COMMONWEALTH of LEARNING

Developing Policy Guidelines for Artificial Intelligence in Post-secondary Institutions

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The Commonwealth of Learning (COL) is an intergovernmental organisation created by Commonwealth Heads of Government to promote the development and sharing of open learning and distance education knowledge, resources and technologies.

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Executive Summary

The rapid development of emerging technologies and artificial intelligence (AI) in the Fourth Industrial Revolution (4IR) and the upcoming Fifth Industrial Revolution (5IR) is requiring higher education institutions to update existing policies or develop new policies to protect staff and make sure AI systems do not get out of control. Most higher education institutions did not have AI policies when they introduced AI software such as generative AI (GenAI). These institutions had to adopt a sense of urgency to develop AI policies that would ensure the AI systems were trustworthy and fair. In some cases, institutions used their general education policies and adapted them for AI.

This report describes how AI, especially GenAI, is used in higher education and outlines the need to develop AI policies for all institutional stakeholders. Based on a review of the literature and of AI policies in higher education institutions, this report identifies 14 areas that stakeholders in higher education institutions should consider while developing policies for AI. Although AI in higher education institutions is impacting all levels of employees in different roles, most existing AI policies were developed specifically for instructors and students. But since AI policies will actually affect everyone, higher education institutions should involve all stakeholders when developing them.

The development of AI systems usually involves technical experts rather than interdisciplinary teams. However, to ensure AI systems for higher education benefit humans and society, teams should consist of computer experts, educators, social scientists, and education psychologists working together. This report presents a matrix listing the stakeholders in higher education institutions and indicating which policy areas apply to each stakeholder. To orient or train stakeholders on the AI policies they have to follow, the report includes a competency profile that outlines the competencies required for each policy. This profile can serve as a framework to develop a training programme for stakeholders in higher education institutions on AI policies they must follow.

Future AI systems will have the ability to think and be as creative as humans. artificial general intelligence (AGI), the next generation of GenAI, is getting closer to human intelligence and will be capable of completing intellectual tasks similar to humans. With machine learning, AI systems will develop original ideas that can be applied in new situations and contexts, making AI creativity similar to that of humans. The challenge for higher education institutions is how to keep up with the rapid development of AI, particularly in policy development and employee training.

Introduction

Artificial intelligence (AI) was introduced many years ago in the form of an early natural language processing program (Weizenbaum, 1966). At that time, there were limited technologies to advance the use of artificial intelligence in education and other sectors of society. The concept of artificial intelligence has not changed, but the technology to advance AI has.

An early definition states that "artificial intelligence is the science of making computers do things that require human intelligence" (Copeland, 2000). Later definitions elaborated on this. The International Organization for Standardization (in ISO/IEC 22989:2022) has defined AI as "a technical and scientific field devoted to the engineered system that generates outputs such as content, forecasts, recommendations or decisions for a given set of human-defined objectives" (International Organization for Standardization, 2022). The Organisation for Economic Co-operation and Development (OECD) has defined AI as "a machine-based system that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments" (Russell et al., 2023).

As technologies continue to emerge, the use of artificial intelligence has expanded to reach all sectors of society, including education. Some technology experts say the use of AI is moving too fast and will spiral out of control (Future of Life Institute, 2023); signatories to an open letter from the Future of Life Institute called for the development of artificial intelligence to be halted for a period of time so that citizens can have the opportunity to reflect and understand how AI is affecting them and will affect them in the future. This pause did not materialise, and the development and use of AI are accelerating rapidly, raising an urgent need for the establishment of universal policies and guidelines for the safe and ethical use of AI. Williamson et al. (2024) have suggested that to prevent the dangers posed by the rapid implementation of AI in pedagogical and administrative systems, school leaders should pause the adoption of AI applications until policymakers have had adequate time to fully educate themselves about AI and to formulate legislation and policy ensuring effective public oversight and control of its school applications. The issue with this suggestion is that if education leaders pause the adoption of AI, they soon will be left far behind in its use.

An area that needs discussion is whether to have universal AI policies for all countries or develop AI policies for each country, based on the local context. Different countries or areas may use AI in different ways. Roschelle et al. (2024) reviewed AI documents in seven states in the United States and reported that there were similar messages across the documents, such as the

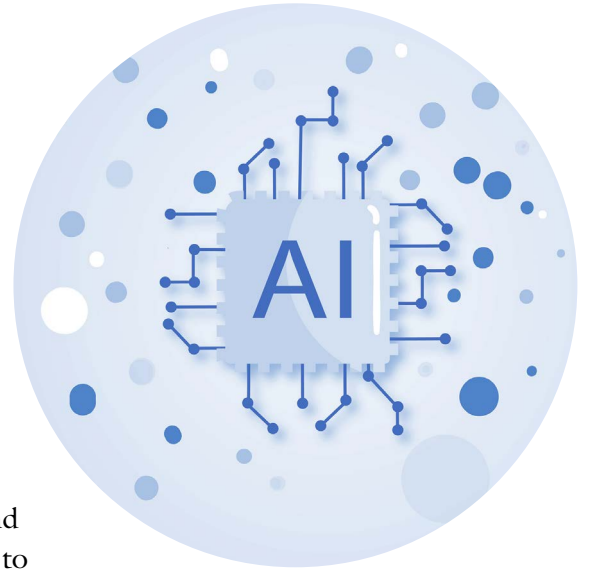
importance of taking a human-centred approach to AI, but also found that the documents varied considerably in their focus and audience.

Some countries have begun developing plans and strategies for implementing AI in different sectors, including education. In addition, international organisations such as the United Nations (UN), United Nations Educational, Scientific and Cultural Organisation (UNESCO), OECD, and World Bank are developing international policies and frameworks for the responsible and fair use of AI. The Secretary-General of the UN recently announced the creation of an Artificial Intelligence Advisory Board to advise on risks, opportunities, and international governance of artificial intelligence (United Nations, 2023). The advisory body consists of 39 members, 11 (28%) of whom are from Commonwealth countries.

The development of policies, regulations, and guidelines relating to AI use in higher education is at an early stage (BCcampus, 2023). UNESCO conducted a global survey of 450 schools and universities and found that less than 10% of schools and universities have formal guidance on the use of generative AI applications (UNESCO, 2023b). A total of 450 institutions from around the world responded to the survey: 11% from Africa, 5% from the Arab States, 23% from Asia and the Pacific, 44% from Europe and North America, and 17% from Latin America and the Caribbean. This places a sense of urgency upon educational institutions to develop policies and guidelines for the fair use of AI. In April of 2024, the Commonwealth Secretary-General declared, "We must leave no one behind," and announced the provision of support for the growth of digital technology, with a special focus on AI (Commonwealth Secretariat, 2024). A recent study by the Commonwealth of Learning (COL) revealed that 65% of post-secondary institutions in the Commonwealth do not have any policy or strategy for addressing AI in teaching and learning (Paskevicius, 2024).

AI use is advancing rapidly throughout society in a growing range of everyday applications and decision-making processes. There are implications for security, privacy, transparency, liability, labour rights, intellectual property, and disinformation. This report contributes to the development of policies and guidelines for the safe use and practice of AI in higher education institutions.

The Use of AI in Higher Education



AI has the potential to revolutionise education if the AI systems are designed and implemented properly. According to the World Economic Forum (2024), we are in the Fourth Industrial Revolution (4IR) and the Education 4.0 era. The 4IR is driven by the digital revolution, which brings together the physical, digital, and biological domains to develop systems to serve humans. According to Schwab (2019), "the fourth industrial revolution is not merely a series of incremental technological advancements, it is an upheaval — a dramatic and wide-ranging shift in the way that value is created, exchanged, and distributed across individuals, organizations, and entire economies" (Schwab, 2019, p. 13). Artificial intelligence and other 4IR technologies can be employed to increase equality among global citizens. The primary key to achieving the Sustainable Development Goals (SDGs) is the provision of quality education for all. Future global projects need to support research, innovation, financial initiatives, and other incentives aimed at ensuring equitable, affordable access to 4IR technologies (Ally & Perris, 2022). With the use of generative artificial intelligence (GenAI), intelligent agents, robotics, chatbots, etc., we are witnessing an upheaval in education and the workplace that is changing the way education is delivered and how work is performed. However, it is important to use these emerging technologies responsibly for the good of humanity.

If designed and implemented properly, AI holds immense potential to revolutionise teaching methodologies, personalise learning experiences, and streamline administrative processes. According to UNESCO (2021), AI also has the potential to address some of the biggest challenges in education today and help achieve SDG4, to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all." However, innovations bring risks and challenges that must be addressed. AI can be used in a variety of areas in education, including teaching, learning, and assessment. AI can benefit higher education by enabling personalised student support; providing teaching, research, or administrative assistance; conducting learning analytics; and supporting digital literacy training (Jenay, 2024).

