

Professional Development Programme

Developing Students' Self-directed Learning Capabilities: Exploring the Use of Artificial Intelligence in the English Classroom

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Event 2: Key Focus

- To expand English teachers' repertoire of pedagogical knowledge to enhance secondary students' **vocabulary** skills development and their **self-directed language learning capabilities** through integrating **the use of artificial intelligence (AI)** in the secondary English classroom

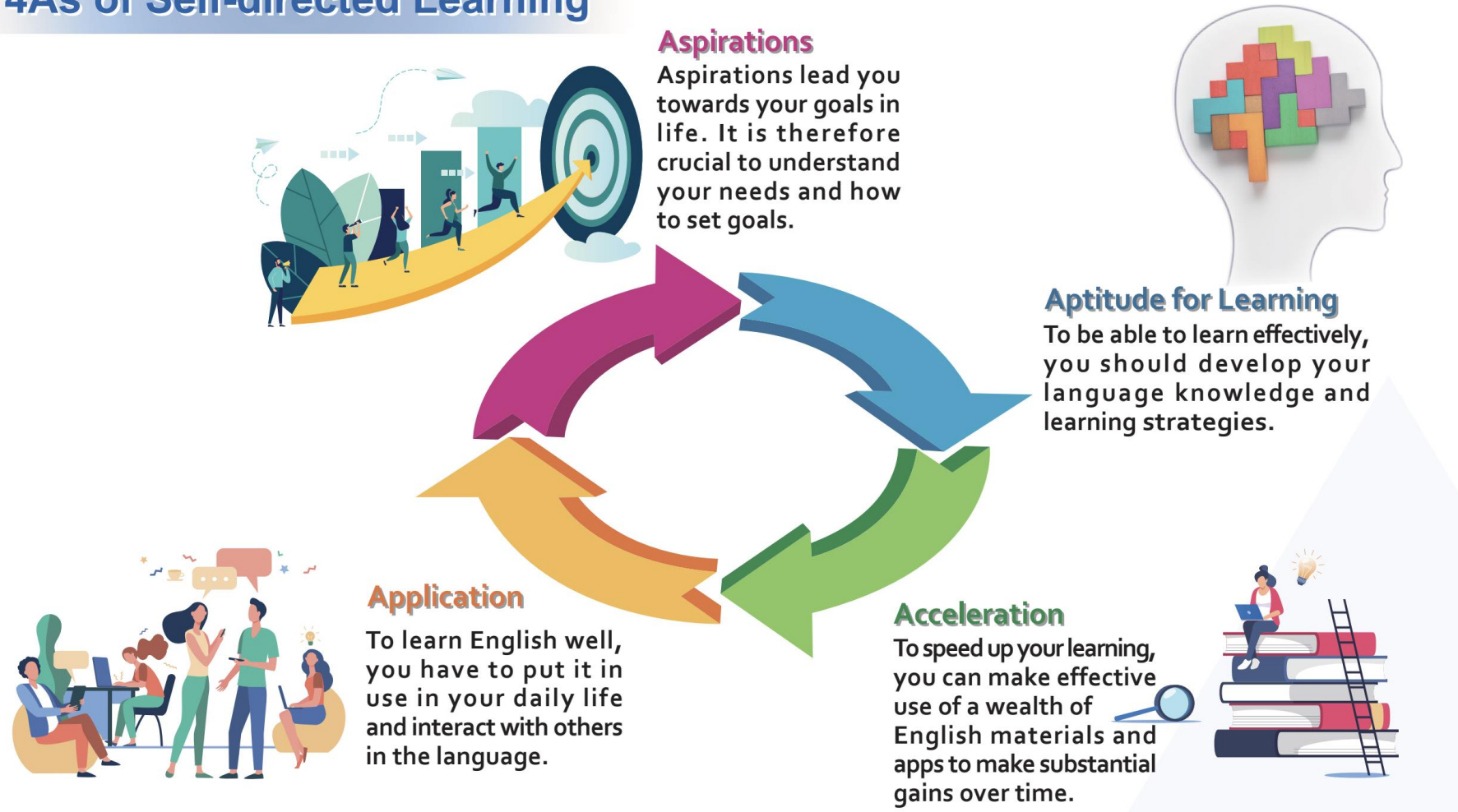
Brainstorming and Sharing

- How do you usually teach vocabulary? How do your students usually learn vocabulary?
- What vocabulary building strategies have you introduced your students to? Under what circumstances?
- How have you equipped your students with self-directed vocabulary learning skills?
- Have you demonstrated to or taught your students how AI can be used to facilitate self-directed vocabulary learning?

