

AI and Education

Teachers PD | 13 Dec 2023

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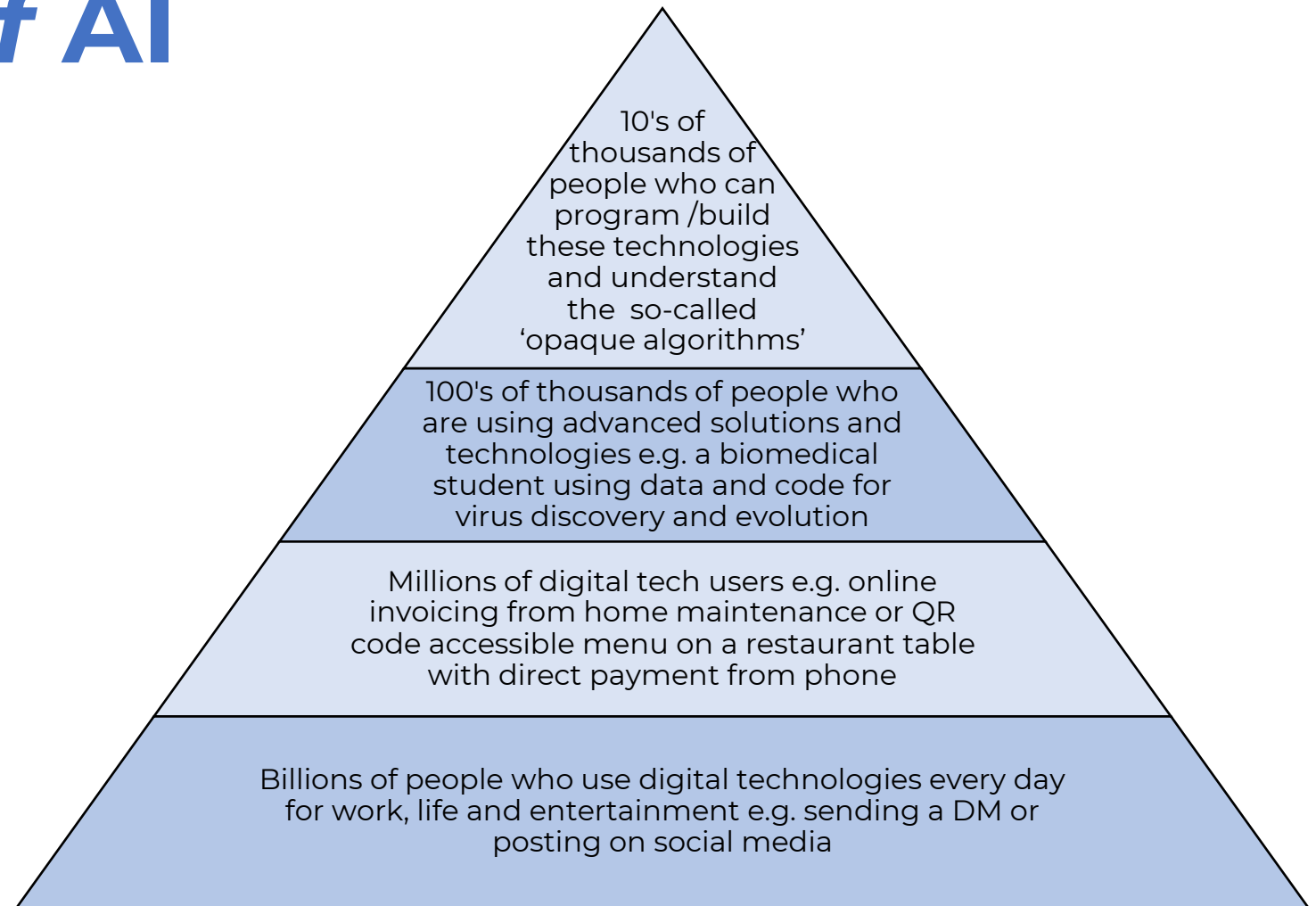


Tomorrow's Tech Leaders

Education of AI

Numerous reports¹ indicate acute skills shortages with demand for digitally skilled workers expected to increase to

1.2 Million by 2030



Digital Skills Pyramid

¹Tech Council of Australia

Human AI Teaming



Education *for* AI

- 7 out of 10 fastest growing jobs are related to IT ¹
- More than 75% of companies are looking to adopt AI, big data and cloud technologies in the next 5 years ¹
- Structural labour market churn of 23%, (an aggregate measure of disruption with a decrease of 14 million jobs) ¹
- Need for AI-Employee Alliance and AI Aptitude to reduce digital debt ²
- Business leaders are 2X more likely to be interested in productivity increase than headcount decrease ²

1. World Economic Forum. Future of Jobs report 2023

2. Microsoft 2023 Work Trend Index Annual Report. Will AI Fix Work?

3. Danielle Abril. AI isn't yet going to take your job — but you may have to work with it. Washington Post. March 20, 2023

**AI isn't yet going
to take your job —
but you may have
to work with it ³**

AI in the classroom



Photo Ack: Chris Dede.
Educating in a world of AI.
Harvard EdCast. Feb 2023

Education *with* AI

MANAGEMENT SYSTEMS

Abre, activeclass, Amplo, Arist, august schools, Blair, brightwheel, CASTOFLY, central, Cirkled in, class, classtag, Clayful, edpuzzle, engage, formative, GoGuardian, gravity stack, incidentIQ, INSPACE, JUNO, Kaleidoscope, Learnfuly, Leif, mainstay, Mantra Health, MOS, NEPOWER Financing, One-eleven, Parallel, poised, POSSIP, Robin, saturn, Seesaw, sherpa.ai, skilljar, Stellic, Stride, timelyDMD, Tivuti, Vemo, WORKRAMP, YOQBIC

