The Learning Future

Possibilities and provocations for leaders of Independent Schools in Victoria

ISV Conference

Workshop 15th September 2025

Louka Parry
CEO + Founder - The Learning Future

1

Our Learning Intentions:

To examine signals, trends and future scenarios for education.
To reflect on shifting demographics, and technologies impacting our work in schools, especially generative AI.
To consider our own leadership and pedagogical mindsets as we lead teams across Victoria.

Our Success Criteria:

You understand the relevance of emerging issues and themes for education.
You have reflected on the principles that underpin your approach to leading learning.
You have increased your futures literacy through engagement with a number of frameworks and provocations to build on your impact as an educator.
You have smiled at least once - joy is good for you.

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2

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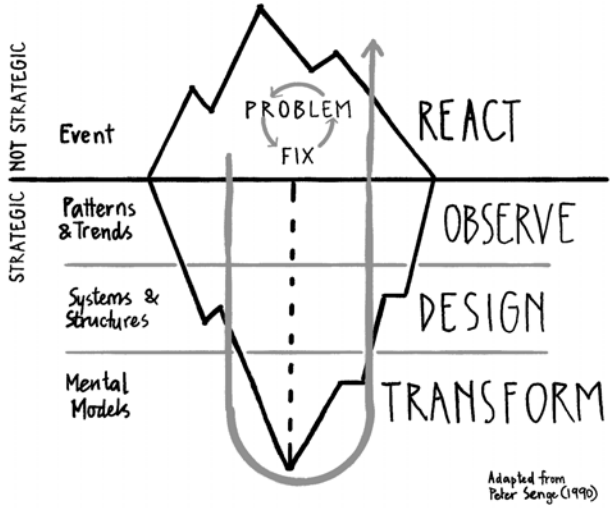

4

How are you feeling right now?

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5

6

"Emotion regulation is not about not feeling. Neither is it exerting tight control over what we feel. And it's not about banishing negative emotions and feeling only positive ones. Rather, emotion regulation starts with giving ourselves and others the permission to own our feelings–all of them."

- Professor Marc Brackett

7

The opportunities

The Future of Work

How can education equip all young people with the skills and competencies for rapidly evolving economies and the digital revolution?

Innovation Capacity

How can schools foster initiative, resilience and entrepreneurial spirit?

Educational Attainment

How can we improve learning outcomes in all contexts, especially for those children and adults on the margins of society?

Mental Health

What can education do to help promote wellbeing and reduce mental health difficulties?

Social Cohesion

How can we help young people feel confident in their own identities and vested in community at local and global levels?

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Credit: Salzburg Global Seminar: Statement on Social Emotional Learning, 2019

8

Future Who
Future When
Future What
Future Why
Future How

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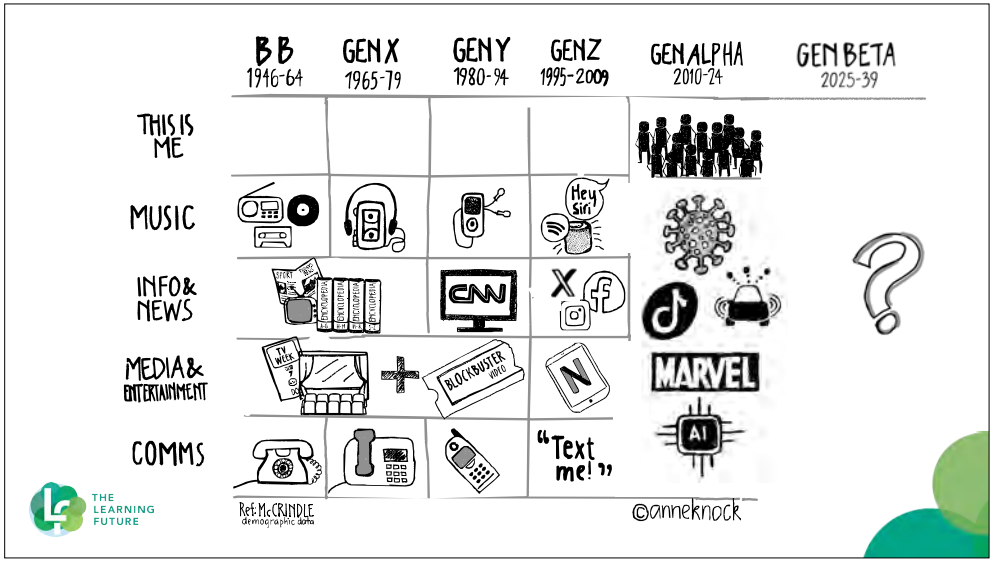
9



10


The Sun-Herald

HSC cheating doubles with AI's rise

EXCLUSIVE

Lucy Carroll, Nigel

The number of students caught cheating in the HSC has doubled in the past five years.

