaen
Ahlia University, Manama, Bahrain
E-mail: esaldhaen@ahlia.edu.bh

Prof. David Gallear
Professor, Brunel University, London
E-mail: david.Gallear@brunel.ac.uk

Prof. Vishanth Weerakkody
Associate Pro-Vice-Chancellor, University of Bradford, UK
E-mail: V.Weerakkody@bradford.ac.uk

Dr. Weifeng Chen
Reader, Brunel University, London
E-mail: Weifeng.Chen@brunel.ac.uk

Chapter 1

Benefits and Challenges of Using ChatGPT in Higher Education (HE) Teaching and Learning (T&L): Systematic Review

Merlin Stone[a], *Esra Al Dhaen*[b], *Mohamed Mahmood*[c] *and Fatema Saleh AlDhaen*[b]

[a]St Mary's University, UK
[b]Ahlia University, Bahrain
[c]Brunel University of London, UK

Abstract

Recently, several studies discussed the use of ChatGPT in teaching and learning and the ethical considerations. ChatGPT is a technological innovation that enables natural language interaction with an Artificial Intelligence (AI) model. This chapter explores various options of using ChatGPT and AI chatbot tools in teaching and learning as well as summative assessments in line with United Nations Sustainable Development Competence. This chapter explores challenges and potential areas for adoption that could be utilised by higher education institutions (HEI) as a framework for utilisation of ChatGPT for effective learning. The outcome of the guides quality assurance and accreditation regulatory to design a set of standards that could be utilised by HEIs.

Keywords: ChatGPT; chatbot; quality education; sustainability; teaching and learning; assessment; SDG4

1. Introduction

ChatGPT is a technological innovation that enables natural language interaction with an AI model. Its ability to generate human-like responses and provide information on many topics makes it valuable in education. It can be accessed via online platforms, making it accessible to students and instructors. It can be

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integrated into learning management systems (LMSs), virtual classrooms or used as a standalone tool. Its adoption in higher education (HE) refers to the decision by instructors and institutions to incorporate it into teaching and learning practices and to encourage students to use it. In this respect, it is similar to many other online information systems, from the most general, such as search engines, to the most particular, e.g. financial information systems. The use of ChatGPT in HE teaching and learning (T&L) can be analysed via innovation theory, which gives a framework for understanding diffusion, adoption and impact of new technologies. Innovation theory suggests that diffusion of a new technology is influenced by several factors, including the innovation's characteristics, communication channels used and the social system in which it is introduced. This chapter will provide literature review systematic analysis highlighting innovative methods that could be used as a guideline while utilising ChatGPT in HE T&L.

2. Adoption of ChatGPT in HE T&L

A study was conducted in Poland stating that adoption of AI tools in HE in T&L is required; however, it could rely on behavioural aspects from students' perspective (Strzelecki, 2023). In terms of usefulness and easy to use, studies stated that although ChatGPT was found useful in providing immediate responses, however Choudhury and Shamszare (2023) stressed upon the trust of the information generated from such tools, specifically in terms of information that is related to healthcare. In similar context, the necessity of investigating factors effecting adoption of ChatGPT and AI tools in HE T&L was stated in several studies with a focus on reviewing HE T&L strategies to support academic integrity and academic misconduct. On the other hand, Foroughi et al. (2023) stated that ChatGPT could revolutionise education if utilised effectively; however, there are areas to be considered by HE while adopting ChatGPT as T&L tool, for instance, ChatGPT lacks highlighting cultural sensitivity and issues related to gender equality issues. Therefore, a careful review must be maintained by academics to ensure presented data are appropriate if used for T&L. In addition, Raman et al. (2023) stated that ChatGPT is found effective to support students to communicate if a different way by providing ease to use and accessibility. However, ChatGPT does not capture emotional intelligence interactions, and hence, emotional and social interaction skill maybe lacking unless it is tackled by policymakers and regulators.

United Nations highlighted the need to inculcate ICT skills and competency to support sustainable quality education. It was argued that the use of AI tools will improve integrating skills related to science, technology, engineering and mathematics (STEM). In the contrary, it was stated that although such tools are limited to support integrating ICT skills; however, it still requires setting clear strategy to foster engagement (Vasconcelos & Santos, 2023).

To support adoption, UNESCO established a guideline for the education sector to support HE while considering utilising ChatGPT in different T&L activities. As highlighted by Sabzalieva and Valentini (2023), the students

consider ChatGPT as a motivator, personal tutor, dynamic assessor and collaborative coach. The students find such AI tools including ChatGPT user-friendly and easy to use and accessible.

