

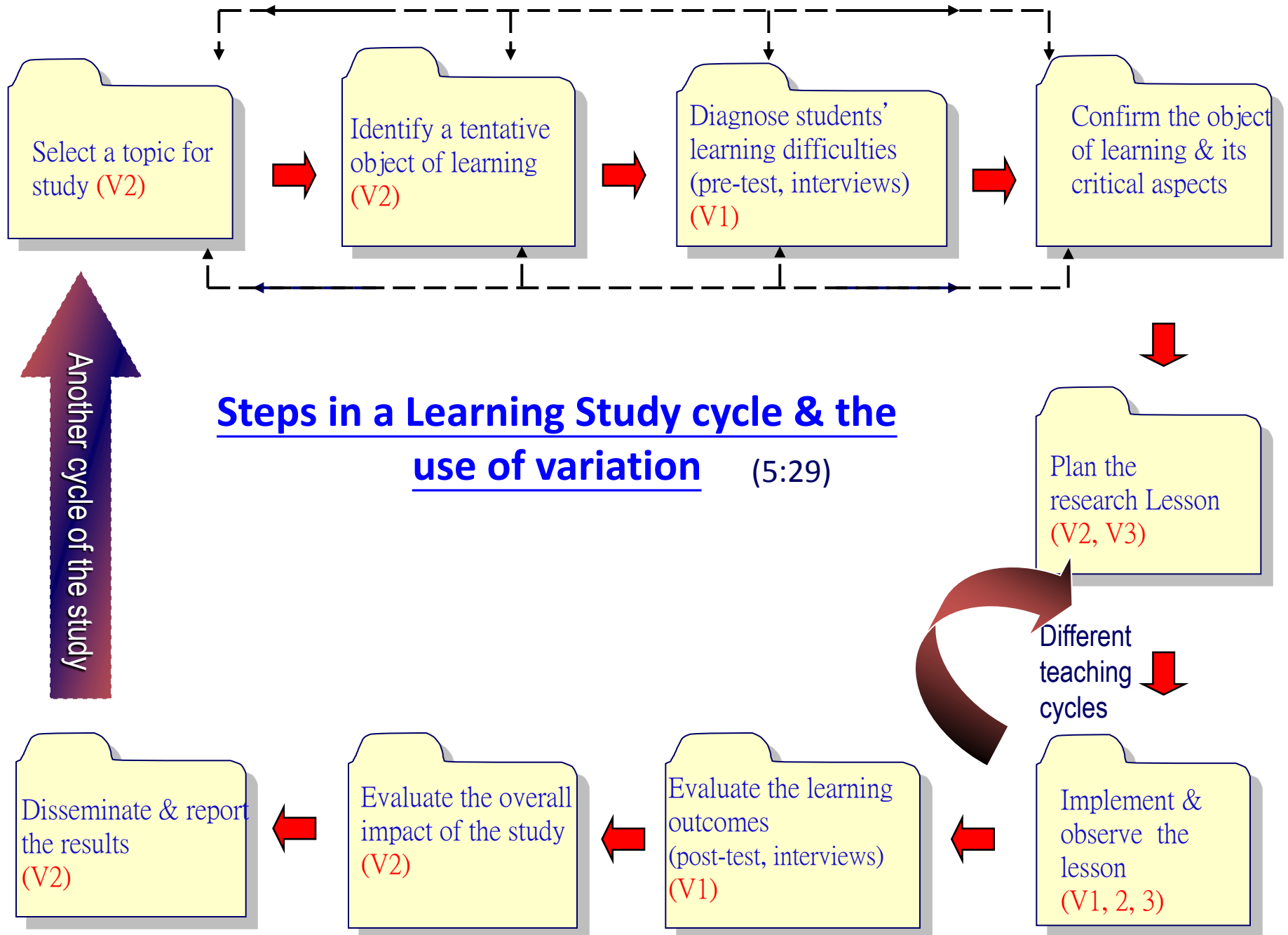
Singapore Lesson Study Symposium 2013

# **A Variation-based Framework of Effective Teaching and Learning**

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# Variation Theory (變易理論)



**Ference Marton**

Marton, F., & Booth, S. (1997). *Learning and Awareness*. New Jersey: Lawrence Erlbaum Associates.

