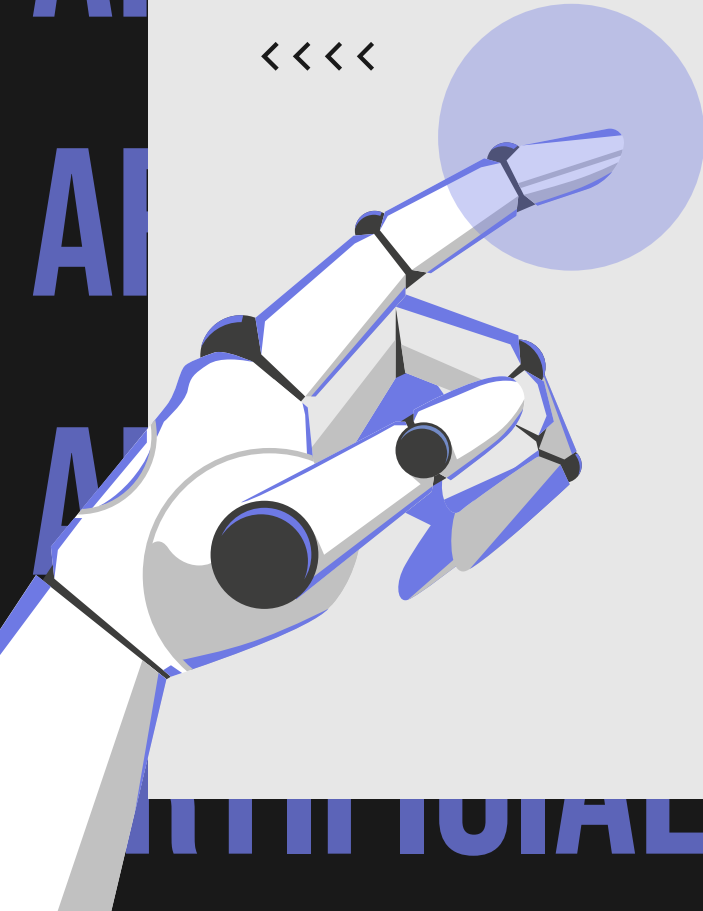


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INSIGHTS ON AI IN EDUCATION AND SKILL DEVELOPMENT

Transforming Teaching, Learning and Workforce Dynamics

B. Shadrach, Director: CEMCA, Commonwealth of Learning
edu@ai24, International Conclave on Generative AI and
the Future of Education 2.0, Organised by Institute of
Human Resource Development, Government of Kerala
8-10 December 2024

NOTES FROM THE ORGANISERS



- Education in the 21st Century is different
 - Brick and mortar to Ubiquitous contexts; Less didactic and more self-driven; New pedagogical methods
- Technology-enabled learning adds new dimension
 - Augmented, Virtual, Extended Realities; New Instructional Design
- Artificial Intelligence adds to the differences
 - Intelligent tutoring systems; Teaching Robots; Learning Analytics and Dashboards; Adaptive Learning Systems; Human-Computer Interactions
- International Conclave on Generative AI and Future of Education 2.0
 - AI-driven teacher training, tech-enabled learning, the use of generative AI tools, and the impact of AI on workforce dynamics would provide invaluable perspectives for educators, policymakers, and industry leaders



OBJECTIVES OF THE TALK



01.

EDUCATION 2.0

Innovation, technology, experience, multi-disciplinary

02.

INTRODUCTION TO AI

Evolution, Theoretical Foundations, Conceptual Research, Implementation

03.

INTRODUCTION TO GENERATIVE AI

AI as a component of Teaching, Learning and Evaluation process

04.

ROLE OF AI IN TECH-ENABLED LEARNING

For Pedagogical and intended research outcomes

05.

ROLE OF AI IN TEACHER TRAINING

Iterative, learner-centered, data-driven, personalised

06.