…despite the uptick in breaches, many cases remain undetected as schools struggle to keep pace

The scourge of cheating undermines education

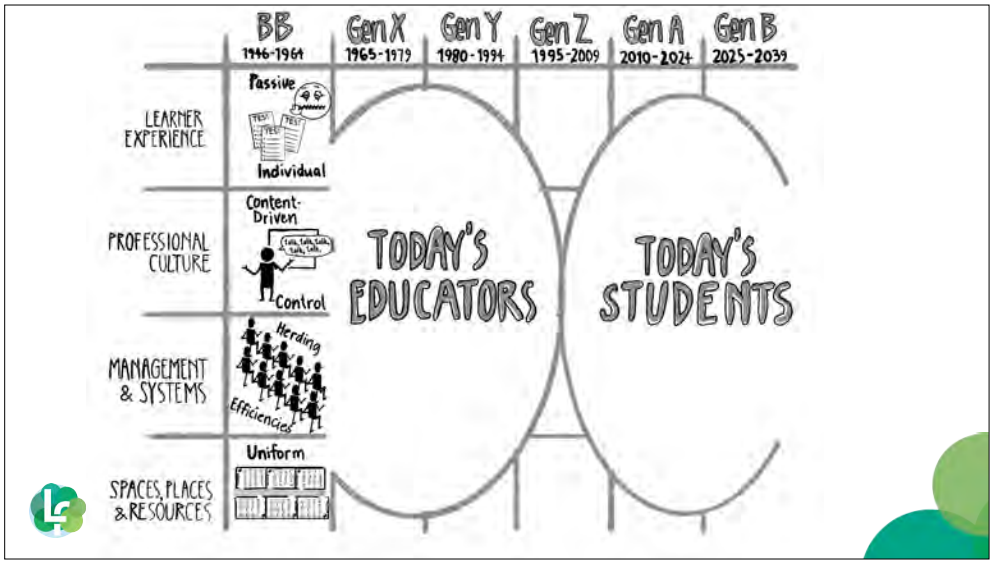
EDITORIAL PAGE 34

…an investigation into a private coaching college exposed corruption risks in take-home assignments.

"Many schools seem to be moving tasks to supervised situations to cope with the risks"

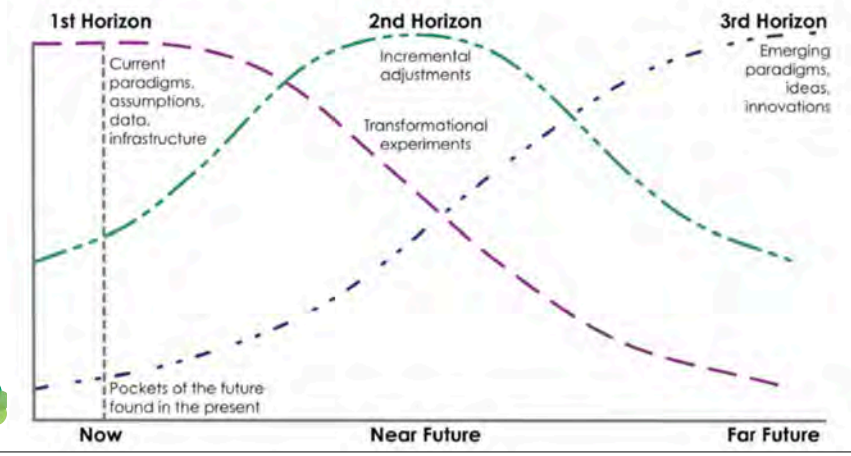
…the intersection of AI and assessment integrity is "arguably the biggest issue confronting education"

11



12

Keeping our eye on the horizons



13

"The future is already here - it's just not evenly distributed."

- William Gibson

14

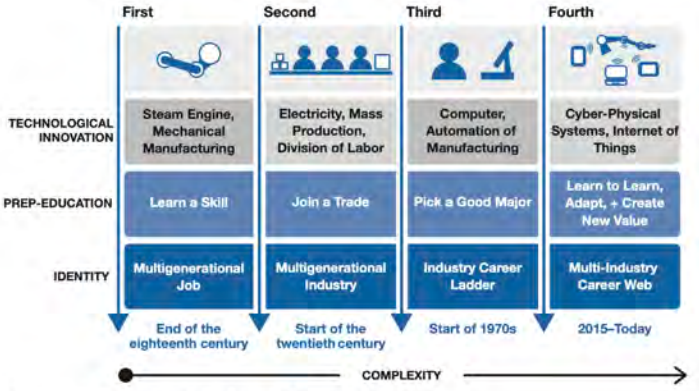


Figure 1.1: The Fourth Industrial Revolution

Credit: McGowan & Shipley, The Adaptation Advantage

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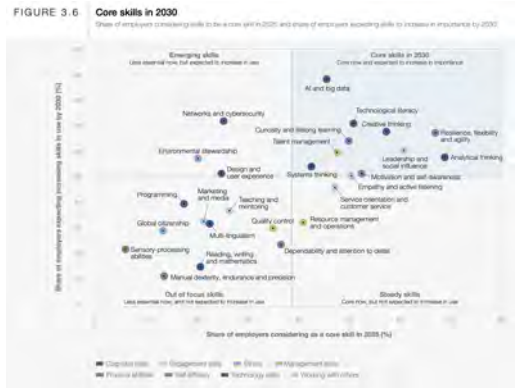
15



Top 10 fastest growing skills by 2030

1. AI and big data
2. Networks and cybersecurity
3. Technological literacy
4. Creative thinking
5. Resilience, flexibility and agility
6. Curiosity and lifelong learning
7. Leadership and social influence
8. Talent management
9. Analytical thinking
10. Environmental stewardship

WORLD ECONOMIC FORUM

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16

Generative AI

HARVARD BUSINESS REVIEW

How People Are Really Using Gen AI in 2025

by Marc Zao-Sanders

Top 10 Gen AI Use Cases

The top 10 gen AI use cases in 2025 indicate a shift from technical to emotional applications, and in particular, growth in areas such as therapy, personal productivity, and personal development.