Artificial intelligence systems are able to acquire, process, create, and apply knowledge, held in the form of a model, to conduct one or more given tasks. However, the systems must be designed properly and ethically so that they benefit humans. In education, artificial intelligence can help to adapt learning materials to meet the needs of individual learners. With big data and the Internet of Things, the system can use machine learning to form a profile of the learner; then, based on the profile, the system will adapt learning materials for that individual learner and make predictions, recommendations, and decisions about the next steps in the learning process. Teaching for individual learners can be based on each learner's preferences, current knowledge level, and learning needs. To support their students, instructors can create chatbots for learners to access anytime and from anywhere.

The Use of AI in Teaching and Learning

Instructors can use AI to prepare learning materials for courses, adapt learning for individual students, and provide support for students as they complete a course. It is important for instructors to have a basic knowledge of AI and be aware of the policies they must follow as they use AI systems. Basic AI knowledge and skills for instructors include pedagogies that are suitable for AI, the use of learning analytics to provide support to students and improve learning materials, and the use of technologies to design and deliver learning materials and assess students' performance (Ng et al., 2023).

Artificial intelligence generative content uses algorithms to assemble new content based on existing content. The new content can be text, videos, audio, images, and codes. One example of generative AI is ChatGPT (Generative Pre-trained Transformer). A recent study conducted by the International Labour Organization (ILO) stated that the use of GenAI can have a positive impact if the systems are designed and implemented properly (Gmyrek et al., 2023). GenAI systems must be designed and used ethically and fairly so as not to harm anyone (Radwan & McGinty, 2024).

GenAI software, such as ChatGPT, is currently the AI system used most in higher education, including by learners and academics to prepare documents, reports, and assignments. There is no indication that the use of GenAI in higher education is slowing down, although there are issues with the reliability and currency of the resulting information (Gallent-Torres et al., 2023). One of the major issues is who should be credited as the author(s) of the generated information (Bozkurt, 2024). Is GenAI the main author or the co-author of the documents it generates? Some publishers will not accept manuscripts that were co-written by GenAI software (Elsevier, 2023; Flanagin et al., 2023). Higher education institutions should address this legal issue.

With the introduction of GenAI in higher education, institutions are placing a high priority on establishing policies and guidelines for academic integrity and the safe and ethical use of GenAI. McDonald et al. (2024) analysed documents from 116 U.S. universities and found that 63% encourage the use of GenAI and provide guidance on how to use it in courses and the classroom. The following sections describe how GenAI can be used by students and instructors (Norman et al., 2024).

THE USE OF GENAI BY STUDENTS

GenAI can allow students to access learning materials for active learning and to process information at a high level. For students to use GenAI effectively, they should be trained or oriented on how to use the system to their maximum benefit. Students must also be informed of the policies to follow when using an AI system so that they engage with it ethically and responsibly.

- GenAI can be used for problem solving; students can generate several solutions to a problem and implement the best one.
- Students can use GenAI to look at alternative ways of expressing an idea.
- Students can use GenAI to access and complete learning activities to achieve learning outcomes.
- Students can have a debate with GenAI to develop an argument and think critically about the content of that argument.
- Students can use GenAI to simulate physical and conceptual spaces and thereby learn in context.
- GenAI can act as a tutor to provide immediate feedback based on student prompts.
- Students can use GenAI as a virtual peer to examine alternative ways of learning and reflect on their learning materials.
- GenAI can ask students high-level questions on content to promote high-level learning.

THE USE OF GENAI BY INSTRUCTORS

Instructors can use GenAI as a co-designer to design and develop courses. It is important, though, for the instructor to review and validate the information generated by the AI system. McDonald et al. (2024) have cautioned that following and implementing guidelines and policies may increase instructors' workloads. To assist instructors in designing and developing courses using GenAI, there should be an instructional design model for them to follow. Below are some steps for constructing a GenAI instructional design model that can be used for course design and development.

- Decide on the course's title (e.g., Introduction to Artificial Intelligence) and level (e.g., higher education). Use this information as a prompt to the GenAI software. An example of a prompt could be: "Course outline for Introduction to Artificial Intelligence for Higher Education students."
- The GenAI software will generate a course outline for Introduction to Artificial Intelligence for Higher Education Students. As an expert in the field, the instructor will review the course outline to validate its contents.
- For each item in the course outline, the instructor can prompt GenAI to suggest resources. For example, if one item in the course outline is "Policies for AI," the instructor will prompt the software with: "What are policies to follow when using AI?" Again, the instructor will validate the response.
- For each learning objective, the instructor can prompt for learning activities to achieve the learning objective. For example, the instructor can prompt the software: "What are learning activities to learn about AI policies?' The instructor will validate the response.
- If the instructor wants students to interact with an expert on AI policies, the instructor will prompt the software: "Who are experts on AI policies?" The instructor will review the list of experts to validate it.
- The instructor can ask the software to generate test questions to evaluate students' performance in each course area or the entire course. For example, the instructor can prompt the software: "What are evaluation items for the course Introduction to Artificial Intelligence for Higher Education Students?" The instructor will validate the questions to make sure they satisfactorily evaluate students' achievements of the learning outcomes.

AI Policies for GenAI in Higher Education

As GenAI is being used in higher education, policies must be developed for instructors, students, and learning/instructional designers. Muscanell and Jenay (2023) in a survey (N = 704) asked respondents, "What are the greatest concerns related to generative AI use?", which revealed that academic integrity (75%), over-reliance on and trust of the output (68%), and inaccurate outputs (68%) topped the list. This was followed by concern over AI-generated content becoming indistinguishable from and replacing human-generated content (60%), lack of best practices or policy (58%), and data privacy and security (58%). The respondents also believed that GenAI will improve the efficiency of the human workforce (77%), improve personalised and adaptive instructional tools (59%), and improve the quality of human performance (51%).

Table 1 shows the percentage of respondents identifying areas that are being impacted and that will likely be impacted in the future. Those currently being impacted by GenAI are related to teaching, learning, and technology. This supports our literature review findings that many universities are developing AI policies only in the areas of teaching, learning, and technology. In the past, less emphasis was placed on developing policies for all areas in higher education institutions, such as faculty research, the registrar, academic affairs, institutional research, senior administrators, etc. The data in Table 1 indicate that AI policies must be developed for all areas and all stakeholders in higher education institutions, rather than just those involved in teaching and learning.

Table 1. Areas currently impacted and likely to be impacted by GenAI

Areas	Currently Being Impacted by GenAI	Likely to be Impacted in the Future by GenAI	Difference Current vs. Future
Admissions	6%	46%	40%
Student affairs	11%	47%	36%
Institutional research	10%	46%	36%
Faculty research	16%	51%	35%
Information technology	26%	52%	26%
Financial aid	2%	28%	26%
Academic affairs	19%	44%	25%
Institutional research	10%	32%	22%
Instructional technology	31%	49%	18%
Teaching and learning centres	32%	46%	14%
Graduate teaching	30%	41%	11%
Faculty development	30%	41%	11%
Undergraduate teaching	37%	45%	8%

Source: Muscanell & Jenay, 2023.

GenAI is also being used by researchers and other academics to conduct research and for publications (Wake & White, 2024). Bozkurt (2024) proposed a framework for acknowledging and disclosing the use of generative AI in scholarly writing, to maintain academic integrity, transparency, and ethics. The different levels of the framework that should be acknowledged are listed below:

- Inform the publisher or other academics if a substantial portion of the content, ideas, or writing was generated by GenAI.
- Specify which sections of the paper were aided by GenAI.
- Specify whether you came up with the original idea or it was generated by GenAI.
- Inform the publisher if you used GenAI for editing, proofreading, editing, or refining your ideas or content.
- Specify whether you used GenAI to translate between languages and whether you have used the translated content in the manuscript.
- Inform the publisher or other academics if GenAI was used to analyse or present the data.

