Digital Literacy 2030

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WINONA STATE UNIVERSITY
COLLEGE OF EDUCATION
Leadership Education Department

Digital Literacy for 2030

As education moves toward 2030, the concept of literacy must expand beyond traditional reading and writing to meet the realities of an AI-driven, data-rich, and digitally interconnected world. This session examines how literacy has continually evolved in response to technological change, from writing and print culture to mass media and digital environments, and why the current moment represents a critical inflection point. The rapid integration of artificial intelligence, algorithmic systems, and digital platforms raises urgent questions about what it now means to be -literate- and how schools can prepare learners for this new landscape. Today's students must navigate misinformation, algorithmically curated information, data-driven decision-making, and ethical challenges surrounding privacy, surveillance, and AI-generated content. Without an updated understanding of literacy, educational practices risk remaining anchored in outdated models that no longer align with civic, academic, or workforce expectations. Educators are increasingly responsible for helping learners think critically, adapt continuously, and exercise human judgment in collaboration with intelligent systems. Participants will be encouraged to rethink instructional practices, curriculum design, and assessment through the lens of emerging literacies, including AI and algorithmic literacy, data literacy, critical digital literacy, and ethical reasoning. Practical shifts, such as teaching students how algorithms shape information access, emphasizing source evaluation and misinformation detection, and modeling responsible human -AI collaboration, will be highlighted as ways to increase both educator effectiveness and student success.

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A Little Context About Me

- Loras College
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- Secondary history teacher
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- 13 years as PK-12 superintendent
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Learning Objectives

- Understand the changing nature of literacy over the last 3000 years.
- Recognize the impact of AI and digital technologies on literacy.
- Recognize the need for data literacy as well as digital literacy.
- Identify emerging literacies for the future, including AI and algorithmic literacy, critical digital literacy, and global and cultural literacy.

The Changing Nature of Literacy Over the Last 3000 Years





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New technologies cause problems

The invention of writing will ruin the memory of scholars ~ Socrates

The story of Thamus and Theuth (Thoth)

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Literacy c1776



Alexander, however, instead of yielding to their seditious clamours, showed a just sense of his merit and services, by appointing him his colleague in the consulship, and defraying from his own treasury the expense of that vain dignity; but, as it was justly apprehended that if the soldiers beheld him with the ensigns of his office *miserere contumeliam sanguinem, in primo magistratus civitatum recessit,* by the emperor's advice, from the city, and spent the greatest part of his consulship at his villas in Campania.

The lenity of the emperor confirmed the insolence of the troops; the legions imitated the example of the guards, *και να υπερασπιστεί το φρούριο για μέρες*

Traditional Literacy (Late 18th - 19th Century)



Industrial Revolution and Common Schools (19th Century)



Quills v Steel Pens

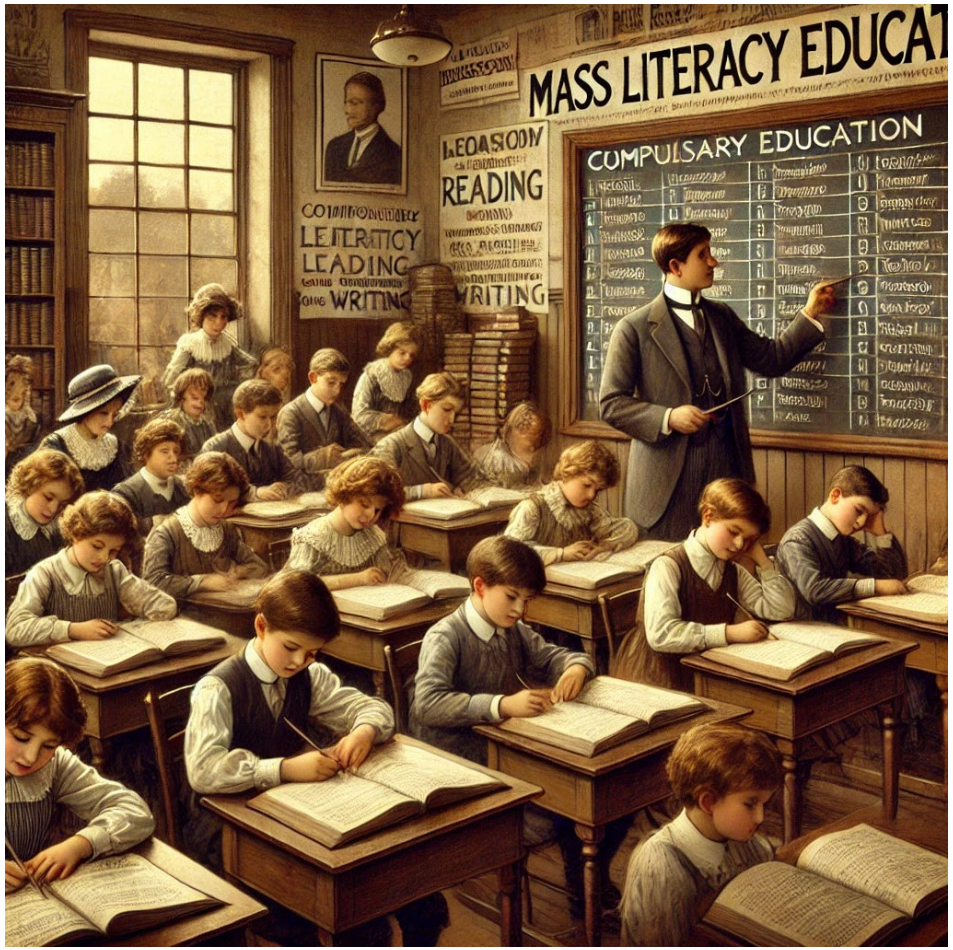
When the steel pen entered education, a revolution in school practice [occurred]. Writing with the quill had been a slow, unhurried art.... Since writing was a slow art, pride was taken in it.... The steel pen made it possible to write continuously over long periods. There was ever increasing pressure on the pupil to produce written material in quantity."

This passage highlights that with steel pens, students no longer paused to cut and mend quills, changing both the pace and craftsmanship of writing instruction.

Additionally, from an 1836 excerpt featured in *Godey's Lady's Book*: Even young ladies "ought to be able to make or mend a pen herself," pronounced the author ... at a time when steel pens were already in use but were found to be "hard and unpleasant."