In summary, adoption is influenced by factors such as institutional culture, faculty attitudes, and student expectations. Resistance to change and concerns about the authenticity of AI-generated content might hinder diffusion, while positive perceptions of AI and its potential benefits can facilitate adoption. From the above-mentioned studies, several studies were conducted highlighting the need for further investigation of adoption of AI tools including ChatGPT in HE specifically in terms of T&L.

2.1 Perceived Usefulness

Cardona et al. (2023) stated that chatbot is found useful for students as well as faculty; however, there are several legal and policy issues that should be considered. The question arising question such AI tools could it be trusted in the education sector. Therefore, it was recommended to investigate further and devise policies that support integrating ethical standards into the use ChatGPT and similar tools. In addition, Cortiñas-Lorenzo and Lacey (2023) stated that teachers age and digital skills ease the usefulness and easy to use of such tools, a study was conducted that reflected the necessity to consider social language and pro-activeness while designing teaching strategies supported by AI tools, a consideration of the field of study and level is also required to ensure attainment of the required learning outcome. In similar context, Romero Rodríguez et al. (2023) urged researchers to investigate the quality of education supported by such AI tools specifically in terms of ethical standards as well as practical application, whereas Chen et al. (2020) investigated the usefulness of AI tool and chatbot in higher education focusing on Chinese universities and noted that such tools support the attainment of the course learning outcomes by providing additional informal learning. Based on the previous studies, it is visible that ChatGPT is found useful at both student and faculty level in terms of supporting education. It is worth considering that ChatGPT could be a supporting educational tool with clear usage guidelines and regulations focusing on ethical standards and cultural sensitivity.

2.2 Ease of Use

As stated by Colace et al. (2018), faculty member requires knowledge and motivation to support creating awareness of the ease of use. In terms of ease of use, students found that use of AI and chatbot including ChatGPT is easy to use and provides relevant information to support their progression. Studies proven that AI and Chatbot are found easy to use and support learners in various fields, specifically Information Technology and Engineering Programming. A study was conducted recommending Phython-Bot as it was found easy to generate programming language through such tools (Okonkwo & Ade-Ibijola, 2020). In similar context, Vanichvasin (2021) stated that chatbot and AI tools including ChatGPT support conducting research at course level. The ease to use may be appreciated from a context to

another, for instance, a study was conducted at Ghanaian higher education which reflected a positive impact on student performance; tools including ChatGPT were used as teaching assistive tools with formal percentage integrated within the curricula (Essel et al., 2022). The ease of use and accessibility of such tools supports sustainable education in line with United Nations Sustainable Development Goals (UNSDGs). For higher education in non-developed countries, such AI and Chatbot tools with free access could support the overall learning experience. In similar context, it was proposed to develop a specific chatbot for higher education in Thailand, the study recommended to generate a smart script with specific focus on certain fields related to Thailand. According to Georgescu (2018), chatbot is expected to improve the quality of life, as it is easy to use and provide access through different devices including smart phones, personal computers and tablets.

2.3 Institutional Support

A study was conducted in India stating that the use of AI and Chatbot including ChatGPT improves student learning experience (Sandu & Gide, 2019); it was found that such tools improved productivity and support faculty and students by providing information and reducing ambiguity. Moreover, Hien et al. (2018) urged higher education institutions (HEIs) to relay on AI and Chatbot to improve student administrative support services, as such tools allow tracking the number of issues raised by students and enable instant responses which helps in improving student satisfaction. Therefore, it was suggested to increase the usage of such tool for academic and non-academic issues to support the overall higher education performance and effectiveness. In similar context, Khidir and Sa'ari (2022) emphasised that chatbot including ChatGPT is found as a useful tool and hence should be a core of HEI services as it available for student 24/7 which reduces the workload on faculty and admin staff and hence allows the faculty to be intellectually contributing and publishing research. Although several researchers argued that AI tools are found effective and supports the overall HEI performance. However, researchers argue that there is a need to improve the design of such tools to be catered to assist the students and faculty with clear policies and procedures (Bahja et al., 2019). The importance of continuous development was raised by researchers, for instance, Merelo et al. (2023) and Al-Hawaj (2021) stated the need of developing faculty members to be able to adopt to the dynamic updates to the technology and the use of AI tools, which includes designing courses with specific materials and assessment that optimise such tools (Table 1.1).

3. Benefits of the AI Tools, Chatbot and ChatGPT

3.1 Student Perspective

Based on the systematic literature review conducted, several benefits of AI tools, chatbot and ChatGPT, were identified from student perspective. According to

Table 1.1. Summary of Identified Factors Influencing Adoption While Utilising ChatGPT – By Authors.

