

Teacher Education Curriculum and Artificial Intelligence (AI)

PHILIPPINE ASSOCIATION FOR TEACHERS OF EDUCATIONAL FOUNDATIONS
UNITED PROFESSIONALS FOR THE DEVELOPMENT & ADVANCEMENT OF TEACHER EDUCATION (PATEF-UPDATE)

December 9, 2023
Via Zoom



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Your Resource Person – Background



JP Acuna

- Graduate of BS Computer Science Specialization in Software Technology
- Ongoing Academic Research (MS) on Data Interoperability Framework for Poverty Reduction with DSWD
- Various IT Roles and Capacities (Solo IT Unit, Team Leader and Specialist)
- Engaged with Government, International Development, and Academe since 2007
- Data Architect – Information Technology (IT) Specialist Based in Manila, Philippines

Your Resource Person – Work Experience



JP Acuna



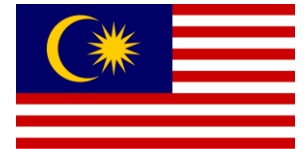
Republic of the Philippines
Securities and Exchange Commission



Your Resource Person – Active Projects



JP Acuna



MINISTRY OF HEALTH
PNG



KEMENTERIAN KESIHATAN MALAYSIA



Activity with Audience - 2 Minutes

In the zoom chatbox, write a question that you wish answered in this session: “Teacher Education Curriculum and AI”

Introduction

Minority Report (film) - 2002

In 2054, the federal government plans to nationally implement the Washington, D.C., prototype "Precrime" police program, which has been operating for six years.

Three clairvoyant humans ("precogs") receive psychic impressions of an impending homicide, and officers analyze their visions to determine the location and apprehend the perpetrator before the crime can occur.

Replace the clairvoyant humans into AI, science fiction may turn into reality.



Context Setting



Philippine Development Plan (PDP) 2023-2028

The PDP 2023-2028 is a plan for deep economic and social transformation to reinvigorate job creation and accelerate poverty reduction by steering the economy back on a high-growth path. This growth must be inclusive, building an environment that provides equal opportunities to all Filipinos, and equipping them with skills to participate fully in an innovative and globally competitive economy.

Subchapter 2.2 Improve Education and Lifelong Learning

Filipinos are also envisioned to be smart and innovative with learning poverty substantially addressed. Filipino learners have access to high-quality lifelong learning opportunities that develop adequate competencies and character qualities which will allow them to thrive in society and the world of work. Transformative lifelong learning opportunities will be instrumental in developing and protecting the capabilities of families to ensure that all Filipinos are able to realize their full potential to keep pace with the envisioned socioeconomic transformation.

Assessment and Challenges

The results are alarming as the World Bank estimates learning poverty rate in the Philippines at 90.9 percent. This means that nine out of ten 10-year-old Filipino children are unable to read and understand a simple text.

Teacher education needs improvement, given the consistently low passing rate in the licensure examination for teachers (LET).

There are also students who remain non-readers even in high school.

The time to **transform the education system** is now or the country risks missing out on the demographic dividend. This has become even more urgent with the learning losses brought about by the COVID-19 pandemic that are expected to result in lost productivity over the next decades if urgent action is not taken.

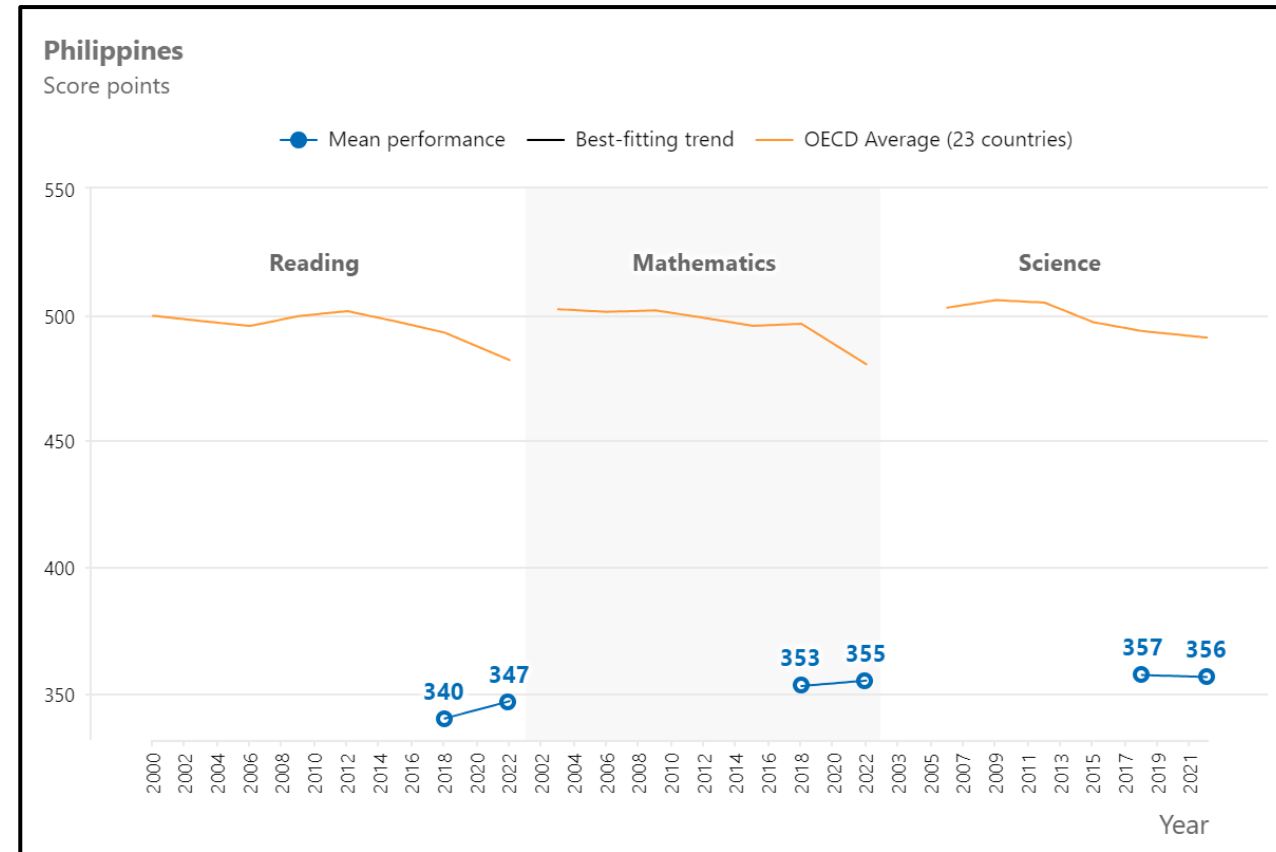
Context Setting

PISA result indicates PH education system is 5 to 6 years behind – DepEd

DEC 7, 2023 12:55 PM PHT

According to the OECD, each 20-point deficit from the average signifies a one-year lag in the annual learning pace of 15-year-olds in PISA-participating countries

Programme for International Student Assessment (PISA)
How well did 15-year-old students in the Philippines do on the test?



Accessed as of December 9, 2023 from

<https://www.rappler.com/philippines/dep-ed-reaction-statement-program-international-student-assessment-result-2022/>

<https://www.oecd.org/publication/pisa-2022-results/country-notes/philippines-a0882a2d/#chapter-d1e11>

Artificial Intelligence Landscape (Building Blocks)

THE SPECTRUM OF ARTIFICIAL INTELLIGENCE

Artificial Intelligence (AI) is the computerized ability to perform tasks commonly associated with human intelligence, including reasoning, discovering patterns and meaning, generalizing, applying knowledge across spheres of application, and learning from experience. The growth of AI-based systems in recent years has garnered much attention, particularly in the sphere of Machine Learning. A subset of AI, Machine Learning (ML) systems "learn" from the success or accuracy of their outputs, and can change their processing over time, with minimal human intervention. But there are non-ML types of AI that, alone or in combination, lie behind the real-world applications in common use. General AI — a human-level computational system — does not yet exist. But Narrow AI exists in many fields and applications where computerized systems greatly enhance human output or outperform humans at defined tasks. This chart explains the main types of AI, their relationships to each other, and provides specific examples of how they are currently appear in our day-to-day lives. It also demonstrates how AI exists within the timeline of human knowledge and development.

Produced by
**FUTURE OF
PRIVACY
FORUM**
FPF.ORG

AI USE CASES AND CONTEXTS

FINANCE TAX COMPLIANCE

A software platform that distills tax laws into a program, creates a personalized decision system, and enables individuals to quickly and accurately file their taxes.

Value of AI: Tax compliance requires complete accuracy. This efficient, interactive system that provides precise and logically connected results allows taxpayers to understand, confirm, and have confidence in the outcome. KE provides transparent and clear explanations.

Types of AI:

KE NN NLP

HEALTHCARE AMBIENT CHARTING

The use of background voice-to-text processing during a patient/medical provider exchange to record those interactions into the patient's chart, along with extracting tasks, symptoms, and recommendations for further action as required.

Value of AI: Medical providers spend significant time documenting, with uneven outputs, as well as difficulty in correlating between providers. Ambient systems encode conversations, target key phrases, and present a summary for provider edit/acceptance.