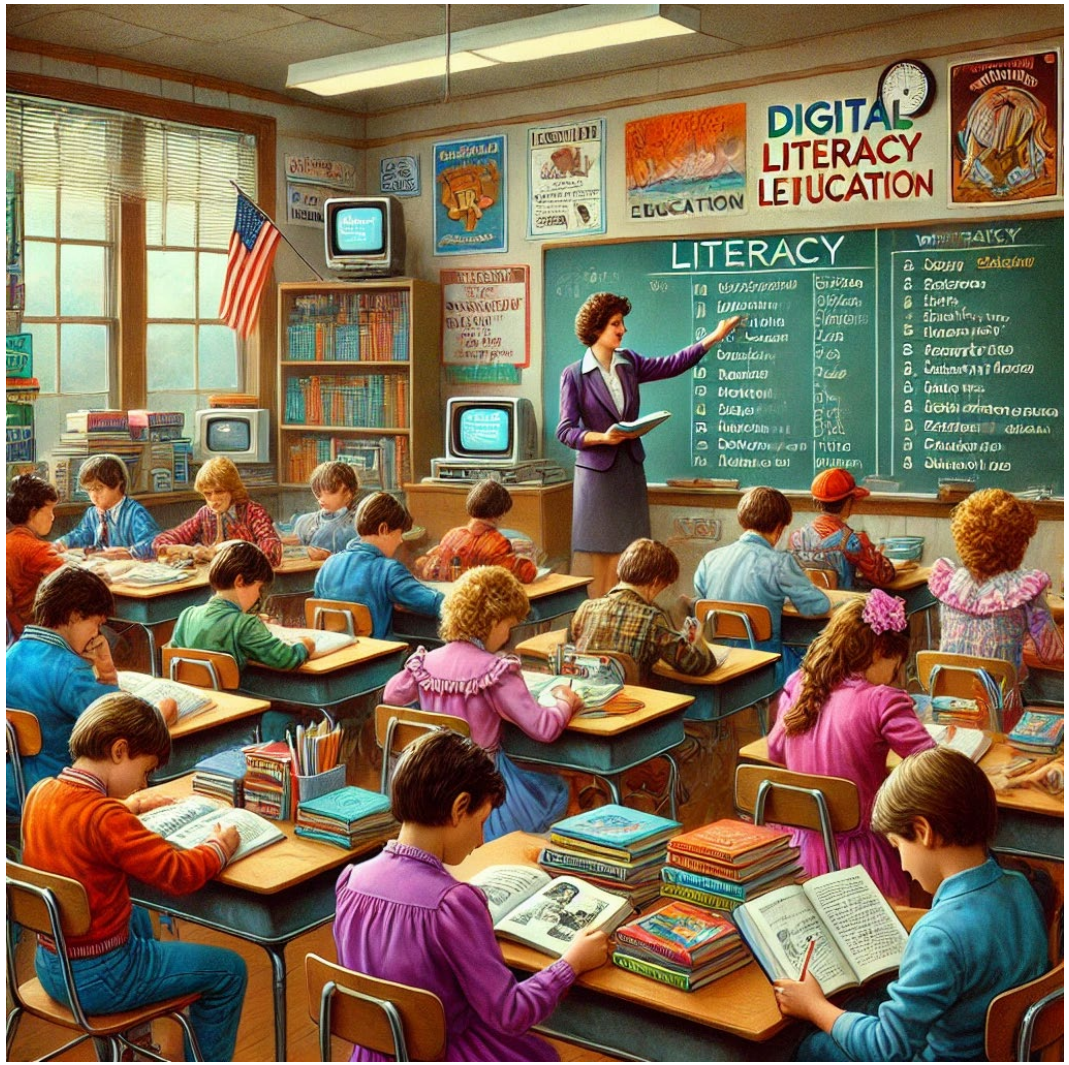
From mansionmusings.wordpress.com vis ChatGPT

Mass Literacy and Print Culture (Late 19th - Mid-20th Century)



Emergence of Media Literacy (Early 20th Century)

- Rise of mass media: newspapers, radio, and early television
- Public education includes media literacy elements, such as critical reading and comprehension skills
- Influence of propaganda and advertising raises concerns about media influence on public opinion



Literacy from the 1950s

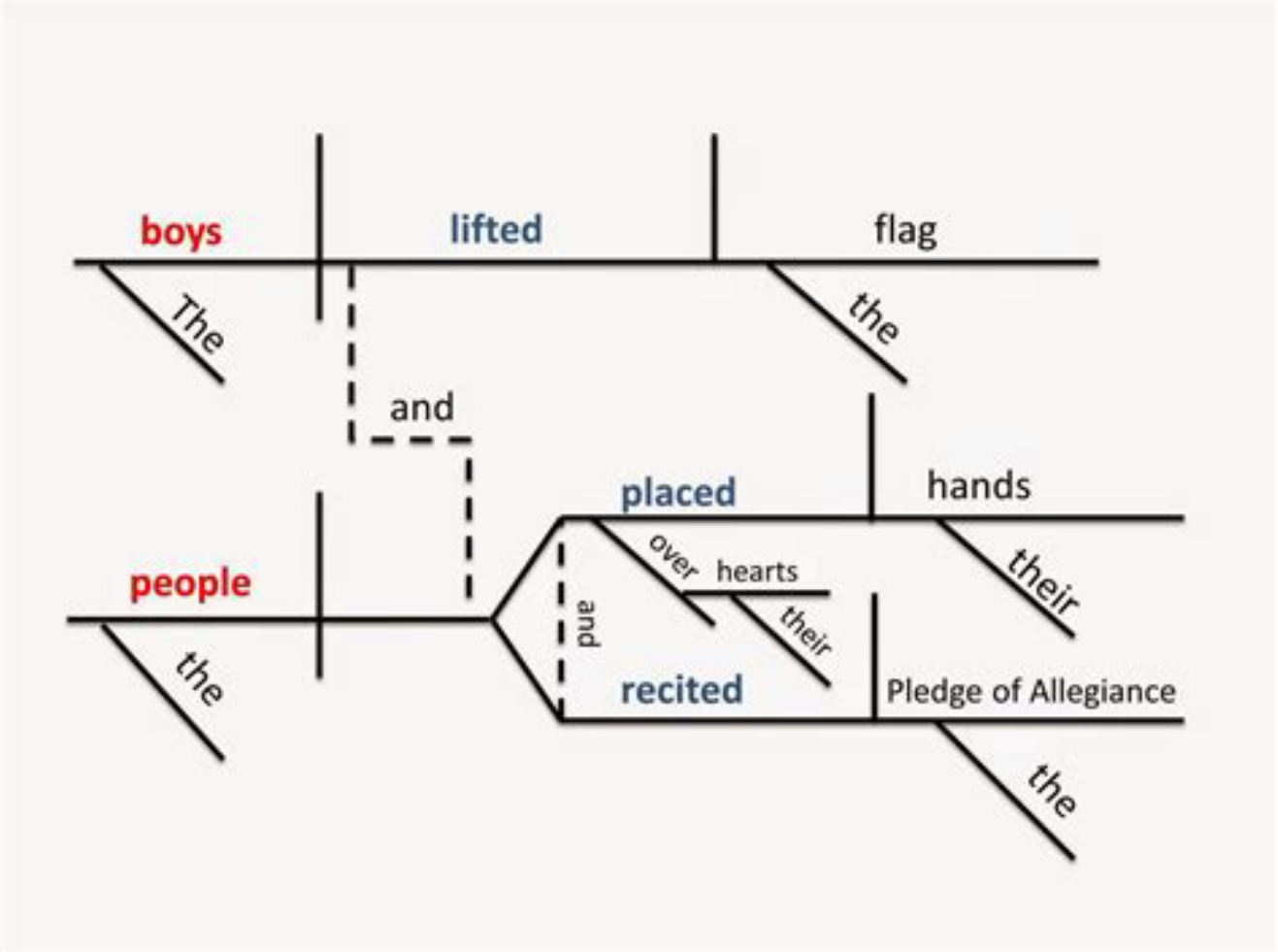
Alphabetical Indexing and Dictionary Navigation