Factors	Guiding Actions
Perceived usefulness:	Instructors may perceive ChatGPT as useful for enhancing student engagement, providing personalised feedback and supporting learning activities such as problem-solving or language practice. Its ability to handle large volumes of queries and give instant responses can be advantageous.
Ease of use:	The ease of integrating ChatGPT into existing teaching practices, such as incorporating it into online discussion forums or assignment feedback, can influence adoption. Its user-friendly interface, clear instructions and intuitive design are important.
Institutional support:	The support and resources provided by higher education institutions, such as training programmes, technical assistance and infrastructure, can encourage instructors to adopt ChatGPT. Institutional policies and guidelines regarding the use of AI technologies also play a role.

Note: Content of the table generated by authors based on systematic review analysis.

Kasneci et al. (2023) instant information and access to materials was found one of the most beneficial; ChatGPT can provide students with quick answers to their questions, eliminating the need to wait for responses from instructors or search for information independently. Therefore, using AI tools, chatbot and ChatGPT as assistive technology in T&L is expected to save time and facilitate learning by providing immediate access to relevant content. ChatGPT was also considered as a tool towards personalised learning (Limo et al., 2023). ChatGPT can give personalised feedback and support tailored to individual students' needs. By analysing students' queries and responses, ChatGPT can adapt its interactions to provide targeted guidance and assistance, helping students in their learning journey. In addition, enhanced engagement and motivation was also found one of the benefits of the use of ChatGPT (Adiguzel et al., 2023), the interactive nature of ChatGPT can promote student engagement. Students may find it more enjoyable to interact with an AI chatbot, as it can create a conversational and interactive learning environment. This engagement can foster active participation and motivation. Furthermore, Zhai (2022) stated that students found AI tools, chatbot and ChatGPT highly supportive to the learning curve through availability beyond traditional class hours; ChatGPT can be accessible 24/7, allowing students to seek help and clarification outside regular class hours. This can be particularly beneficial for distance learners, part-time students or those facing

time constraints. It is also worth mentioning that the availability of information allows unprivileged students to get access to information free of cost, and hence, it allows learners progression.

3.2 Academic Faculty Perspective

Halaweh (2023) highlighted that HEIs should have a clear strategy to optimise AI as part of the current resources which include chatbot and ChatGPT. In this context, Janahi et al. (2023) emphasised that the use of AI tools, chatbot and ChatGPT, as part of teaching and learning could support time-saving and efficiency provided that clear T&L strategy is set by the institution; ChatGPT can assist lecturers by providing instant responses to frequently asked questions, reducing the time spent on repetitive queries. This allows lecturers to focus on other aspects of their teaching, such as facilitating discussions, designing engaging learning activities and providing individualised support to students as well as improve the workload by allocating extra time for research and other intellectual experience. Furthermore, Eager and Brunton (2023) stated that augmented teaching resources is also considered one of the benefits. ChatGPT can serve as a valuable teaching resource, offering additional information, examples and explanations beyond what a lecturer can provide within the limited timeframe of a lecture. Lecturers can leverage ChatGPT to supplement their instructional materials and provide students with enriched learning resources. However, there is a need to redesign the course delivery and materials by utilising ChatGPT at assistive technology considering critical thinking assessments and clear ethical standards. Two common benefits were found between students and academic faculty. Perer and Lankathilaka (2023) stated that personalised feedback and support is considered a benefit from academic faculty perspective. ChatGPT can help lecturers provide personalised feedback to students at scale. By analysing students' interactions with the chatbot, lecturers can gain insights into individual learning needs and tailor their guidance accordingly. This can promote a more personalised learning experience for students. In addition, Adiguzel et al. (2023) stated that enhanced student engagement is highly beneficial from academic faculty and student perspective. The interactive nature of ChatGPT can help engage students who may be reluctant to participate in class discussions or ask questions in a traditional setting. ChatGPT's conversational approach can create a comfortable and non-intimidating environment for students to seek clarification and engage in dialogue. Specifically, during COVID-19, academic faculty stated that chatting through microsoft teams and student engagement had its advantages and disadvantages; the availability of the chatting tool enabled students to be motivated to share comments and questions (Table 1.2).

Based on the systematic review conducted, it is visible that ChatGPT can enhance student engagement by providing interactive and personalised learning experiences. It can support instructors in addressing individual student needs and facilitating self-paced learning. In addition, ChatGPT can provide instant feedback, answering common questions and supporting student enquiries outside of

Table 1.2. Summary of AI Tools, Chatbot and ChatGPT Benefits by Different Stakeholders.

