



人工智能技術與學校的應用：道德與價值教育的機遇

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香港大學 教育學院



Faculty of **Education**
The University of Hong Kong

We identified 8 emerging trends in K-12 education



Digital
Responsibility
數位責任



Computational
Thinking
運算思維



Collaborative
Classrooms
協作式教室



Innovating
Pedagogy
採用創新的教學法



Life Skills & Workforce
Preparation
生活技能與職場準備



Student-led
Learning
學生主導學習



Connecting
Guardians & Schools
為監護人和學校
搭起溝通的橋樑



Emerging
Technologies
新興科技

溫故知新

1. 人工智能/人工智慧 (AI) 領域有哪些有趣的趨勢和發展？
 2. 「人工智慧教育」的未來方向是什麼？
 3. 如何設計「人工智慧教育」課程框架和AI學習工具？
1. What is some of the interesting trends and development in the field of artificial intelligence (AI)?
 2. What is the future direction of AI education?
 3. How to develop AI education (or smart education) curriculum framework and AI learning tools?

科技知識增益系列：(1) 研討會暨展覽 – 人工智能

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學與教策略： 編程及計算思維

發佈日期： 28/07/2021

為提升教師對運用新興科技促進學與教的認識和能力，教育局、香港教育城、資訊科技教育領袖協會 (AITLE) 及香港電腦教育學會合辦「人工智能研討會暨展覽 [科技知識增益系列：(1) 研討會暨展覽 – 人工智能]」。



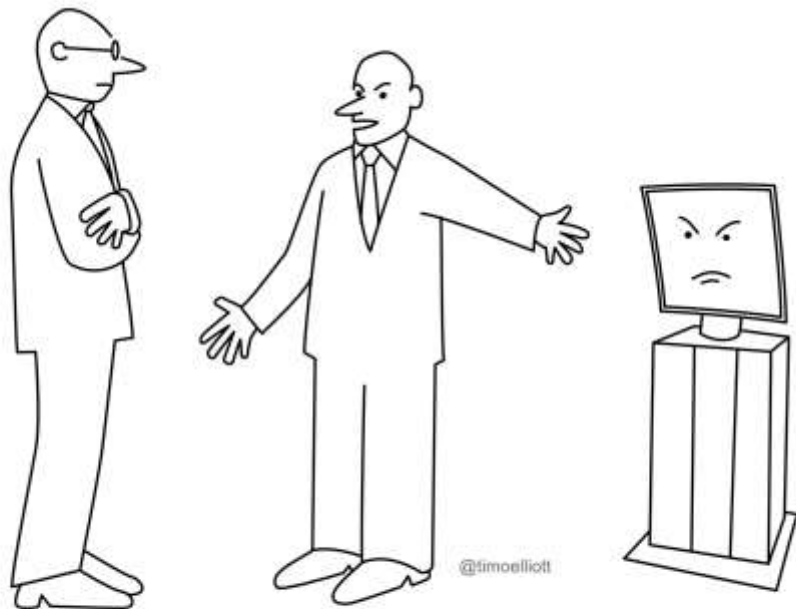
Faculty of Education
The University of Hong Kong

從人類智能到人工智能：如何培養學生的科創素養？

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教育應用資訊科技發展研究中心主任
助理教授

From human intelligence to artificial intelligence: How to cultivate students' innovative technology literacy?





*His decisions aren't any better than yours
— but they're WAY faster...*

WHO Report Targets AI in Health, Cautions Against Health Disparities

The report released by WHO explains the uses of AI in health and six principles to prevent health disparities.



<https://healthitanalytics.com/news/who-report-targets-ai-in-health-cautions-against-health-disparities> (June 30, 2021)

【ChatGPT進化】微軟下周推GPT-4版本 藉「多模態模型」支援影片



▲ 雜誌社之ChatGPT報導 - GPT-4 才是「遊戲改變者」 | (Gene Cheng) | (3/28/23)

<https://news.hket.com/article/3479460?lcc=an>

ChatGPT開始「凉了」進入瓶頸期

新華網新聞中心 2023/06/26 11:20



ChatGPT開始「凉了」 - 個人電腦新聞 - (圖: Shutterstock)

Tag AI ChatGPT 雜誌

在全球掀起人工智慧 (AI) 新潮的 ChatGPT，如今使用率漸低，網站訪問量成長腳步也明顯放緩，顯示 ChatGPT 似乎進入瓶頸期。

據《美股投資網》報導，摩根士丹利在 4 月進行的一項調查顯示，在 2,000 名受訪者中，只有 19% 受訪者表示之前使用過 ChatGPT，且只有 4% 的人依賴 ChatGPT。

美國 Pew 研究中心在今年 3 月對 1 萬多名美國成年人展開調查，而調查結果顯示，18% 受訪者聽說過很多關於 ChatGPT 的事情，39% 的人聽說過一點，42% 受訪者根本沒聽說過。

<https://news.cnyes.com/news/id/5226797>



Hong Kong / Education

University of Hong Kong allows staff to use ChatGPT under new guidelines but students still banned

- Varsity softens stance on ChatGPT allowing staff to use it for free for trial from April 17 to June 30
- Students may be able to use it after institution's Generative AI Task Force establishes policy and guidelines

Education in Hong Kong

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[All Collections](#) > [OpenAI API](#) > [Policy](#) >

Will OpenAI claim copyright over what outputs I generate with the API?

Will OpenAI claim copyright over what outputs I generate with the API?