- Before digital tools, students were explicitly taught how to:

Alphabetize words and names with precision (often to the third or fourth letter),

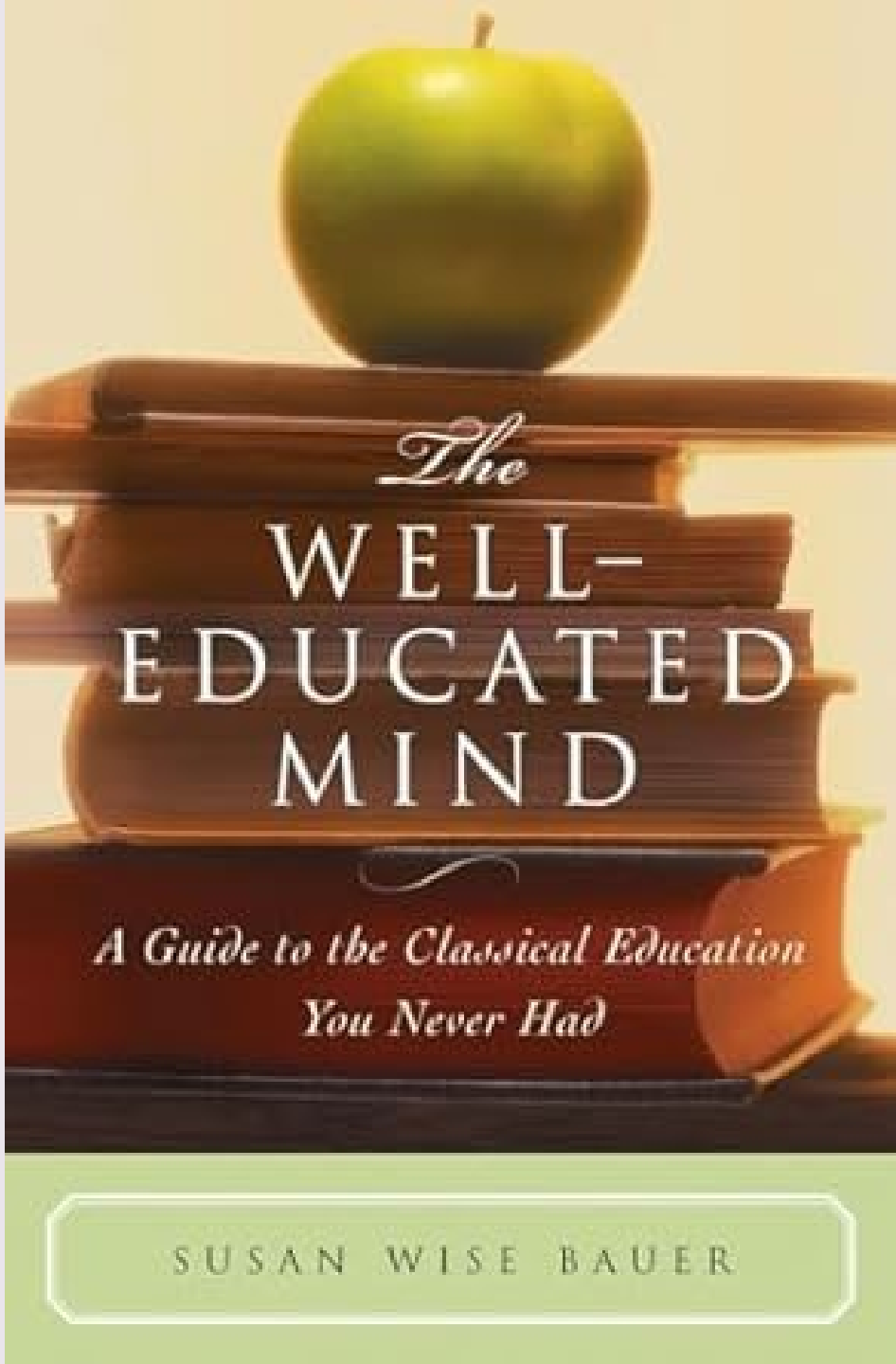
- **Use guide words** at the top of dictionary pages,
- **Efficiently locate entries** in encyclopedias, thesauruses, and card catalogs.

Diagraming Sentences



Susan Wise Bauer's guide to classical education





Digital and Technological Literacy (Late 20th Century - Early 21st Century)

Rise of the Computer Age

- Basic literacy expands to include digital literacy (ability to navigate computers, email, and word processing)
- Online communication introduces new literacy forms (hypertext, multimedia content)
- Information overload leads to need for critical evaluation skills

Digital and Technological Literacy (Late 20th Century - Early 21st Century)

Rise of the Information Age

- Proliferation of social media, online news, and digital content consumption
- Increased focus on media literacy to combat misinformation and digital manipulation
- Multimodal literacy: reading and interpreting texts, images, videos, and interactive content

Digital Literacy 2030



Why 2030 Is an Inflection Point

- **Pace:** earlier shifts took generations; generative AI is reaching classrooms in a few years
- **Information:** algorithms and AI now shape and generate what students see, not just deliver it
- **Workforce:** WEF and US Dept of Labor frameworks point to new skill expectations by 2030
- **Data:** everyday decisions depend on questioning and understanding numbers (and other data types) not just reading them

Harbach's 17 Digital Literacy Skills for Teachers

Digital Information Literacy	Learning Platform Management	Inclusive Design and Participation
Data Literacy	Online Communication and Collaboration	Digital Citizenship
Digital Literacy (Foundational)	Technical Troubleshooting and Problem-Solving	Computational Thinking
Digital Lesson Design	Feedback and Assessment	Privacy and Cybersecurity
Copyright and Open Licensing	Accessibility and Universal Design	Adaptability and Continuous Reflection
Digital Content Creation	Digital Wellbeing and Boundaries	

https://medkharbach.com/

STEM and Computational Literacy

- Shift towards coding and computational thinking as part of literacy in education
- AI, automation, and data-driven technologies influencing workforce expectations
- Emphasis on logical reasoning, algorithmic understanding, and problem-solving skills

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Today's Basic Digital Literacy Principles (Howard Rheingold, 2012)

- **Comprehend** digital content critically,
- Recognize the **interdependent nature** of online information and networks,
- Understand the **social dynamics** of digital participation, and
- **Curate** information responsibly in an era of information overload.