Benefits	Stakeholder (s)	Reference
Instant information	Students	Kasneci et al. (2023)
Availability beyond traditional class hours		Zhai (2022)
Time-saving and efficiency	Academic Faculty	Halaweh (2023)
Augmented teaching resources		Eager and Brunton (2023)
Enhanced engagement	Students and Academic Faculty	Adiguzel et al. (2023)
Personalised feedback and support		Perera and Lankathilaka (2023)

Note: By Authors 2024 – Content of the table generated by authors based on systematic review analysis.

traditional class hours. These benefits could be used towards setting a clear strategy for sustainable quality education AlDhaen (2023, 2024), however it is also worth considering the challenges and concerns Mhlanga (2023) including ethical standards and creating awareness of academic misconduct. The following section will provide an overview of the current literature review on the challenges and concerns related to the use of AI tools, chatbot and ChatGPT from student and academic faculty perspective followed by conclusion with recommendable actions for policymaking.

4. Challenges and Concerns Related to the Use of AI Tools, Chatbot and ChatGPT

4.1 Student Perspective

Although AI tools, including chatbot and ChatGPT, have proven its usefulness is several areas related to T&L, however the issues of reliability and accuracy are still arising. For instance, Shen et al. (2023) stated that ChatGPT generates responses based on patterns learned from training data, so its information may be inaccurate or unreliable information. Students may have concerns about the quality and validity of the responses they receive, especially if they are not clearly informed that they are interacting with an AI system. It is also a concern when the information is generated to medical education or healthcare sector (Johnson et al., 2023). According to (Shidiq, 2023) the use of ChatGPT lack of human interaction, ChatGPT can provide information however it lacks the human touch and expertise that an instructor or peer interaction can offer. Students may value the guidance, insights and personalised feedback that come from direct human interactions, which ChatGPT may not be able to fully replicate. In addition, lack

of human interaction also considered a challenge on identifying sensitive information (Zhai, 2023), and hence, it impacts the overall T&L practices. As stated by Chan and Lee (2023) the usage of AI tools including ChatGPT could cause overreliance on AI technology. Students may depend too much on ChatGPT as a primary source of information, neglecting critical thinking and independent research skills. Relying solely on ChatGPT for learning may limit students' ability to explore different perspectives, evaluate information critically and engage in deeper discussions. This could lead to reduction of critical thinking competency, and hence, clear sustainable education T&L strategies should be set (AlDhaen, 2023, 2024). Ethical challenges and considerations, as stated by (Mhlanga, 2023) students may have concerns about the ethical use of AI technologies like ChatGPT, particularly regarding privacy, data security, and potential biases in the training data. They may seek transparency and assurance that their data and interactions are being handled responsibly. Therefore, educators should set a clear policies and procedures to support declaration of ethical use of data obtained from AI tools including ChatGPT.

4.2 Academic Faculty Perspective

Quality of education is a key; the use of information from ChatGPT is causing concerns from academic integrity. According to Yu (2023), lecturers may be concerned about the accuracy and reliability of ChatGPT-generated responses. Ensuring the quality of information provided by the AI chatbot requires careful monitoring, training, and regular updates to address any inaccuracies or potential biases in the responses. Therefore, there is a need to develop clear policies and procedures that support academic faculty to assure the quality of information and avoid of academic misconduct. In addition, Yan et al. (2024) emphasised the need of pedagogical alignment considering different context. Lecturers need to carefully consider how to integrate ChatGPT into their teaching practices in a way that aligns with their pedagogical goals and instructional strategies. The AI chatbot should complement, rather than replace, the role of the lecturer and the interactive learning experiences they aim to create. Therefore, T&L strategies may be reconsidered to inculcate a percentage of integrating such AI tools including ChatGPT in the curricula. However, such integration and transformational shift in T&L requires technological readiness and training. In this context, Yan et al. (2024) stated the need that educational providers must consider regular training for academics to ensure effective integration and utilisation of such tools as part of student learning. Lecturers may face challenges in their technological readiness and proficiency in using ChatGPT effectively. They may need training and support programmes to familiarise them with the capabilities, limitations and best practices of integrating ChatGPT into their teaching. In similar context, AlDhaen (2022) emphasised on integrating AI tools including ChatGPT as part of T&L by ensuring appropriate technological infrastructure to support effective implementation and institutionalisation. However, integrating technology could be costly, and therefore, a consideration of the context needs to be considered as in