IMPACT OF AI IN WORKFORCE DYNAMICS

Facilitate value-based tradition towards changes in higher education

ACKNOWLEDGEMENT

Gratitude are due to

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Director, IHRD
Government of Kerala

And

The entire team of organisers
edu@ai24

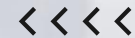
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ARTIFI
INTELL
(AI)

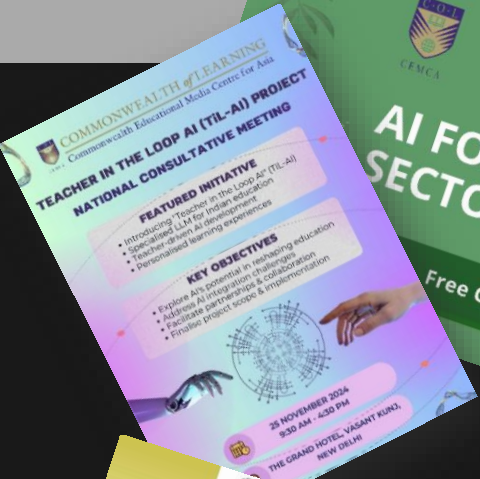
COMMONWEALTH OF LEARNING

COL's mission is to help governments, institutions and organisations expand the scale, efficiency and quality of learning by using appropriate open, distance and technology-based approaches. COL aims to:

- build on its expertise in ODL, OER and TEL to play a more influential role in national policy development and implementation;
 - invest in innovations and research;
 - support the digital transformation of institutions and organisations;
 - promote gender equality; and
- implement a rigorous monitoring and evaluation plan.



CEMCA, AI and OER



- AI for Teachers online course with MIT, US
- AI for Teachers online training programme with NCERT, India
- AI Literacy for Farmers with GPAI and INRIA
- Scale-up of AI Literacy in India and other GPAI nations
- AI and Future of Work within GPAI-OECD
- GenAI course for the Vice Chancellors with Coursera
- Teacher in the Loop AI project of COL



01.

EDUCATION 2.0

Innovation, technology, experience,
multi-disciplinary, skill-orientation



EVOLUTION



Innovation: Liberating and helping to create but more importantly, to make education accessible anytime, anywhere, and to anyone

Technology: A great access, archival and open tool of today that offers one an experience

Experience: Virtual field trips, simulation and interactive activities; invokes blended learning approaches and human-technology collaboration

Multi-disciplinary: Conducive policy structures and credit transfer frameworks have been created

Skill-orientation: 21st Century skills, critical thinking, problem-solving, collaboration and communication



02.

INTRODUCTION TO AI

Evolution, Theoretical Foundations,
Conceptual Research, Implementation



EVOLUTION



ERAS

1950-70: Mimic era
1970-90: Two winters
1990-2010: Resurgent era
2010 - : Present era



STAGES

Reactive AI
Limited Memory AI
Theory of Mind AI
Self-awareness AI
General Intelligence AI