Today's Basic Digital Literacy Principles (Hiller Spears, 2019)

- Reading and Consuming Content
- Creating Content
- Sharing Content

THE INEVITABLE

12 TRENDS SHAPING THE FUTURE

KEVIN KELLY



BECOMING
Constant change and evolution

COGNIFYING
Integration with artificial itelligence

FLOWING
Real-time stream of data

SCREENING
Accesssing stream

SHARING
Collaboration & exc ahangee

ACCESSING
Acoessing stream



FILTERING
Personalization & recommendatons

REMIXING
Rearrangement of content

INTERACTING
Merging of humans ana technology

TRACKING
Monitoring & feedback

QUESTIONING
Increasing enquiries

BEGINNING
Post-human era

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Emerging Literacies for the Near Future (2020s - 2030s)

AI and Algorithmic Literacy

- Understanding how artificial intelligence and algorithms shape information access and decision-making
- Ethical concerns around AI bias, surveillance, and data privacy

Critical Digital Literacy and Misinformation Awareness

- Growing need to evaluate sources, detect misinformation, and recognize deepfakes
- Navigating digital ecosystems responsibly and ethically

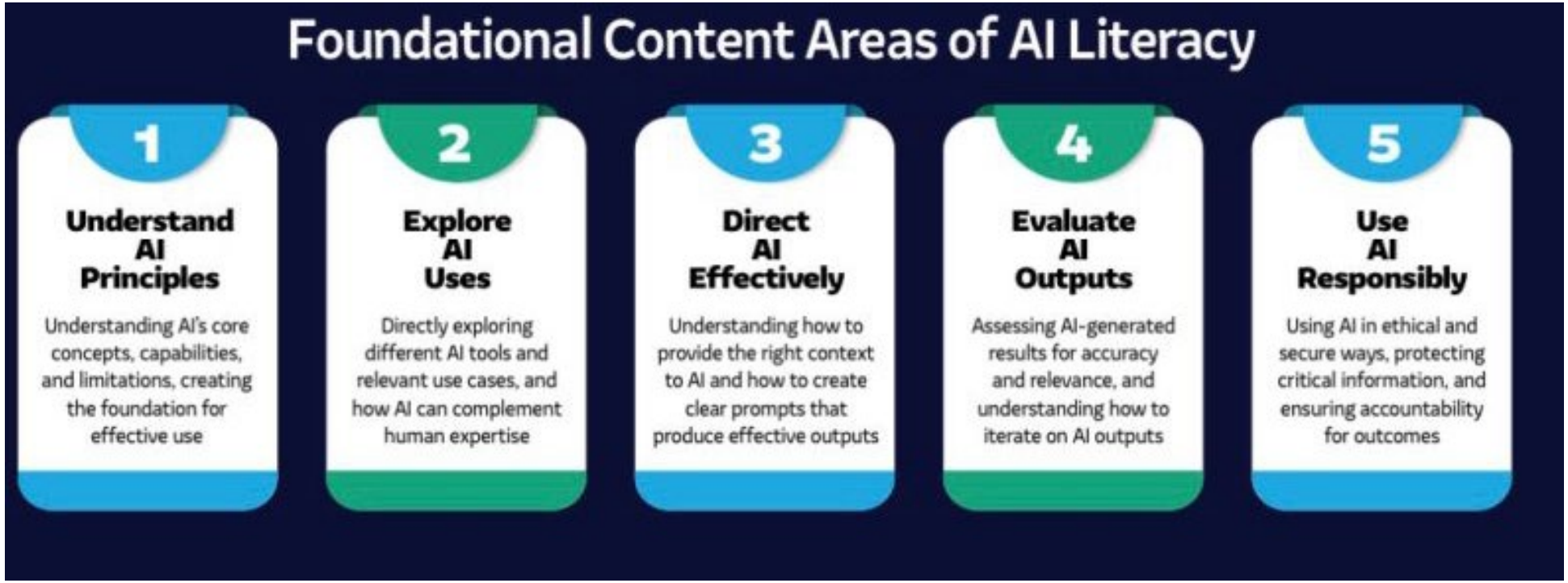
Multimodal and Immersive Literacy

- Literacy in virtual and augmented reality environments (VR/AR)
- Interactive and gamified learning experiences requiring new cognitive skills

Global and Cultural Literacy

- Increased interconnectedness through digital globalization
- Cross-cultural communication and multilingual digital literacy becoming essential

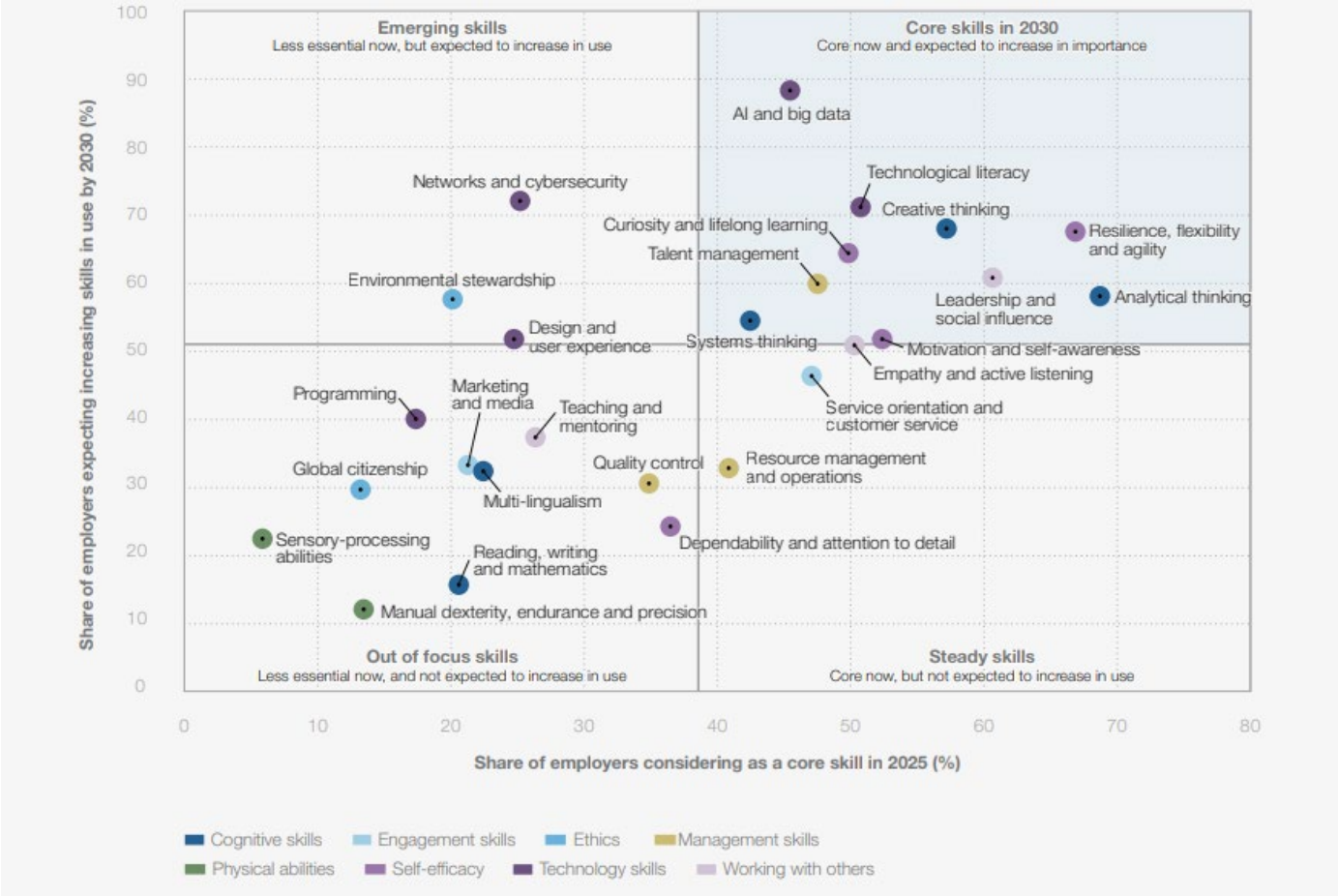
US Dept of Labor AI Literacy Framework



https://www.linkedin.com/posts/kristinalmartin_in-case-you-missed-it-the-united-states-activity-7428787657259905024-qaN8?utm_medium=ios_app&rcm=ACoAAABBnNcBLz4rk9OfWurN9Yny2gVewKRBxDM&utm_source=social_share_video_v2&utm_campaign=gmail