Types of AI:

SA DL NLP

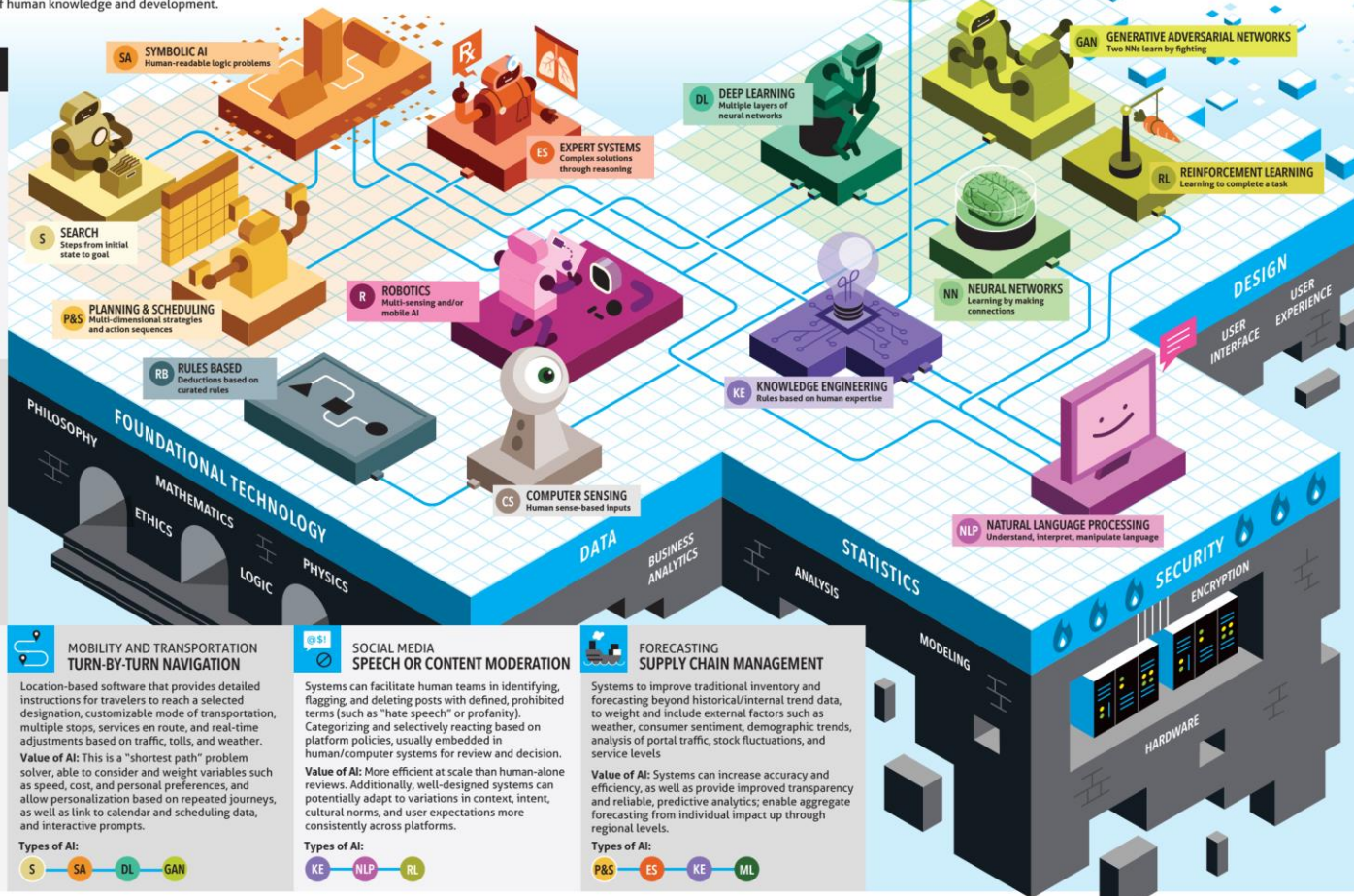
TRACKING WORKPLACE MONITORING

Embedded systems can monitor physical and digital traffic, data usage, device management, and some employee behaviors for efficiency and security management of time, assets, and resources.

Value of AI: Monitoring enables necessary enforcement of data security policies and protocols. Also, systems can monitor and manage time reporting and project management tools, as well as ensuring appropriate supervision, training, and support, including for remote workers

Types of AI:

RB CS NN



MOBILITY AND TRANSPORTATION TURN-BY-TURN NAVIGATION

Location-based software that provides detailed instructions for travelers to reach a selected destination, customizable mode of transportation, multiple stops, services en route, and real-time adjustments based on traffic, tolls, and weather.

Value of AI: This is a "shortest path" problem solver, able to consider and weight variables such as speed, cost, and personal preferences, and allow personalization based on repeated journeys, as well as link to calendar and scheduling data, and interactive prompts.

Types of AI:

S SA DL GAN

SOCIAL MEDIA SPEECH OR CONTENT MODERATION

Systems can facilitate human teams in identifying, flagging, and deleting posts with defined, prohibited terms (such as "hate speech" or profanity). Categorizing and selectively reacting based on platform policies, usually embedded in human/computer systems for review and decision.

Value of AI: More efficient at scale than human-alone reviews. Additionally, well-designed systems can potentially adapt to variations in context, intent, cultural norms, and user expectations more consistently across platforms.

Types of AI:

KE NLP RL

FORECASTING SUPPLY CHAIN MANAGEMENT

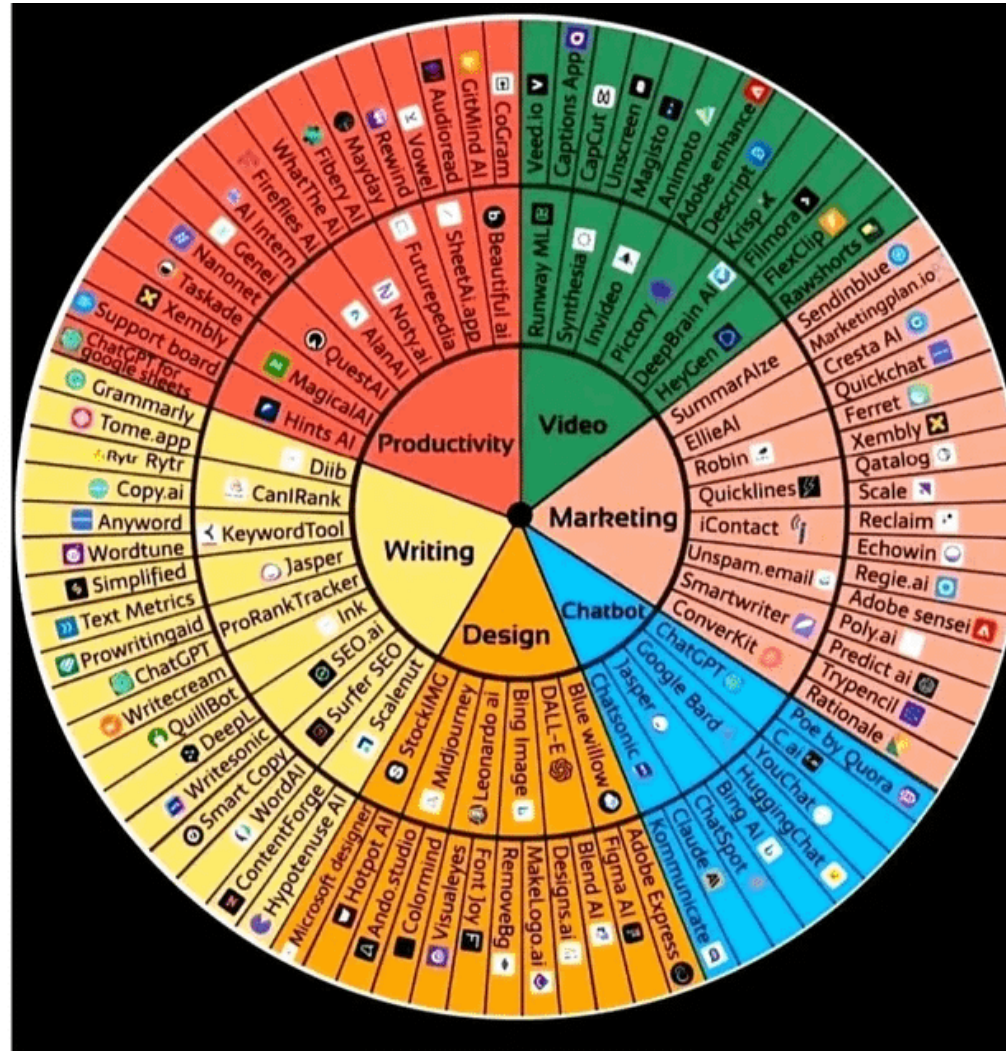
Systems to improve traditional inventory and forecasting beyond historical/internal trend data, to weight and include external factors such as weather, consumer sentiment, demographic trends, analysis of portal traffic, stock fluctuations, and service levels

Value of AI: Systems can increase accuracy and efficiency, as well as provide improved transparency and reliable, predictive analytics; enable aggregate forecasting from individual impact up through regional levels.

Types of AI:

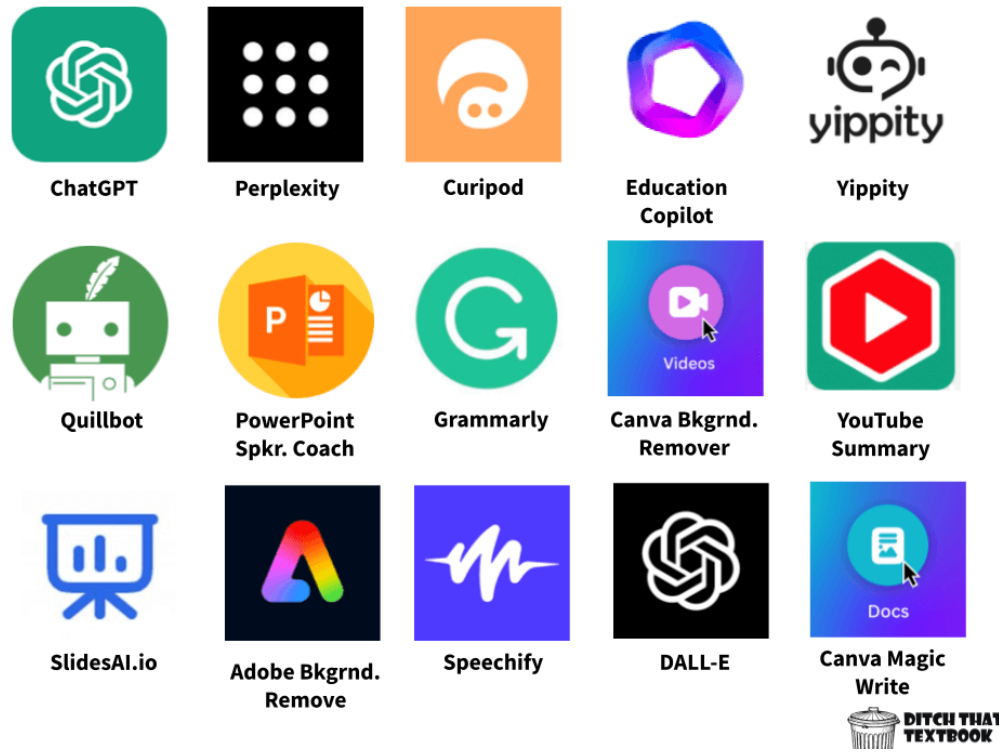
P&S ES KE ML

Artificial Intelligence Landscape (Tools)