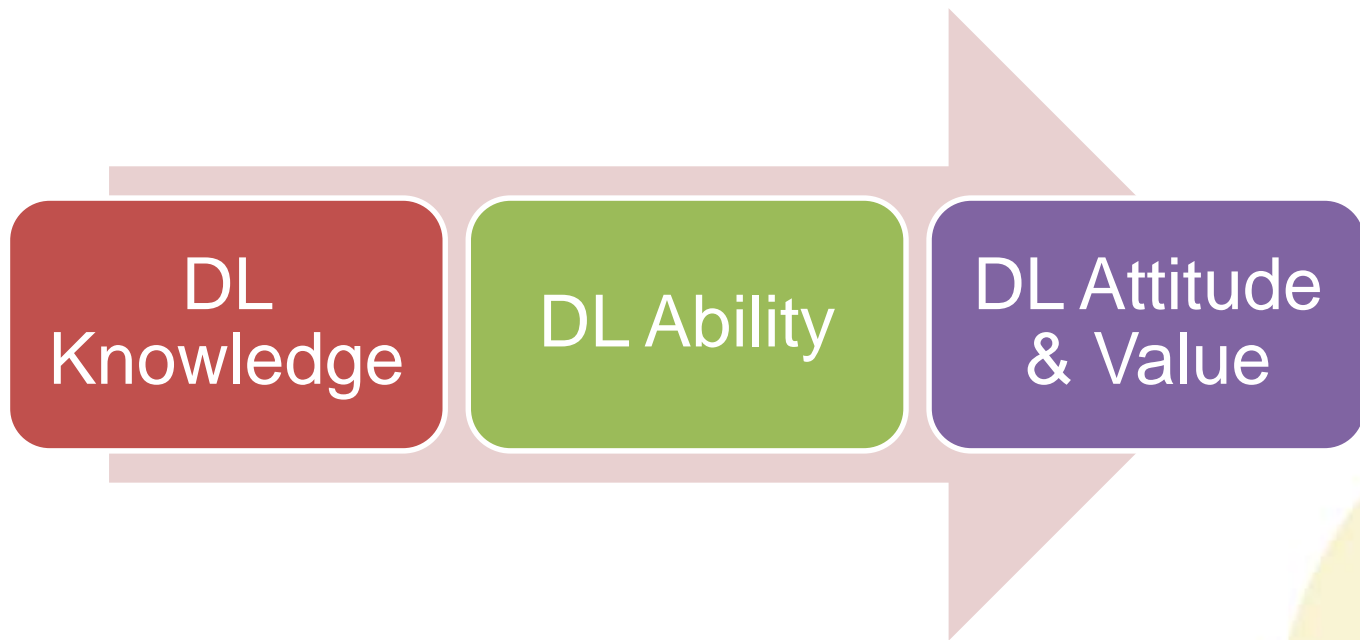
Written by Yaniv Markovski, Updated over a week ago

OpenAI will not claim copyright over content generated by the API for you or your end users. Please see our [Terms of Use](#) for additional details.

Did this answer your question?



Learning shift of digital literacy (DL)

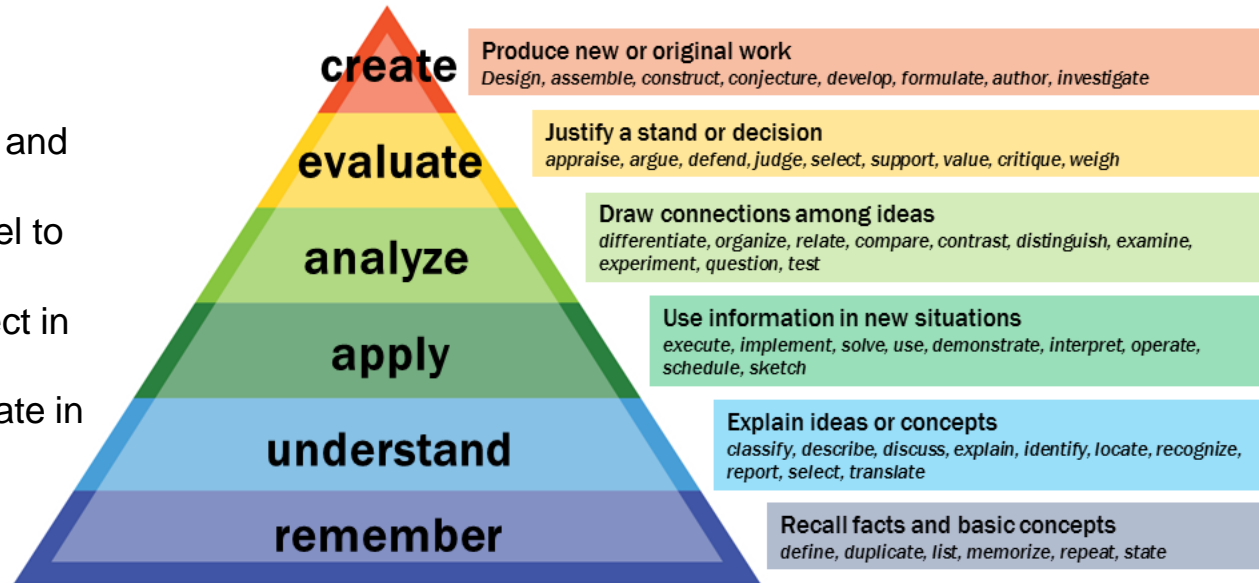


What do we concern with emerging technologies?

Concern students **“NOT”** to...

- **Create** impactful digital work to benefit the society
- **Evaluate** authentic information and data
- **Analyze** existing decision model to build upon
- **Apply** to ethical and legal aspect in cyberspace
- **Understand** how to communicate in digital world
- **Remember** the human-centric knowledge