Benefits and Drawbacks of AI in Higher Education

BENEFITS OF AI FOR HIGHER EDUCATION INSTITUTIONS

There are many benefits of using AI in education. Instructors can use an AI system to adapt learning for individual students, based on each student's preferences and current level of understanding. A knowledge graph can be used to map a student's progress in a course. The Alan Turing Institute suggests that a knowledge graph should "organise data from multiple sources, capture information about entities of interest in a given domain or task (like people, places or events), and forge connections between them" (Alan Turing Institute, n.d., para. 1). The AI system will track the student's progress and create a knowledge graph to show where the student is in the course. As the student interacts with the system, it will learn about the student and update the knowledge graph. For example, in a course, the knowledge graph will show the topics completed, those still to be completed, and the topics in which the student is having problems achieving the learning outcomes and needs help. For the last category, the intelligence system will prescribe resources and activities for the student to be successful or recommend human intervention to help the student. The following are other benefits of AI for students:

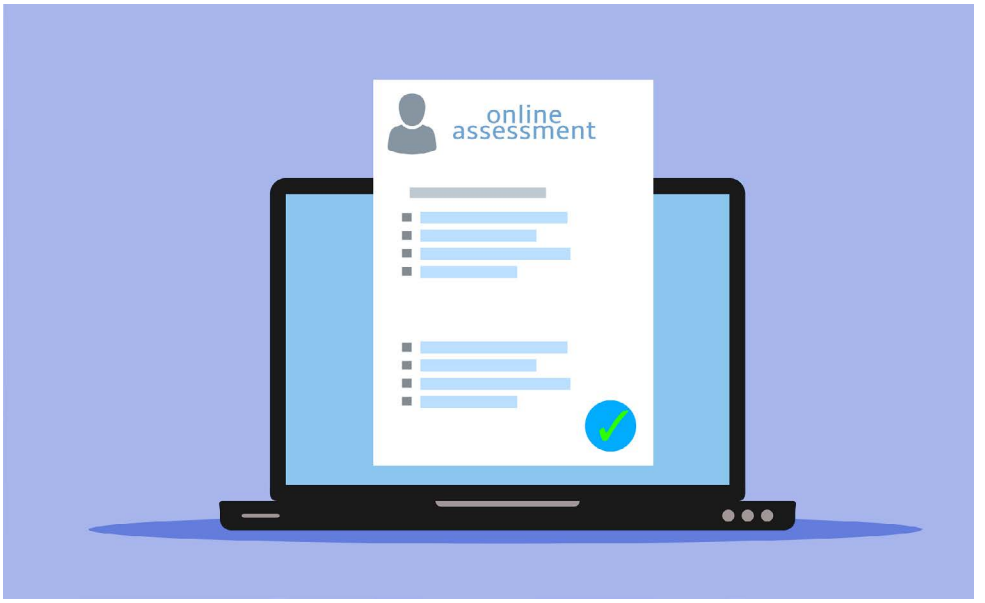
- The AI system can provide individual feedback to students based on what it learns about the students as they interact with the system.
- Online learning using AI can reach students in different parts of the world who speak different languages. The institution can use the AI translation option to communicate with students in different languages.
- The AI system can deliver education and provide support for students with disabilities. For example, it can select the appropriate technology and format the learning materials for access by students with disabilities. Also, sensors can be used to allow disabled students to interact with content, technology, and the environment to learn.
- Instructors can use AI to generate and mark assignments; however, the assignments must be validated before being accessed by students, to make sure each assignment is valid and fair.
- The registrar and academic programmes can use AI in the admission process to admit potential students to the institution. For example, the registrar can use AI to compare potential student application documents with the admission criteria and check an applicant's background to make sure they are a good fit for the programme.

- The institution can use chatbots and other AI systems to provide support for students. This is important for those living in different time zones so they can receive timely support.
- With AI and the metaverse, the institution can improve interactions between instructors and their students by allowing them to interact virtually. The metaverse is an immersive virtual environment that allows users to interact with each other in real time using virtual reality and artificial intelligence (Ally, 2024a; Norman et al., 2024). The metaverse allows for high social presence, which is important for developing human skills in the learning process. Instructors can use metaverse immersive technology to interact with learners in any location and at any time to achieve a high instructor presence. More research is needed on how to use the metaverse with AI in teaching and learning.

BENEFITS OF AI FOR STUDENTS

The use of AI by students can provide learning flexibility, since students can prompt the GenAI system for resources as they complete their learning. The system can facilitate one-to-one learning by customising the learning experience for individual students. Students who live in remote locations with the required technology can access learning materials and interact with other students and their educational institutions without leaving their community. To receive support while they are learning, the students can access the institution's chatbot, which is available anytime. Hence, the use of AI by students will contribute to providing education for all. Other benefits of AI for students include the following:

- Students can access learning materials to meet their individual needs. As students interact with the AI system, it will learn about them and suggest learning activities and strategies to use in the learning process. Students who cannot afford to purchase learning materials can use GenAI to access open educational resources (OER) at no cost (Ally, 2024b).
- The digital learning materials prescribed by AI can be accessed by students at any time and from anywhere. They can stay in their own community to access the materials rather than travelling to a specific location. This is considered environmentally friendly learning, since it results in less pollution because of less travel.
- Students can use the AI translation option to communicate with instructors and peers in different languages.



CHALLENGES AND DOWNSIDES OF AI

There are many challenges and downsides of AI, underscoring the need to develop and implement appropriate AI policies.

- Some students may not have the technology to take advantage of the benefits of AI.
- If not designed ethically, the AI system can be biased toward students based on location, gender, and other individual differences.
- The AI system uses machine learning to collect data and learn about the student and will use machine learning to generate additional data and information output and services. Also, AI can use the Internet of Things (IoT) to access data from different networks without the user knowing about the access. If the system is not secure, the data may not be kept private.
- It is very easy to use prompts to generate information using AI. For example, students can use GenAI to help complete an assignment or write a paper. There may be copyright issues if the sources are not cited properly. Some institutions have policies preventing the use of AI to complete assignments and to write papers, while other institutions encourage the use of AI as long as students and staff follow the policies. Some institutions leave it to the instructor to decide whether students can use AI for completing assignments and writing papers.

Policies for Using AI in Education

UNESCO (2019) has suggested that AI use is important for achieving the SDGs, especially SDG4. UNESCO outlined six challenges for using AI education, all of which have implications for developing relevant AI policies:

- There must be comprehensive public policy on AI for sustainable development.
- There must be inclusion and equity when using AI in education.
- Teachers must be ready for AI-powered education and preparing AI systems to understand educational practices.
- Developing quality indicators and inclusive data systems is key.
- There is also a significant need to make research on AI in education an integral part of national policies.
- There must be ethics and transparency in data collection, use, and dissemination.

UNESCO is taking the lead globally in developing national AI policies that can be used by educators, and it has published general policies and guidelines that can be used by higher education institutions to develop local AI policies and guidelines. UNESCO has provided several guidelines that can be used by higher education institutions to develop AI policies. We summarise some of these here (UNESCO, 2021):

AI systems must be developed for humans, since humans will be interacting with them and they will impact humans. The systems should benefit humans rather than harm or otherwise negatively affect them. The systems should be user-centred and not discriminate between individuals based on their individual differences. Each system should be transparent so that users — especially non-technical ones — are aware of its capabilities. The data generated by AI systems should be auditable to make sure the data are accurate and non-discriminatory. Individuals should be trained in how to use each AI system, and technical support should be provided for users as they interact with the system. Users provided with technical support and with the correct skills will be able to use the system in the future, ensuring its sustainability. Also, users should be informed about how AI can benefit humanity so they are motivated to use AI systems. At the same time, they should be informed of the challenges of using AI and the policies they should follow when using these systems.

AI impacts individuals in different sectors and different roles within organisations; hence, the development of AI policies should involve employees at different levels of these organisations. Further, AI systems for higher education should be developed by an interdisciplinary team consisting of AI technical experts, educators, students, learning specialists, social scientists, and neuroscientists. To maximise the benefit and use of an AI system, it should be open source so that the code and algorithm can be used to develop other AI systems. This will prevent duplication of effort between organisations. After an AI system is developed, it should be piloted with the target users to make sure it is accurate, transparent, non-discriminatory, ethical, and auditable. Information collected from the pilot should be used to develop the final AI system, which should be approved by all stakeholders. The AI system should be monitored on an ongoing basis to make sure it is functioning as planned.

For employees in higher education institutions to use AI effectively and reap the greatest benefits, there must be adequate hardware and software infrastructure and reliable connectivity. This is important for institutions in locations where there is a digital divide. All levels of employees in higher education institutions should be trained or oriented on the AI policies to follow and how to use the technology. Some institutions have AI policies but no employee training programme on how to implement and follow the policies. Refer to Annex 3 for a competency profile that can be used to train employees on AI policies. If employees and students will be monitored by the AI system, there should be policies for monitoring, and the employees and students should be informed that they will be monitored. For example, if facial recognition is used to identify students when they complete exams or enter a building, the students must be informed.

The World Economic Forum (2024) suggests foundational policies for senior leaders and policymakers to follow to gain the greatest benefits from AI for education. Employees and students should be provided with AI literacy skills so that they use AI effectively and see its potential and limitations. A major component of these literacy skills should be AI policies to follow so the system benefits its users. There should be a high-level committee comprised of representatives from different departments in the higher education institution to identify these AI policies and literacy skills. The committee members should be from different disciplines, since the development and implementation of AI policies require a range of expertise that includes areas such as computer science, education, ethics, and psychology. Higher education institutions should encourage innovation in developing and using AI responsibly and for the good of employees and students.