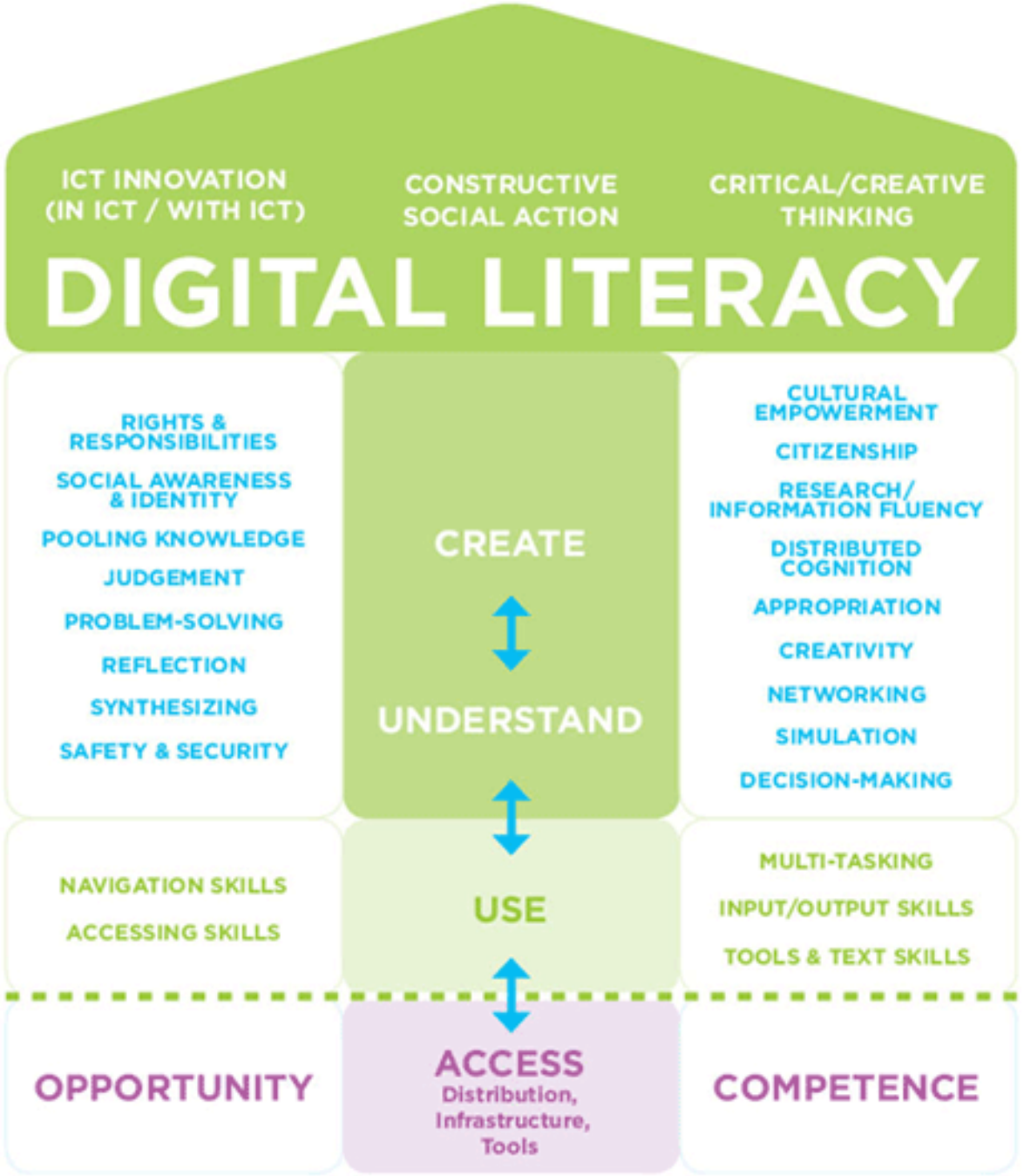
Skills on the Rise from 2025 to 2030

World Economic Forum, 2025



Core 2030 Skills

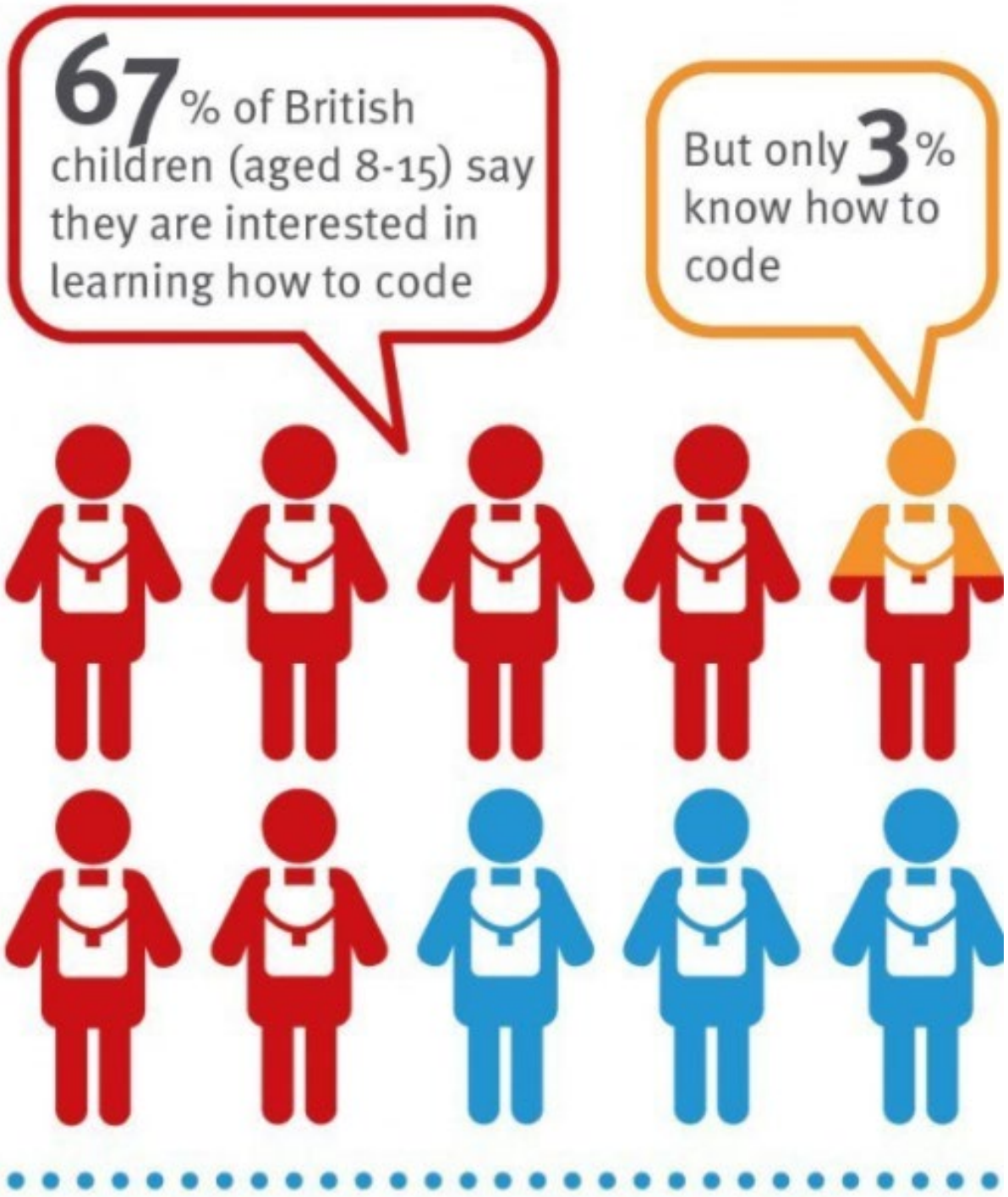
- Use of AI and big data
- Technology literacy
- Analytical / Systems thinking
- Creative thinking