Bloom's Taxonomy



<https://cft.vanderbilt.edu/guides-sub-pages/blooms-taxonomy/>



Vanderbilt University Center for Teaching



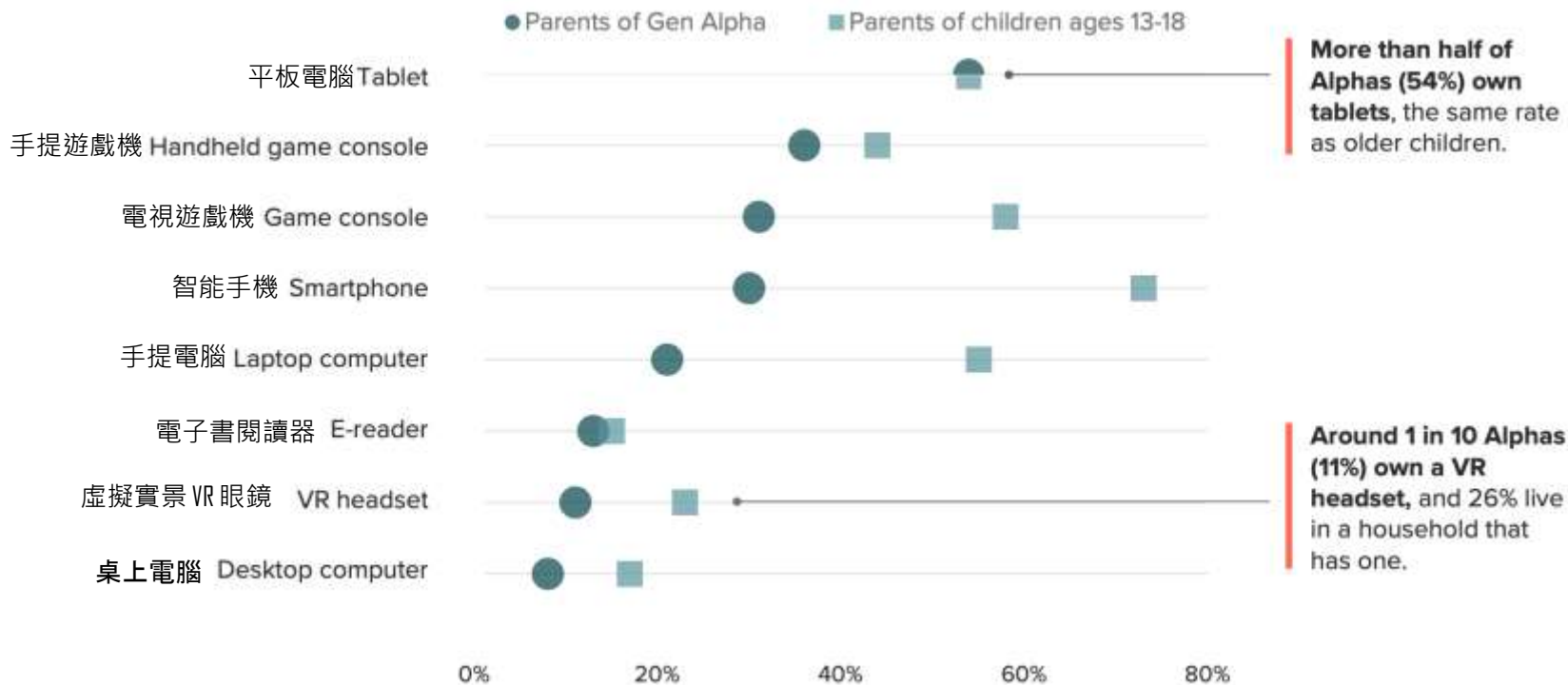
The Top 10 Tech Trends In 2023 Everyone Must Be Ready For by Forbes

每個人都必須為 2023 年的十大技術趨勢做好準備 - 《福布斯》雜誌

1. **AI Everywhere (e.g. ChatGPT)**
 2. **Parts of the Metaverse Will Become Real**
 3. **Progress in Web3**
 4. **Bridging the Digital and Physical World**
 5. **Increasingly Editable Nature**
 6. **Quantum (computing) Progress**
 7. **Progress in Green Technology**
 8. **Robots Will Become More Human**
 9. **Progress in Autonomous System**
 10. **More Sustainable Technology**
1. 人工智能無處不在 (例如 **ChatGPT**)
 2. 元宇宙的一部分將成為現實
 3. **Web3** 的發展
 4. 連接數碼世界和物質世界
 5. 越來越可編輯的大自然
 6. 邁進量子運算
 7. 邁進綠色科技
 8. 機器人將變得更加人性化
 9. 邁進自動化系統
 10. 更具可持續性的技術

Source: <https://www.forbes.com/sites/bernardmarr/2022/11/21/the-top-10-tech-trends-in-2023-everyone-must-be-ready-for/?sh=21d3cf5c7df0>

新興科技 (Emerging Technologies) - 硬件



Source: <https://morningconsult.com/2023/03/08/gen-alpha-trends-mental-health-consumer-behavior/>

新興科技 (Emerging Technologies)

- Web 3.0
- 元宇宙 (Metaverse)
- 人工智能 語音辨識 推薦演算法 自動駕駛 汽車 聊天模型 ChatGPT
- 非同質化代幣 (NFT)
- 區塊鏈 (Blockchain)
- 加密貨幣 (Cryptocurrency)

Web 1.0 (1990年代) 靜態網頁為主

- 互聯網雛形始於美國政府的ARPANET計劃，運用物理線路連接電腦
- 早於1969年，研究人員已成功用網絡發送訊息
- 普通用戶開始有機會用電腦瀏覽靜態網頁
- 只能單向展示資訊的網頁

Web 2.0 (2000年代) 社交網站興起

- 互聯網變革
- Facebook、Twitter、YouTube及Instagram等社交平台誕生
- 用戶製作的內容主導了互聯網
- 人們可於內容下留言及交流，體驗變得更加互動。
- 自始互聯網從「read-only」變成「read/write」
- 用戶數據以中心化形式儲存
- 社交網絡在向用戶服務的過程中，獲取龐大的用戶製作內容及數據

Web 3.0 (2023+)

- Web 3.0是去中心化
- 數據由建設者及用戶共同擁有的新互聯網
- Web 3.0數據以分散式賬本 (DLT) 形式儲存，分佈在不同節點
- 不存在具權威性的中心點
- 用戶不再像過往般，將個人數據依附在大型平台，用戶可用錢包平台地址，代替用平台註冊賬戶和密碼，有助保障個人私隱。

Source: <https://www.planto.hk/zh/blog/web3-explained/>

The Internet as an Educational Innovation: Lessons from Experience with Computer Implementation

Betty Collis
Contributing Editor

Introduction: Will the Cycle Repeat Itself?