Review of Higher Education AI Policies

Chan (2023) surveyed students and teachers on their usage and perceptions of generative AI in teaching and learning. The survey was completed by 457 undergraduate and postgraduate students, and 180 teachers and staff members. Based on the survey, he identified ten areas higher education institutions should consider when developing AI policies for teaching and learning:

1. understanding, identifying, and preventing academic misconduct and ethical dilemmas
2. addressing the governance of AI: data privacy, transparency, accountability, and security
3. monitoring and evaluating AI implementation
4. ensuring equity in access to AI technologies
5. attributing AI technologies
6. providing training and support for teachers, staff, and students in AI literacy
7. rethinking assessments and examinations
8. encouraging a balanced approach to AI adoption
9. preparing students for the AI-driven workplace
10. developing student holistic competencies/generic skills

In the United Kingdom, the Russell Group (2023) of universities released a set of principles for using GenAI in teaching and learning. They proffered that universities will:

- support students and staff to become AI literate
- support appropriate and effective student use of generative AI tools to enhance the learning experience
- adopt the ethical use of generative AI and support equal access
- ensure academic rigour and integrity
- share best practices in this area

For this report, we used the Google search engine to find institutional AI policies. A number of such policies are also available at the AI Observatory (Higher Education Strategy Associates, n.d.). We reviewed 23 higher education institutions' AI policies to identify areas of commonality. Of these,

seven were from non-Commonwealth countries. We also developed a set of review criteria based on normative principles discussed primarily in three UNESCO publications (UNESCO, 2021, 2022, 2023a). The elements for our review are provided in Annex 1, where we also outline 14 policy areas. Table 2 presents the findings of our review of the policy areas.

Table 2. Policy areas related to AI, with examples

Policy Areas	Frequency	Examples
Technology access	1	The university will strive to ensure that generative AI tools are used in a manner that is accessible, ensuring all students have access to the AI platforms and tools they can use for their learning (University of Calgary).
Data privacy	11	Personal data should be adequately protected, and AI should not be used to infringe upon individuals' privacy rights (University of Western Ontario). Adhere to all applicable data privacy laws and regulations while handling and storing data related to AI technologies, ensuring the confidentiality and security of sensitive information (University of Johannesburg).
Data security	15	We are committed to safeguarding the privacy and security of student work (University of Calgary)
AI ethics	6	Adapt teaching and assessment to incorporate the ethical use of generative AI and support equal access (King's College London). Students who use ChatGPT with their instructor's permission must carefully evaluate the output information for errors and be proactive against bias by using multiple prompts to get different perspectives (Simon Fraser University).
Bias/ stereotypes	8	You are responsible for any inaccurate, biased, offensive, or otherwise unethical content you submit, regardless of whether it originally comes from you or a foundation model (British Columbia Institute of Technology). Articles showing bias in AI tools against minority groups abound. As academics, with deep knowledge of individual disciplines and well-honed analytical thinking skills, faculty are well suited to identifying hallucinations[1] or bias, working with students to shape their interactions with GAI, and helping to create better experiences (Northwestern University).
Teaching and learning	10	(i) University leadership and instructors ensure that when used, generative AI tools play a positive role in the accomplishment of the academic mission. (ii) Office of the Provost and Vice-Principal (Academic) (OPVA) provides clear mandates and resources to identified units and groups to develop and implement roadmaps to operationalise the principles (McGill University). The only way to know whether you are permitted to use generative AI for your course assignments is by checking with your course instructor, who will likely communicate this in the course syllabus (Simon Fraser University).

1. "Because LLMs predict text, rather than producing verified content, they may make up information. These inaccuracies are termed 'hallucinations' and their presence means that every piece of text produced by an LLM should be verified" (Northwestern University, n.d.).

Policy Areas	Frequency	Examples
Academic integrity	19	Authorship requires the acceptance of responsibility for the work described in any manuscript. Researchers should recognise that GAI cannot be held responsible as an author for the accuracy, integrity, and content of such work (Nanyang Technological University). Academic integrity means that staff and students at RMIT act with the core values of honesty, trust, respect, fairness, and responsibility in education, learning, teaching, training, and research, including by acknowledging the sources of ideas, both original and the work of others (RMIT University).
Transparency	7	Course instructors should be transparent and inform students when using AI-generated content (University of Calgary).
Training and development	4	Support students and staff to become AI literate; support students to use generative AI tools effectively and appropriately in their learning experience (King's College London).
Gender	2	Approaches involving the use of AI systems should not discriminate against individuals or groups based on characteristics protected by law, such as race, gender, ethnicity, religion, disability, or socioeconomic status (Swansea University).
Persons with disabilities	2	Accessibility and fairness in AI tools should be actively considered, ensuring they don't perpetuate existing biases (University of Western Ontario).
Copyright and intellectual property	5	Intellectual property rights related to work generated wholly or in part by artificial intelligence will be clarified and defined within the university's IP Policies (Swansea University). The use of AI technologies will be guided by respect for intellectual property rights. Authors' copyrights will be safeguarded, and attribution will be given appropriately for any AI-generated content (University of Johannesburg).
Environmental concerns	0	
Cost and sustainability	0	

Policy Level

Policy review indicated that AI issues are covered largely within broader teaching–learning policies (n = 16), and sometimes (n = 4) as part of academic integrity policy. One higher education institution's AI policy is part of its information and communication technology policy, and two have theirs under their research policy.

Stakeholders Identified

The majority of the policies focused on students (n = 19) and teachers/instructors (18), followed by staff (3), researchers (2), and librarians (1). The higher education institutions review did not specifically cover policies for senior administrators, registrars, learning/instructional designers, and IT staff, although these stakeholders are part of the higher education

institutions covered in this report. In what follows, we present a range of possible stakeholders for AI policies in teaching and learning, and the areas in which they may need specific skills and understanding. This information is summarised in Table 3 at the section's end.

SENIOR ADMINISTRATORS

They are involved in planning and overseeing an institution's operation. Senior administrators can use AI to access data for developing strategic plans, preparing budgets, and predicting the institution's future and must know how AI is being used in the institution. They can use AI to make their administrative processes more efficient and automated to provide quality service. It is important that administrators follow AI policies in terms of keeping institutional data private and secure when using the AI system. Any AI system developed must be environmentally friendly and must be affordable and sustainable. Higher education institutions are using the IoT, AI, and advanced technologies to build smart campuses that are environmentally friendly and sustainable. A smart campus improves student learning and quality of life, lowers operating costs, provides greater security and safety, and improves environmental sustainability (Lehman, 2019). Senior administrators must also have an understanding of the AI system they are working with, their role when using it, and the policies and guidelines they must follow when using the system and its output.

REGISTRAR

The registrar is usually the first contact point for learners and is the custodian of students' data. The registrar can use AI to admit students who meet the criteria for the programmes they wish to enter. They can also use AI to identify students who qualify for admission to the institution, to aid in recruitment and the admissions process. The registrar can use AI to predict whether students will be successful in their programmes. In addition, AI chatbots available 24/7 can be used to answer students' questions about their programmes, financial assistance, and other topics. This is important for students who live in different time zones and for asynchronous online learning, where learners work at their own pace and need just-in-time virtual support.

The registrar must keep students' data private and secure and must make sure the AI system is not biased towards anyone. Also, the AI system should be readily usable for students with disabilities. In terms of AI literacy, the registrar must understand the AI system they are working with and follow AI policies and guidelines, and they must review the information generated by the AI system to determine its accuracy and quality. The registrar should also have a basic knowledge of how machines learn as they interact with data to produce outputs.

INSTRUCTORS/PROFESSORS

Instructors can benefit from AI in the design and delivery of education. Learning analytics can be used to determine students' progress, and AI can adapt instruction to each student and their individual preferences. The AI system can be used to evaluate student performance and provide individual feedback to them. Also, for students with disabilities, the instructor can use AI to provide learning materials that can be accessible based on the disability. For example, if the AI system detects that the student has poor vision, the system should make the text larger or use audio to communicate with the student.

The instructor must keep student data private and secure, not engage in bias, and cater for students with disabilities and different genders. The instructor must have an understanding of the AI system they are working with and the AI policies and guidelines they must follow, and evaluate the information generated by the AI system. For example, when using GenAI software to assemble learning materials for students, the instructor must evaluate the quality and accuracy of the information. They also must know how to interact with the AI system during the instructional process.

RESEARCHERS

In higher education institutions, academics conduct research in either their respective departments or a research institute. As researchers, they must follow the policy of the institution in which they are working to conduct ethical and responsible AI research (Färber & Tampakis, 2024). Researchers can use AI to search databases, conduct literature searches, prepare meta-analyses, analyse data, look for patterns, develop frameworks and models, and prepare manuscripts for publication. Researchers must follow AI policies and guidelines as they conduct research and report their research findings. They must keep data private and secure, and the research they conduct should be transparent so that it can be duplicated, and others can determine how AI was used in the research. Further, when conducting research with human subjects, researchers should follow ethical guidelines for human subjects and data collection.