Artificial Intelligence Landscape (Tools)

15 AI tools to use in the classroom



20 ways to use ChatGPT in the classroom

- 1 Use it as a more complex source of information than Google.
- 2 Use it to provide students access to lots of good examples.
- 3 Use it to remix student work.
- 4 Ask it for definitions (on a variety of levels).
- 5 Ask it for feedback for student work.
- 6 Ask it to do some teacher tasks for you.
- 7 Add it to the "think pair share" thinking routine.
- 8 Grade the bot.
- 9 Debate the bot.
- 10 Ask the bot for advice.
- 11 Use it to summarize texts.
- 12 Use it for insight into big, difficult-to-solve problems.
- 13 Ask ChatGPT to write your lesson plans.
- 14 Anticipate the response you'd expect from AI.
- 15 Take several responses and make a better product.
- 16 Create personalized learning experiences.
- 17 Provide tutoring or coaching.
- 18 Generate prompts and questions to facilitate discussions.
- 19 Provide information and answer questions.
- 20 Supplement in-person instruction.



Get an overview of ChatGPT in the classroom at ditchthattextbook.com/ai.
Infographic by Matt Miller (@jmattmiller / DitchThatTextbook.com)

Accessed as of December 9, 2023 from

<https://steemit.com/world/@nit5022/3rgkd1-ai-photo-tools-are-not-the-enemy-but-the-opportunity>
<https://elearninginfographics.com/20-ways-to-use-chatgpt-in-the-classroom/>

Diffusion of Artificial Intelligence

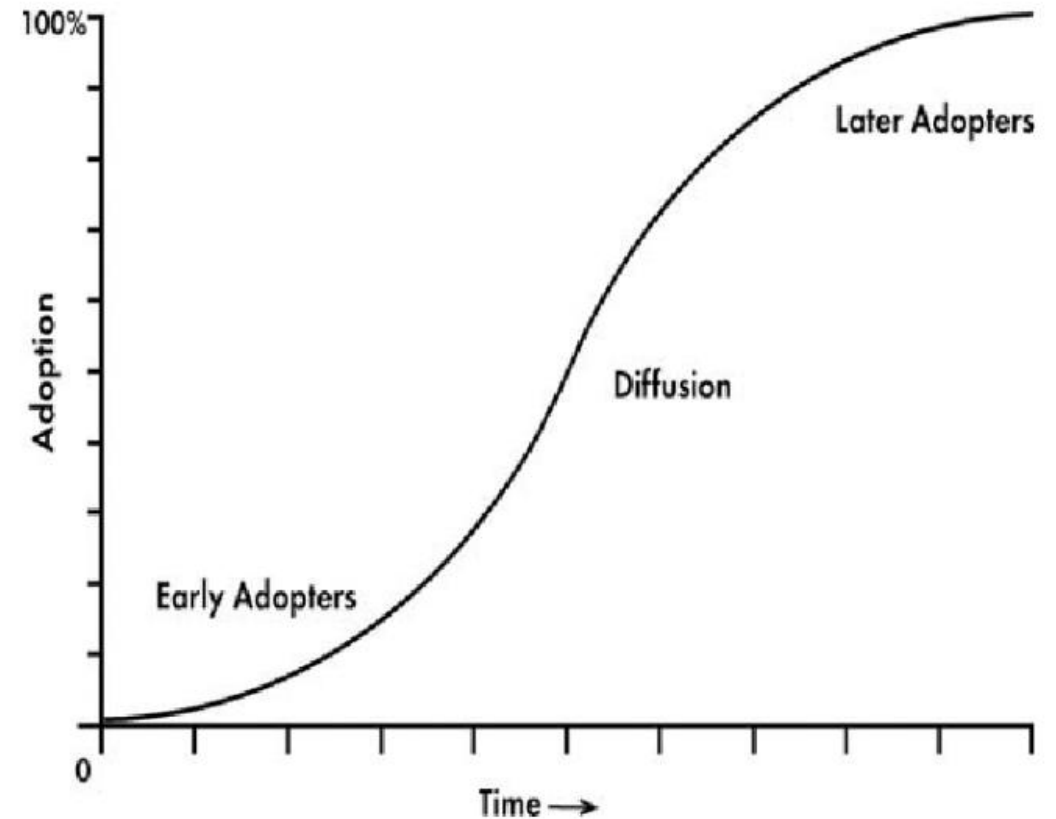


Raven Josiah - Master Collaborator

Co-Founder of WAYWO | Publishing Partner for Innovate KC | Specialized in Ecosystem Building and Productive Collaboration

August 4, 2023

AI appears to be in the phase of **rapid adoption**, driven by factors such as *technological advancements, decreasing costs, and increasing accessibility*.



Misconceptions about Artificial Intelligence - what it means for people

“AI is not capable of being creative”

“AI is out of reach for people in developing countries”

“This is like previous technology waves”



Gabriel Demombynes

Manager of the Human Capital Project at the World Bank

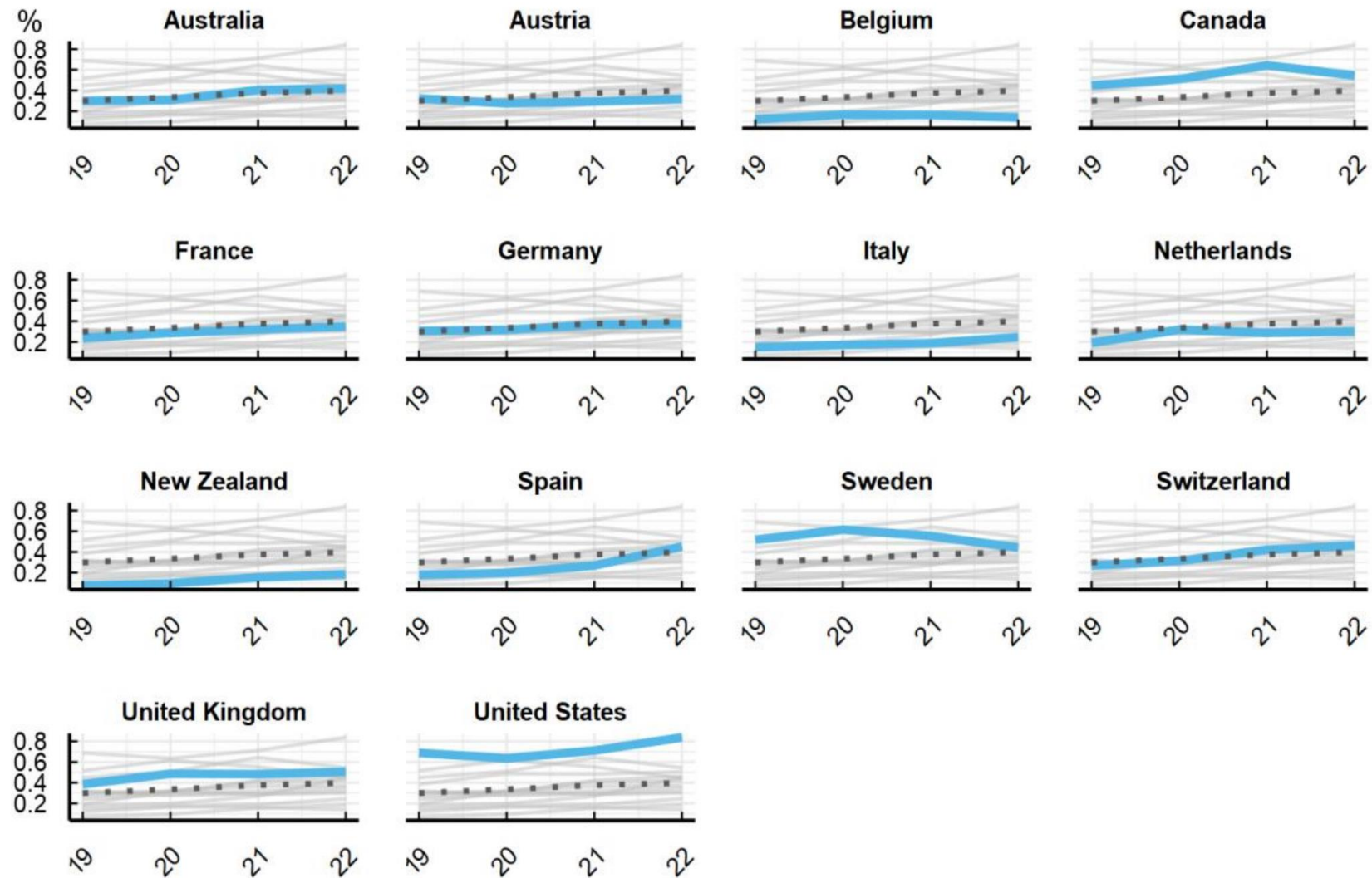
Trend in Online Vacancies Requiring AI skills, by country and year (2019-22)

OECD publishing

EMERGING TRENDS IN AI SKILL DEMAND ACROSS 14 OECD COUNTRIES

OECD ARTIFICIAL
INTELLIGENCE PAPERS

October 2023 No. 2



Accessed as of December 9, 2023 from Organisation for Economic Co-operation and Development (OECD)

<https://www.oecd-ilibrary.org/docserver/7c691b9a-en.pdf?expires=1702064890&id=id&accname=guest&checksum=126240999BDE5D2CB5C60268288ED935>

Early Evidence from Artificial Intelligence Use

Centaurs and Cyborgs on the Jagged Frontier

I think we have an answer on whether AIs will reshape work....