Themes

- PERSONAL AND PROFESSIONAL SUPPORT
- TECHNICAL ASSISTANCE AND TROUBLESHOOTING
- CONTENT CREATION AND EDITING
- CREATIVITY AND RECREATION
- LEARNING AND EDUCATION
- RESEARCH, ANALYSIS, AND DECISION-MAKING

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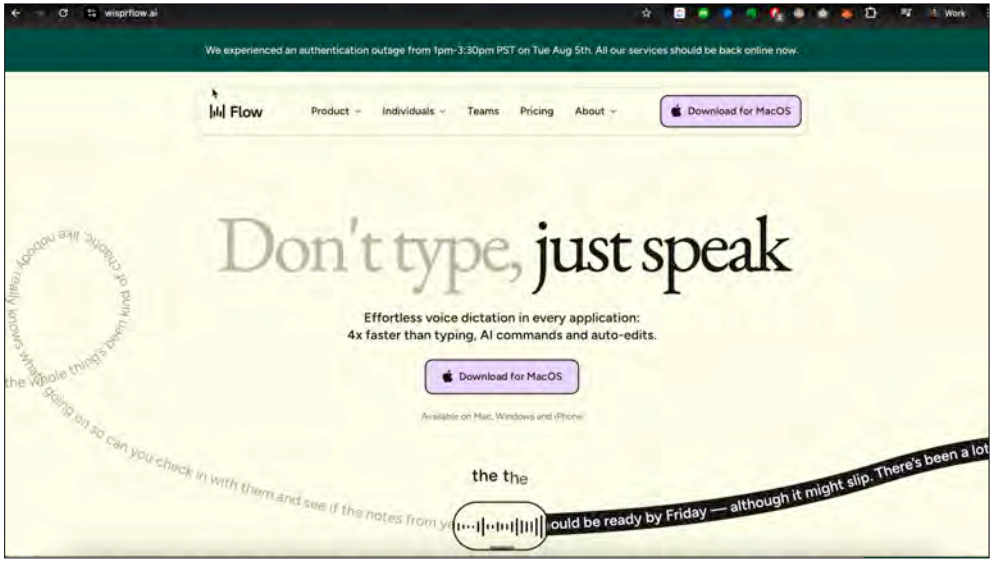
17



18

ChatGPT

Neuroplastic Futures: LLMs, Learning, and the Human Mind

Introduction

From Socrates' warning about writing to today's debates on AI, each technological leap has sparked fears of cognitive decline alongside hopes of intellectual expansion. In Plato's *Phaedrus*, Socrates cautioned that writing would "introduce forgetfulness into the soul" as people cease exercising their memory, providing only the **appearance** of wisdom rather than true knowledge [1]. Modern "digital amnesia" echoes this concern: we offload facts to Google and devices, remembering how to find information rather than the information itself [2]. Yet technology has also extended our minds – from printed books to calculators – enabling achievements beyond our brain's innate capacity. Today's large language models (LLMs) like ChatGPT represent another pivotal extension. The mission of this inquiry is to examine how habitual LLM use might reshape human cognition over time, especially in learning environments. Will these AI partners amplify our memory, creativity, and problem-solving – or erode our attention, critical thinking, and independent learning? We take a 360° view, grounded in current research and emerging data, to map the risks and opportunities LLMs pose for the developing and adult brain. This whitepaper is geared toward educators and school leaders, translating multidisciplinary findings into implications for teaching and learning. We balance neurocognitive evidence with real-world case studies and future scenarios, ultimately outlining strategies to nurture a cognitively robust society in the AI era.

Neurocognitive Impacts of LLM Interaction

Neuroscience shows that our brains adapt to how we acquire and use information. Offloading cognitive tasks to AI can alter the brain's workload distribution – the classic "use it or lose it" principle. For example, relying on GPS navigation instead of mental mapping correlates with reduced activity and grey matter in the hippocampus (a region for spatial memory) in older adults [3]. GPS-dependent seniors performed worse on cognitive tests than those navigating by memory, prompting neuroscientists to warn that neglecting our internal navigation "may lead to earlier onset of Alzheimer's or dementia" if spatial skills atrophy [4]. By analogy, consistently outsourcing recall, summarization, or problem-solving to LLMs could cause underuse of our own memory circuits and analytical reasoning networks. A recent MIT Media Lab study provides the first direct evidence: college writers using an LLM assistant showed significantly weaker brain engagement (measured by EEG connectivity) than those writing without AI [5]. Cognitive activity scaled down as reliance on external tools increased, with the AI-assisted group exhibiting the most under-active neural patterns [6]. Notably, after just a few months of LLM-heavy writing, these participants not only had lower neural activation, but also struggled with source memory – many couldn't accurately recall or quote what "they" had written, since so much was generated by the AI [6]. Self-reported ownership of their essays was lowest among LLM users, suggesting diminished metacognitive involvement in the work [7]. In other words, the brain was doing less, and the students felt less mentally "present" in their own output.

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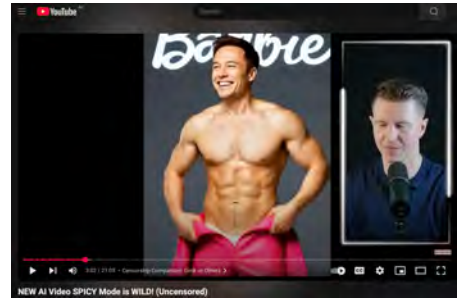
19