LIBRARIANS

Academic librarians interact with a variety of stakeholders, including students, researchers, practitioners, and faculty across the institution. They can use AI to check the accuracy of library data, increase the relevance and diversity of resources and services, expand access to information, and support innovation and learning. It is important that librarians follow AI ethics and bias policies to provide service to everyone, regardless of differences. Also, they should follow copyright and intellectual property policies when providing information to staff. Librarians should understand the AI system

they are using and how the machine learns when processing data to generate information. They should also evaluate the information generated by the AI system to determine whether the output meets the needs of the stakeholder(s) requiring it.

IT STAFF

IT staff can use AI to provide support using intelligent agents that offer suggestions, recommendations, and information to help staff and faculty. AI can also be used to automate service ticket routing and deploy support chatbots. Since IT staff tend to have access to other staff members' data, they should make sure these data are kept private and secure. IT staff should have the expertise to train staff on the AI system and troubleshoot basic AI issues.

LEARNING/INSTRUCTIONAL DESIGNERS

Designers of learning materials can use AI to select the most appropriate and current content for students. This is important because such a vast quantity of information is available online and is constantly in flux. Designers can also use AI to select the most appropriate learning activities for students to achieve their learning outcomes. AI can be used to match learning activities with individual student preferences and ability levels, thereby individualising learning and academic support. When using an AI system to design learning materials, practitioners must cater for individual differences, disabilities, and genders. In all cases, they should follow AI ethics policies and prevent bias.

ADMINISTRATIVE SUPPORT

Administrative support staff can use AI to develop a virtual assistant to answer emails, schedule appointments, and search for information. They can also use chatbots to collect data and enter the data in a database, rather than having staff physically enter the data. It is important that support staff keep data private and secure and follow the AI ethics policy. They should have a knowledge of how the AI system works and the institutional policies and guidelines for using AI.

STUDENTS/LEARNERS

Students can use AI tools such as GenAI to generate content so that they have current information for learning. They can also use AI tools to edit materials before submitting assignments for marking. Students must have adequate technology to access the learning materials provided by the AI system, and must only use AI systems approved by the institution or instructor. Some institutions allow students to use GenAI such as ChatGPT, while others do not. Students should be trained in how to use the AI system ethically.

Table 3. Policy areas for stakeholders in higher education institutions

Stakeholders in Higher Education Institutions	Policy Areas													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	Technology Access	Data Privacy	Data Security	AI Ethics	Bias/ Stereotypes	Teaching and Learning	Academic Integrity	Transparency	Training and Development	Gender	Persons with Disabilities	Copyright and Intellectual Property	Environmental Concerns	Cost and Sustainability
Senior administrators		x	x					x					x	x
Registrar		x	x		x					x	x			
Instructors/ professors	x	x	x	x	x	x	x	x	x	x	x	x		
Researchers		x	x	x				x	x					
Librarians				x	x					x	x	x		
IT staff		x	x				x		x					
Learning/ instructional designers				x	x					x	x	x		
Administrative support		x	x	x	x									
Students/ learners	x			x		x	x		x		x	x		

AI Policies in Small States

Our search did not find specific examples from small states, as small states around the world are just starting to implement AI to become more innovative in different areas, including education. The Commonwealth Artificial Intelligence Consortium (CAIC) is developing an action plan to take advantage of the power of AI tools to support small states and empower young people (Commonwealth Secretariat, 2023). CAIC is looking at innovations such as cloud computing and GenAI, with the focus on "AI for Good." Some small states in the Commonwealth have realised the importance of implementing AI in their countries and are just beginning to investigate the use of artificial intelligence in education. For example, Papua New Guinea's minister of education at a recent conference mentioned that he will lead Papua New Guinea in developing policies for artificial intelligence in education so it has a positive impact on learners. The president of Guyana recently said the time has come for the Guyanese government to form policies for dealing with AI that reflect what is happening in the developed world. The University of Guyana has developed an AI policy to promote transparency, fairness, and individual responsibility and accountability (University of Guyana, 2023).

Elements of AI Policy in Higher Education Institutions

AI is impacting everyone in different sectors of society, including education. As already noted in this report, the use of AI in higher education is allowing learning to be more inclusive to provide education for all. Higher education institutions have many stakeholders who assist their institutions in functioning effectively and efficiently, and these stakeholders are impacted by AI. These institutions should develop AI policies for all their stakeholders.

While developing AI policies, it is important to discuss the implications of all different areas of the policy. In this section, we provide a range of questions and issues around all the policy areas.

General

Before adopting AI in teaching and learning, it is necessary for the key stakeholders to have a good understanding of AI. In Annex 3, we present a competency framework that can be used to provide training/orientation for an institution's staff to help them appreciate the need for AI policy and implement it effectively. Some questions/issues to consider are:

- Are the stakeholders aware of AI and its implications for teaching and learning?
- Why is it important to develop AI policies?
- Why is it important to follow AI policies?
- Are the stakeholders aware of their roles in the context of AI in teaching and learning?
- Where should the AI policy be located and why? Who is responsible for its implementation?

Technology Access

To use AI systems, students and staff must have current and available technology, which must also keep pace with AI system updates. There must be policies addressing the digital and AI divide in areas around the world. The policy must focus on technology access and use:

- What technology or tools are needed for AI implementation?
- How are the stakeholders (especially students and teachers) going to access these tools?
- What is the nature of the support required regularly to maintain the system?
- How will the system be regularly updated?

Data Privacy

The legal concept of "privacy" was defined long before AI was born. However, is the current definition of "privacy" still valid in the AI era, where machine learning is using data to learn about students and generate new information about them? Also, with the IoT, blockchain, and big data, whereby information is shared between databases without users knowing, are data and information still private? Do we need to redefine privacy or come up with a different term to replace it? The International Association of Privacy Professionals (IAPP) has defined information privacy as "the right to have some control over how your personal information is collected and used" (Koerner, 2022). Yet with machine learning, the IoT, blockchain, and big data, individuals may not have control over how their personal information is collected and used.

AI systems that use big data and the IoT must keep the data private by protecting the personal information collected, processed, and stored by the systems. Further, individuals should be able to control how their personal

data are collected, stored, and used. This is important because with machine learning, the AI system learns about an individual from different sources to generate high-level information about them. Issues to discuss include:

- How is data privacy ensured in the institution?
- What are the legal provisions around data privacy in the country, and are these adequately addressed?
- How can issues related to data privacy breaches be addressed and resolved?

Data Security

AI systems should protect both data and information, since information is data processed in machine learning. If there is a security breach, the AI system should respond to eliminate the breach and protect the data and information. Higher education institutions should have secure methods to protect data and prevent unauthorised access. Issues that must be addressed are:

- How are ICT systems and cloud computing systems designed to ensure data security?
- What are the levels and measures taken to ensure data are only accessible to authorised persons?
- How will a security breach in the system be addressed and resolved?

AI Ethics

Developers and users of AI systems must follow policies to make sure AI is used responsibly and is safe and secure for use by humans so that their rights and freedoms are respected. The AI system should not discriminate and should be trustworthy. AI should be used "for good" — to help humans and society — rather than to generate harm. Issues to discuss in the context of teaching and learning are:

- Are the stakeholders aware of the implications related to the ethical dimensions of AI use in teaching and learning?
- How will the data collected in the digital platforms be used? And by whom?
- In what context will individuals be identified to provide feedback generated by AI?

Bias/Stereotypes

Bias can be present in AI systems if the human designers of the AI system include biased information in the algorithm; this is referred to as machine bias, and it can produce false outcomes, resulting in unintended consequences. Such biases can lead to stereotypes related to gender, race, and other issues, with the potential for discriminatory results. It is important to discuss and address the following in an AI policy:

- Do you understand the algorithm of the AI system to be deployed?
- Is there clarity about available biases/stereotypes in the system, and are these declared?
- How will you address bias? Are there guidelines available?

Teaching and Learning

AI can be used by instructors to prepare learning materials for courses, track student progress, provide tutor support, encourage social interaction using software such as the metaverse, and assess student performance. Students can use GenAI to conduct research, complete projects, and prepare documents; however, the students must first be given permission by the institution or instructor to use the GenAI software. It is important that both instructors and students follow AI policies. When AI is used to assess students' performance, the assessment items must measure the learning outcomes so that the assessment is fair. Here are some questions to address:

- How skilled are the students in using AI software? Do they need training?

- Do the course descriptions clearly indicate how to use AI for learning?
- Is there a template/guideline available for teachers to use AI in teaching?
- Can the learner "opt out" from using any specific system?

Academic Integrity

There are five components of academic integrity in higher education: honesty, trust, fairness, respect, and responsibility (RMIT University, n.d.). Staff using AI systems for developing assessments and students using AI systems to complete assessments must possess these values. In addition, plagiarism and cheating are not allowed when using AI systems. Some of the issues/questions to address in policies are:

- Is there clarity about what constitutes academic integrity?
- Do all stakeholders understand the consequences stemming from a lack of academic integrity?
- Are there guidelines on acknowledging sources of information, including the outputs generated from AI systems?
- What are the steps for reporting breaches of good academic practice?
- What are the areas where AI systems should not be used?