ONLINE LEARNING

abotund, Acadeum, APDS, CINTANA, eome, FOUNDRY, InStride, m00z00m, Outlier, Outschool, PEDAGO, photomath, QUOTTLY, Ripen, SchoolLinks, smashcut, Studio, tilli, VERTO, vivvi, WeCare, Wonderschool, XIP, Yellowbrick, ZIGAZO

WORKFORCE & SKILLS

ACTO, BetterUp, Bravely, CYBRARY, DOMESTIKA, educative, ethena, Forage, GetSetUp, GUILD, iHandshake, Hone, metafy, Modal, motioo, Online MedEd, pathrise, PeopleGrove, Poca, prooflearn, RAMPED, RANGEFORCE, SkyHive, Sounding Board, Spekit, SVAcademy, Tango, TaskHuman, THRIVE GLOBAL, Thriver, together, Torch, Trainual

ADVANCED TECHNOLOGY

Amira, AUTHORITY, EDSIGHTS, eightfold.ai, Immense, Ivyai, MERLYN MIND, Mursion, OSSQ, PRAXIS LABS, ROYBI, STRIVR, TALESPIN, TRANSFRVR, verbit

LANGUAGE LEARNING

CAMBLY, fluent, Slang, Speak, toucan, voxy

INTERNATIONAL EDUCATION

ApplyBoard, SHORELIGHT EDUCATION

CONTENT

ASTOUND, Circlein, Cognitive ToyBox, neonotes, fiveable, hellosaurus, InScribe, KIDDOM, Literal, newsela, NewtonX, Subject, VOOKS, WAYFINDER

TUTORING & TEST PREP

Achievable, Numerade, PAPER, prenda, Tract, Tutoring by Teachers, Upswing

TESTING

Accredible, CDPYLEAKS, examity, Filtered, Honorlock, imocha, Literably, proctorio, WORKERA, YARDSTIK

2022 NORTH AMERICA EDTECH 200

Holon IQ

By 2025, more than 1 billion students forecast as consumers of EdTech

HolonIQ 2022 North America EdTech200 <https://www.holoniq.com>

AIEd – Challenges & Opportunities

- Integration into educational ecosystem ³
- Training to build educators' competence
- Lack of pedagogical soundness, inaccuracies and biases
- Social license ³ and equity concerns ²
- AI regulation for education ¹
- Data sources, ownership and privacy ³
- Limited research to evaluate effects on student learning and experience
- Personalised tutoring and feedback at scale ⁴
- Content creation and adaptation
- Scaffolding learning activities (GenAI)
 - Class syllabus
 - Learning objectives
 - Lesson plans
 - Rubrics
- Boosting educator productivity
- Learner empowerment ³

1. Holmes, Wayne, Jen Persson, Irene-Angelica Chounta, Barbara Wasson, and Vania Dimitrova. Artificial intelligence and education: A critical view through the lens of human rights, democracy and the rule of law. Council of Europe, 2022.

2. Judy Kay. Grand Challenges for Pervasive Technology to Transform Pervasive Education. IEEE Pervasive Computing 21, no. 3 (2022): 32-41.

3. Dragan Gašević, George Siemens, Shazia Sadiq. Empowering Learners for the age of Artificial Intelligence, Computers and Education: Artificial Intelligence. 2003

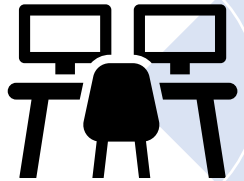
4. Ali Darvishi, Hassan Khosravi, Shazia Sadiq, Dragan Gasevic: Incorporating AI and learning analytics to build trustworthy peer assessment systems. Br. J. Educ. Technol. 53(4): 844-875 (2022)

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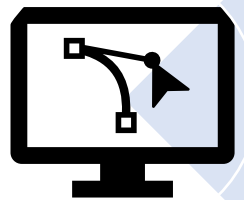
Education *of* AI

and implications for
curriculums and cohorts



Education *for* AI

in future work environments
that are inseparable from
technology



Education *with* AI

technology enhanced
education platforms and tools

- Ali Darvishi, Hassan Khosravi, Afshin Rahimi, Shazia Sadiq, Dragan Gasevic: **Assessing the Quality of Student-Generated Content at Scale: A Comparative Analysis of Peer-Review Models.** IEEE Trans. Learn. Technol. 16(1): 106-120 (2023)
- Hassan Khosravi, Simon Buckingham Shum, Guanliang Chen, Cristina Conati, Yi-Shan Tsai, Judy Kay, Simon Knight, Roberto Martínez Maldonado, Shazia Sadiq, Dragan Gasevic:**Explainable Artificial Intelligence in education.** Comput. Educ. Artif. Intell. 3: 100074 (2022)
- Ali Darvishi, Hassan Khosravi, Shazia Sadiq, Dragan Gasevic: **Incorporating AI and learning analytics to build trustworthy peer assessment systems.** Br. J. Educ. Technol. 53(4): 844-875 (2022)
- Shiva Shabaninejad, Hassan Khosravi, Solmaz Abdi, Marta Indulska, Shazia Sadiq: Incorporating Explainable **Learning Analytics to Assist Educators with Identifying Students in Need of Attention.** L@S 2022: 384-388
- Hassan Khosravi, Gianluca Demartini, Shazia Sadiq, Dragan Gasevic: **Charting the Design and Analytics Agenda of Learnersourcing Systems.** LAK 2021: 32-42
- Solmaz Abdi, Hassan Khosravi, Shazia Sadiq, Dragan Gasevic: **Complementing educational recommender systems with open learner models.** LAK 2020: 360-365

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