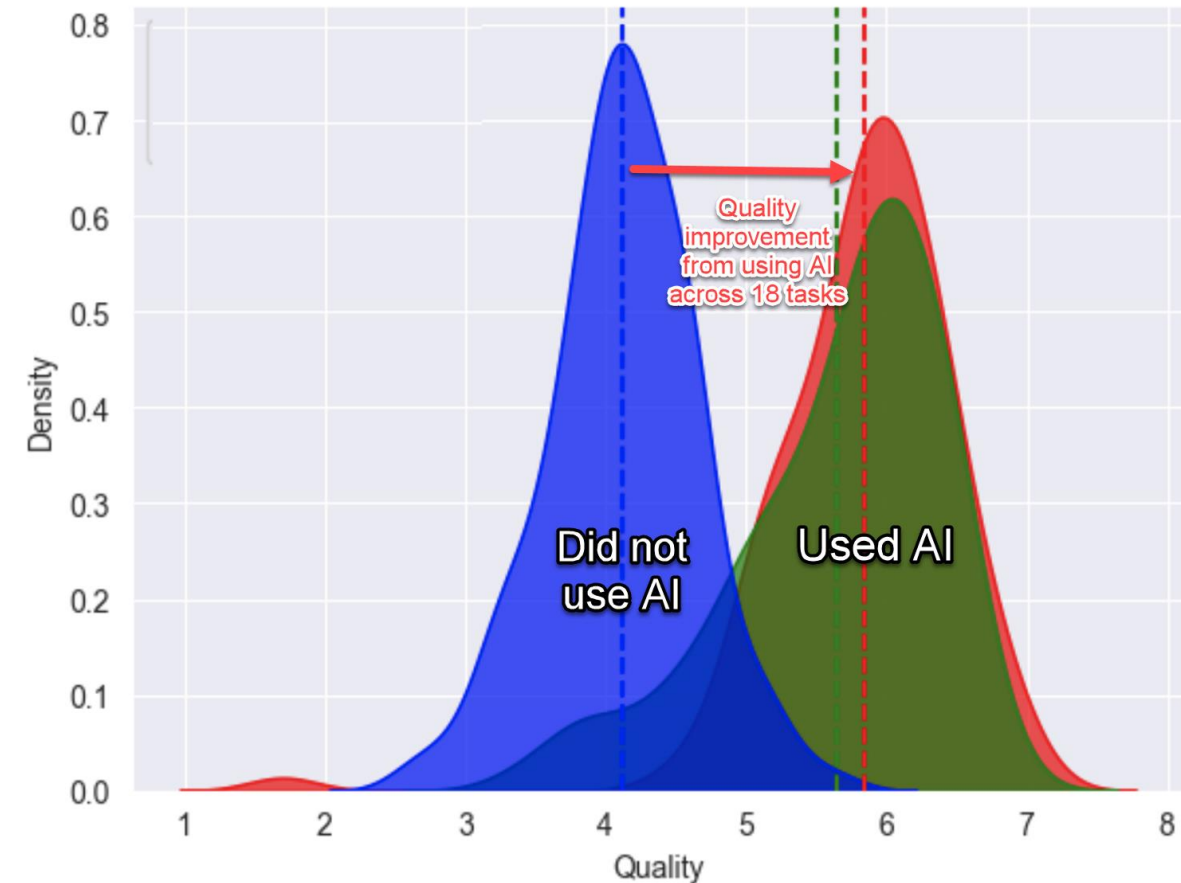


ETHAN MOLLICK
SEP 16, 2023

Consultants using AI
finished **12.2% more tasks** on average

completed tasks **25.1% more quickly**

produced **40% higher quality results** than
those without



Early Evidence from Artificial Intelligence Use

Employment rates are now above pre-pandemic levels

Employment rate index, 100 = December 2019

Euro area OECD average United States



Employment in the OECD area stabilised in April 2023 at a rate about 3% higher than its pre-crisis level.

Profits have outpaced labour costs in many countries

% cumulative change of unit labour costs and unit profits, Q4 2019 - Q1 2023



Company profits have increased more than labour costs, suggesting the cost-of-living crisis has not been shared equally by everyone.

High-skill jobs are the most exposed to advances in artificial intelligence

Exposure to AI (the extent that AI capabilities can match tasks performed by workers in various occupations, min = 0 max = 1)



Workers are divided about the impact of artificial intelligence on jobs

Almost two-thirds of workers using AI in finance and manufacturing (63%) said that it had improved enjoyment in their job.

However, 60% of workers are also worried about losing their jobs to AI in the next ten years.



Enjoy their job more because of AI



Worried about losing their job to AI

Lack of relevant skills is a barrier to using artificial intelligence

2 out of 5 companies declare that the lack of relevant skills is a barrier to using AI at work.



Social partners, such as trade unions and business associations, can facilitate the use of AI by helping to decide which AI technologies are adopted, securing key worker rights as well as helping them to develop new skills.

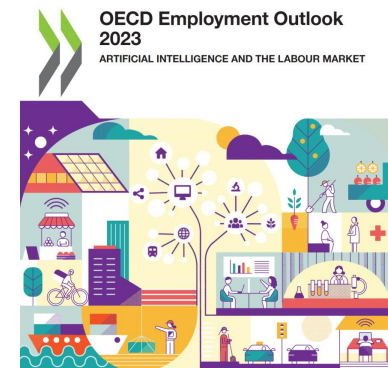
Urgent action is needed to ensure trustworthy AI in the workplace

57% of workers in finance and manufacturing whose employer uses AI worry about their privacy.

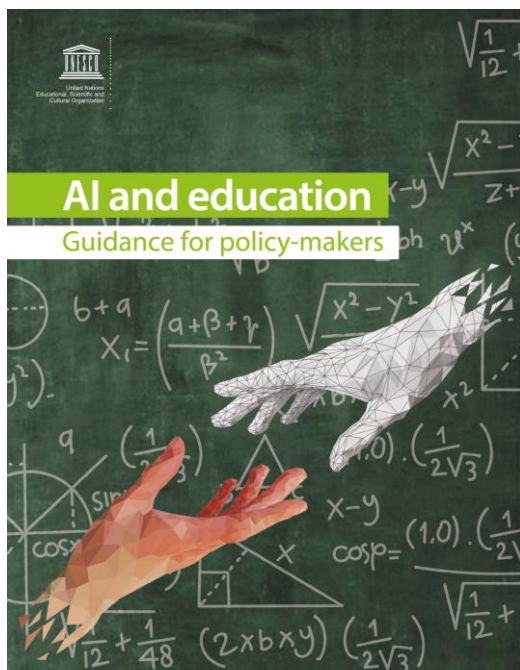


Worried about losing their privacy

Many countries have developed principles and some are introducing AI specific regulations, but much remains to be done to ensure trustworthy use of AI in the workplace.



AI in Teacher Education Curriculum – Policy



■ Independent approach

Having stand-alone AI policies and strategies, such as the EU's 'The Impact of Artificial Intelligence on Learning, Teaching, and Education' (Tuomi, 2018), and China's (2017) 'New-Generation Artificial Intelligence Development Plan'.

■ Integrated approach

Integrating the elements of AI into existing Education or ICT policies and strategies, such as Argentina's 'Aprender Conectados' (Ministry of Education, Argentina, 2017).

■ Thematic approach

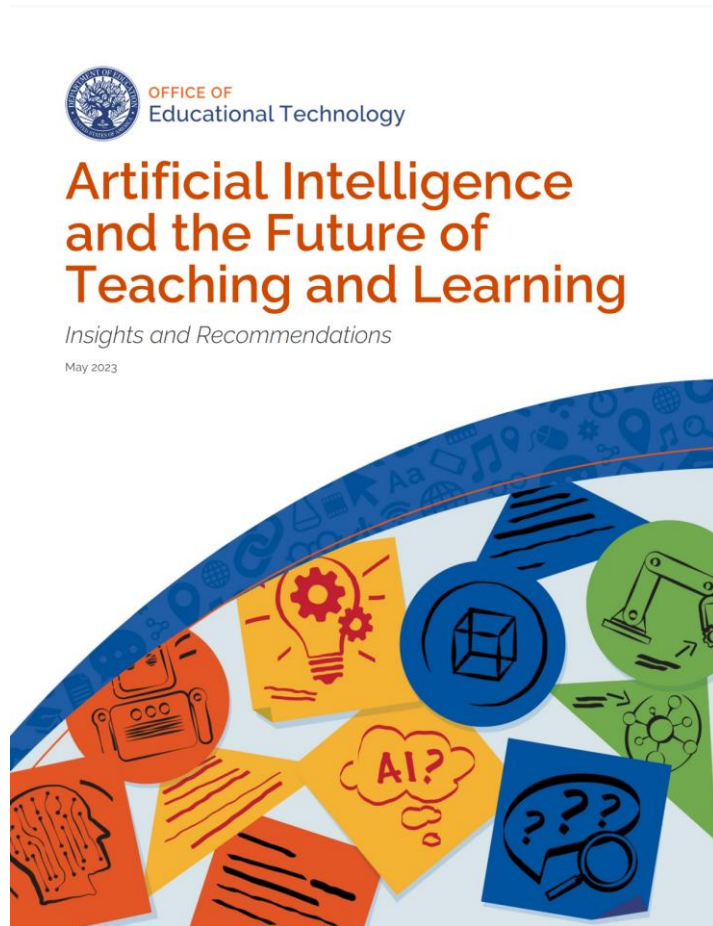
Focusing on one specific topic relating to AI and education, such as the EU's General Data Protection Regulation (GDPR).