Transparency

Users of AI systems must be aware of how AI systems function so that an AI system is not seen as a "black box" (von Eschenbach, 2021). Documentation should be available on how AI systems function and how the AI system is being used in context. When implementing AI systems, higher education institutions should provide readily accessible information related to academic policies and programme expectations. Questions to ask before adopting AI systems of teaching and learning are:

- Is there a reliable evaluation of the AI system/platform to be adopted?
- Is the large language model used, and the training on which the AI is based, transparent?
- Are the results of the AI system trustworthy?

- Are there hallucinations in the results of the AI platform?
- How are issues related to trust and hallucinations treated in the context of teaching and learning? Are there guidelines available to avoid hallucinations?

Training and Development

Individuals must be provided with training or orientation on the AI system so that they are comfortable interacting with it and are in control of it rather than the AI system controlling them. Individuals must be AI literate on the use of AI in their respective fields and the policies they must follow to function in the AI environment. The training should not be too technical, since staff and students may not have the background to comprehend those details. Further, training about a complex AI system should be done in stages so as not to overwhelm the staff and students. Issues to cover during policy development are:

- Is there a staff training policy related to AI?
- What are the plans for providing training to the stakeholders?
- Is there a "nodal agency"/"officer" within the institution to contact for training related to AI in teaching and learning?
- Is documentation such as a "lib guide" available on AI in teaching and learning?

Gender

The AI system must not discriminate based on gender. AI systems should not be built to identify or interact with people based on their gender, except when it is absolutely necessary for good and to help the person. It is critical to have policies in the AI development cycle to prevent bias based on gender and to address potential harm when the AI system is deployed (UNESCO & IRCAI, 2024). Discussions of the following during institutional policy development are critical:

- Has the AI system been reviewed for gender bias?
- How will the deployment of the AI system be planned so as to provide equal access to everyone in the institution?

Persons with Disabilities

The AI system must be readily accessible by individuals with disabilities. The system should identify each person's disability and respond to facilitate their learning. As in the case of gender issues, it is also important to discuss issues related to accessibility:

- Does the AI system address accessibility issues? Is it readily accessible to people with disabilities?
- What disabilities can it support?
- How is it deployed to maximise access for persons with disabilities?

Copyright and Intellectual Property

Information should not be used without permission or proper acknowledgement, unless it is in the public domain or available under an open licence. Litigation related to the copyright of AI-generated content is already substantial (Economist, 2024). Staff and students should use proper citations and references to avoid plagiarism. Intellectual property rights should be respected, and there should be no unauthorised sharing of copyrighted materials. It is important for the policy to include clarity related to the following:

- What types of materials may or may not be uploaded to AI systems in the institution?
- Who owns the content generated using the AI system?
- How do we acknowledge and declare the use of AI academic works, including research papers, student assignments, term papers, etc.?

Environmental Concerns

The functioning of AI systems should not harm the environment. Such concerns have been raised, especially about the increased use of water for maintaining the servers of AI systems (Li et al., 2023; Ren, 2023). The systems should be designed to reduce waste and pollution. Some higher education institutions have made their campuses smart so that the campus is environmentally friendly. For example, smart campuses are using AI with the IoT and big data to conserve water and electricity. It is important to consider environmental implications in all such uses. Questions to address include:

- Have the issues related to the environmental impact of the large-scale adoption of AI in teaching and learning been discussed?
- As a socially responsible organisation, how is the institution going to address such issues?

Cost and Sustainability

Given the cost of developing and implementing an AI system, it must be affordable for the institution and function efficiently for a long time to benefit current and future generations. The subscription models of several AI platforms are a challenge for many developing country institutions and will increase their investments in recurring costs. It is therefore important to develop a financially sustainable approach to adopting AI:

- Has the financial sustainability of AI deployment in teaching and learning been considered?
- Who will pay for the access to AI tools?
- Is it ethical to pass on the cost to learners?

Developing Institutional AI Policies

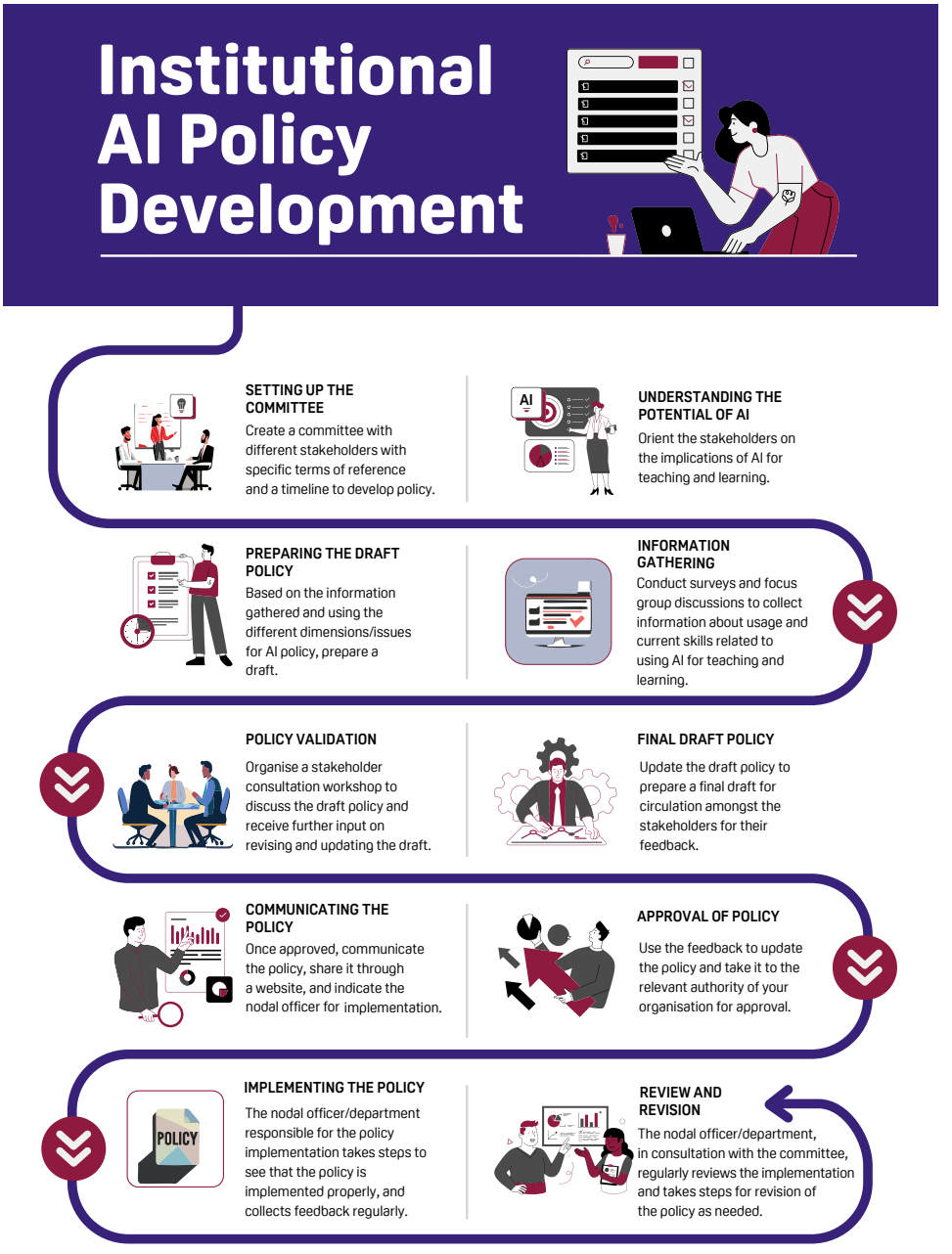
The pace of AI development is affecting higher education institutions, which thus need to develop AI policies or revise existing policies to prevent negative impacts on staff and students. Policy development must be done in a timely manner to keep up with changes in the AI field. The institution should set up an AI Policy Committee (AIPC) that includes at least one representative from each stakeholder group or department. The AIPC should be chaired by someone familiar with AI and AI policies. If no one with AI expertise is available in the institution, an outside consultant with AI expertise should be involved. Any such external person must have sufficient access to the institution's leadership to help support the policy development process.

Endris et al. (2024, pp. 2–3) have recommended four features for developing AI policies in education:

- Contextual: When developing AI policies, the local context should be considered to make sure the policies are realistic for the context.
- Consultative: All stakeholders in the institution should be involved in the development of AI policies, since the policies will impact them. The development process should be inclusive and transparent.
- Dynamic: As technologies change, policies will have to be updated. The field of AI is changing at a rapid pace, requiring higher education institutions to develop new policies or update existing policies.
- Implementable and measurable: The process for implementing AI policies should be outlined, and staff should be oriented or trained in how to implement them.