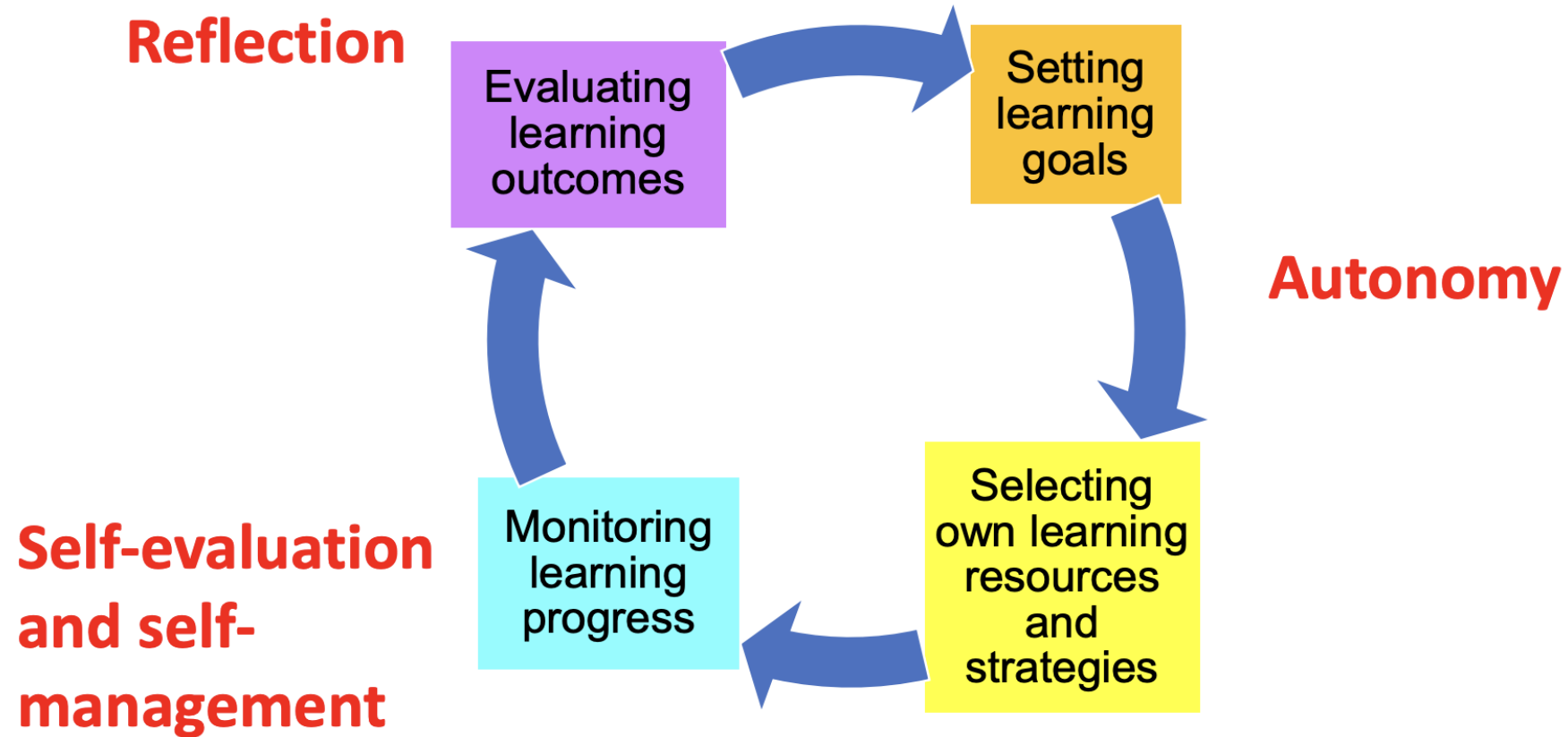
A Quick Recap

4As of Self-directed Learning

4As of Self-directed Learning



4-stage Model of Self-directed Learning



Results from Pre-workshop Survey

Opportunities

- Personalised feedback
- Empowerment & ownership
- Efficiency
- Support for diverse learners

Challenges

- Over-reliance on AI
- Ethical use and digital literacy
- Teacher guidance needed
- Equity and access

Recommendations

- Develop AI literacy
- Balance with traditional methods
- Stay updated
- Monitor and evaluate
- Encourage collaboration

Not *what* tools, but *how* to use them to facilitate self-directed language learning

When partnering with AI...

1. Craft clear, effective prompts to get the best results from AI
2. Use follow-up questions and feedback to refine AI-generated content
3. Combine multiple AI outputs to create a more comprehensive solution
4. Review and edit AI output to ensure accuracy and quality
5. Augment human creativity and problem-solving skills using AI
6. View AI as a partner rather than a replacement for human expertise

Self-directed Vocabulary Learning

English Language Education

Key Learning Area Curriculum Guide (Primary 1 – Secondary 6)



Prepared by
The Curriculum Development Council

Recommended for use in schools by
The Education Bureau
HKSARG
2017

Vocabulary

The vocabulary items that students encounter, acquire and use at each key stage vary with the tasks and the amount of language support that students experience in the learning process. Students need to be **exposed to an increasingly wider range** of vocabulary items, including phrasal verbs, idioms and fixed expressions to help them communicate and carry out various learning tasks effectively. Vocabulary is best introduced in context using reading, listening or multimodal texts, and practised through tasks and language games. In helping students build vocabulary, besides identifying whether the target words are for active or passive use, teachers should also take note of their frequency of occurrence across different text types and the vocabulary demand in non-language subjects. At both the primary and secondary levels, it is not advisable to prescribe a vocabulary list out of context or provide a list of unfamiliar words with explanations and their different parts of speech for rote learning.