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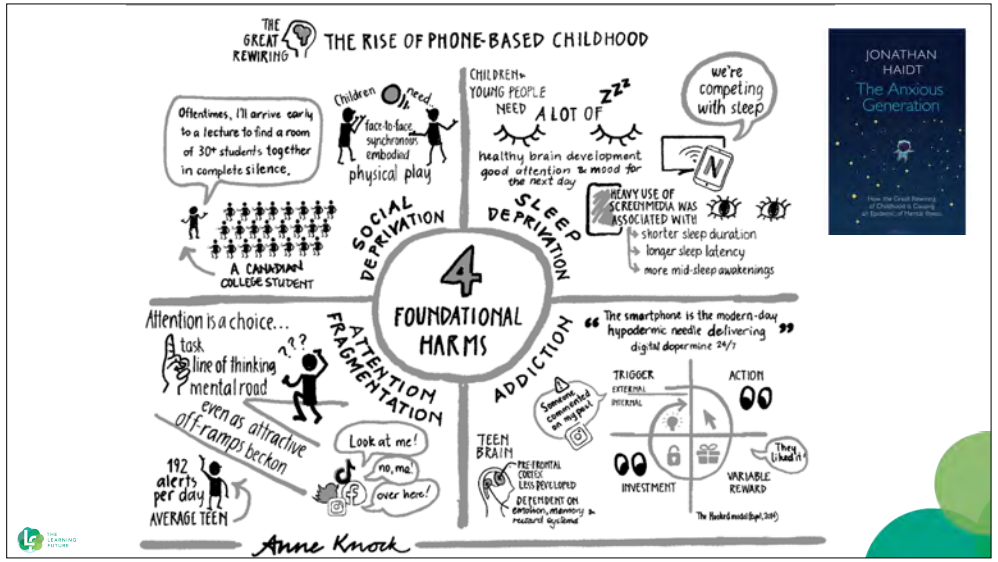
20

Screen time robbing toddlers of language-building interactions with parents, study finds

By national education and parenting reporter Conor Duffy and the Specialist Reporting Team's Alison Branley

Posted Tue 5 Mar 2024 at 3:03am

21



22

23

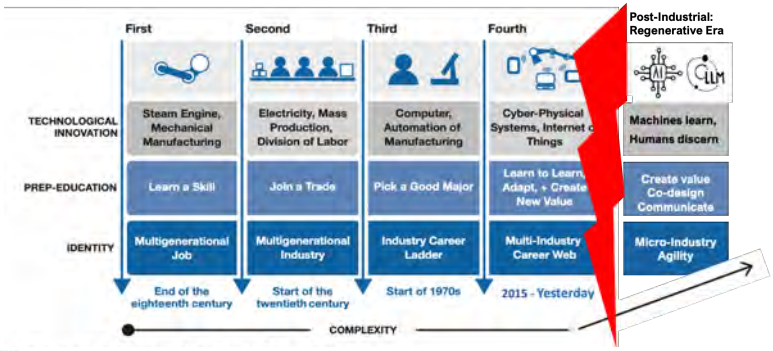
An opportunity to re-imagine the future!

24

"A primary cause of the rise in mental health disorders is a decline over decades in opportunities for children and teens to play, roam and engage in activities independent of direct oversight and control by adults"

-Peter Gray et al. (2023)

My preferred future?
First Regenerative Revolution...



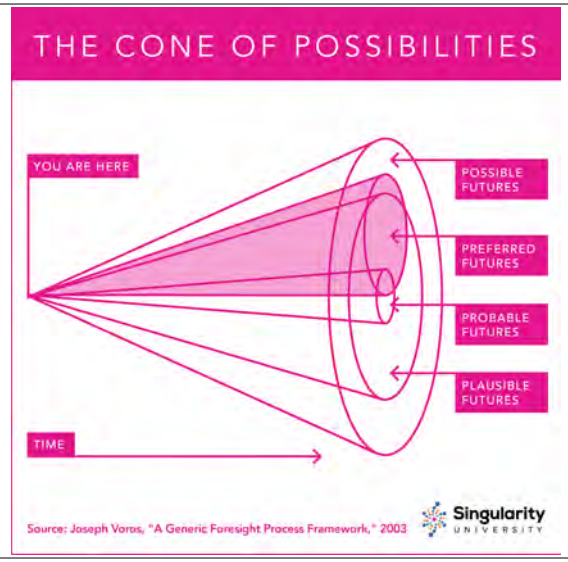
Credit: McGowan & Shipley, The Adaptation Advantage, adapted by The Learning Future

25

What if...

Future scenarios, signals, themes, principles.

26



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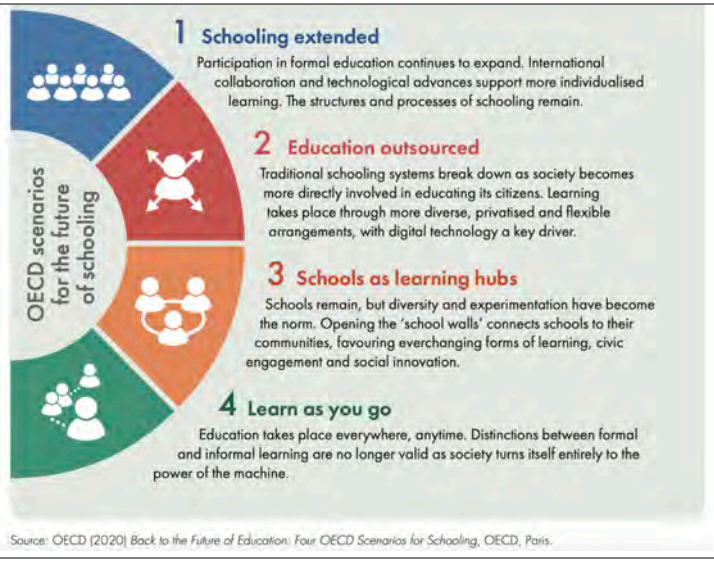
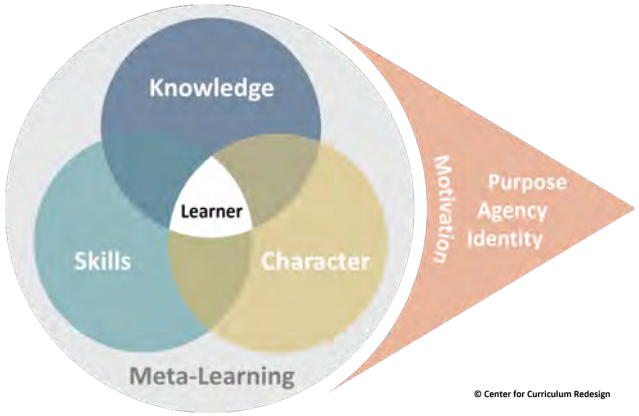