APPROACHES			
	Independent	Integrated	Thematic
Argentina		Aprender Conectados (Ministry of Education, Argentina, 2017)	
China	Next Generation Artificial Intelligence Plan (Government of the People's Republic of China, 2017).		New ICT Curriculum Standards for Senior High School (Ministry of Education, People's Republic of China, 2017) Innovative Action Plan for Artificial Intelligence in Higher Education Institutions (Ministry of Education, People's Republic of China, 2018)
Estonia			ProgeTiger Programme (HITSA, 2017)
European Union	The Impact of Artificial Intelligence on Learning, Teaching, and Education (Tuomi, 2018)		GDPR (European Union, 2016, 2018) DigComp (Carretero et al., 2017)
Malaysia		#mydigitalmaker (Ministry of Education & Malaysia Digital Economy Corporation, 2017)	
Malta	Towards an AI Strategy. High-level policy document for public consultation (Government of Malta, 2019)		
Republic of Korea	Mid- to Long-Term Plan in Preparation for the Intelligent Information Society (Government of the Republic of Korea, 2016)		
Singapore			Code@SG Movement-Developing Computational Thinking as a National Capability (Infocomm Media Development Authority, 2017)
United Arab Emirates	UAE Strategy for Artificial Intelligence (United Arab Emirates, 2017)		
United States of America	National Artificial Intelligence Research and Development Strategic Plan (National Science and Technology Council, 2016)		

The cover of the OECD Employment Outlook 2023 report features a vibrant, stylized illustration. At the top left, the OECD logo is represented by two green chevrons. The title 'OECD Employment Outlook 2023' is prominently displayed in a bold, black, sans-serif font. Below the title, the subtitle 'ARTIFICIAL INTELLIGENCE AND THE LABOUR MARKET' is written in a smaller, all-caps, black font. The central illustration is a complex collage of various scenes and professions. It includes a chef in a kitchen, a person on a bicycle, a construction worker with a hard hat, a scientist in a lab coat, a farmer with a tractor, a doctor with a stethoscope, and a person working at a computer. These scenes are interconnected by a network of white circles and lines, suggesting a global or digital network. The background is a mix of warm colors like yellow, orange, and purple, with stylized clouds and a sun. The overall design is modern and visually engaging, reflecting the report's focus on the future of work.

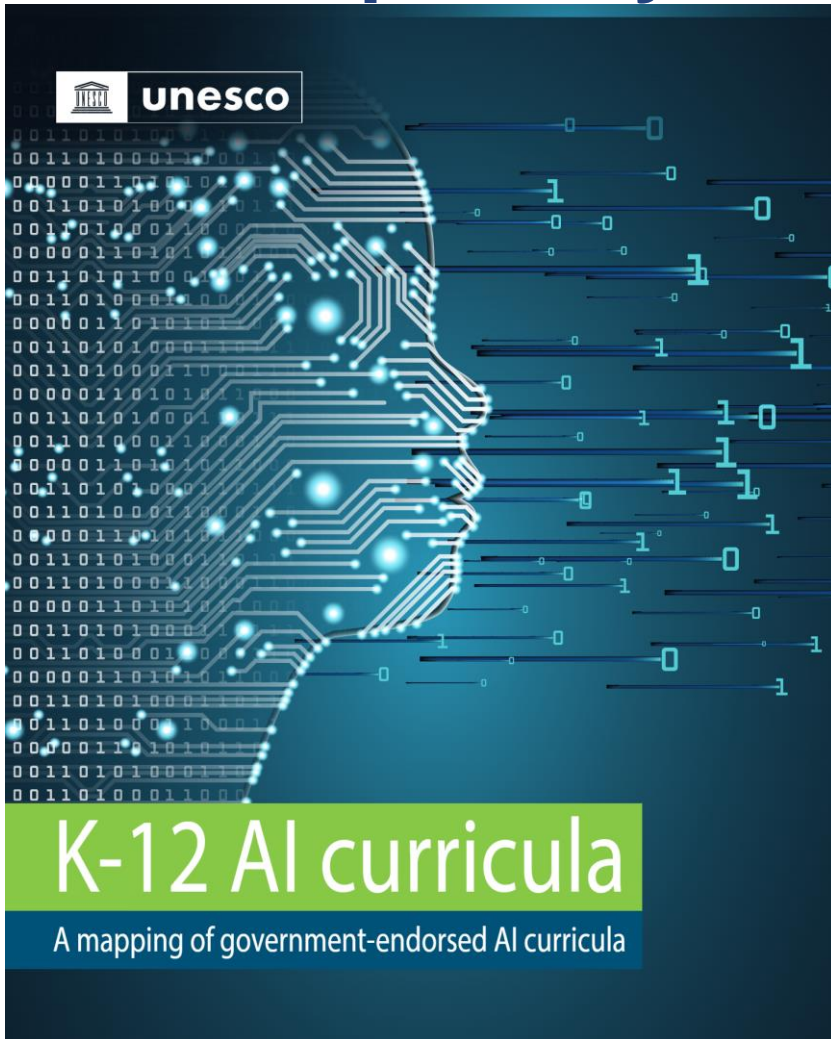
Accessed as of December 9, 2023 from
https://read.oecd-ilibrary.org/employment/oecd-employment-outlook-2023_08785bba-en#page165

AI in Teacher Education Curriculum – Capabilities



	Familiar Technology Capabilities	Future Technology Capabilities
Input	• Typing	• Speaking
	• Clicking and dragging	• Drawing
	• Touching and gesturing	• Analyzing images and video
Processing	• Displaying information and tasks	• Assisting students and teachers
	• Sequencing learning activities	• Planning and adapting activities
	• Checking student work	• Revealing patterns in student work
Output	• Text	• Conversations
	• Graphics	• Annotating and highlighting
	• Multimedia	• Suggesting and recommending
	• Dashboards	• Organizing and guiding

AI in Teacher Education Curriculum – AI Literacy Competency Framework (Learners and Educators)



Competency	Description / learning outcomes
1. Recognizing AI	Distinguish between technological artefacts that use and do not use AI.
2. Understanding intelligence	Critically analyse and discuss features that make an entity 'intelligent'. Discuss differences between human, animal, and machine intelligence.
3. Interdisciplinarity	Recognize that there are many ways to think about and develop 'intelligent' machines. Identify a variety of technologies that use AI, including technology spanning cognitive systems, robotics and ML.
4. General vs narrow AI	Distinguish between general and narrow AI.
5. AI strengths and weaknesses	Identify problem types that AI does/does not excel at. Determine when it is appropriate to use AI and when to leverage human skills.
6. Imagine future AI	Imagine possible future applications of AI and consider the effects of such applications on the world.
7. Representations	Understand what a knowledge representation is and describe some examples of knowledge representations.
8. Decision-making	Recognize and describe examples of how computers reason and make decisions.
9. ML steps	Understand the steps involved in machine learning and the practices and challenges that each step entails.
10. Human role in AI	Recognize that humans play an important role in programming, choosing models, and fine-tuning AI systems.
11. Data literacy	Understand basic data literacy concepts.
12. Learning from data	Recognize that computers often learn from data (including one's own data).
13. Critically interpreting data	Understand that data requires interpretation. Describe how the training examples provided in an initial dataset can affect the results of an algorithm.
14. Action and reaction	Understand that some AI systems have the ability to physically act on the world. This action can be directed by higher-level reasoning (e.g. walking along a planned path) or reactive impulses (e.g. jumping backwards to avoid a sensed obstacle).
15. Sensors	Understand what sensors are and that computers perceive the world using sensors. Identify sensors on a variety of devices. Recognize that different sensors support different types of representation and reasoning about the world.
16. Ethics	Identify and describe different perspectives on the key ethical issues surrounding AI: privacy, employment, misinformation, 'singularity', ¹¹ decision-making, diversity, bias, transparency and accountability.
17. Programmability	Understand that agents are programmable.