Endris et al. (2024) also proposed a seven-step process in the context of developing national policies on AI in education: (1) pre-drafting consultation, (2) stakeholder survey, (3) writing draft policy, (4) discussion on draft policy, (5) adoption and communication of policy document, (6) policy implementation plan, and (7) policy evaluation. In this section, we propose a consultative approach for developing institutional policy that is evidence informed (Head, 2016). Below is the description of a process that can be used to develop new policies or revise existing policies in higher education institutions (see also Figure 1).

Figure 1: Institutional AI policy development process



Setting Up the AIPC

The first step in developing AI policies for your higher education institution or revising existing policies for this use is to select the members of the AIPC. There should be representation from all areas of the institution, since the AI policies will have wide applicability. The committee must have balanced gender representation to give equal voice to the respective concerns. The committee must have a term of reference, a chair, and a timeline. One of the first things the AIPC must address is the nature of the AI policy; should a new one be developed, or should an existing policy be revised to integrate AI-related issues in teaching and learning?

Understanding the Potential of AI

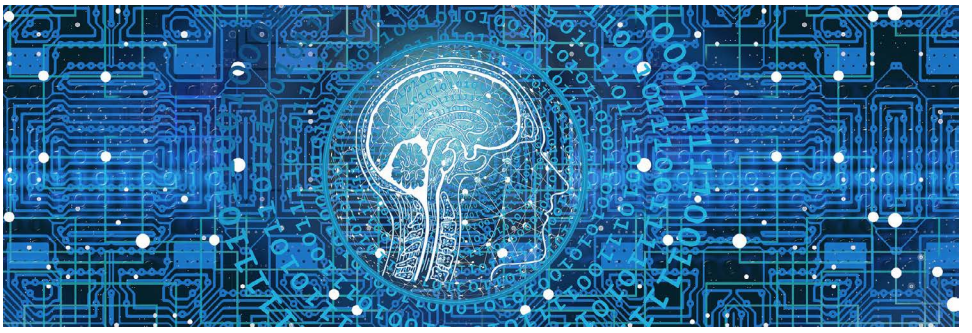
Before initiating any policy development process, it is important to create an environment of understanding and discussion about the potential and implications of using AI in teaching and learning. Therefore, organising workshops, lectures, and training programmes on AI for different stakeholders within the institution is key. There are also many free online courses available on the topic, and it may be useful to circulate these within the university to create awareness about AI. The AI competencies listed in Annex 3 could be a starting point for organising workshops by inviting experts to facilitate such training.

Information Gathering

To develop evidence-informed policy, it is important to have information about access to ICT tools and technologies, including AI, for the key stakeholders, especially teachers and students. We recommend a survey to gauge the awareness and use of AI tools among teachers and students. Once some data are collected and a big picture emerges, it is useful to conduct focus groups with the stakeholders, organised around questions related to different aspects of AI policy. If there are existing AI policies in the institution, the focus groups could be used to validate and update them. Another option is to review existing AI policies from other institutions and obtain permission to adapt these policies. While the latter is a quick approach, it must be done with sufficient caution and care to contextualise.

Prepare Draft AI Policy

One of the responsibilities of the AIPC should be to develop the draft policies (whether new or revisions of any existing policy/ies to include AI-related issues. The chair of the committee is responsible for preparing the draft AI policies in consultation with the members. It is important to address the policy concerns covered in this document (see pages 21–28)



when preparing the draft policy statements. It is also useful to prepare the policy statements in a manner that demonstrates institutional commitment to normative guidelines and implementation practices.

Validate the Draft AI Policy

A good practice in the consultation process is to have a validation workshop along with the key stakeholders to share the findings of the information gathering, the process of drafting the policy, and the final outcome/draft. The main objective of this meeting should be to gather input from them to revise the language of the policy so it has sufficient clarity for your institution. At this validation workshop, the senior management team's participation is crucial for input on the process and to better understand the expectations. The workshop design must consider small group engagements to provide more nuanced comments for the AIPC's consideration when finalising the draft policy.

Prepare Final Draft for Wider Circulation

Based on feedback gained during the validation workshop, a final draft policy may be prepared for sharing with the wider community of stakeholders, to bring more transparency to the consultative process of policy development. The chair of the committee is responsible for preparing the final draft of the policy and circulating it to the wider community of stakeholders. It is important to seek comments from stakeholders and set a deadline for submitting this feedback, so that the policy can be further revised, if needed. The AIPC should review the final draft to make sure the various stakeholders' suggestions have been considered and included where suitable.

Approval and Communication of the Final Policy

The final policy prepared by the AIPC must be approved by the institution's relevant policy-making body or authority. Once approved, it must be sent to staff for their adherence and implementation. In addition to sending the policy, inform the staff how it was prepared, to be transparent about the process. At this stage, it is critical to ensure that staff development regarding AI in teaching and learning will become an ongoing process.

Implementation and Evaluation of AI Policy

The continuation of a subcommittee of the AIPC is a good way to oversee AI implementation. If the policy has been developed "from scratch," then its governance needs to be established. In most institutions, this is a role performed by the person responsible for teaching–learning policy implementation, normally at the level of Deputy Vice Chancellor (Teaching and Learning), who, with the support of the subcommittee, will develop annual plans and implement activities related to AI within the institution. It is a good idea to use project management software to manage the implementation and have someone with project management experience carry this out. Staff training is an important aspect of the implementation process.

The field of AI is continually changing, so it is important for the AIPC to review AI policy development and implementation regularly — say, every six months — to determine what changes may be needed. Where required, the committee may suggest changes to the policy and take appropriate steps. It is also good practice to evaluate annually the activities related to AI. Feedback from stakeholders collected each year will help further strengthen the implementation of the policy and help with decision making about possible revisions.

Conclusion

Due to rapid innovation and developments in AI technology, there is a sense of urgency for higher education institutions to develop and implement AI policies. For example, the Commonwealth Artificial Intelligence Consortium has agreed on an action plan that uses the potential of AI tools to support small states and empower young people in the Commonwealth. Small states must prioritise developing AI policies because of the rapid advancement of this technology. They can use existing global policies and develop local AI policies to meet their specific needs.

The next generation of GenAI will be artificial general intelligence (AGI), which is getting closer to human intelligence and is capable of completing intellectual tasks at a level similar to that of humans (McKinsey & Company, 2024). According to Emmert-Streib (2024), many potential features of AGI will require that new policies be developed or existing policies be revised to use AGI in higher education. Machine learning will be the main driver of AGI, where the machine will learn from data to develop high-level reasoning to solve problems in complex situations. The AGI system will have features similar to human senses, such as computer vision, speech recognition, natural language processing, and a sense of touch (tactile responsiveness). With advanced processing, AGI systems can be creative by generating original ideas and applying the ideas in new contexts and situations.

In addition, 4IR and upcoming 5IR technologies have the potential to revolutionise education. However, the technologies must be used responsibly and ethically so as not to negatively affect anyone. There must be policies related to data privacy, bias prevention, information security, and AI system transparency (UNESCO, 2021). Research should be conducted on how to use 4IR and 5IR technologies to deliver education safely and ethically at any time and from anywhere to meet the needs of individual students.

The next generation of GenAI already has video, graphics, audio, text, and other multimedia capabilities, which will allow students to generate their own individual intelligent agents to learn on a one-to-one basis (McKinsey & Company, 2024). The student can input a series of prompts in the software to generate an expert virtual tutor to interact with them for learning. An example of a prompt is: "I would like an English-speaking virtual instructor with expertise in artificial intelligence," or something similar. The system will generate a virtual tutor/agent with expertise in artificial intelligence and who speaks English that the student can interact with. If the student wants to interact with a peer or study buddy, the student will prompt: "I would like to learn with a virtual student who speaks English and is taking a course on artificial intelligence," or something similar.

As technologies emerge, we will enter the Fifth Industrial Revolution, where humans and machines will merge to serve humans better (Adel, 2022). There will be increasing demands to educate learners and instructors on how to use these emerging technologies efficiently, safely, and ethically. Further, given that information and technologies change very frequently, and this will also apply to AI, learners and instructors will need to stay current in their fields, continually unlearning old knowledge and skills and learning new ones.

As AI continues to grow and influence education, higher education institutions need to prepare future graduates by providing them with AI competencies related to knowledge, skills, and attitudes and to educate students on the use of AI so they can be ready for the workforce (Gimpel et al., 2024). Annex 3 provides a set of competencies for a range of stakeholders, including students.

In this guideline, we have taken an approach that recommends the deployment of AI for education under "responsible AI" frameworks, in partnership with educators (Williamson et al., 2024). For this, an AI policy is the starting point to promote its fair use and the achievement of "AI for Good."