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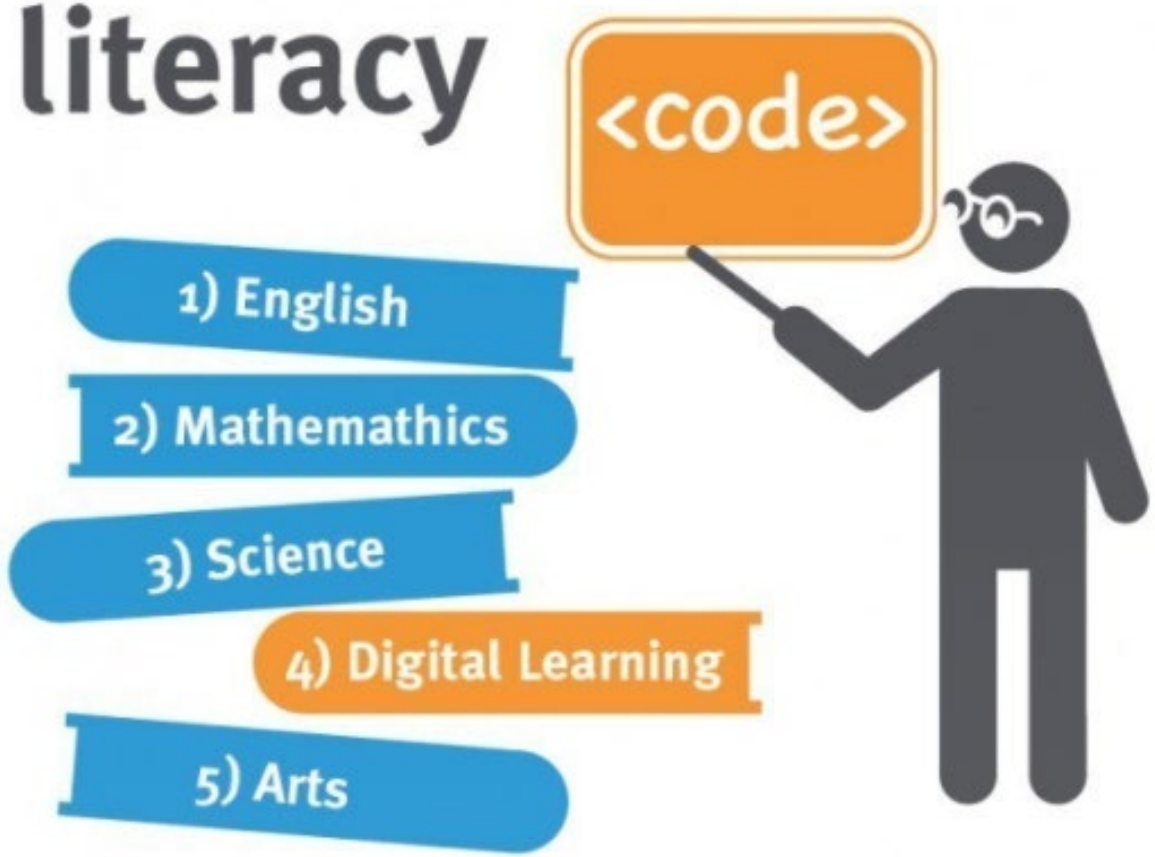


[Hague and Payton (2010) *Digital Literacy Across the Curriculum*, Future Lab



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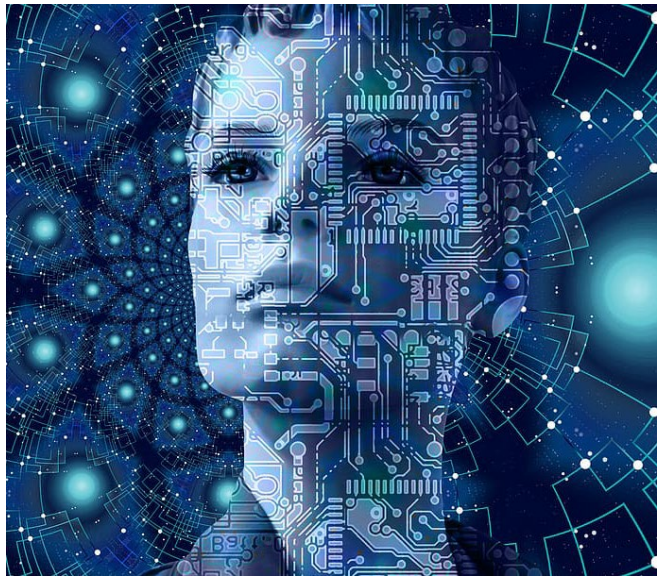
Digital learning becomes fourth literacy



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Digital Literacy Skills for 2030

1. AI Interaction and Literacy
2. Critical Thinking and Evaluation
3. Creativity and Innovation
4. Ethical Reasoning and Judgement
5. Complete Problem Solving
6. Adaptability and Lifelong Learning
7. Interpersonal, Cultural, and Collaboration Skills
8. Data Literacy Skills



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AI Interaction and Literacy

- Be Clear and Specific
- Provide Context
- Use Role Assignment When Helpful
- Break Down Complex Tasks
- Iterate and Refine
- Know the Tools and their Abilities

Some Prompt Cheats (thanks to ChatGPT)

- TL;DR
- ELI5
- FAQ
- YOLO
- TMI
- IMHO
- Pros/Cons
- SWOT
- FAQ

Critical Thinking and Evaluation

- Evaluating digital content for credibility, bias, and purpose
- Identifying misinformation, deepfakes, and algorithmic manipulation
- Applying logic and evidence-based reasoning in digital environments
- Teaching students how to validate sources across multiple platforms