For over a decade, countries and regions around the world have pursued various initiatives to stimulate and support the use of computers in their educational systems. These initiatives have taken many different forms in different countries, some focusing on strategic support for hardware- and software-related programs, some on strategies more directly focused on curricular and instructional aspects of computers, some (fewer) on strategies for the school manager, and others (many) on different approaches to teacher education and support. Regardless of the focus or scope of the initiative, it appears that one type of result consistently occurs: a result that acknowledges the teacher as the key figure in the eventual success or lack of success of any computer-in-education initiative.

The wave of social and technological developments that stimulated interest in computers in schools in the late 1970s and early 1980s appears to now be paralleled by a similar surge of interest in educational aspects of the Internet. Throughout the world, the use of wide-area network capabilities for communication and access to new forms of information engagement is stimulating a wave of initiatives with respect to telecommunications in schools, particularly telecommunications via the Internet and applications such as e-mail and the World Wide Web (WWW). I will argue that this wave can be seen as an iteration of the "computers in education" wave of 10 to 15 years earlier.

Betty Collis is with the Faculty of Educational Science and Technology at the University of Twente, The Netherlands (e-mail: collis@utwente.nl).

What did we learn from the first wave? To what extent can we expect the patterns and results of the first wave to reappear in a second wave, this time focused on the computer network rather than just the computer? What might we do more efficiently and effectively the second time around in terms of responding to a computer-related innovation at the strategic and policy-related levels?

These are the questions addressed in this reflection. The conclusions that will be drawn are:

- In critical ways, the "Internet in education" is a second iteration of the "computers in education" phenomenon of the 1980s.
- In many critical ways, we can expect the same sorts of implementation results; however, the unique characteristics of the World Wide Web, coupled with differences in society compared to a decade earlier, suggest that certain breakthroughs in implementation success will occur in this second wave.
- The experiences of the field and of decision-makers with respect to computers in education in the 1980s present an interesting legacy with respect to the Internet in education, in some aspects positive and in others a burden. We will do well to learn from experience.

Sketching the Iteration: From Computers in Education to Computer Network Applications in Education

In the 1960s, research initiatives began relating to the use of computers for educational purposes, and the study of computer science (called by different names in different countries) became established as academic and professional domains. By the 1970s there was already considerable experience with the development of computer-based learning systems; for example, the PLATO environment was used in The Netherlands to create a complex mainframe-based system to support the learning of statistics at the university level that is still in use today (in an evolved version, of course).

With regard to teachers and schools, however, the breakthrough came via the impetus of a social and technological phenomenon, the personal computer. In 1979 and 1980 in particular, an explosive synergy occurred: The personal computer afforded personal control, allowing the individual to work independently of mainframe computers. Society saw this as a revolutionary, romantic, and powerful new opportunity; education was pushed by the same energies. Computers could revolutionize education, could even revolutionize the process of cognitive development of the child, and in more practical terms, could bring new competitive possibilities to schools.

• Introduction: Will the Cycle Repeat Itself?

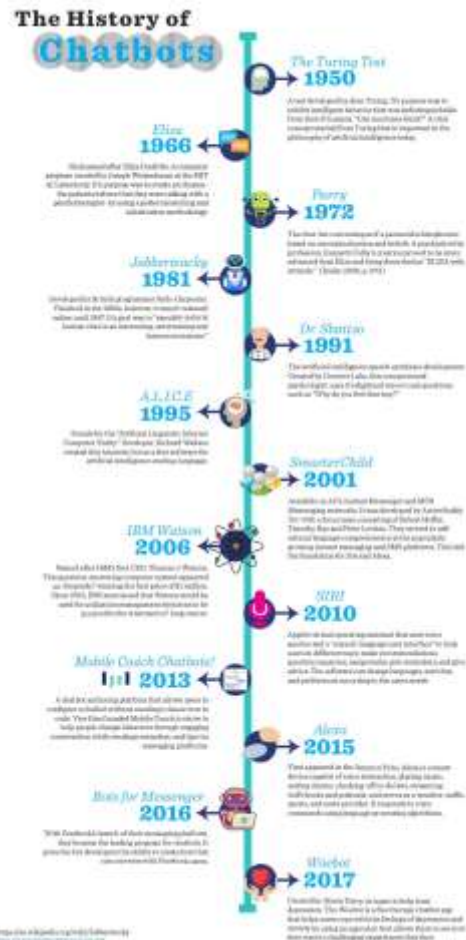
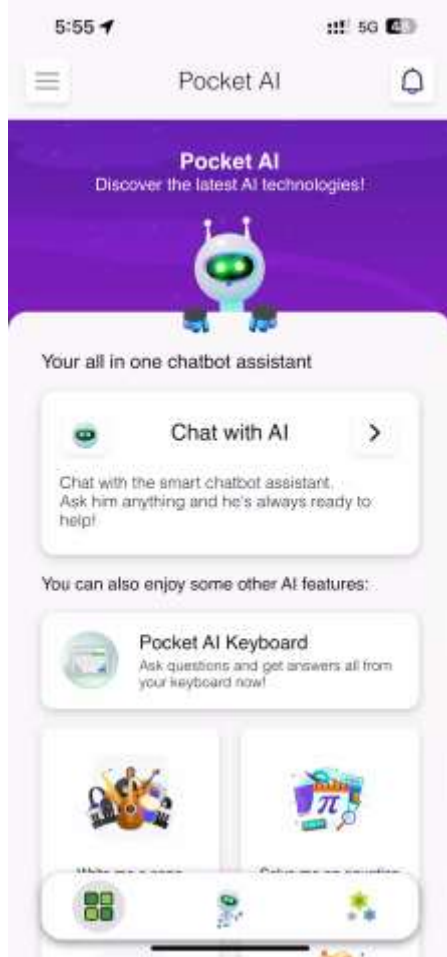
- 1970s to 1980s: Computer in Education
- 1990s to 2000s: The Internet and Education

*"The experiences of the field and of decision-makers with respect to computers in education in the 1980s present an interesting legacy with respect to the Internet in education, in some aspects positive and in others a burden, **We will do well to learn from experience.**" (Collis, 1996, p. 21)*

Collis, B. (1996). The Internet as an educational innovation: Lessons from experience with computer implementation. *Educational technology*, 36(6), 21-30.