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Annex 1: Policy Coding Scheme

Code	Coding areas	Descriptions
Name of the university/institute		
Link to the policy document	PDF/Word/HTML page	URL to the link
Country		Country name
Region	Commonwealth or Non-Commonwealth	
Policy level	Stand-alone Part of TEL policy Part of ICT policy Part of teaching–learning policy Part of academic integrity policy Any other	What type of policy document is reviewed? Where is the policy embedded at the university/ institution? (one response)
Stakeholders	Senior administrators Registrar Professors/instructors Researchers Librarians IT staff Learning/instructional designers Support staff Students/learners	Who are the stakeholders identified in the policy/strategy? Multiple stakeholders possible
Policy Area 1	Technology access	Provisions for access to AI for all stakeholders; digital divide issues
Policy Area 2	Data privacy	Concerns related to data privacy discussed
Policy Area 3	Data security	Issues related to security of data covered
Policy Area 4	AI ethics	Including diversity, equity, and inclusion
Policy Area 5	Bias/stereotypes	Bias and stereotypes related to gender, race, etc. discussed
Policy Area 6	Teaching and learning	Guidelines for dos and don'ts in teaching and learning
Policy Area 7	Academic integrity	Concerns related to cheating in assignments, term papers, etc. and guidelines discussed
Policy Area 8	Transparency	Issues related to lack of transparency of large language models discussed
Policy Area 9	Training and development	Provision of training for the faculty and staff to use AI tools effectively
Policy Area 10	Gender	Issues related to gender in the context of AI tools covered

Code	Coding areas	Descriptions
Policy Area 11	Persons with disabilities	Provisions for persons with disabilities are addressed in the policy for AI in teaching and learning
Policy Area 12	Copyright and intellectual property	Copyright and intellectual property rights issues related to AI tools are discussed
Policy Area 13	Environmental concerns	Are there concerns or understanding about the impact of AI tools on the environment?
Policy Area 14	Cost and sustainability	Can AI be used cost-effectively? Where will the funds come from?

Annex 2: List of Policies Reviewed

Name of the University	Link to the Policy	Country	Region	Policy Level	Stake-holders Identified
Arizona State University	https://researchintegrity.asu.edu/export-controls-and-security/artificial-intelligence	United States	Non-Commonwealth	Research	Researchers
British Columbia Institute of Technology	https://www.bcit.ca/files/ltc/pdf/intro_to_gen_ai_tools.pdf	Canada	Commonwealth	Teaching and learning	Students
Brown University	https://www.brown.edu/about/administration/provost/communications/potential-impact-ai-our-academic-mission	United States	Non-Commonwealth	Teaching and learning	Instructors, students, researchers
Harvard University	https://shorturl.at/ruaLC	United States	Non-Commonwealth	Teaching and learning	Instructors and students
King's College London	https://www.kcl.ac.uk/about/strategy/learning-and-teaching/ai-guidance	United Kingdom	Commonwealth	Teaching and learning	Instructors and students
McGill University	https://www.mcgill.ca/stl/files/stl/stl_recommendations_2.pdf	Canada	Commonwealth	Teaching and learning	Instructors and students
Nanyang Technological University	https://www.ntu.edu.sg/research/resources/use-of-gai-in-research	Singapore	Commonwealth	Teaching and learning	Instructors, students, researchers
Newcastle University	https://www.ncl.ac.uk/academic-skills-kit/good-academic-practice/artificial-intelligence/academic-integrity	United Kingdom	Commonwealth	Teaching and learning	Instructors and students
Northwestern University	https://www.it.northwestern.edu/about/policies/guidance-on-the-use-of-generative-ai.html	United States	Non-Commonwealth	ICT	Instructors, students, staff
Ohio State University	https://oaa.osu.edu/artificial-intelligence-and-academic-integrity	United States	Non-Commonwealth	Teaching and learning	Instructors and students
Princeton University	https://mcgraw.princeton.edu/guidance-aichatgpt	United States	Non-Commonwealth	Teaching and learning	Instructors and students
RMIT University	https://shorturl.at/J54AJ	Australia	Commonwealth	Academic integrity	Instructors, students, staff
Simon Fraser University	https://www.sfu.ca/students/enrolment-services/academic-integrity/using-generative-ai.html	Canada	Commonwealth	Teaching and learning	Instructors and students
Swansea University	https://shorturl.at/giVPo	United Kingdom	Commonwealth	Teaching and learning	Instructors, students, staff
University of Calgary	https://teaching-learning.ucalgary.ca/resources-educators/generative-ai-teaching-and-learning	Canada	Commonwealth	Teaching and learning	Instructors and students
University of Johannesburg	https://ujonlinepress.uj.ac.za/index.php/ujp/AI	South Africa	Commonwealth	Research	Instructors, students, librarians
University of Melbourne	https://academicintegrity.unimelb.edu.au/plagiarism-and-collusion/artificial-intelligence-tools-and-technologies	Australia	Commonwealth	Academic integrity	Students
University of Miami	https://petal.miami.edu/resources/using-ai-for-teaching-learning-and-scholarship/index.html	United States	Non-Commonwealth	Teaching and learning	Instructors and students

Name of the University	Link to the Policy	Country	Region	Policy Level	Stake-holders Identified
University of South Australia	https://i.unisa.edu.au/staff/teaching-innovation-unit/academic-integrity/artificial-intelligence	Australia	Common-wealth	Academic integrity	Instructors
University of Technology Sydney	https://lx.uts.edu.au/collections/artificial-intelligence-in-learning-and-teaching/resources/five-principles-for-effective-ethical-use-generative-ai/	Australia	Common-wealth	Teaching and learning	Instructors
University of Waterloo	https://uwaterloo.ca/academic-integrity/artificial-intelligence-and-chatgpt	Canada	Common-wealth	Academic integrity	Instructors and students
University of Western Ontario	https://ai.uwo.ca/Guidance/Policy.html	Canada	Common-wealth	Teaching and learning	Instructors and students

Annex 3: Competency for AI Policies

Policy Areas	Competencies			
0. General	0.1. Define policy	0.2. Describe why it is important to develop artificial intelligence (AI) policies	0.3. Describe why it is important to follow AI policies	0.4. Possess basic knowledge of AI
	0.5. Describe how AI is used in your role	0.6. Determine whether the system you are using has AI capabilities	0.7. Describe the human role in developing AI systems	
1. Technology Access	1.1 Determine what technology you need to use the AI system	1.2 Determine who to contact if there is a technology issue	1.3 Use the technology to complete your tasks	
2. Data Privacy	2.1 Define data privacy	2.2 Describe how to keep data private	2.3 Describe how to tell whether data privacy has been breached	2.4 Describe the steps to take if data privacy is breached
3. Data Security	3.1 Define data security	3.2 Describe how to keep data secured	3.3 Describe how to tell whether data have been accessed illegally	3.4 Describe the steps to take to keep data secured
4. AI Ethics	4.1 Define AI ethics	4.2 Describe the AI ethics policies you have to follow in your role	4.3 Describe why it is important to follow AI ethics policies	4.4 Describe the consequences of not following AI ethics
	4.5 Describe how you will know whether the AI system you are using is fair and trustworthy			
5. Bias/Stereotypes	5.1 Define bias and stereotypes	5.2 Describe the AI bias and stereotypes policies to follow in your organisation	5.3 Describe why it is important to follow policies as you complete your tasks	5.4 Describe what you would do if you found that the AI system was biased against someone
6. Teaching and Learning	6.1 Determine whether students can use AI software to assist in completing their course work or assignments	6.2 Describe the policies you have to follow to use AI software for your course	6.3 Describe how students can use AI to complete course activities	
7. Academic Integrity	7.1 Define academic integrity	7.2 Describe AI academic integrity policies to follow	7.3 Describe the consequences of not following academic integrity policies	7.4 Describe actions you will take if academic integrity policies are not followed
8. Transparency	8.1 Define transparency	8.2 Describe AI policies related to transparency	8.3 Describe why it is important to have policies on transparency for AI	
9. Training and Development	9.1 Determine how AI is impacting your role	9.2 Obtain the training you require to use the AI system	9.3 Determine who to contact if you have questions and need support on the AI system you are using	
10. Gender	10.1 Describe why it is important to have AI policies for gender	10.2 Describe AI policies for gender		

Policy Areas	Competencies			
11. Persons with Disabilities	11.1 Describe the different types of disabilities that AI should cater for	11.2 Describe AI policies to follow for persons with disabilities		
12. Copyright and Intellectual Property	12.1 Define copyright and intellectual property	12.2 Describe AI policies for copyright and intellectual property	12.3 Provide examples of copyright and intellectual property infringement in AI	
13. Environmental Concerns	13.1 Describe how AI can contribute to protecting the environment	13.2 Provide examples of policies that can help to protect the environment		
14. Cost and Sustainability	14.1 Describe AI policies related to cost and sustainability	14.2 Describe whether the AI system you are working with is sustainable	14.3 Describe why the cost of AI systems should be sustainable	

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June 2024