**Contextualised
vocabulary
instruction**

**Range and type
of vocabulary**

**Purpose and
usage of target
words**

**Frequency and
relevance**

**Meaningful
practice**

**Avoidance of
decontextualised
lists**

English Language Education

Key Learning Area Curriculum Guide
(Primary 1 – Secondary 6)

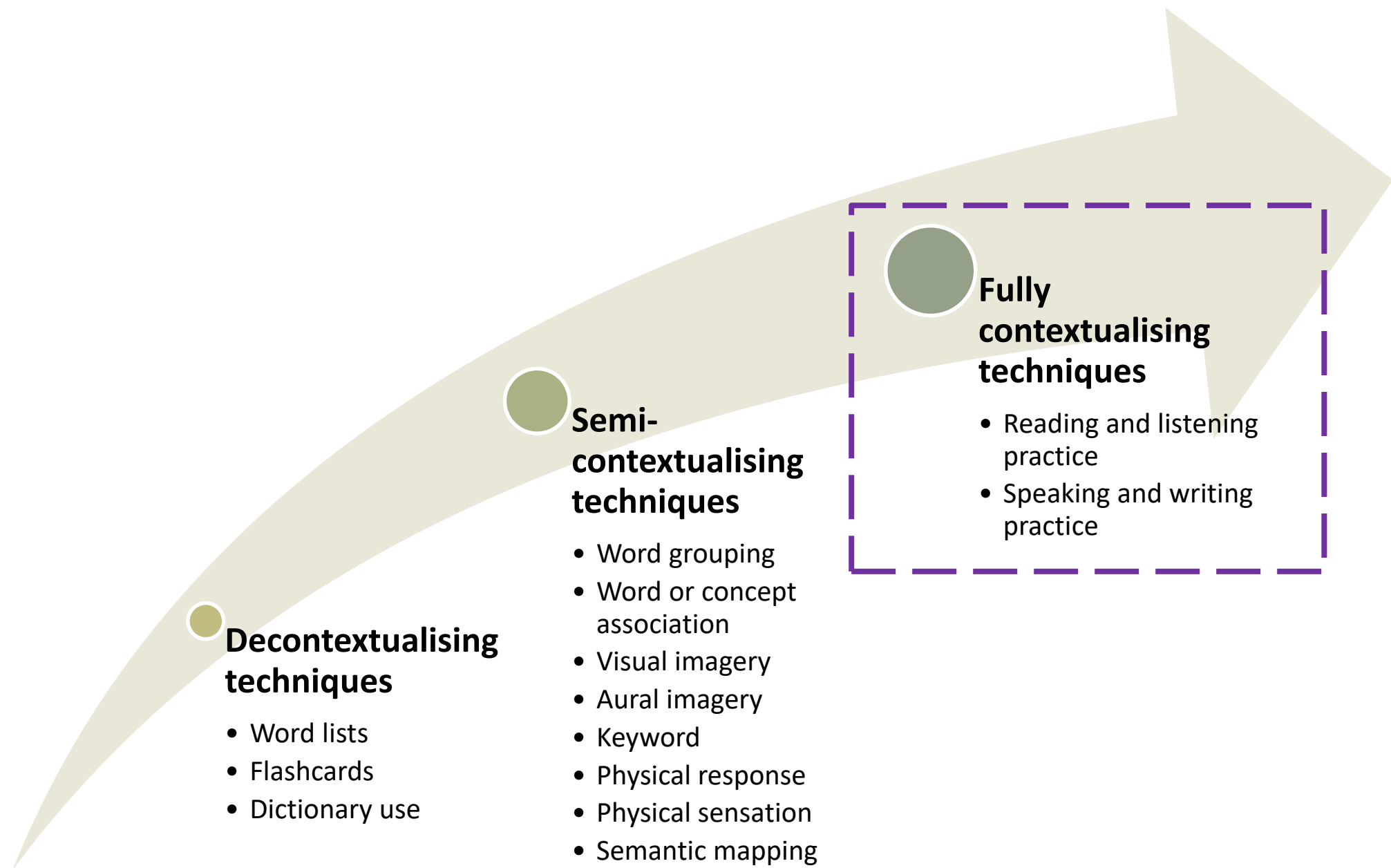


In addition, it is essential to introduce students to a range of vocabulary building strategies such as:

- using knowledge of word formation;
- using knowledge of collocations;
- using knowledge of lexical relations;
- guessing meaning and inferencing with available clues;
- using dictionaries and thesauri;
- creating word webs to record words learnt; and
- retaining words using mnemonics.

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Dimensions of Vocabulary Knowledge

1. Knowing a word means knowing the degree of probability of encountering that word **in speech or print**. For many words, we also know **the sort of words most likely to be found associated** with the word.
2. Knowing a word implies knowing the limitations imposed on the use of the word according to variations of **function and situation**.
3. Knowing a word means knowing **the syntactic behaviour** associated with the word.
4. Knowing a word entails knowledge of the underlying **form** of a word and the **derivatives** that can be made from it.
5. Knowing a word entails knowledge of **the network of associations** between that word and the other words in the language.
6. Knowing a word means knowing **the semantic value** of a word.
7. Knowing a word means knowing many of **the different meanings** associated with a word.

Dimensions of Vocabulary Knowledge

Form	Spoken	R	What does the word sound like?
		P	How is the word pronounced?
	Written	R	What does the word look like?
		P	How is the word written and spelled?
	Word parts	R	What parts are recognizable in this word?
		P	What word parts are needed to express this meaning?
Meaning	Form and meaning	R	What meaning does this word form signal?
		P	What word form can be used to express this meaning?
	Concepts and referents	R	What is included in the concept?
		P	What items can the concept refer to?
	Associations	R	What other words does this make us think of?
		P	What other words could we use instead of this one?
Use	Grammatical functions	R	In what patterns does the word occur?
		P	In what patterns must we use this word?
	Collocations	R	What words or types of words occur with this one?
		P	What words or types of words must we use with this one?
	Constraints on use (register, frequency, etc.)	R	Where, when, and how often would we expect to meet this word?
		P	Where, when, and how often can we use this word?

Developmental Approaches to Word Knowledge

I never saw the word before.