28

Credit: Fadel, 4D model of Education, Center for Curriculum Redesign, Harvard



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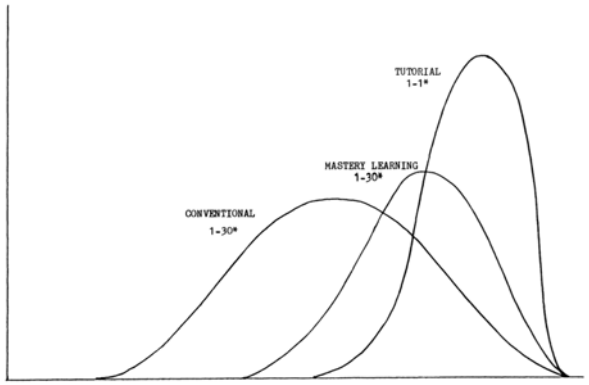
29

FIGURE 1. *Achievement distribution for students under conventional, mastery learning, and tutorial instruction.*



June/July 1984 5

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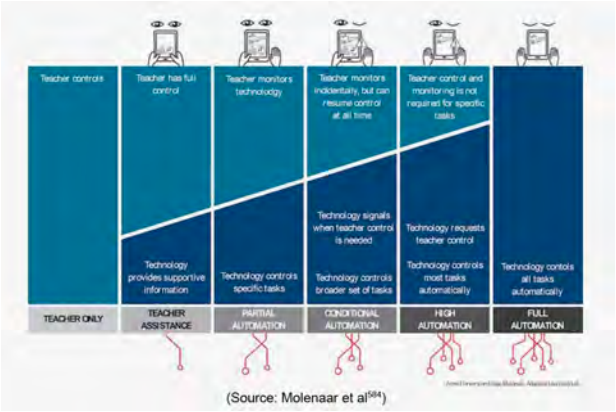
30

"…it is not yet clear the extent to which such systems will be driven completely vs partially, by teacher vs student. It will take numerous experiments to understand all the variables that drive each scenario and their interplay (for instance: verticality of the discipline; proficiency of the teacher; level of the student; etc)"

- Education for the Age of AI, 2024



(Source: Molenaar et al[584])

31

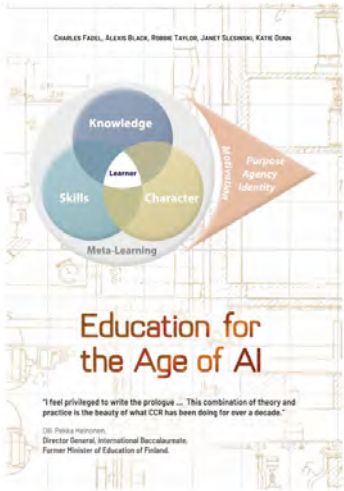
From Adaptive Learning to Intelligent Tutoring Systems[583]

The case for adaptive learning can be made at two levels: Learning time reduction for the median, and self-pacing, as shown in the diagram below:

- Self-pacing speed
- Median learning time reduction

(Source: Area9 Lyceum)

The self-pacing aspect is better served by technology, given its ability to track every student independently:



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32

Education Transformed ep19

THE LEARNING FUTURE podcast

with Louka Parry

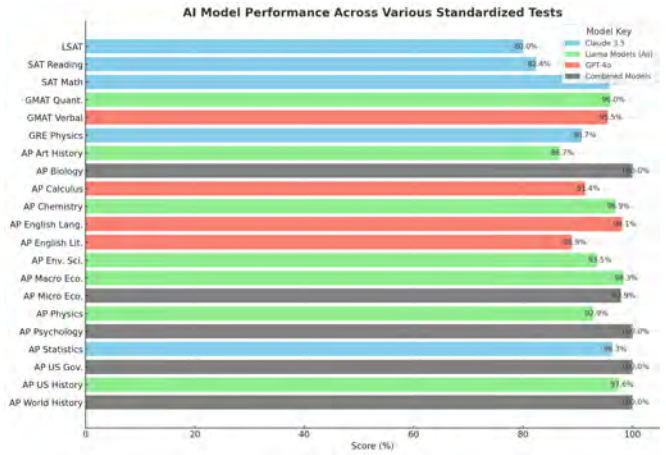
SALZBURG GLOBAL SEMINAR

DYLAN WILIAM

"The traditional model for homework, where you grade what the students bring back with them on paper is dead."

33

Is homework dead?



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Credit: Ethan Mollick - One Useful Thing

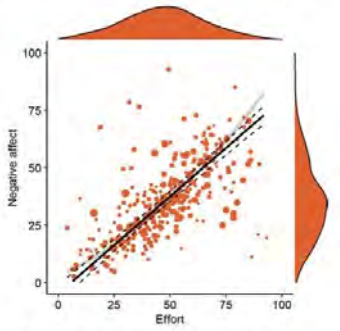
34

35

Thinking is hard!