Creativity and Innovation

- Leveraging digital tools to generate original ideas and multimedia content
- Remixing, adapting, and enhancing digital content in new contexts
- Using design thinking and prototyping in digital problem-solving
- Embracing failure as part of creative iteration in online spaces

Ethical Reasoning and Judgement

- Navigating digital privacy, surveillance, and data consent issues
- Understanding the ethical use of AI-generated content and intellectual property
- Encouraging digital civility and empathy in online discourse
- Modeling responsible behavior in digital communities

Complete Problem Solving

- Identifying digital-age problems with multiple variables and stakeholders
- Using digital simulations, AI tools, and data to analyze and resolve challenges
- Collaborating across platforms to co-create solutions
- Documenting and communicating solutions using appropriate digital media

Adaptability and Lifelong Learning

- Keeping pace with evolving platforms, tools, and AI systems
- Engaging in self-directed, just-in-time learning through online resources
- Building a mindset of resilience and curiosity in digital environments
- Regularly updating one’s digital skill set through microlearning or upskilling

Interpersonal, Cultural, and Collaboration Skills

- Navigating diverse virtual teams with cultural competence and situational sensitivity
- Using collaboration tools (e.g., shared documents, project boards, AI co-pilots) effectively
- Understanding digital body language and tone in virtual communication
- Building inclusive online spaces that value diverse perspectives

Which is More Dangerous?





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Death by Type of Incident



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Data Literacy

🔍 **Chart 1: Annual Assault Events & Major Incidents (2016–2025)**

(Note: "Assaults Jan–Jun" reflects the first half of the year; full-year data unavailable except for those intervals.)

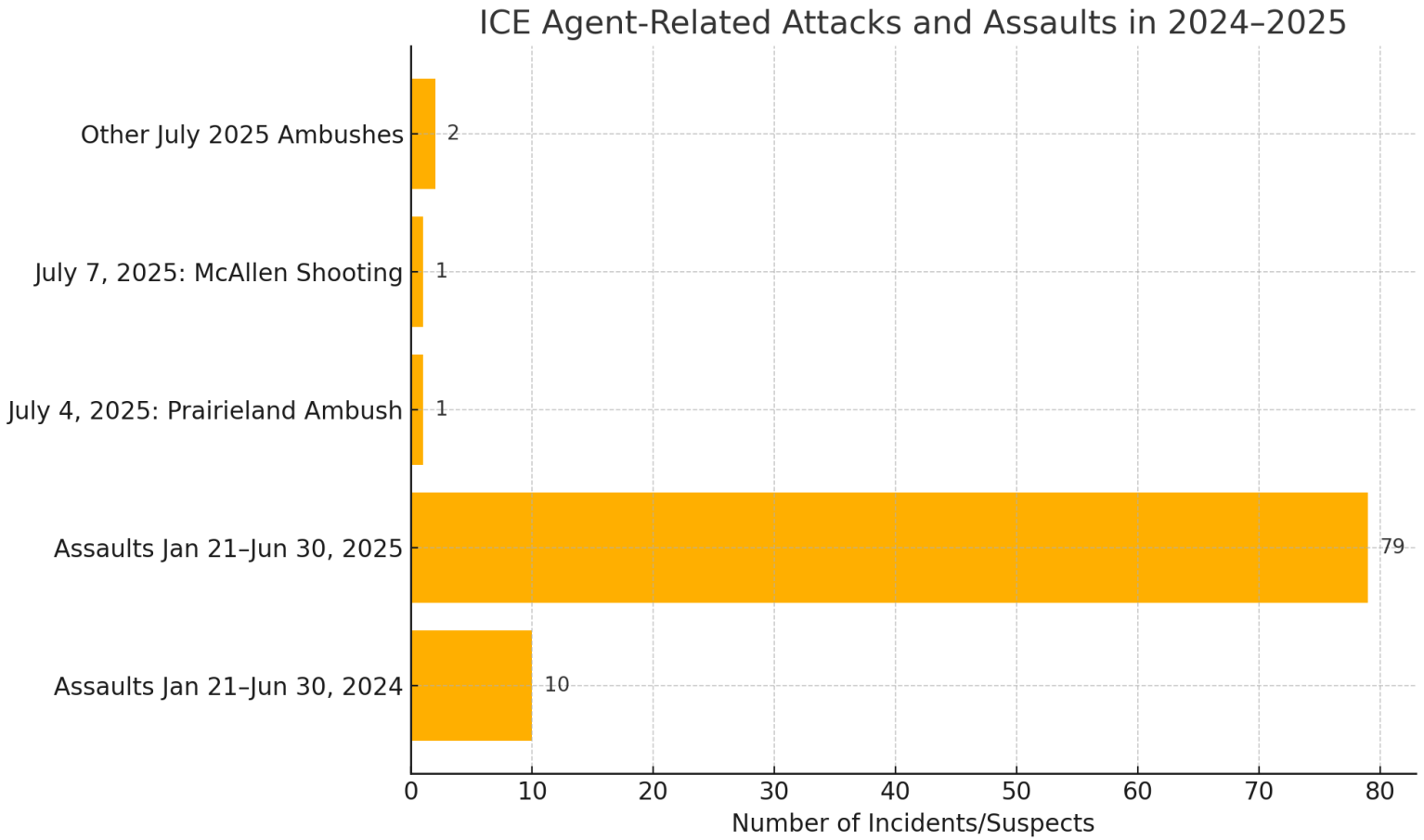
yaml

Copy Edit

```
Year          | Assaults (Jan–Jun) | Notable Incident(s)
-------------------------------------------------------
2016          | Data unavailable   | –
2017          | Data unavailable   | –
2018          | Data unavailable   | –
2019          | Data unavailable   | –
2020          | Data unavailable   | –
2021          | Data unavailable   | –
2022          | Data unavailable   | –
2023          | Data unavailable   | –
2024          | 10                 | –
2025          | 79                 | July 4 ambush, July 7 McAllen shooting, 2+ other ambushes
```

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An Example of Data: 800% Increase in attacks on ICE Agents



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Data Literacy

- Interpreting charts, dashboards, and predictive analytics
- Understanding how data is collected, stored, and used by digital systems
- Making decisions based on valid and reliable digital data
- Communicating insights visually and contextually for different audiences
- Understand how data can be manipulated

Key Skills in a Generative AI World

- Understanding the difference between data-driven and data-informed decision making
- AI Ethics
- Data curation and confirmation
- Human - AI collaboration Cyborg, Centaur, or Conductor
- Understanding the need for human agency in decision making