I have heard the word but I do not know what it means.

I recognise the word in context. It has something to do with _____.

I know the word.

Learning Conditions that Help Vocabulary Learning

Psychological conditions encouraging learning	Signs that the conditions are likely to be occurring	Design features of the activity that promote the conditions
Noticing a word	• The learner consults a glossary • The learner pauses over the word • The learner negotiates the word	• Definition, glosses, highlighting • Unknown words in salient positions
Retrieving a word	• The learner pauses to recall a meaning • The learner does not need to consult a dictionary or gloss • The learner produces a previously unknown word	• Retelling spoken or written input
Varied meetings and varied use	• The learner produces a word in a new sentence context • The learners produce associations, causal links, etc.	• Role play based on written input • Retelling without the input text • Brainstorming
Elaboration	• The learners analyse words by breaking them into parts • The learners create keywords and linking images	• Deliberate use of word analysis, keyword, or semantic mapping activities

Developing Students' Vocabulary Knowledge: Suggestions

Provide opportunities to engage in **independent reading**

Use **contextual-based approaches**

Encourage independent learning by allowing students to **self-select** terms to be studied

Teach **key vocabulary** explicitly

Provide opportunities for **multiple exposures** to key terms

Avoid drill and practice activities

Emphasise **word-part analysis** when teaching vocabulary

Principles of Vocabulary Learning and Teaching

Content and sequencing

- Use **frequency and range of occurrence** as ways of deciding what vocabulary to learn and the order in which to learn it
- Give adequate training in essential **vocabulary learning strategies**
- Give attention to each vocabulary item according to **the learning burden** of that item
- Provide opportunity to learn **the various aspects of what is involved in knowing a word**
- **Avoid interference** by presenting vocabulary in normal use rather than in groupings of synonyms, opposites, free associates, or lexical sets
- Deal with **high-frequency vocabulary** by focusing on the words themselves, and deal with **mid-frequency and low-frequency vocabulary** by focusing on the control of strategies

Format and presentation

- Make sure that high-frequency target vocabulary occurs in all the **four strands** of meaning-focused input, language-focused learning, meaning-focused output, and fluency development
- Provide opportunity for **spaced, repeated, varied retrieval of words** to ensure cumulative growth
- Use quality of **processing activities**

Monitoring and assessment

- **Test learners** to see what vocabulary they need to focus on
- Use **monitoring and assessment** to keep learners motivated
- Encourage and help learners to **reflect** on their learning

Vocabulary Learning Strategies

General class of strategies	Types of strategies
Planning: Choosing what to focus on and when to focus on it	• Choosing words • Choosing the aspects of word knowledge • Choosing strategies • Planning repetition and spending time
Sources: Finding information about words	• Analysing the word • Using context • Consulting a reference source in L1 or L2 • Using parallels in L1 and L2
Processes: Establishing knowledge	• Noticing • Retrieving • Varied meetings and varied use • Elaboration
Skill in use: Enriching knowledge	• Gaining and coping with input through listening and reading • Gaining and coping with output through speaking and writing • Developing fluency across the four skills