Figure 2

Plot of the Relationship Between Mean Effort and Mean Negative Affect



Note. Dots represent tasks. Dots are scaled to sample size

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Credit: Ethan Mollick - One Useful Thing

36

Recent MIT study released that tracked 54 students with EEG brain scans for 4 months.

Main Insight: "Cognitive Debt"

Students who built thinking skills FIRST, then used AI, showed increased brain activity compared to AI-only users.

What else?
- 'Brain-only' students had the strongest neural networks, search engine users were in the middle, ChatGPT users had the weakest
- Students using ChatGPT couldn't quote their own essays minutes after writing them
- Brain connectivity systematically decreased based on external AI support
- Human teachers could reliably identify AI-written work without being told about the study conditions


Your Brain on ChatGPT: Accumulation of Cognitive Debt when Using an AI Assistant for Essay Writing Task

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37

The case for rigour but not rigidity!

"Students using ChatGPT couldn't quote their own essays minutes after writing them"

- Kosmyna et al. (2025)

"Bilingual children have been shown to outperform monolingual children on tasks measuring executive functioning skills."

- Poulin-Dubois et al. (2011)

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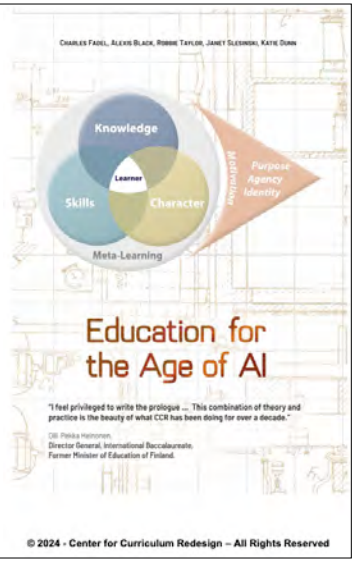
38

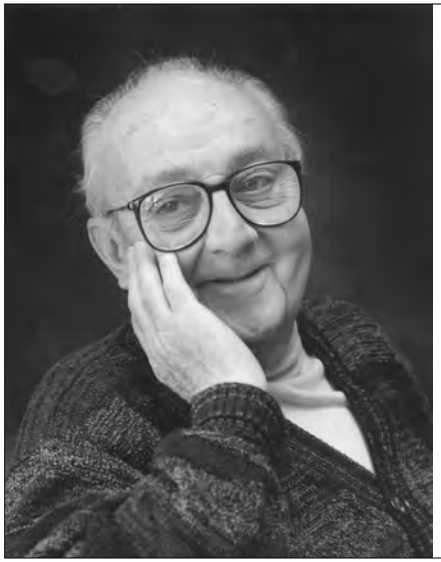
"The right question is: Given AIs powerful capabilities, and increasingly so, how do we adapt education to remain relevant?

By developing both Expertise AND Transfer"

- Education for the Age of AI, 2024



39



"All models are wrong, but some are useful...

the practical question is how wrong do they have to be to not be useful...

to find out what happens to a system when you interfere with it you have to interfere with it (not just passively observe it)."

- George E. P. Box

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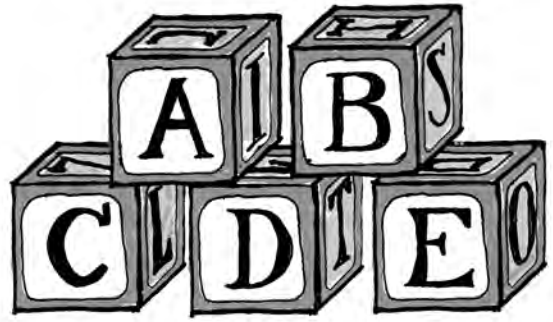
40

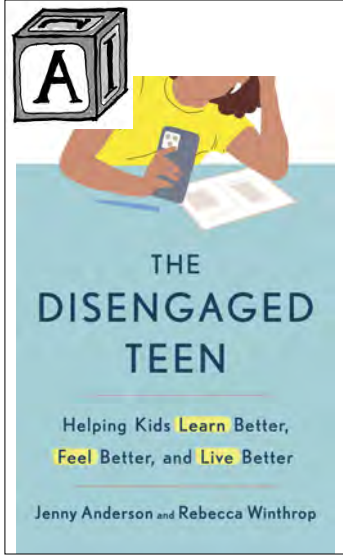
Future-ready principles for a fully human education



41

How might we activate **agency** for ourselves and our learners?

42

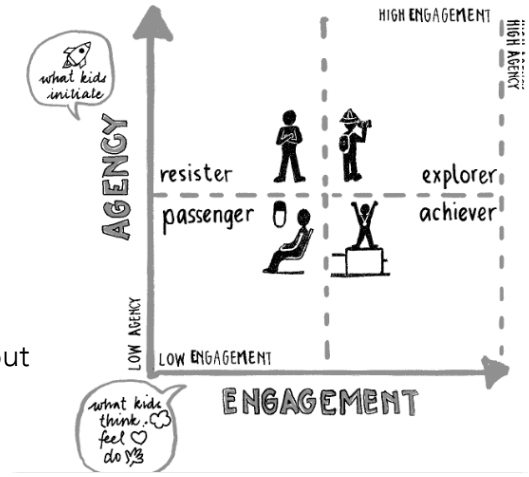


Engagement sits at the core of what it means to **learn well**. Feelings, thoughts, and actions work together to influence whether **kids dig in when things get hard or give up;** whether they **try to make sense of something or let it go;** whether they **marshall resources for what they care about or passively comply with what's on offer.** p.7

43

Resister: disengaged, possibly oppositional

Passenger: compliant but uninvested



Explorer: curious, creative, may not conform to traditional expectations

Achiever: motivated and successful in conventional terms

44

How might we increase a sense of **belonging**?