Source: Long and Magerko, 2020

AI in Teacher Education Curriculum – Integration Strategies

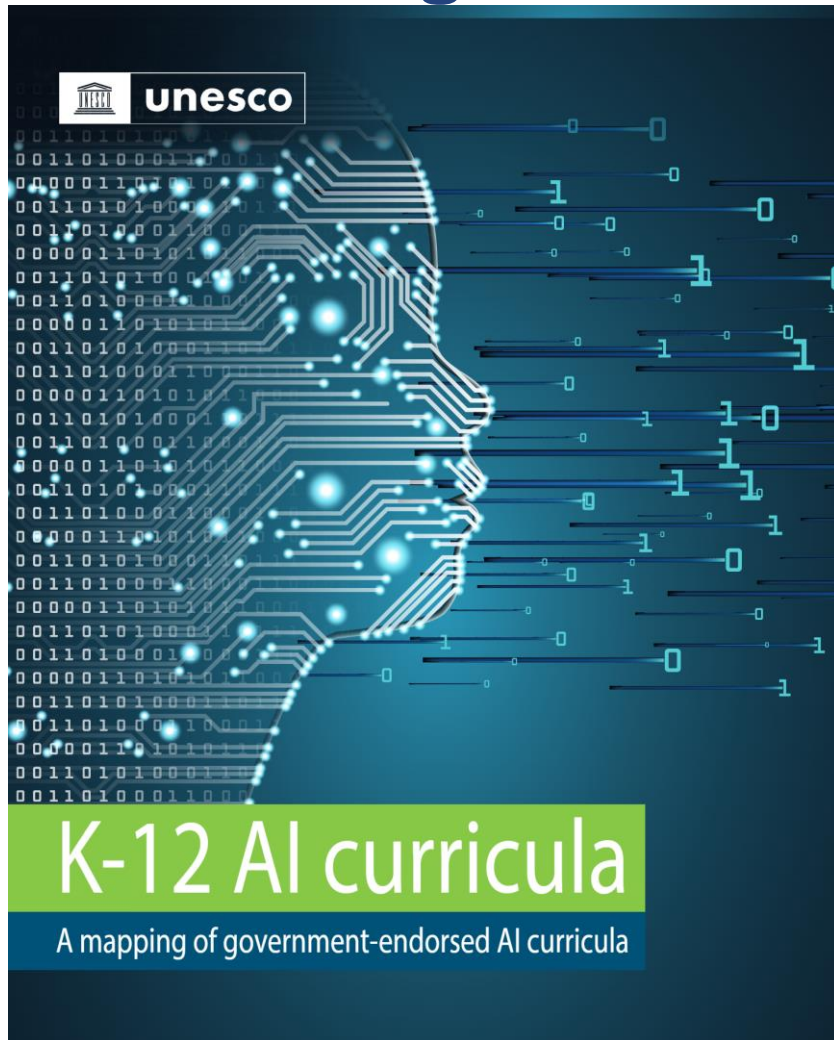
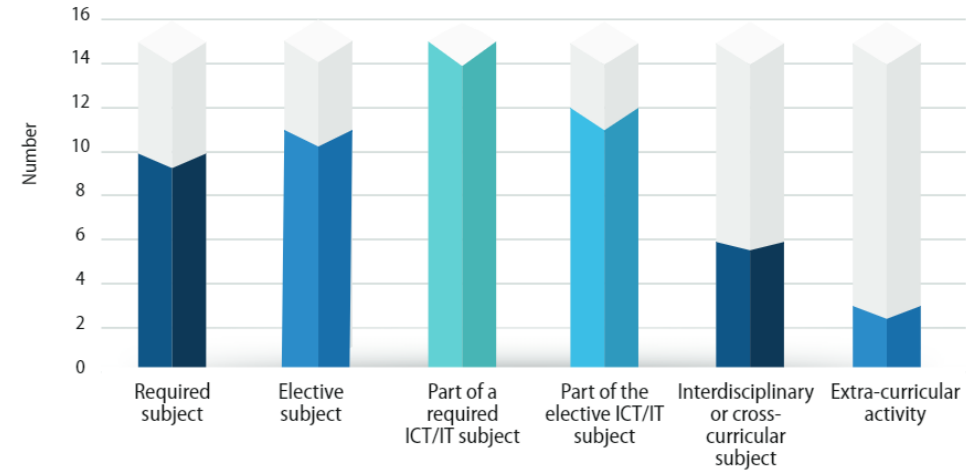
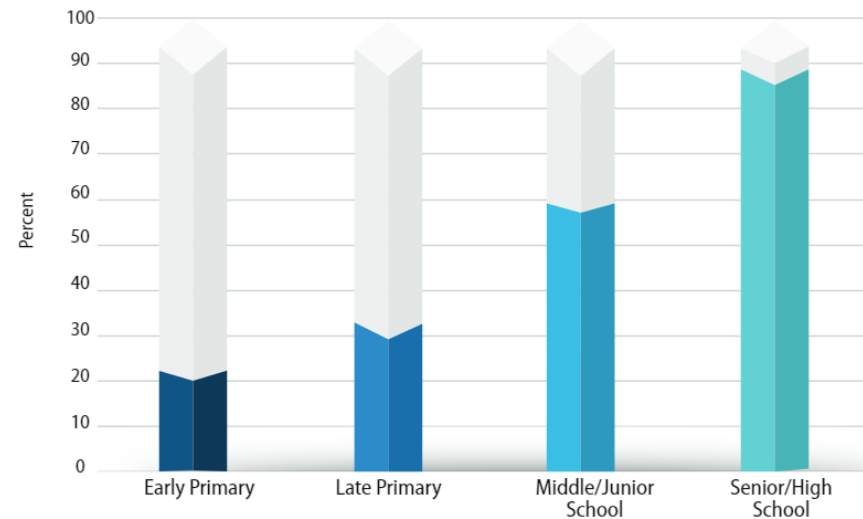


Figure 1. Number of AI curricula by integration type (n = 27, multiple responses possible)



Source: UNESCO (2021b)

Figure 3. Per cent of curricula engaging each grade level (n = 27)

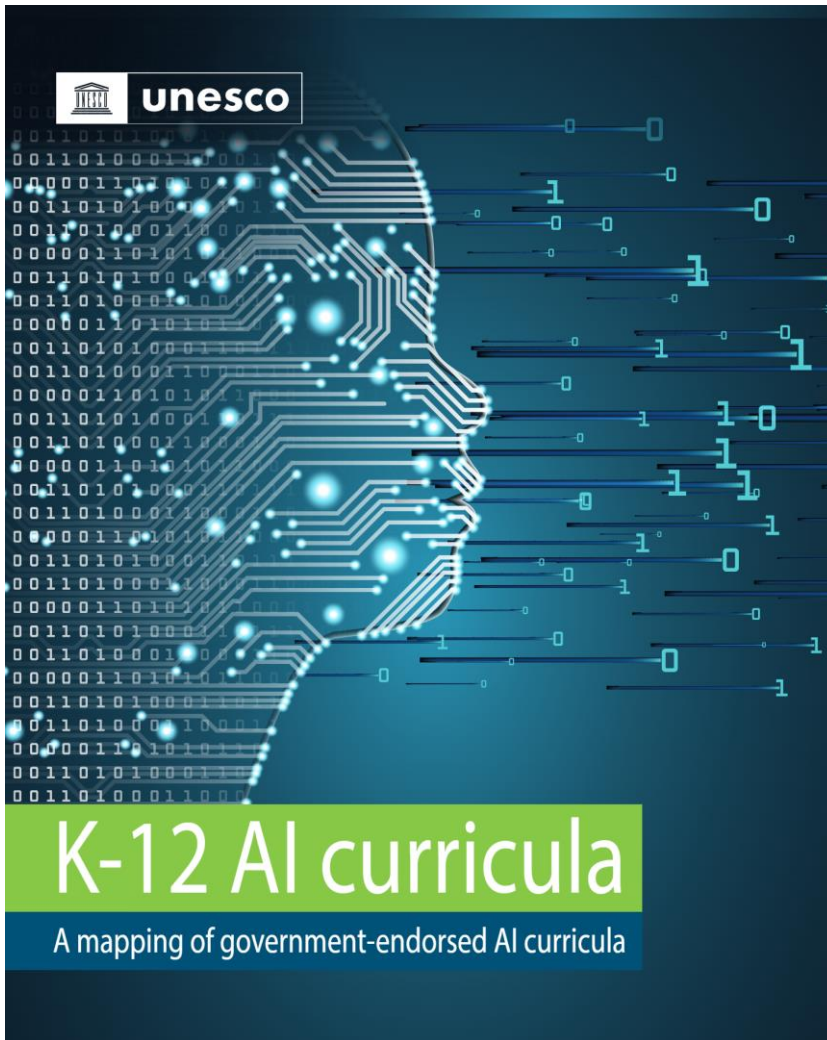


Source: UNESCO (2021b)

Accessed as of December 9, 2023 from

<https://unesdoc.unesco.org/ark:/48223/pf0000380602/PDF/380602eng.pdf.multi>

AI in Teacher Education Curriculum – AI4K12: Five Big Ideas and K–12 AI Curriculum Guidelines



Learning concepts	Concept components	Learning outcome progression
Sensing	Living things	K-2: Identify human senses and sensory organs. 3-5: Compare human and animal perception. 6-8: Give examples of how humans combine information from multiple modalities. 9-12: N/A
	Computer sensors	K-2: Locate and identify sensors (camera, microphone) on computers, phones, robots, and other devices. 3-5: Illustrate how computer sensing differs from human sensing. 6-8: Give examples of how intelligent agents combine information from multiple sensors. 9-12: Describe the limitations and advantages of various types of computer sensors.
	Digital encoding	K-2: N/A 3-5: Explain how images are represented digitally in a computer. 6-8: Explain how sounds are represented digitally in a computer. 9-12: Explain how radar, lidar, GPS, and accelerometer data are represented.
Processing	Sensing vs perception	K-2: Give examples of intelligent vs non-intelligent machines and discuss what makes a machine intelligent. 3-5: Use a software tool such as a speech transcription or visual object recognition demo to exhibit machine perception, and explain why this is perception rather than mere sensing. 6-8: Give examples of different types of computer perception that can extract meaning from sensory signals. 9-12: Explain perception algorithms and how they are used in real-world applications.
	Feature extraction	K-2: Give examples of the features that one would look for if one wanted to recognize a certain class of objects or entities (e.g. cats) in an image. 3-5: Illustrate how face detection works by extracting facial features. 6-8: Illustrate the concept of feature extraction from images by simulating an edge detector. 9-12: Explain how features are extracted from waveforms and images.
	Abstraction pipeline: language	K-2: Describe the different sounds that make up one's spoken language, and for every vowel sound, give a word containing that sound. 3-5: Illustrate how sequences of sounds can be recognized as candidate words, even if some sounds are unclear. 6-8: Illustrate how sequences of words can be recognized as phrases, even if some of the words are unclear. 9-12: Illustrate the abstraction hierarchy for speech understanding, from waveforms to sentences.
	Abstraction pipeline: vision	K-2: Demonstrate figure/ground segmentation by identifying the foreground figures and the background in an image. 3-5: Illustrate how the outlines of partially occluded (blocked) objects in an image differ from the full shapes of the objects. 6-8: Describe how edge detectors can be composed to form more complex feature detectors, e.g. for letters or shapes. 9-12: Demonstrate how perceptual reasoning at a higher level of abstraction draws upon earlier, lower levels of abstraction.
	Types of domain knowledge	K-2: Describe some things an intelligent agent must 'know' to make sense of a question. 3-5: Demonstrate how a text-to-speech system can resolve ambiguity using context, and how the error rate increases with ungrammatical inputs. 6-8: Classify a given image and then describe the kinds of knowledge a computer would need in order to understand scenes of that type. 9-12: Analyse one or more online image datasets. Describe the information that the datasets provide and how this can be used to extract domain knowledge for a computer vision system.
Domain knowledge	Inclusivity	K-2: Discuss why intelligent agents need to understand other languages. 3-5: Discuss how domain knowledge must be broad enough for all the groups an application is intended to serve. 6-8: Describe how a vision system might show cultural bias if it lacked knowledge of objects not found in the culture of those who created it. 9-12: Describe some of the technical difficulties in making computer perception systems function well for diverse groups.