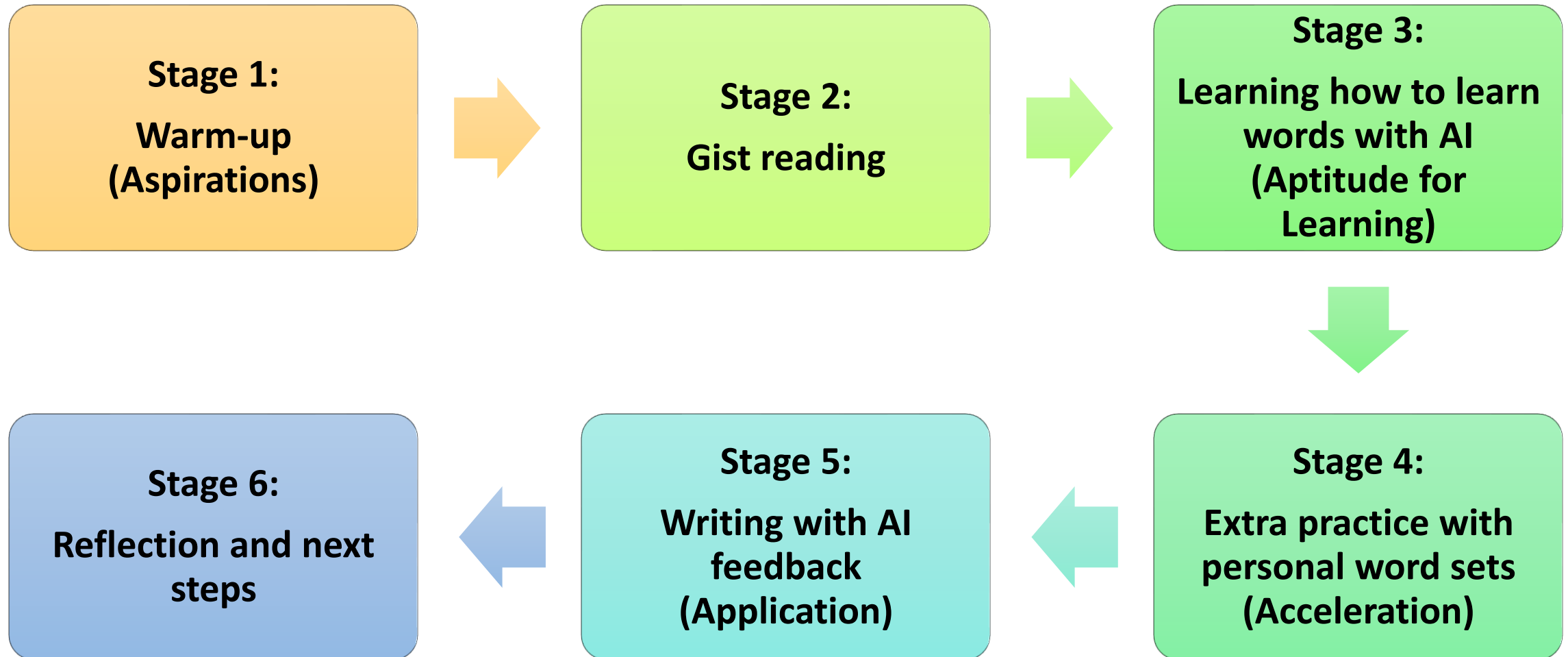
Resource Materials

Set 1

Learning Objectives

- By the end of the lesson, students will be able to:
 - a) Set **personal vocabulary goals** related to eco-friendly fashion (Aspirations)
 - b) Use AI as a vocabulary coach to **develop vocabulary building strategies** and check meanings and find example sentences and word families for new words (Aptitude for Learning)
 - c) Use AI to generate extra **practice** with their chosen words (Acceleration)
 - d) Write **a short persuasive text** about eco-friendly fashion using at least 4 target words, and use AI to **get feedback on vocabulary use** (Application)

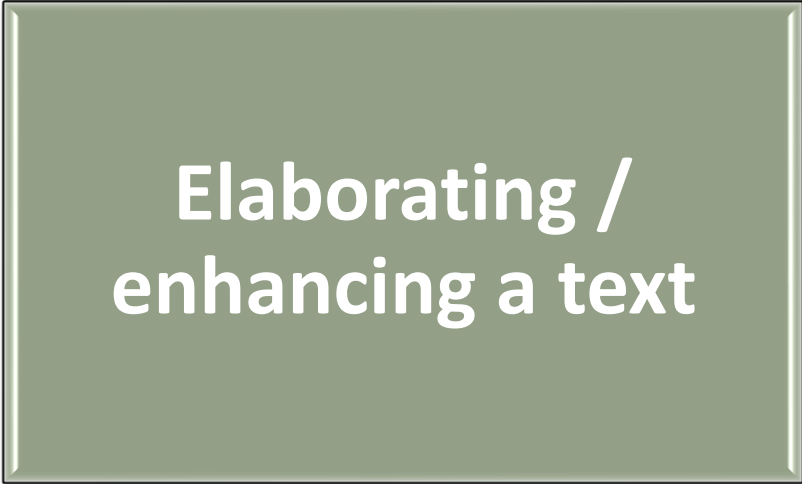
Lesson Overview



Text Modifications: Catering for Learner Diversity



Simplifying a text



Elaborating /
enhancing a text

- **Task:** Prompt AI to either (1) simplify the reading text, or (2) enhance the reading text

Comparing Prompts: Simplifying a Text

1

Simplify this text.

2

Make this text easier for my students.

3

*Adapt this text for English learners.
Use easier words.*

4

Rewrite this text for intermediate (B1) English learners. Use simpler vocabulary and shorter sentences.

Which is better? Why?

If the text is too simple for your learners...

You are an expert ESL material developer. Rewrite the following reading text for Secondary 3 (Grade 9) students in Hong Kong to make it more linguistically challenging and academically appropriate.

Please apply these specific enhancements:

- **Enhance vocabulary:** Replace basic words with more precise, topic-specific, and advanced Tier 2 academic vocabulary (e.g., change “bad for the environment” to “detrimental to the ecosystem” or “environmentally damaging”).
- **Increase syntactic complexity:** Vary sentence structures by using more subordinate clauses (e.g., “Although...”), participle phrases and nominalisations.
- **Maintain core content:** Do not change the core facts and key information of the text. The goal is lexical and syntactic enhancement, not adding new content.
- **Preserve clarity:** Ensure the enhanced text remains understandable to a proficient Secondary 3 learner. The challenge should come from vocabulary and syntactic structure, not from obscure concepts.
- **Format:** Provide the enhanced text in clear, logical paragraphs.

Here is the original text for you to enhance:

XXXXXXXXXXXXXXXXXXXX

Clear role & audience

Specific, actionable instructions

Examples

Constraints

If the text is too simple for your learners...

The Imperative of Sustainable Fashion

Are you aware that the fashion sector ranks among the most polluting industries globally?

The manufacturing of garments is remarkably resource-intensive, demanding vast quantities of water, chemicals, arable land, and energy. To illustrate, the production of merely one pair of denim jeans consumes approximately 2,912 litres of water. Furthermore, up to 35% of microplastics polluting our oceans originate from textile fibres. Compounding this issue is the statistic that around 40% of garments housed in our wardrobes are seldom or never utilised, with a mere 1% ultimately entering recycling streams.

What rationale supports the adoption of eco-conscious fashion as an imperative trend?

Sustainable fashion encompasses clothing that is meticulously designed, manufactured, distributed, and utilised to minimise its detrimental environmental footprint. To fulfil this objective, environmentally benign materials are employed. Organic cotton, for instance, is cultivated without the application of toxic agrochemicals, such as pesticides that degrade ecosystems. Similarly, recycled fabrics are synthesised from post-consumer materials, diverting waste from landfills and curtailing the generation of hazardous chemical by-products. The utilisation of natural dyes, derived from plant and mineral sources, presents a viable alternative to synthetic colourants.