# Variation Theory



## What should students learn?

- Learning is always directed to something (the object of learning, OL, 學習內容).
- Learning is changing the way of seeing the OL in a new and meaningful way.
- Each OL bears many features and some are critical to certain students (necessary but missing in students' minds, CF=critical features, 關鍵特徵) (Japanese).

**(Teachers need to identify the critical features before teaching.)**

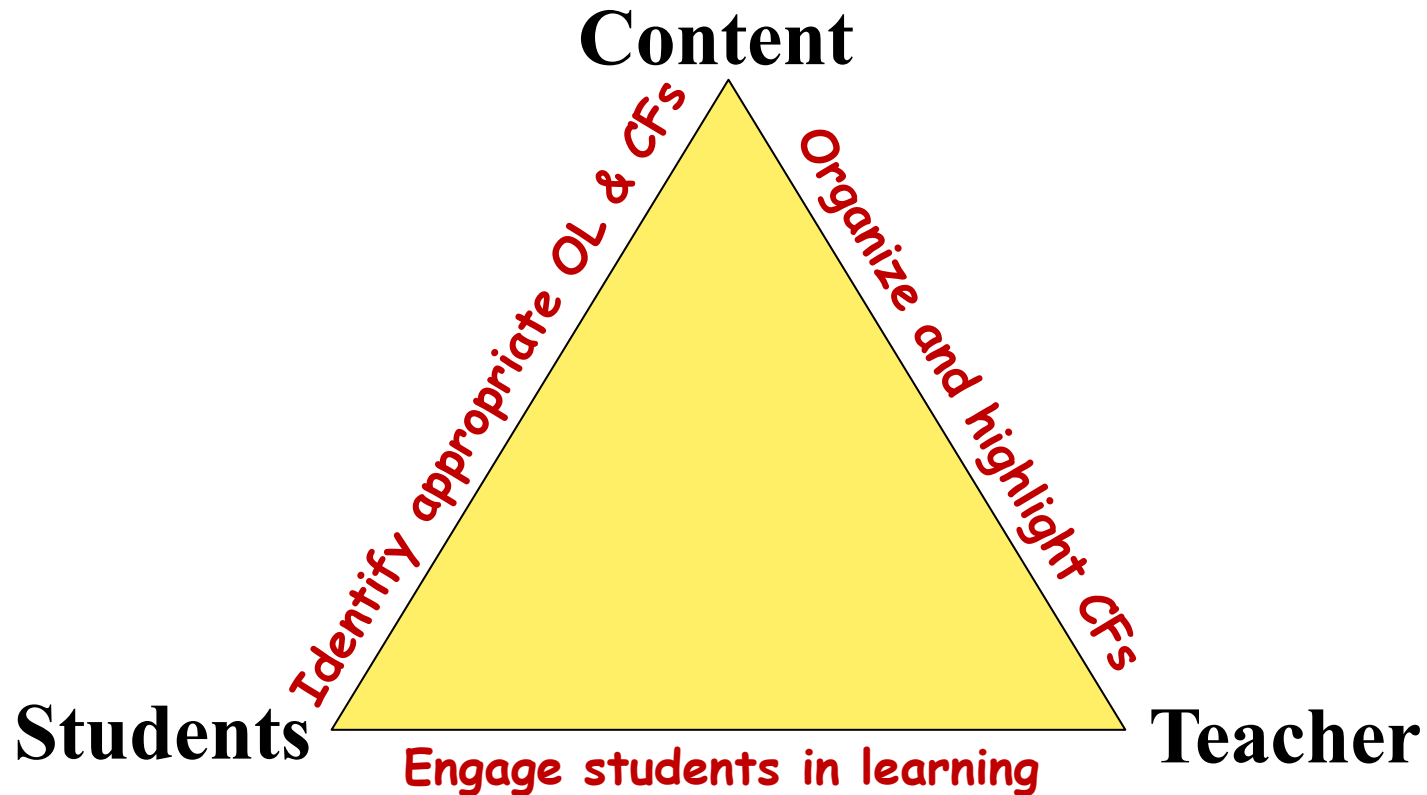
# Variation Theory

## How do students learn it?

- We human beings can only focus on one feature at a time.
- Learning is a discernment and discernment can be best achieved through variation (Japanese).
- In order to discern the critical features, a person needs to experience variation corresponding to these features (wishing well).