AI 人工智能 ChatGPT

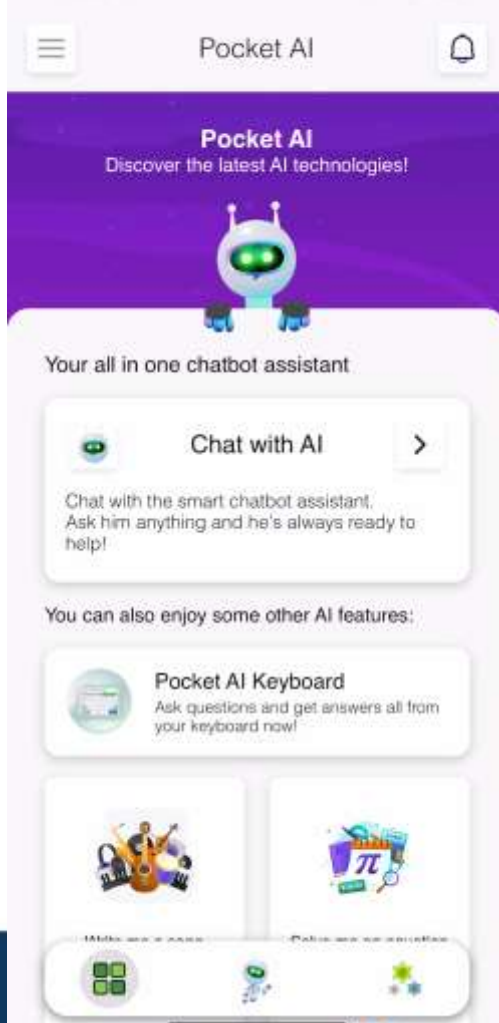
- ChatGPT在去 (2022) 年11月推出
- 是一款AI聊天機器人
- 透過自然語言處理 (Natural Language Processing) 模型分析大數據
- 當使用者以文字輸入提問或敘述，ChatGPT會分析文本的意涵，再輸出結果給使用者。
- 除了基本對談和搜尋資料，ChatGPT也具備問答解惑、產生程式碼和除錯，甚至有撰寫論文、小說劇本等能力。



Source of image: <https://medium.com/@vivekpatil647/timeline-of-chatbots-f3ba14c05e6>

ChatGPT 例子

- 寫一篇有關友誼“Friendship”的文章
- 時間: 3:12
- 字數: 352



Friendship is a bond that can never be underestimated. It is a relationship that exists among humans and is one of the most important aspects of life. It is often said that a true friend is someone who knows everything about you, but still loves you unconditionally. This statement holds true, as friendship is built on a foundation of trust, support, and love.

The beauty of friendship lies in the fact that it can transcend boundaries of age, gender, race, religion, and geographical location. Friends can be found in different places and different situations, whether it is in school, at work, in your neighborhood, or through social media. What is important is to find people who share the same interests, values, and beliefs as you.

There are numerous benefits to having true friends. Firstly, friends serve as a support system in times of need. They are always there to lend a listening ear, a shoulder to cry on or even provide practical solutions to problems. Secondly, friends can help boost your self-esteem and confidence. By having people in your life who believe in you, you are motivated to be your best self. Thirdly, friends bring happiness and laughter into our lives. They can make even the most mundane moments fun and memorable. Finally, friends act as a positive influence in our lives, keeping us grounded and reminding us of our values.

However, like any relationship, friendships require effort and investment. To maintain a healthy and strong friendship, it is important to communicate regularly, be reliable, respectful, and understanding. It is essential to be there for your friends, whether it is during good times or bad. This could mean sending a text message to check in, offering to help with a task, or simply spending quality time together.

In summary, friendships bring a sense of purpose and joy into our lives. As humans, we all have a fundamental need for social connection and by cultivating strong friendships, we expand our horizons and enrich our lives. So, take the time to nurture your friendships, appreciate your friends, and cherish the memories made with them.

Google 翻譯

Friendship is a bond that can never be underestimated. It is a relationship that exists among humans and is one of the most important aspects of life. It is often said that a true friend is someone who knows everything about you, but still loves you unconditionally. This statement holds true, as friendship is built on a foundation of trust, support, and love.

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友誼是一種永遠不能被低估的紐帶。它是存在於人與人之間的一種關係，是生活中最重要的方面之一。人們常說，真正的朋友是了解你的一切，卻仍然無條件愛你的人。這句話是正確的，因為友誼是建立在信任、支持和愛的基礎上的。

友誼之美，在於它可以超越年齡、性別、種族、宗教、地域的界限。可以在不同的地方和不同的情況下找到朋友，無論是在學校、工作場所、您的社區還是通過社交媒體。重要的是找到與您有相同興趣、價值觀和信仰的人。

擁有真正的朋友有很多好處。首先，朋友在需要時充當支持系統。他們總是在那裡聆聽，提供哭泣的肩膀，甚至為問題提供切實可行的解決方案。其次，朋友可以幫助提升你的自尊和自信。通過讓相信你的人出現在你的生活中，你就會有動力成為最好的自己。第三，朋友給我們的生活帶來快樂和歡笑。他們甚至可以讓最平凡的時刻變得有趣和令人難忘。最後，朋友在我們的生活中起到積極的影響，讓我們腳踏實地，提醒我們我們的價值觀。

然而，就像任何關係一樣，友誼需要付出努力和投入。要保持健康牢固的友誼，重要的是定期溝通、可靠、尊重和理解。無論是在順境還是逆境，都必須陪伴在您的朋友身邊。這可能意味著發送一條短信進行簽到，主動提供幫助完成一項任務，或者只是共度美好時光。

總之，友誼給我們的生活帶來了使命感和快樂。作為人類，我們都有對社會聯繫的基本需求，通過培養深厚的友誼，我們可以開闊視野，豐富生活。所以，花點時間培養你的友誼，感謝你的朋友，珍惜與他們一起留下的回憶。



寫多一篇有關友誼 “Friendship” 的文章

- 時間: 3:31
- 字數: 378



Friendship is a special bond that two people share with each other. It is an inherent need of every human being to have friends who they can call their own. Friendship plays an important role in one's life; it is a relationship that can bring positive changes, help to overcome difficult situations and bring joy to life.