FOUNDATION

Logic
Probability
Machine Learning
Data Mining

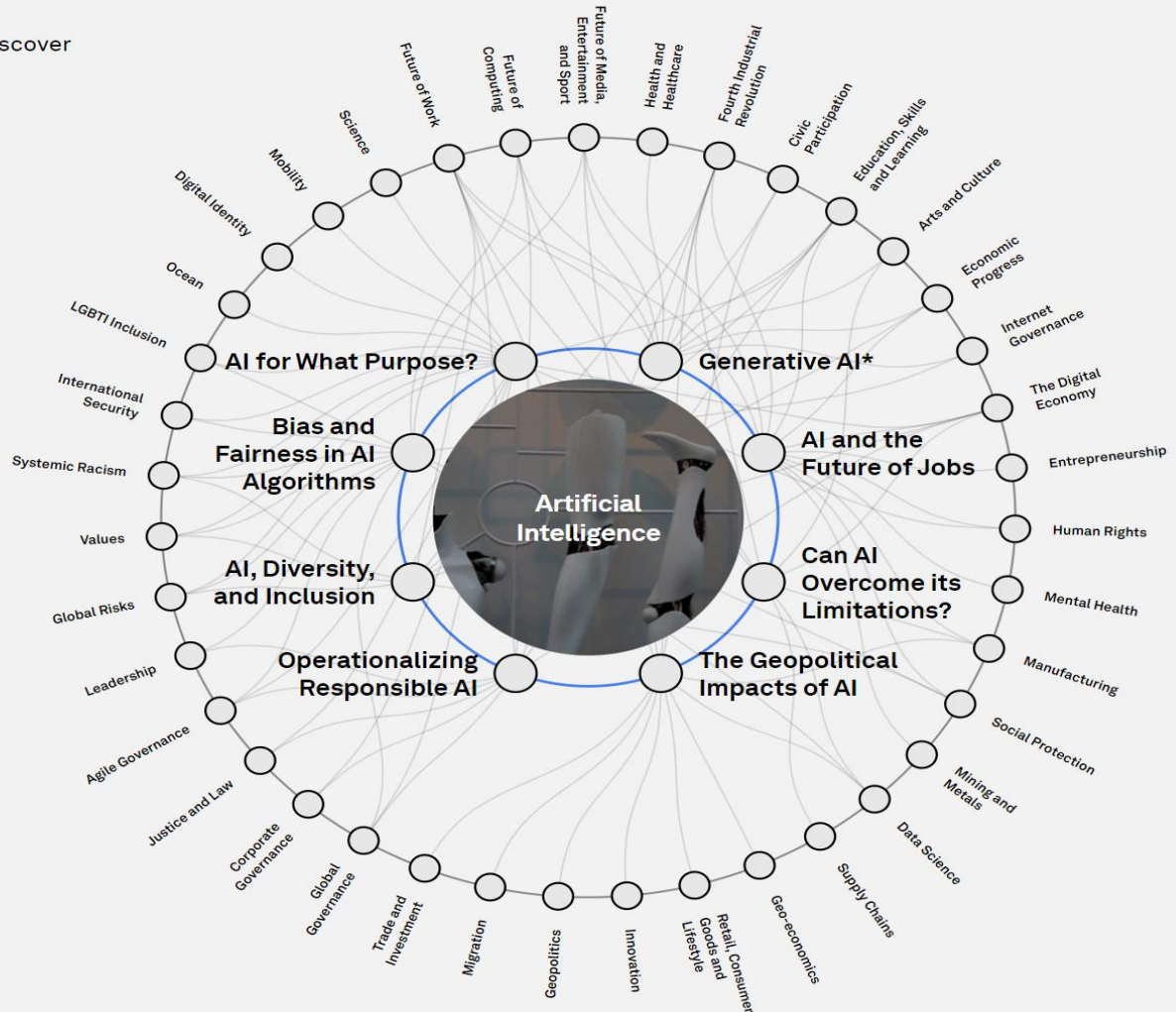
← Discover



EVOLUTION

AI

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03.

INTRODUCTION TO GEN AI

As a component of Teaching, Learning and
Evaluation process



PROBLEM VS. SOLUTION



PROBLEM

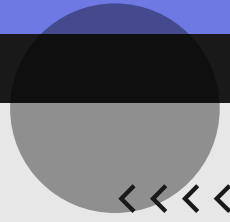
In Teaching/Learning?
In Assessment?
In Outcome-based Education?
To Teachers?

In Teaching/Learning?
In Assessment?
In Outcome-based Education?
To Teachers?

SOLUTION



ARTIFICIAL INTELLIGENCE (AI)



04.