45

"Belongingness has emerged as a key predictor of mental health, influencing everything from self-esteem to overall life satisfaction."

Allen et al., 2018

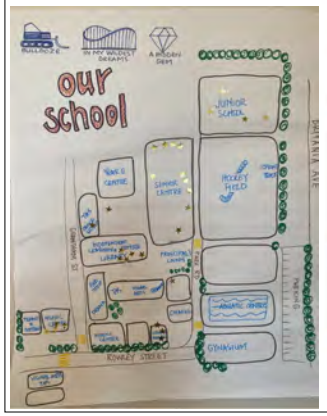
What Schools Need to Know About Fostering School Belonging: a Meta-analysis

Kelly Allen[1] · Margaret L. Kern[2] · Dianne Vella-Brodrick[3] · John Hattie[4] · Lea Waters[5]

Abstract Belonging is an essential aspect of psychological functioning. Schools offer unique opportunities to improve belonging for school-aged children. Research on school belonging, however, has been fragmented and diluted by inconsistency in the use of terminology. To resolve some of these inconsistencies, the current study uses meta-analysis of individual and social level factors that influence school belonging. These findings aim to provide guidance on the factors schools should emphasise to best support students. First, a systematic review identified 10 themes that influence school belonging at the student level during adolescence in educational settings (academic motivation, emotional stability, personal characteristics, parent support, peer support, teacher support, gender, race and ethnicity, extracurricular activities and environmental/school safety). Second, the average association between each of these themes and school belonging was meta-analytically examined across 51 studies (N = 67,378). Teacher support and positive personal characteristics were the strongest predictors of school belonging. Results varied by geographic location, with effects generally stronger in rural than in urban locations. The findings may be useful in improving perceptions of school belonging for secondary students through the design of policy, pedagogy and teacher training, by encouraging school leaders and educators to build qualities within the student and change school systems and processes.

46

Where do you belong?



47

How might we protect and cultivate **curiosity**?

48

Curiosity as a predictor of academic performance

The Hungry Mind: Intellectual Curiosity Is the Third Pillar of Academic Performance

Sophie von Stumm, Benedikt Hell, and Tomas Chamorro-Premuzic View all authors and affiliations

Volume 6, Issue 6 https://doi.org/10.1177/1745691611421204

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Abstract

Over the past century, academic performance has become the gatekeeper to institutions of higher education, shaping career paths and individual life trajectories. Accordingly, much psychological research has focused on identifying predictors of academic performance, with intelligence and effort emerging as core determinants. In this article, we propose expanding on the traditional set of predictors by adding a third agency: intellectual curiosity. A series of path models based on a meta-analytically derived correlation matrix showed that (a) intelligence is the single most powerful predictor of academic performance; (b) the effects of intelligence on academic performance are not mediated by personality traits; (c) intelligence, Conscientiousness (as marker of effort), and Typical Intellectual Engagement (as marker of intellectual curiosity) are direct, correlated predictors of academic performance; and (d) the additive predictive effect of the personality traits of intellectual curiosity and effort rival that the influence of intelligence. Our results highlight that a "hungry mind" is a core determinant of individual differences in academic achievement.

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49

How might we develop **discernment**?

50

What is meant by discernment?

The ability to notice subtle cues, question surface-level certainty, choose with awareness rather than instinct or habit.

Discernment Under Pressure: The Decision-Making Skill Most Leaders Skip
By Vibhas Ratanjee https://www.forbes.com/sites/vibhasratanjee/2025/07/14/discernment-under-pressure-the-decision-making-skill-most-leaders-skip/

51

Large Language Models Pass the Turing Test

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Abstract

We evaluated 4 systems (ELIZA, GPT-4o, LLaMa-3.1-405B, and GPT-4.5) in two randomised, controlled, and pre-registered Turing tests on independent populations. Participants had 5 minute conversations simultaneously with another human participant and one of these systems before judging which conversational partner they thought was human. When prompted to adopt a humanlike persona, GPT-4.5 was judged to be the human 73% of the time: significantly more often than interrogators selected the real human participant. LLaMa-3.1, with the same prompt, was judged to be the human 56% of the time—not significantly more or less often than the humans they were being compared to—while baseline models (ELIZA and GPT-4o) achieved win rates significantly below chance (23% and 21% respectively). The results constitute the first empirical evidence that any artificial system passes a standard three-party Turing test. The results have implications for debates about what kind of intelligence is exhibited by Large Language Models (LLMs), and the social and economic impacts these systems are likely to have.

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52

How do we design for **embodiment?**

53

Our efforts at **education and training** are aimed almost exclusively at promoting

brainbound thinking ...we are taught to

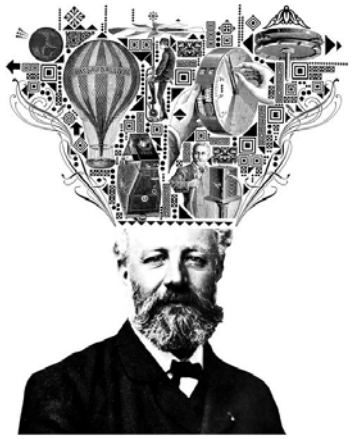
sit still

work quietly

think harder

Ref: Anne Murphy Paul, The Extended Mind: The power of thinking outside the brain (2022)

54



"The future lies in thinking outside the brain."