If the text is too complex for your learners...

You are an expert ESL material developer. Rewrite the following reading text for Secondary 3 (Grade 9) students in Hong Kong to make it more accessible.

Please apply these specific modifications:

- **Simplify vocabulary:** Replace advanced, low-frequency and subject-specific jargon with high-frequency, Tier 1 and essential Tier 2 words. Use clearer, more common synonyms (e.g., change “detrimental” to “harmful”, “manufacturing” to “making”).
- **Reduce syntactic complexity:** Break up long, compound-complex sentences into shorter, simpler sentences. Reduce the use of heavy embedding, subordinate clauses and participle phrases.
- **Maintain core content:** Do not change the core facts and key information of the text. The goal is to increase comprehensibility, not alter the message.
- **Ensure clarity and flow:** The simplified text should read naturally and clearly for a Secondary 3 learner. Aim for a straightforward subject-verb-object sentence structure where possible.
- **Format:** Provide the simplified text in clear, logical paragraphs.

Here is the original text for you to simplify:

XXXXXXXXXXXXXXXXXXXX

Clear role & audience

Specific, actionable instructions

Examples

Constraints

If the text is too complex for your learners...

Choose Wisely, Be Eco-Friendly

Did you know the fashion business is a big polluter?

Making clothes needs lots of water, chemicals, land, and power. For example, to make one pair of jeans, you need about 2,912 litres of water. Also, up to 35% of the tiny plastics in the sea come from clothes. But people wear about 40% of their clothes very little or never. Only about 1% is made into new things.

Why should green fashion be popular?

Green fashion means clothes that do less harm to nature. To do this, makers use special materials. For example, organic cotton is grown without bad chemicals. Recycled fabrics come from old clothes. Using them cuts down trash. It also means fewer bad chemicals. Natural colours from plants can replace chemical colours.

4-Step Prompt Crafting Framework



Define the goal and persona

- *What do I want to achieve, and who should the AI be?*



Contextualise & constrain

- *Who is this for? What is the scenario? What specific details, format and boundaries do I need?*



Refine with examples (optional but powerful)

- *Can I show the AI exactly what I want?*



Iterate and interrogate

- *How can I improve the result based on what I got?*



- "Make it more concise."
- "Give me three options."
- "Explain the second point in more detail."

Context?

You are an English teacher for a Secondary 3 student in Hong Kong.

Role + Context

Explain the word “upcycle” in simple English.

Task

Give:

Constraint

- 1. Part of speech*
- 2. A simple, clear definition (no more than 20 words)*
- 3. 2 example sentences about clothes or fashion suitable for a Secondary 3 student*
- 4. 2 common collocations with “upcycle”*

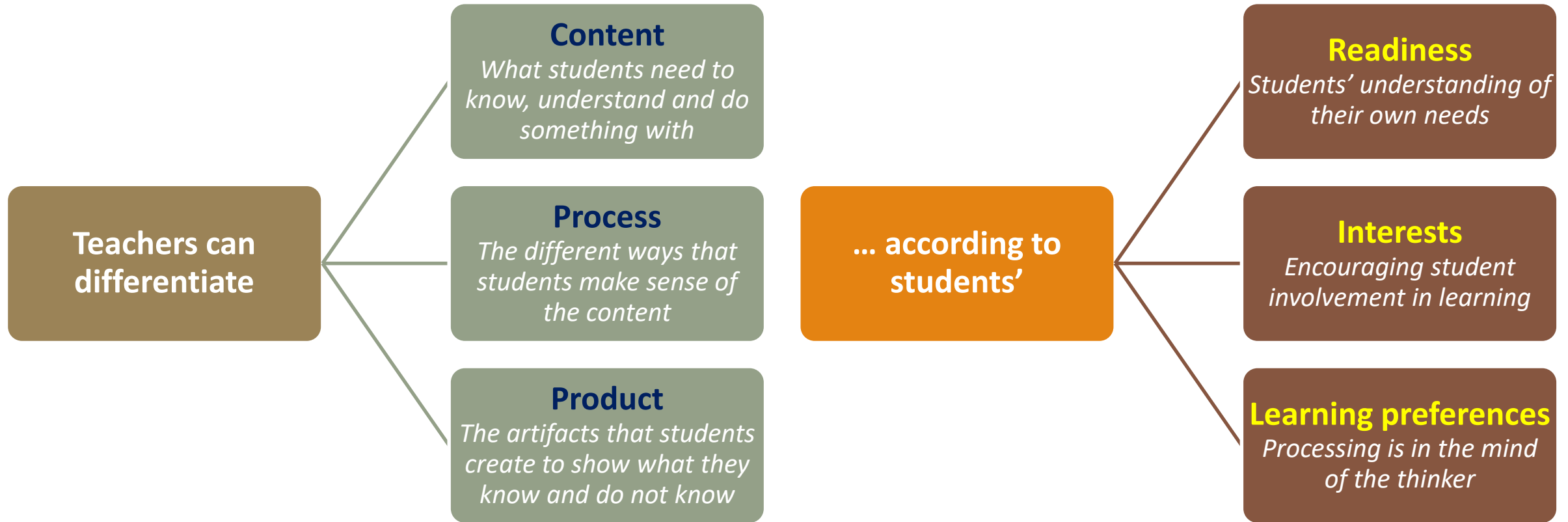
Can we ask
AI for more?