ROLE AI IN TECH-ENABLED LEARNING

For Pedagogical and intended research
outcomes



ITI Electrician Course Transition to Blended Learning

Effective Hours %	Content Category	Possible Transition		Effective Transition	
		Online	Face2Face	Online	Face2Face
30	Theory - all aspects	80 :	20	24 :	06
35	Practical - measurements & tests	60 :	40	21 :	14
35	Core Practical - circuits & machines	20 :	80	07 :	28
100	Total			52 :	48

Applicability of Online Tools and Experiences to ITI Electrician Course

Content Category	Online Tools and Experiences			
	Audio-Visual		Interactive	Immersive
	Lectures	Illustrations / Demos		
Theory - all aspects	●	●	●	
Practical - measurements & tests	◐	●	●	◐
Core Practical - circuits & machines	◐	●	●	●
● High Applicability			◐ Medium Applicability	

Enhancing the Efficacy of
ITI Electrician Course in India



No.	Learning Outcomes	Learning Outcomes			Key Practical Activities	Category
		Theo	Prac	Total		
Year 1						
1	Safety	6	18	24	Identify / Practice	S/T
2	Trade Tools	4	22	26	Identify / Practice	S/T
3	Electrical Wiring Joints	20	95	115	Practice / Test	C/B
4	Electrical & Magnetic Circuits	36	160	196	Measure	M/T
5	Batteries & Solar Cells	10	50	60	Prepare/ assemble & practice	C/B
6	Wiring System	42	200	242	Prepare/ assemble & practice	C/B
7	Earthing Installation	7	25	32	Prepare and test	C/B
8	Illumination System	10	45	55	Prepare/ assemble & practice	C/B
9	Measuring Instruments	8	50	58	Measure	M/T
10	Calibrate Instruments	5	25	30	Measure	M/T
11	Domestic Appliances	10	75	85	Install, detect faults, repair	E/M
12	Transformer	12	75	87	Test & maintain	E/M
13	Engineering Drawing	40	0	40	Read & apply	D/C
14	Workshop Calculations	30	0	30	Understand & apply	D/C
15	Employability Skills	120	0	120	Understand & apply	E/S
Total Year 1		360	840	1200		
On -the -Job Training / Project Work			150	150		OJT
Year 2						
1	DC Machine	9	35	44	Commission & Test	E/M
2	DC Machine	24	77	101	Test & Maintain	E/M
3	DC Motor Wiring	9	35	44	Perform / Practice	E/M
4	AC 3 -phase motor	26	80	106	Commission / Test	E/M
5	AC 3 -phase motor winding	9	23	32	Perform / Practice	E/M
6	AC 1 -phase motor	12	39	51	Commission / Test	E/M
7	AC 1 -phase motor	12	50	62	Test & Maintain	E/M
8	Alternator / MG set	22	75	97	Install & test	E/M
9	Electronic Circuits	31	99	130	Construct & test	C/B
10	Control Cabinet Wiring	24	82	106	Construct & test	C/B
11	AC & DC Motor - Speed Control	11	50	61	Test	M/T
12	Inverter/Stabilizer/UPS	10	50	60	Construct, test, maintain	E/M
13	Power Plant Layout	4	23	27	Draw, visit	E/M
14	Solar Panel	7	25	32	Draw, assemble	
15	Overhead Domestic Service Line	10	50	60	Draw, install, measure	C/B
16	Circuit Breaker	4	25	29	Test	M/T
17	EV Charging Station	4	22	26	Install and test	E/M
18	Engineering Drawing	40	0	40	Read & apply	D/C
19	Workshop Calculations	32	0	32	Understand & apply	D/C
20	Employability Skills	60	0	60	Understand & apply	E/S
Total Year 2		360	840	1200		
On -the -Job Training / Project Work			150	150		OJT
Grand Total		720	1680	2400		



Towards Developing Blended Learning Policy at the Institutional Level

A Discussion Paper



B. Shadrach Sherya Sareen

The **overall aim of the proposed ITI Electrician Blended Programme** is to enhance its efficacy and efficiency. The operational design and implementation will attempt to:

- *Provide a significantly better learning and teaching experience* – which is educative and empowering – lively, engaging and rewarding
- *Reduce time and provide flexibility to the student* – to learn at their pace and time depending on their circumstances in a synchronous or asynchronous manner. Depending on the interest and capability of student, it should be possible to complete the course as follows:
 - Highly motivated student : 1.0 year
 - Normal student : 1.5 years
 - Average student : 2.0 years
 - Learning while working : > 2.0 years