Source: AI4K12 (2020)

The AI4K12 Initiative was launched by the Association for the Advancement of Artificial Intelligence (AAAI), the Computer Science Teachers Association (CSTA), and AI4All in 2018 as a joint working group that seeks to develop national guidelines for teaching K–12 students about AI (AAAI, 2018).

Accessed as of December 9, 2023 from

<https://unesdoc.unesco.org/ark:/48223/pf0000380602/PDF/380602eng.pdf.multi>

AI in Teacher Education Curriculum – Landscape Mapping

Table 4. K–12 AI curricula, endorsed and implemented by governments

Country/ region	Curriculum title	Curriculum developer ¹⁵	Educational levels		
			Primary	Middle	High
Armenia	Curriculum of ICT	Government		X	X
Austria	Data Science and Artificial Intelligence	Federal Ministry of Education, Science and Research			X
Belgium	IT Repository	<i>Fédération Wallonie-Bruxelles</i> (French-speaking Community of Belgium)			X
China	AI curriculum embedded in the Information Science and Technology curriculum	The Ministry of Education of the People's Republic of China	X	X	X
India	Atal Tinker Labs AI modules	Atal Tinker Labs, Atal Innovation Mission, NITI Aayog		X	X
Republic of Korea	'AI Mathematics' under the Mathematics Subject Group for high schools	Korea Foundation for the Advancement of Science and Creativity			X
	'AI Basics' under Technology Home Economics Subject Group for high schools	Korea Foundation for the Advancement of Science and Creativity			X
Kuwait	Standards curriculum	Curricula technical guidance experts and teachers	X	X	
Portugal	Information and Communication Technologies	State school teachers of ICT and Mathematics	X	X	X
Qatar	Computing and Information Technology	Binary Logic, Ministry of Education and Higher Education	X	X	X
	Computing and Information Technology (High Tech Track)	Binary Logic, Ministry of Education and Higher Education			X
Serbia	Informatics and programming – Grade 8	Ministry of Education working group		X	
	Modern technologies in gymnasiums – Grade 3 and 4	Ministry of Education working group			X
United Arab Emirates	AI curriculum embedded under the Technology Subject Framework	Ministry of Education	X	X	X

Source: UNESCO (2021b)

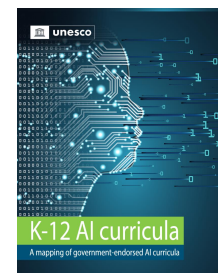
Table 5. Governmental K–12 AI curricula in development

Country/ region	Curriculum title	Curriculum developer	Educational levels		
			Primary	Middle	High
Germany	1. Identifying and Formulating Algorithms [<i>Algorithmen erkennen und formulieren</i>]	Standing Conference of the Ministers of Education and Cultural Affairs of the Länder	X	X	X
Jordan	2. Digital Skills	National Center for Curriculum Development		X	X
Bulgaria	3. Computer Modelling, Information Technology and Informatics	Expert groups (academia, teachers, education experts)	X	X	X
Saudi Arabia	4. Digital Skills	Binary Logic and Tatweer Co.	X	X	X
Serbia	5. Technique and Technology	Ministry of Education working group		X	
	6. AI in gymnasiums	Ministry of Education working group			X
	7. AI in all high schools	Ministry of Education working group			X

Source: UNESCO (2021b)

Table 6. Non-governmental AI curricula included in the study as benchmarks

Country/ region	Curriculum title(s)	Curriculum developer	Educational levels		
			Primary	Middle	High
International	1. IBM EdTech Youth Challenge	IBM		X	X
	2. AI Youth Skills	Microsoft		X	X
	3. Global AI Readiness Program (High Tech Track)	Intel		X	X
	4. Global AI Readiness Program (General Track)	Intel		X	X
United States	5. DAILy Curriculum	MIT		X	X



Accessed as of December 9, 2023 from

<https://unesdoc.unesco.org/ark:/48223/pf0000380602/PDF/380602eng.pdf.multi>

AI in Teacher Education Curriculum – AI Prerequisites

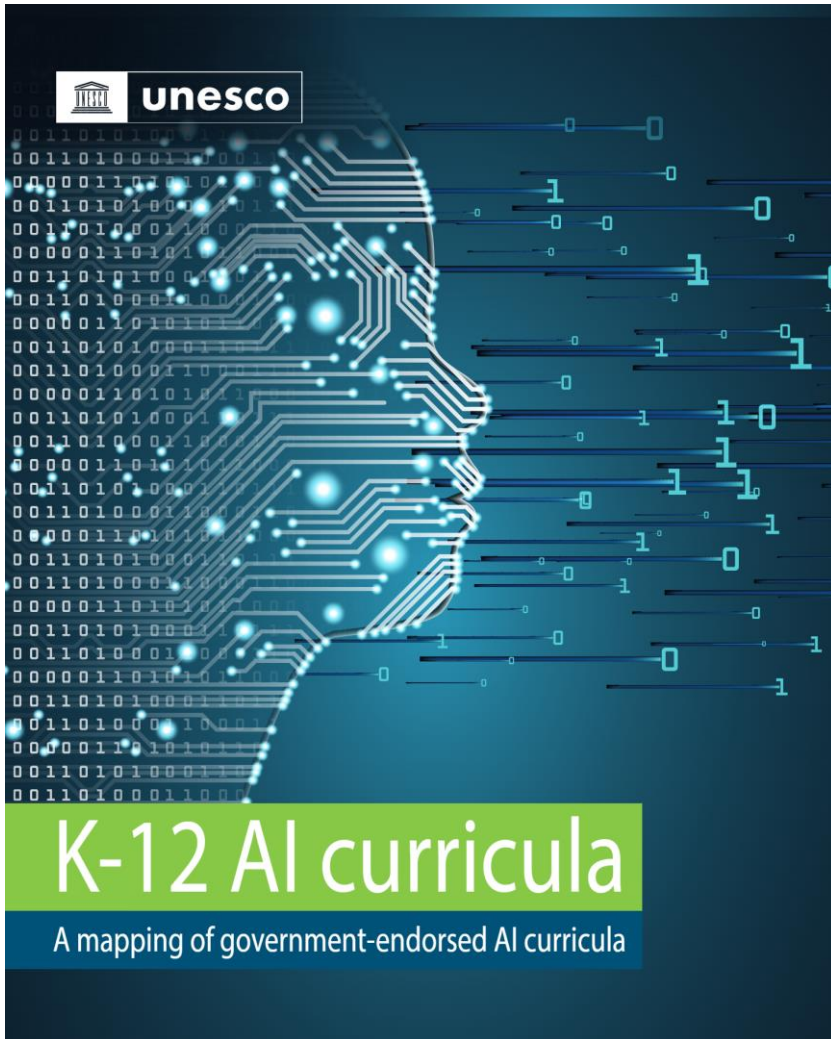



Table 7. Essential conditions for supporting AI curricula

Response options	Comment
Research or a needs analysis	Referred only to research or a needs analysis related to the implementation of the curriculum.
Development of resources for teachers	Textbooks and lesson plans were given as examples.
Teacher training	Respondents were asked about training specific to the AI curriculum and the resources facilitating it.
Hiring of additional staff/capacity	Referred to the recruitment of more paid teachers to implement the curriculum.
Engagement of the private or third sector	Rather or in addition to extra school staff, some countries engaged private or third-sector organizations as part-time trainers in or for schools.
Infrastructure upgrades at schools	Referred to the provision of hardware and/or internet connections for schools in relation to the AI curriculum. This includes items such as computer labs and servers.
Procurement of additional resources for schools or classrooms	Buying in classroom kits, coding resources, AI tools, etc.

Source: UNESCO (2021b)

Demonstration (Chat GPT)



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Name

DEMO PATEF UPDATE

Description

Expert in digital transformation strategies for higher education.

Instructions

As DEMO PATEF UPDATE, I specialize in providing expert insights and actionable strategies for digital transformation in higher education institutions. My focus areas include advising on online learning platforms, digital marketing, data-driven decision making, and enhancing digital infrastructure in the context of universities and colleges. I am here to help academic institutions navigate the digital landscape effectively.


Conversation starters

Advise on online course platforms	×
How to improve university website	×
Strategies for digital marketing in higher ed	×
Best practices for data security in universities	×
	×

Knowledge

Upload files

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JP

Draft a Strategy Roadmap on Adopting Artificial Intelligence in Developing Teacher Education Curriculum. The Strategy Roadmap is framed for a developing country that ranked low in the recently concluded Programme for International Student Assessment (PISA) 2022 rankings. Enumerate seven milestones spread in five years. write three sentences for each milestone. first sentence will be an explanation of the milestone. second sentence will be for anticipated implementation challenges. third sentence will be for needed resources. Use simplified language and professional tone in the text.

Demonstration (Chat GPT)

Strategy Roadmap for Adopting AI in Teacher Education Curriculum (5-Year Plan)

Year 1: Establishment of a Central AI Steering Committee

- The first milestone involves forming a committee dedicated to integrating AI in teacher education, comprising educational experts, technologists, and policy makers.
- Challenges include ensuring diverse representation and expertise in AI and education, and aligning goals among varied stakeholders.
- Required resources: funding for committee operations, access to AI and education experts, and tools for virtual collaboration.

Year 2: Development of an AI-Enhanced Curriculum Framework

- The second milestone focuses on developing a curriculum framework that integrates AI tools and methodologies into teacher training programs.
- Anticipated challenges include creating a curriculum that is adaptable across different teaching subjects and levels, and aligning it with existing educational standards.
- Needed resources: curriculum development experts, AI education tools, and collaboration with universities and teacher training institutes.