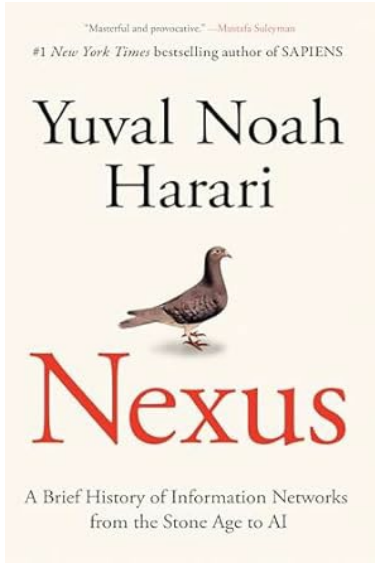
What This Means for Your Classroom

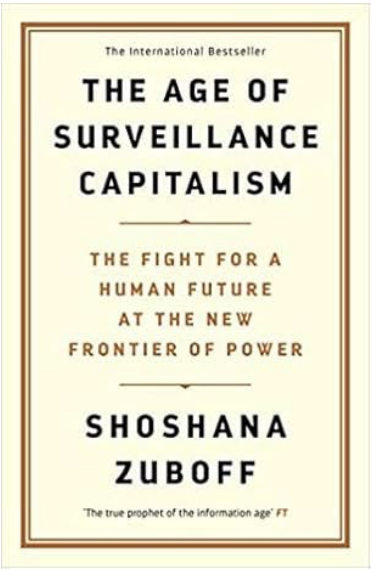
- **Instruction:** teach how algorithms shape what students see, and model responsible human-AI collaboration
- **Curriculum:** embed data, AI, and source-evaluation skills across subjects rather than in one add-on unit
- **Assessment:** value process over product, with show-your-thinking tasks, verification of sources, and AI-use reflections

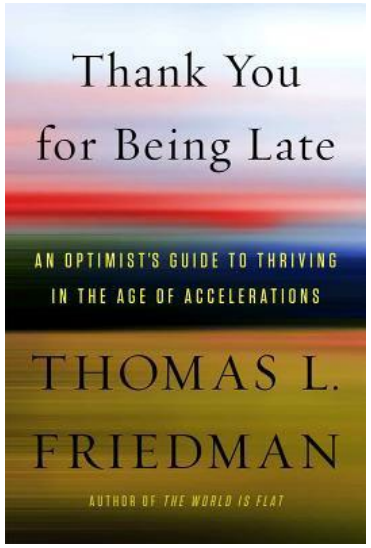
Conclusions

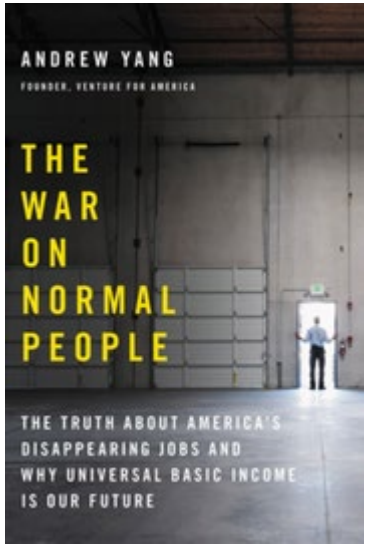
- Literacy has evolved from simple reading and writing to a complex set of digital, media, and computational skills.
- The next phase of literacy will require critical thinking, adaptability, and ethical engagement with digital technologies
- Education systems must continue to adapt to equip individuals with the skills necessary for a rapidly changing information landscape.
  - Assess the process, not just the product: have learners show their thinking and how they worked with AI
  - Build learner agency through choice of topic, tool, and format, with human judgment as the expectation

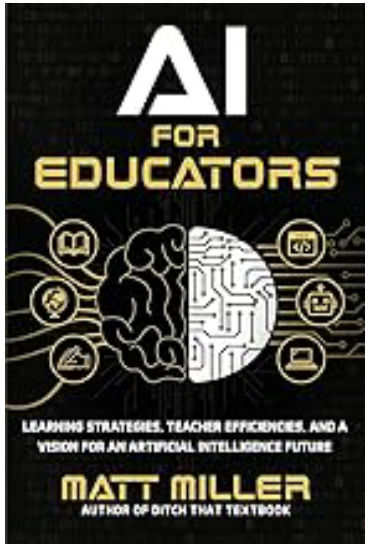
Digitally Rich World Reading List





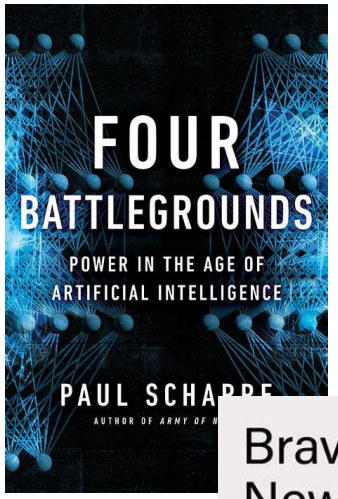


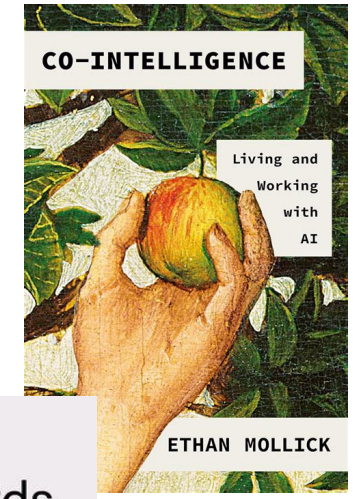


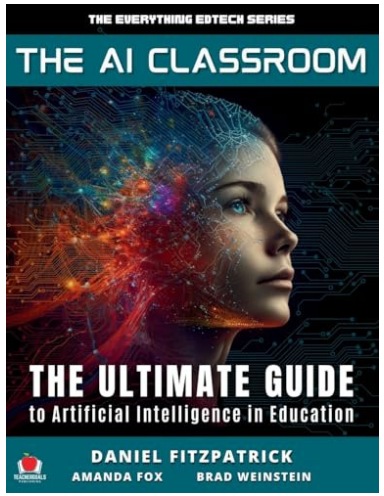


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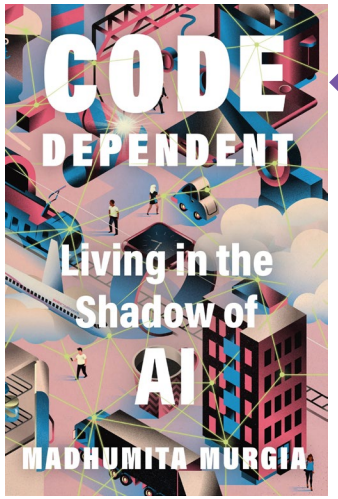
A Brief Reading List on AI

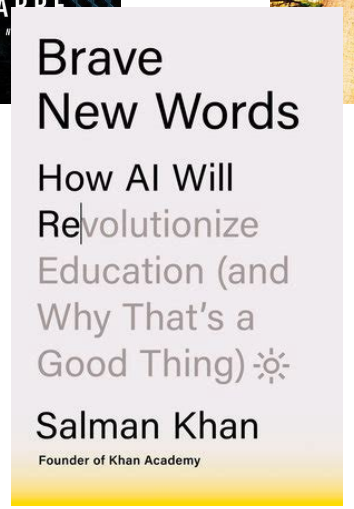












[9 Suggestions For Your AI Reading List | *Tech & Learning*]

[Exploring generative AI through the lens of science fiction: A framework for educational dialogue - eCampus News]

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