- guessing the meaning of words from contextual clues
- using knowledge of word formation
- raising phonological awareness
- making association

Discussion

1. What prior knowledge does this lesson depend on? How do you verify that knowledge at the start?
2. How would you adapt this lesson (e.g., lesson objectives, level of scaffolding) to better suit the needs and level of your learners?
3. If you could swap one text or activity used in this lesson, what would you change it to and why? What would the new resource allow learners to do that the current one does not?
4. Can this lesson be executed without using AI? What are the benefits and drawbacks of using AI?
5. How does the lesson help learners transfer the newly acquired vocabulary and learning skills to a different context?

Catering for Learner Diversity



Word Formation: Compound Nouns

I am a Secondary 3 student in Hong Kong. Please explain the following compound nouns from a text related to eco-friendly fashion: landfills, secondhand, lifetime, greenhouse, wildfires, healthcare, handbags.

For each word:

- Break it into its two parts (e.g., hand + bag)*
- Give a simple, clear definition (no more than 20 words)*
- Use it in a short sentence about fashion or the environment*

Word Formation: Compound Nouns

I am a Secondary 3 student in Hong Kong. Please explain the compound noun “secondhand” used in the following sentence: “Fashion designers and consumers can mend and upcycle secondhand clothes into something new and unique, like turning a pair of torn jeans into a tote bag.”

- *What are the two words inside it?*
- *What does each part mean literally? (e.g., “second” means... “hand” means...)*
- *How do they combine to make the new meaning? Explain the logic in one line.*
- *Give me a simple, clear definition (no more than 20 words)*
- *Give me two example sentences: one about fashion and one about the environment*

Word Formation: Compound Nouns

I have learned the following words: landfills, secondhand, lifetime, greenhouse, wildfires, healthcare, handbags

- Point out one common pattern in how these compound nouns are formed. What kind of words are combined?*
- Based on this pattern, if I see a new compound noun like “footprint” (as in carbon footprint), how should I start to guess its meaning?*

Word Formation: Prefixes / Suffixes

I am a Secondary 3 student in Hong Kong. Please dissect the word “microplastics” for me.

- **Prefix:** *What is it and what does it mean?*
- **Root word:** *What is the main word inside it?*
- **Suffix:** *What is it and what does it do?*
- *How do the parts combine to create the overall meaning?*
- *Give a simple, clear definition (no more than 20 words)*
- *Give me two example sentences: one about fashion and one about the environment*

Word Formation: Prefixes / Suffixes

You are my word family builder.

Take the prefix “micro-” from “microplastics”. Give me 3 other common words that use “micro-”.

Take the suffix “-ful” from “harmful”. Give me 3 other common words that use “-ful”.

For each new word, give a simple, clear definition (no more than 20 words).

SDLL: With AI vs. Without AI

Stage	AI-assisted SDLL	Traditional SDLL
3B. Teacher demo	Teacher shows how to prompt AI for part of speech, definition, examples, collocations, etc.	Teacher models use of online or print dictionaries, vocabulary apps or corpus examples from COCA/BNC.
3C. Pair work	Students work in pairs using AI to find meanings, examples and collocations; record results in Word Builder Table.	Students work in pairs using dictionary, vocabulary apps, etc.; complete the same table.
4. Extra practice	Students ask AI to generate personalised quizzes using their chosen words.	Students create quizzes for each other or complete teacher-designed exercises.
5. Writing	Students write a 100-word persuasive post using their target words and get AI vocabulary feedback.	Students write the same post, then swap with a peer for vocabulary-focused feedback using a checklist provided by teacher.
6. Reflection & next steps	Students reflect on what AI taught them and set future goals using AI tools.	Students reflect on learning strategies, self-study methods and how to continue building vocabulary (e.g., using notebooks, flashcards or apps).
Homework	Students use AI to create and complete a 5-question quiz.	Students create a 5-question quiz and swap notebooks for peer correction.

Benefits and Drawbacks of AI Integration

Benefits

- Tailor learning to individual vocabulary needs
- Promote SDLL and metacognitive habits
- Instant, specific feedback on vocabulary use
- Interactive and dynamic learning experience
- Plentiful language examples and contexts
- Adjust explanations based on student proficiency
- Generate quizzes or gap-fills instantly
- Build digital literacy and critical thinking

Drawbacks

- AI responses may be inaccurate or inconsistent
- Learners might depend on AI instead of thinking critically
- Peer and teacher communication may decrease
- Effective use depends on students' prompting ability
- Managing both AI interaction and language content can overwhelm some students
- Data sharing and privacy issues when using public AI tools
- Teachers need AI literacy and classroom management strategies
- AI feedback does not always align with curriculum standards
- Some AI tools are subscription-based

Benefits and Drawbacks of AI Integration

	Benefits of AI	Striking a Balance
Autonomy	Build independence in learning	Pair with reflection and self-assessment to prevent dependence
Feedback	Fast and accessible	Train students to check and verify feedback through peer or teacher confirmation
Innovation	Motivating, modern approach	Maintain traditional literacy and face-to-face collaboration
Efficiency	Save planning and practice time	Ensure quality control: teacher oversight remains crucial

Multimodal Self-directed Vocabulary Learning

1. Frayer Model (Frayer et al., 1969)

Definition	Characteristics / Facts
<i>To reuse old materials or items to create a new product of higher quality or value than the original</i>	• <i>Creative and innovative</i> • <i>Give objects a second life</i> • <i>Add value or artistic design</i> • <i>Reduce waste and conserves resources</i> • <i>Common in fashion</i>
Examples	Non-examples
• <i>Turning a large old shirt into a tote bag</i> • <i>Transforming worn-out jeans into a denim jacket</i> • <i>Using fabric scraps to make hair accessories or patchwork designs</i>	• <i>Throwing a torn dress in the trash</i> • <i>Donating clothes without changing them</i> • <i>Recycling plastic bottles by melting them down to make new bottles</i>

upcycle

1. Frayer Model

Create an educational Frayer Model graphic for the word “_____”. The design should have four clean, clearly labeled quadrants arranged around a large central title of the target word.