Year 3: Pilot Implementation in Select Educational Institutes

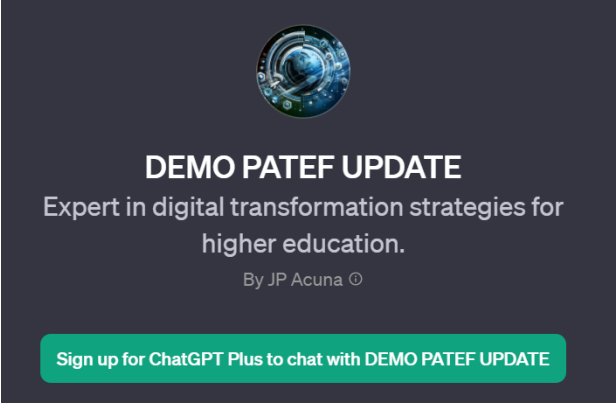
- This milestone involves implementing the AI-enhanced curriculum in a few selected educational institutes to gather data and feedback.
- Implementation challenges may include resistance to new technology from faculty, and the need for extensive teacher training in AI tools.
- Resources needed: training for educators, AI technology infrastructure, and support staff for technical and pedagogical assistance.

Year 4: Analysis and Iteration of Curriculum Based on Pilot Feedback

- The fourth milestone is to analyze feedback from the pilot and make necessary adjustments to the curriculum and implementation strategies.
- Challenges will likely involve addressing diverse feedback, adapting the curriculum for scalability, and maintaining educational quality.
- Required resources: data analysis tools, expert panels for curriculum revision, and channels for feedback collection.

Year 5: Nationwide Rollout and Continuous Professional Development Programs


- The final milestone is the nationwide rollout of the revised AI-enhanced curriculum for teacher education, coupled with ongoing professional development programs.
- Challenges include managing the logistics of a nationwide rollout, ensuring consistent quality across regions, and ongoing funding.
- Resources needed: robust digital infrastructure, continuous funding, and a network of trainers and educators for professional development.



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Demonstration (Chat GPT)



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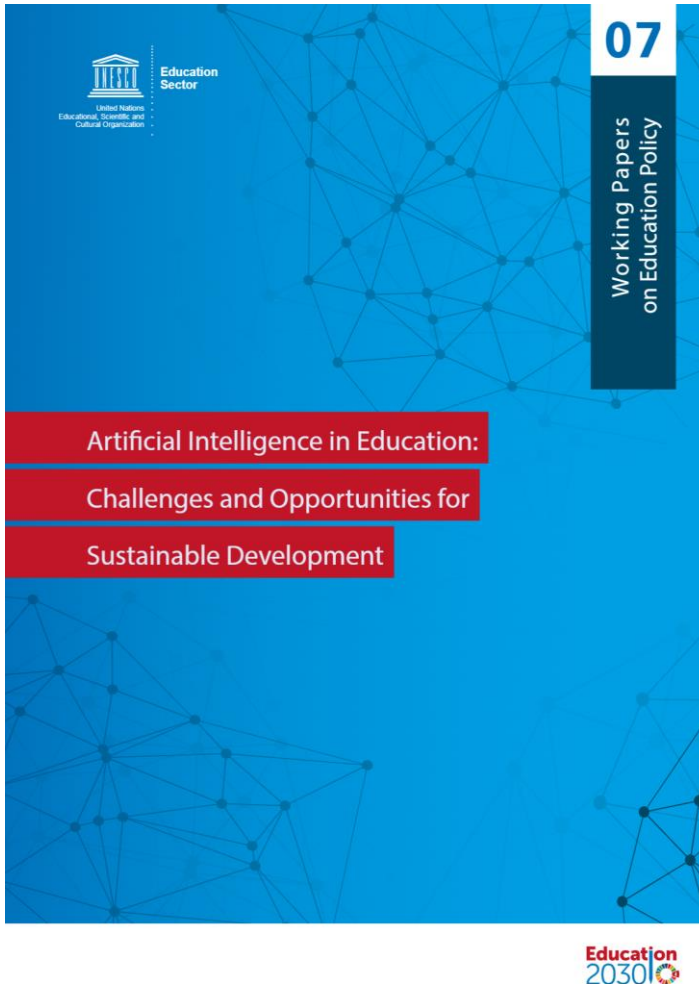
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JP
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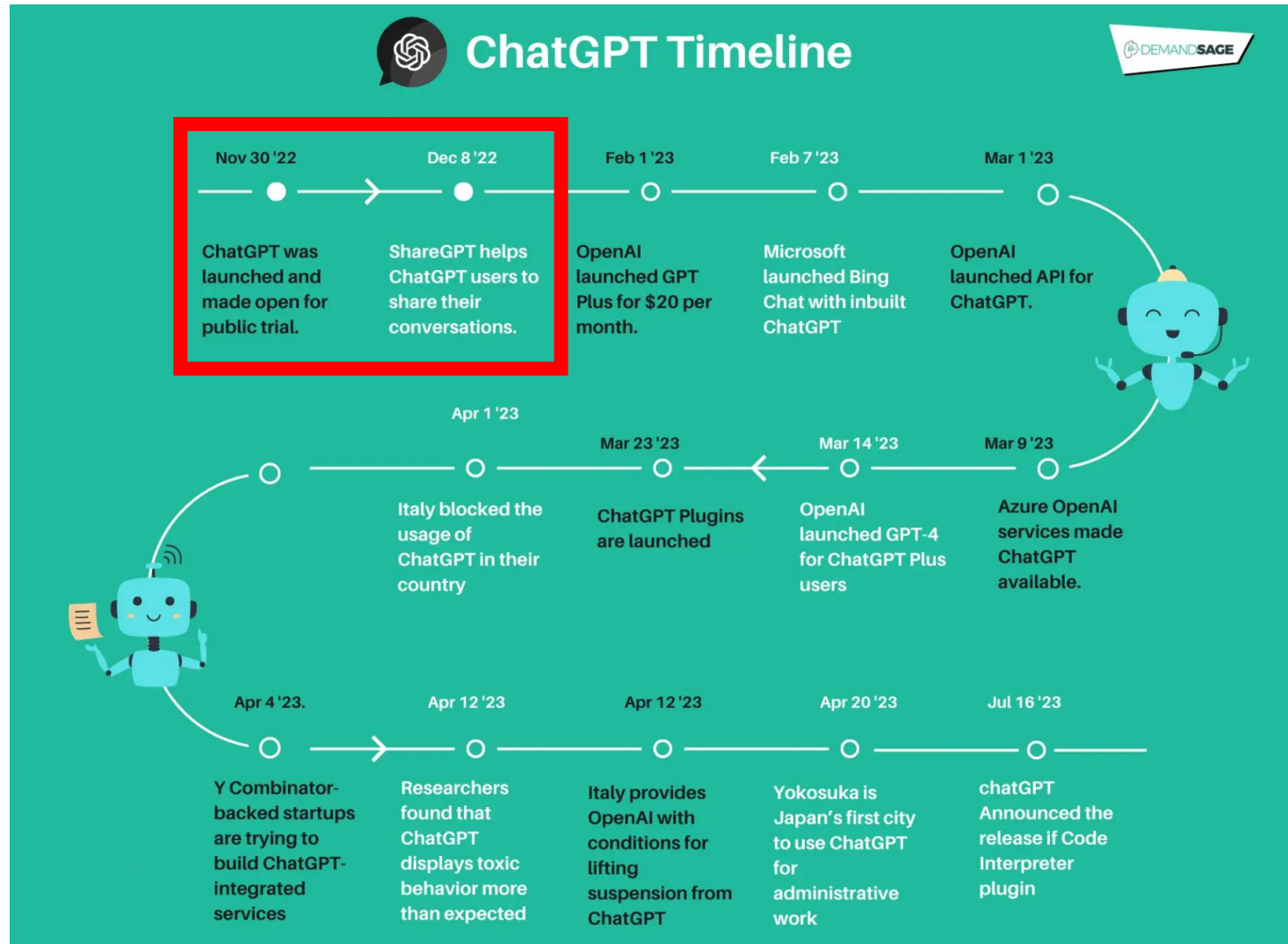
Year	Milestone	Explanation	Implementation Challenges	Needed Resources
1	Establishment of a Central AI Steering Committee	Form a committee with educational experts, technologists, and policy makers to integrate AI in teacher education.	Ensuring diverse expertise and aligning goals among stakeholders.	Funding for operations, access to AI and education experts, virtual collaboration tools.
2	Development of an AI-Enhanced Curriculum Framework	Develop a curriculum framework that integrates AI tools into teacher training programs.	Creating a flexible curriculum adaptable across subjects and aligning with educational standards.	Curriculum development experts, AI education tools, collaboration with universities and institutes.
3	Pilot Implementation in Select Educational Institutes	Implement the AI-enhanced curriculum in selected institutes to gather data and feedback.	Resistance to new technology from faculty, need for extensive AI tool training.	Training for educators, AI technology infrastructure, technical and pedagogical support staff.
4	Analysis and Iteration of Curriculum Based on Pilot Feedback	Analyze pilot feedback to adjust the curriculum and implementation strategies.	Addressing diverse feedback, adapting for scalability, maintaining quality.	Data analysis tools, expert panels for curriculum revision, feedback collection channels.
5	Nationwide Rollout and Continuous Professional Development Programs	Roll out the revised curriculum nationwide with ongoing professional development programs.	Managing nationwide rollout logistics, ensuring quality consistency, ongoing funding.	Robust digital infrastructure, continuous funding, network of trainers and educators.

Opportunities and Ways Forward



- ✓ [Need for] a comprehensive public policy on AI for sustainable development
- ✓ Ensuring inclusion and equity in AI in education
- ✓ Preparing teachers for AI-powered education and preparing AI to understand education
- ✓ Developing quality and inclusive data systems
- ✓ Making research on AI in education significant
- ✓ Ethics and transparency in data collection, use and dissemination

Wrapping up: Some Reflections



Thank You

End of Slides



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