Friendship is based on trust, loyalty, and understanding. Trust is an essential element of friendship, without which it is impossible to form a deep and meaningful bond. A friend is someone who you can share your secrets with and believe that they will not reveal them to others. Loyalty is another necessary characteristic of friendship. A true friend stands by you in good times and bad times. They support you in all your endeavors and are always there for you, no matter what. Understanding is also critical in friendship. A friend is someone who can understand your thoughts and emotions, and who you can confide in without fear of judgment.]

Friendship brings many benefits to one's life. Having friends can help reduce stress and anxiety in life. People with friends tend to be happier and healthier. Friends act as a support system and can help you overcome difficult times. When things are tough, having someone to talk to, to give you advice or just to be there to listen can make a world of difference. Friends also bring joy to life. Sharing laughter, having fun and spending time together is what makes friendship so special.

However, like any relationship, friendships also require effort and work. It is essential to invest time and effort into maintaining healthy and fulfilling friendships. It involves taking time to stay in touch, showing interest in each other's lives and being there in times of need. Making an effort to keep your friendship healthy can increase your bond and make your friendship stronger.

In conclusion, friendship is a necessary aspect of life that brings joy, support, and positivity. It is based on trust, loyalty, and understanding. Friends can help reduce stress, bring happiness, and provide support during difficult times. It is essential to invest effort and time into maintaining healthy and fulfilling friendships as it is a relationship that can make life better in every possible way.



未有ChatGPT以前...



- 🔍 essay on "friendship" 300 words
- 🔍 essay on friendship 300 words
- 🔍 essay on friendship in hindi 300 words

Google 搜尋

好手氣

舉報不當的預測

Google search results for "essay on 'friendship' 300 words". The search bar shows the query and navigation icons. Below the search bar, there are three search suggestions: "essay on 'friendship' 300 words", "essay on friendship 300 words", and "essay on friendship in hindi 300 words". The search results page shows 11,000,000 results in 0.43 seconds. The top results are from "pleessaypreparation.com", "aplustopper.com", and "getgoodessay.com". The first result is "Essay on Friendship in English 300 Words" dated 2020年4月13日. The second result is "Paragraph On Friendship 100, 150, 200, 250 to 300 Words for ..." dated 2021年7月28日. The third result is "Friendship Essay 300 Words - GetGoodEssay" with a snippet: "Friendship is one of the most important things in our lives. It's someone to rely on during tough times and celebrate with during the good times. A true friend ...".



GPTZero

What is GPTZero?

GPTZero is a classification model that predicts whether a document was written by a large language model, providing predictions on a sentence, paragraph, and document level. GPTZero was trained on a large, diverse corpus of human-written and AI-generated text, with a focus on English prose.

When and how should I use GPTZero?

Our users have seen the use of AI-generated text proliferate into education, certification, hiring and recruitment, social writing platforms, disinformation, and beyond. We've created GPTZero as a tool to highlight the possible use of AI in writing text. In particular, we focus on classifying AI use in prose.

- 針對ChatGPT產生的文字作分析
- 評估內容是否有使用ChatGPT的痕跡
- 正進行初期測試

Source: <https://gptzero.me/faq>



Generative AI beyond ChatGPT: Example Tools

1. AI Arts
2. AI Music
3. AI Speech
4. AI Painting
5. AI Restoration
6. AI Detection
7. AI Videos

1. AI Arts: LEXICA



Tool: <https://lexica.art/>



Search engine of AI art



Art generator (uses *Stable Diffusion*)



No copyrights issue for non-commercial use: <https://lexica.art/terms>



Lexica

Search over 10M+ Stable Diffusion images and prompts.

[Join the Discord](#)

Search for an image

#1

Search

Results: 0





2. AI Music: MUBERT

- **Tool:** <https://mubert.com/render>
- AI music generator (supports various **genres**)
- Requires simple prompts to work (like *ChatGPT* ;)
- **No** copyright issue and royalty-free for non-commercial use



Human AI Generative Music

For your video content, podcasts and apps

 [Generate a track now](#)

Mubert Render

For content creators

Create a soundtrack that will fit your content's mood, duration and tempo. Instantly, easily, perfectly.

[Make a track now](#)

Mubert Studio

For artists

Earn money on tracks, samples and loops. Team up with AI to produce something incredible.

[Contribute](#)

3. AI Speech: DESCRIPT



Tool: <https://www.descript.com/overdub>



Text-to-speech functionality



Human voice-cloning



Ultra-realistic AI voice-overs



4. AI Painting: NVIDIA CANVASS



Tool: <https://www.nvidia.com/en-us/studio/canvas/>



Paint panoramic landscapes



Customizable palette (easy to use!)



Workflow ready (artwork can be imported to **Adobe Photoshop**, **Blender**, etc.)