Quadrants:

- Top-left – Definition: A simple, clear definition*
- Top-right – Characteristics/Facts: Key features or facts*
- Bottom-left – Examples: Correct examples in context*
- Bottom-right – Non-Examples: What the word is not*

Style: Clean, flat design, suitable for a classroom poster. Use a neutral background with soft, distinct colors for each quadrant to aid visual separation. Include simple, relevant icons in each section if possible. Ensure the text is legible and the layout is highly organised.

2. Vocabulary Poster

2. Vocabulary Poster

Create an educational poster to teach the English word “_____”.

Design style:

- Illustrated, colourful and clear; suitable for Secondary 3 students in Hong Kong
- Infographic layout like a learning chart, divided into labelled boxes or steps
- Cheerful, eco-friendly, and school-appropriate visuals; use icons instead of text-heavy content

Include these labelled sections:

- **Context guessing:** show a short sentence using the word in real life, with clue icons (speech bubble, thought bubble)
- **Word formation:** break the word visually into prefix, root, suffix, each in a colored box with icons
- **Pronunciation:** visualise syllables or rhyming words with sound waves or speech icons
- **Collocations:** show 3-4 small images or icons representing common phrases with the word
- **Word family:** a small word-family tree or network with related forms (noun, verb, adjective, etc.)

Output style:

- 16:9
- Clean white or light pastel background
- Clear English text labels (short phrases)
- No realistic people faces; focus on icons and text visuals

3. Word Structure Diagram

I want to create a visual word map for learning English vocabulary. Please build a complete HTML page that clearly shows the prefix, root and suffix of a given word.

Details:

- *Target word: _____*
- *Explain:*
 1. *What the prefix is and what it means*
 2. *What the root word is and what it means*
 3. *What the suffix is and what it does or means*
- *Show how the parts combine to form the overall meaning*
- *Give a simple, clear definition (no more than 20 words)*
- *Give two example sentences: one about fashion and one about the environment*
- *Design the page to be colorful and clear*
- *Include all HTML, CSS, and any JavaScript in one complete code block*
- *End with an area that visually combines the pieces into the final word + meaning*
- *Add small icons or emojis to make it student-friendly*

4. Semantic Map

I want to create a semantic map (concept map) to make meaningful associations among vocabulary words. Please build a complete HTML page that clearly shows relationships between the target words.

Details to include:

- Theme or topic: *[e.g. eco-friendly fashion]*
- Target vocabulary words: *AAA, BBB, CCC, DDD, EEE, FFF, GGG*
- Each word bubble should show short definitions or examples when clicked
- The visual layout should use color, spacing, and connecting lines or positions to show meaning clusters or categories
- Use friendly colours and emojis suitable for secondary school students
- Make it interactive if possible (click to reveal meanings, or change colour when selected)
- Keep all code self-contained in one HTML block (HTML + CSS + JavaScript)

5. Interactive Web Games

I am a secondary school student in Hong Kong and I want to create an interactive web game to help learn vocabulary. Please build a complete, responsive HTML web app that includes several types of interactive activities for my chosen words.

Here are the details:

- *Topic or theme: [e.g. eco-friendly fashion]*
- *Target words or phrases: AAAA, BBBB, CCCC, DDDD, EEEE, FFFF, GGGG*
- *My learning level: [e.g. a secondary 3 student in Hong Kong, B1 English level]*

Game types I want:

- *Multiple-Choice Quiz*
- *Fill-in-the-Blank Story*
- *Drag-and-Drop Match Game*
- *Text Adventure Game (choose-your-own path)*

Requirements:

- *The game must provide instant feedback for BOTH correct and wrong answers (e.g., “Correct! ‘Upcycle’ means to reuse creatively.” / “Not quite! The right answer is ‘wardrobe’, which means the clothes you own.”)*
- *Show definitions or example sentences after each question for better learning*
- *Include friendly colors, emojis, progress indicators and short explanations*
- *Keep all code self-contained in one HTML block (HTML + CSS + JavaScript)*

6. Vision Chat

Reflection and Action Plan

1. What kinds of topics (besides eco-friendly fashion) or texts (besides the TSA past paper) could work well with the same AI-assisted vocabulary learning process?
2. How comfortable do you feel about introducing your students to AI-assisted self-directed language learning now?
3. What concerns or challenges might you anticipate when introducing your students to the activities and strategies discussed today?
4. What roles should teachers play when introducing students to AI-assisted self-directed vocabulary learning?
5. What is one new idea or strategy from today's session that you would like to try in your own teaching?

Summary

- 4As of self-directed learning
- Vocabulary building strategies (e.g., word formation, collocations, lexical relations)
- Different dimensions of vocabulary knowledge
- Vocabulary learning strategies
- Principles for vocabulary learning and teaching
- Elements of an effective prompt
- Adapting a lesson on self-directed vocabulary learning
- Multimodal vocabulary learning through AI

✗ Theories

✓ Practical pedagogical considerations!

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