ORIENTATION TO AI IN EDUCATION



PERCEPTION

Panacea
Threat
Divide



REAL

Ethics and Bias
Inflexible
No creativity
Vulnerable



POSSIBILITIES

Work and impact
Weaponization
Weakening of institutions
Challenge to basic rights



TEACHING/LEARNING

Personalisation
Diversity, Equity and Inclusion
New Experiences - Virtual
Tutors, Chatbots, Gamification
Information and Media Literacy



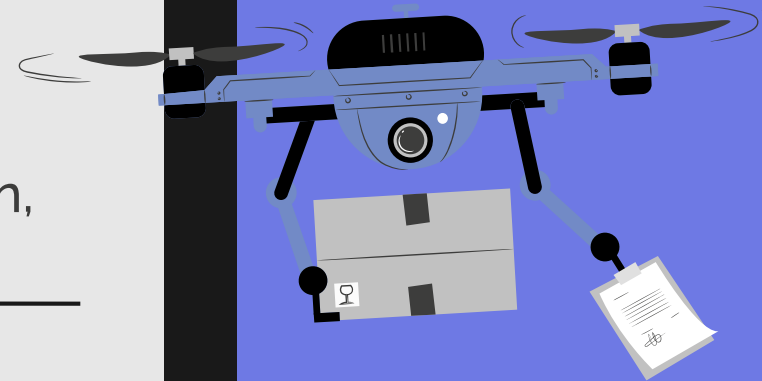
ASSESSMENT/EVALUATION

AI powered grading
AI as a buddy for feedback
AI powered assessments
Adaptive Assessments

05.

ROLE OF AI IN TEACHER TRAINING

Iterative, learner-centred, data-driven,
personalised



/// STEER FOR AI IN EDUCATION



DATA

Incomparable resource



COST

Moore's Law working?



POWER

Again, Moore is alive?



PERSONALISATION

Learners' demand for experience



EFFICIENCY

Improving outcomes



PRODUCTIVITY

Scaling and widening,
and narrowing

AI applications and benefits in education industry

- Personalized learning
- Task automation
- Smart content creation
- Adaptable access
- Determining classroom vulnerabilities
- Closing skill gap
- Customized data-based feedback
- 24*7 assistance with conversational AI
- Secure and decentralized learning systems
- AI in examinations

06.