5. AI Restoration: REPLICATE

- **Tool:** <https://replicate.com/collections/image-restoration>
 - Image restoration using AI
 - Old image colorization
 - Night image enhancement
- 



Image

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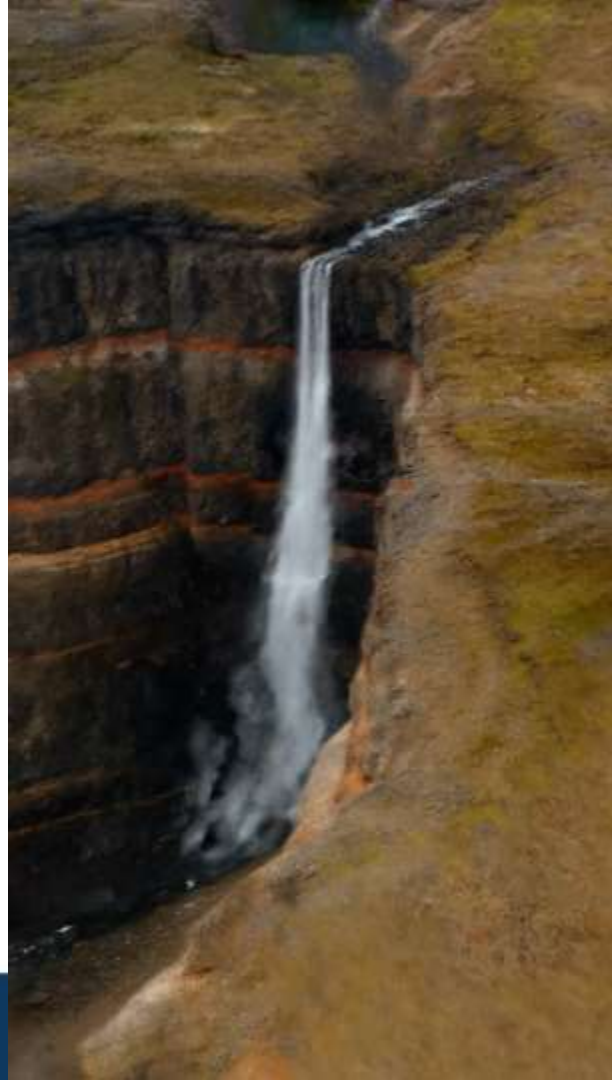
[Download](#)

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6. AI Detection: LUMA LABS

- Tool: <https://lumalabs.ai/>
- Generate photorealistic 3D assets and environments
- Capture textures and models in real-time using photo telemetry
- Readily import these assets into 3D virtual environments