55

The Extended Mind: The Power of Thinking Outside the Brain, Annie Murphy Paul (2022)

56

Embodied Cognition

"High resilience people possessed a keen sense of their internal world"

"Cognitive load considerably increased under the instruction not to move"

"Gesture helps to give shape to an incipient notion still forming in our mind."

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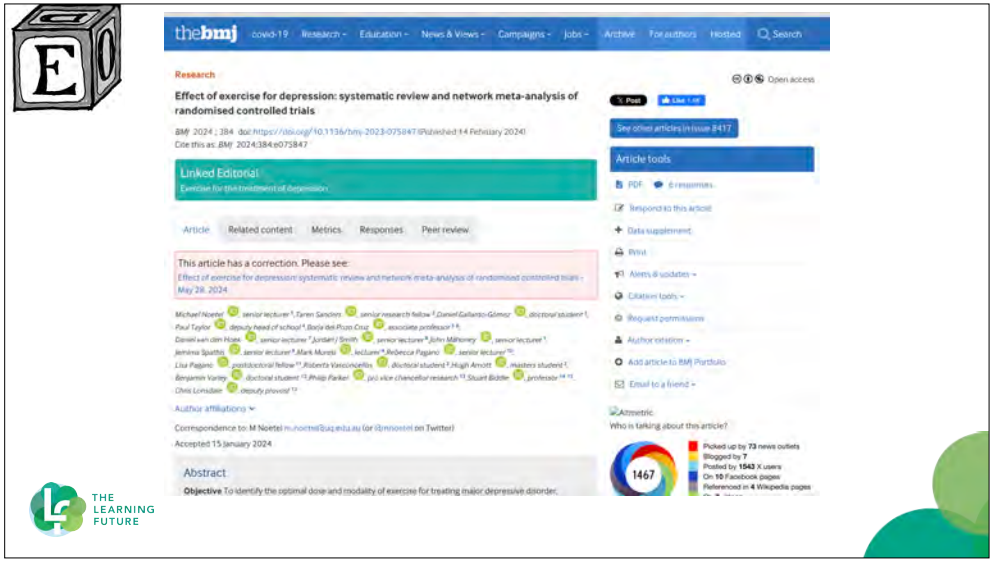
Ref: Anne Murphy Paul, The Extended Mind: The power of thinking outside the brain (2022)

57



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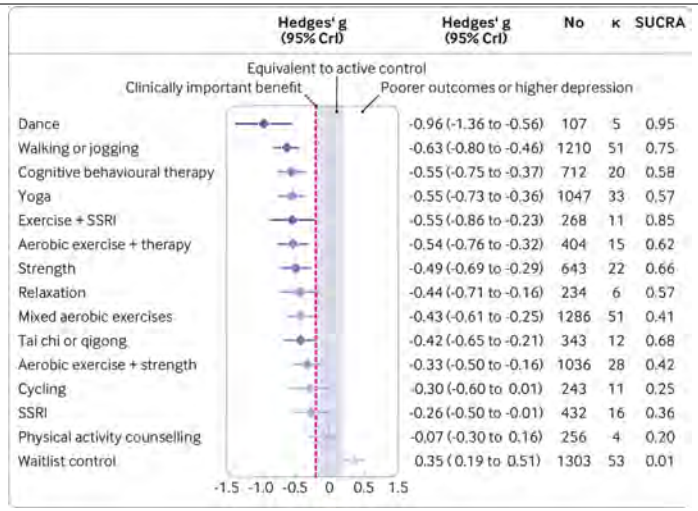
58



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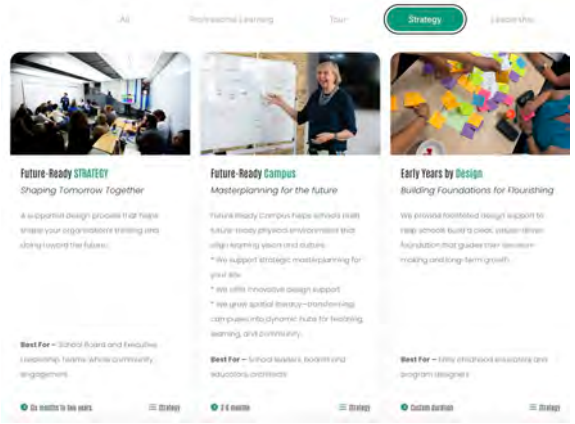
59

60

We love to guide schools and leaders to become future-ready



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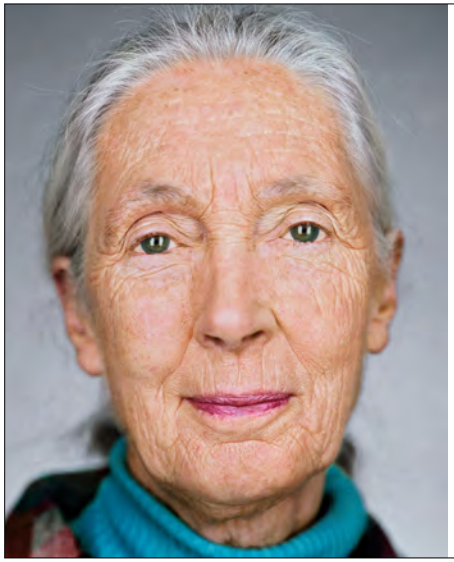
61



"You cannot get through a single day without having an impact on the world around you. What you do makes a difference, and you have to decide what kind of difference you want to make."

- Jane Goodall

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62

Thank you so much!

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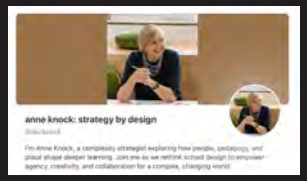

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63