IMPACT OF AI IN WORKFORCE DYNAMICS

Facilitate value-based tradition towards
changes in higher education



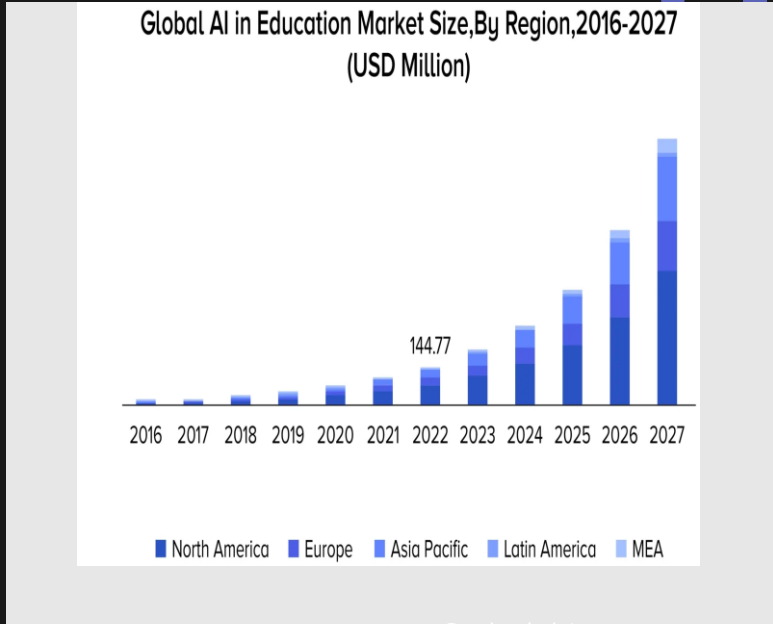
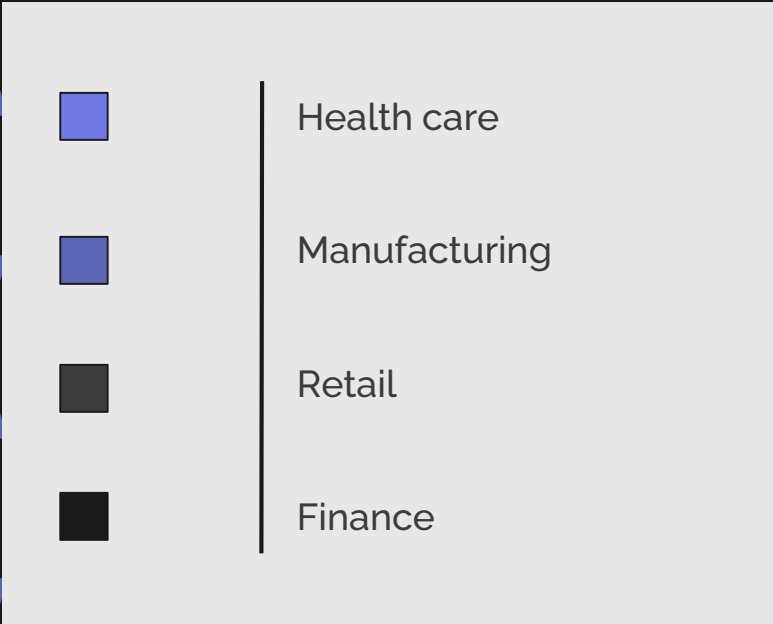


AI GEOGRAPHIES / / / / / / / /



AI
AI
ARTIFICIAL INTELLIGENCE (AI)

MARKET SHARE



Gminsights.com





OUR PARTNERS



EDUCATIONISTS

Who wish to shape-up the AI world

TECHNOLOGISTS

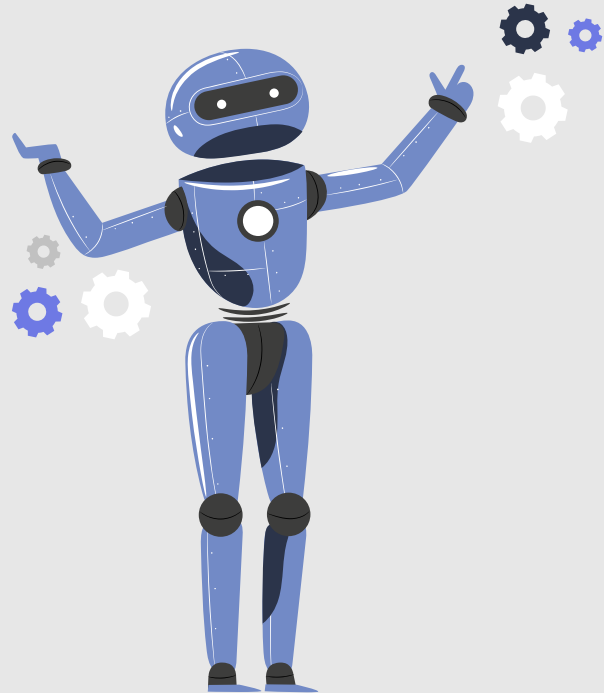
Who are bent upon changing the world

MARKET

Tunes itself to 21st Century culture and practices

LEARNERS

Who will require to be adaptive, creative



AL
EN
AD

"Artificial intelligence is the future of education." -
Sugata Mitra

"AI has the potential to revolutionize education by providing personalized learning experiences, making it more engaging and effective." - Sal Khan

"AI can help to prepare students for the jobs of the future by teaching them the skills they need to be successful in a rapidly changing world." - Andrew Ng





>>>>
EDUCATION AT THE DOORSTEPS – WITH A DIFFERENCE?

THANKS



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