7. AI Videos: KAIBER



Tool: <https://kaiber.ai/>



Create visuals that respond to music



Use prompts (like *ChatGPT* ;) to bring still images to life

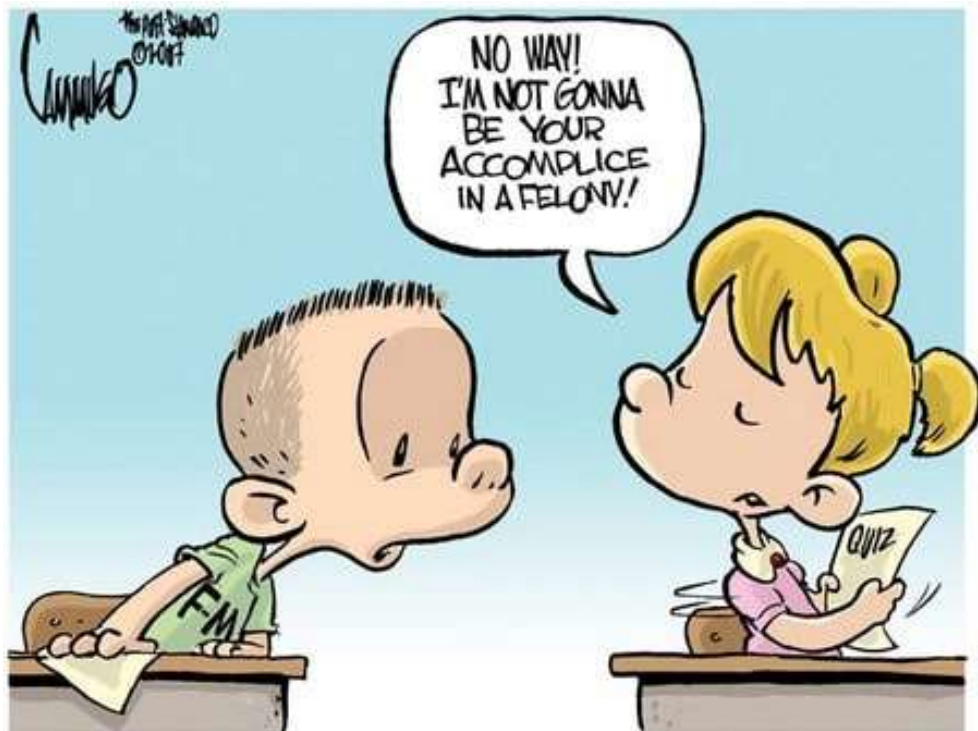


Transform simple clips into enthralling videos





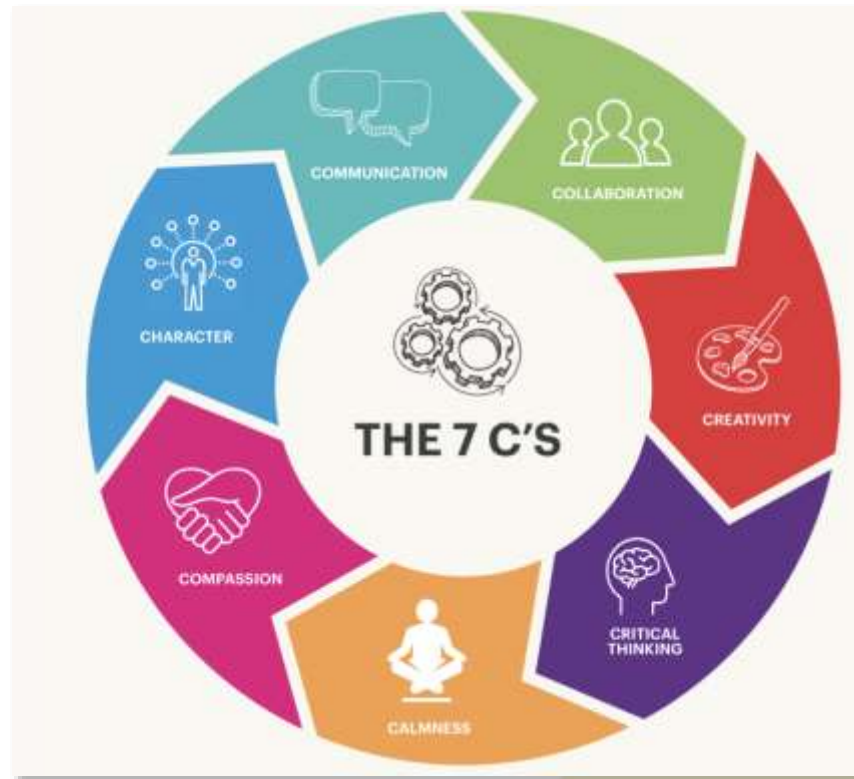
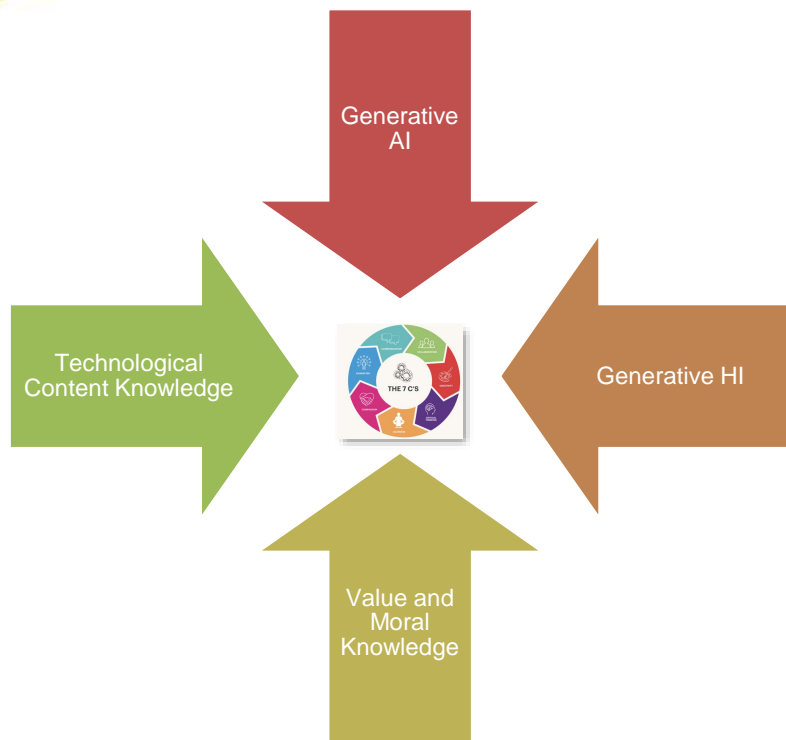
「我不會成為你的同謀！」



Source : <https://www.assignmentexpert.com/blog/wp-content/uploads/2014/11/Penalty-for-cheating.jpg>



How to develop future skills?



<https://www.milhill.org.uk/prep/our-school/school-environment/future-skills/>

生成式人工智慧 - 相關道德議題

Uncertainty: How sure are we that this is the right answer?

不確定性：我們有多確定這是正確的答案？

Explainability: Where did we get that information?

可解釋性：我們從哪裡得到這些資訊？

Bias: Are we learning from the “wrong” or undesirable source?

偏見：我們是否從“錯誤”或不良的資訊來學習？

Environmental impact: Is this worth the environmental costs?

環境影響：這值得消耗環境成本嗎？

主頁 > 課程發展及支援 > 四個關鍵項目 > 價值觀教育



Source: <https://www.edb.gov.hk/tc/curriculum-development/4-key-tasks/moral-civic/index.html>

價值觀教育

價值觀教育是全人教育的重要元素，通過各學習領域 / 學科課程的學與教，以及其他相關的學習經歷，培育學生正面的價值觀和態度；幫助他們在成長的不同階段，當遇上難題的時候，懂得辨識當中涉及的價值觀，作出客觀分析和合理的判斷，並付諸實踐，方能面對未來生活上種種的挑戰。

學校可培育學生十種首要的價值觀和態度，即：「堅毅」、「尊重他人」、「責任感」、「國民身份認同」、「承擔精神」、「誠信」、「關愛」、「守法」、「同理心」和「勤勞」（於2021年11月加入），作為推動價值觀教育的方向。

學校應以培育學生正面的價值觀和態度為方向，運用生活化的題材，整合包括品德及倫理教育、公民教育、國民教育（包括《憲法》、《基

「**創造力只是將事物聯繫起來。** 當你問那些有創造力的人他們是如何做某些事時，他們會感到有點內疚，因為他們並沒有真正去想太多，他們只是看到了一些東西。過了一會兒，這對他們來說似乎是顯而易見的。**那是因為他們能夠將已有的經驗聯繫起來並綜合新事物。**」



Think different.

“**Creativity** is just connecting things. When you ask creative people how they did something, they feel a little guilty because they didn't really do it, they just saw something. It seemed obvious to them after a while. That's because they were able to **connect experiences** they've had and **synthesize new things**.”

Steve Jobs, 1955 – 2011



Take away messages 建議對策

我們教導他們正確的道德原則及價值觀，讓他們自己學會自律。

We teach them the right principle and let them guide themselves.

總結

1. 推薦教師參加 **AI 「急救」課程**，並盡快參與 **AI 「深切治療」課程**，豐富 AI 知識和經驗
2. 利用現有校本STEM教育引入 AI 話題
3. **平衡**學生在人工智能中「軟」和「硬」技能之間的多元學習發展
4. 幫助學生了解 AI 背後的原理, 探討發展AI價值學習內容, 及提升學習興趣 (例如: 透過全方位學習進行體驗式活動)
5. 鼓勵**有濃厚興趣的學生**透過參與線上線下的課程, 加深 AI 的基礎知識和道德使用方法
6. 以培養學生**人工智能素養 (AI literacy)** 為重點，鼓勵學生將來入讀**大學相關「跨學科課程」**(例如: HKU 文理學士(應用人工智能)課程 BASc (Applied AI), Faculty of Engineering, Science, Social Sciences, and Architecture)
7. **Stay calm, and keep calm**



THANK YOU



教育

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