**(Teachers need to draw students' attention to CFs via variation.)**

# Teaching is a deliberate art!



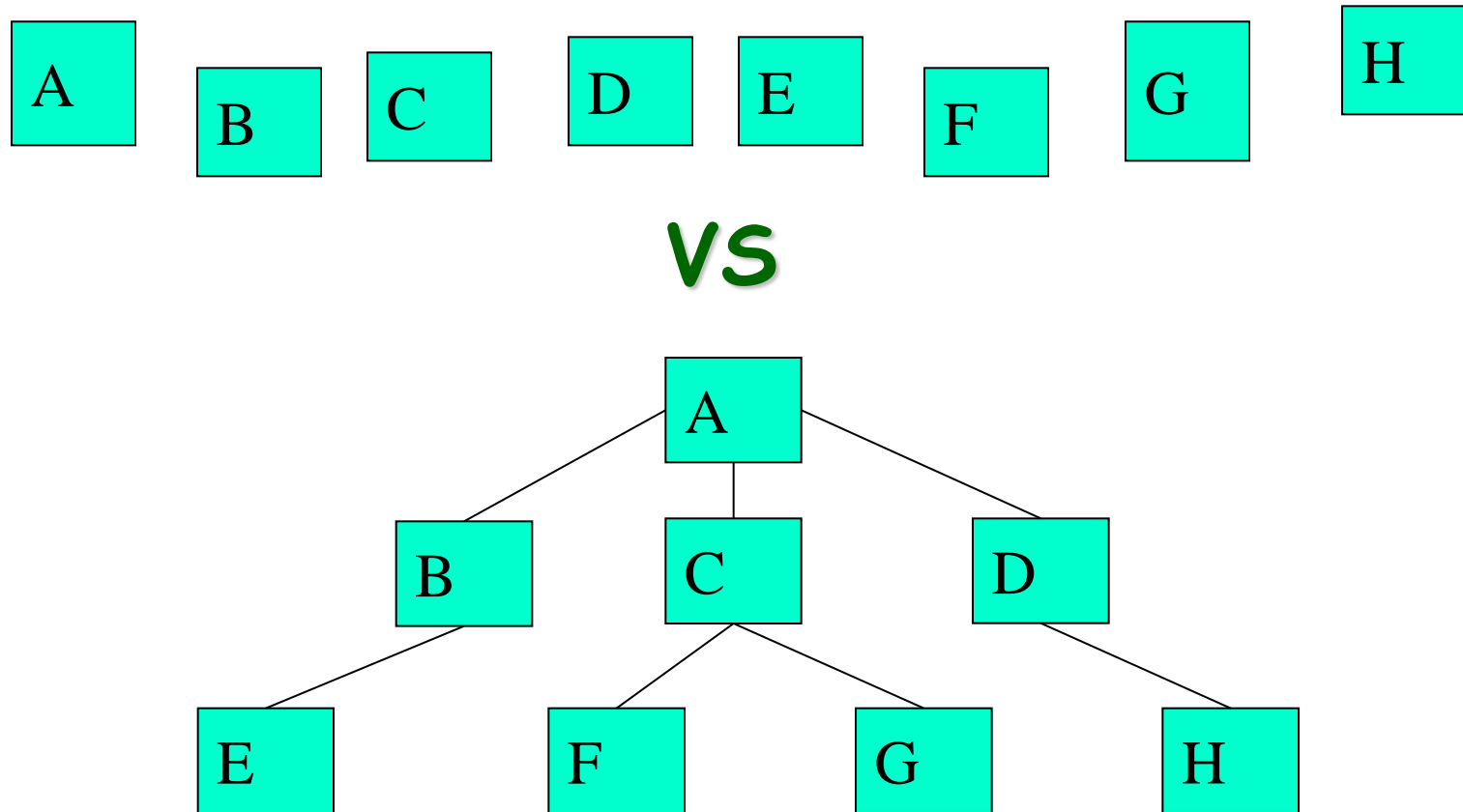
- ① **What should students learn (CFs)?**
- ② **How do students learn it?**
- ③ **How do we make student learning happen?**

# **A Variation-based Framework of Effective Teaching and Learning**

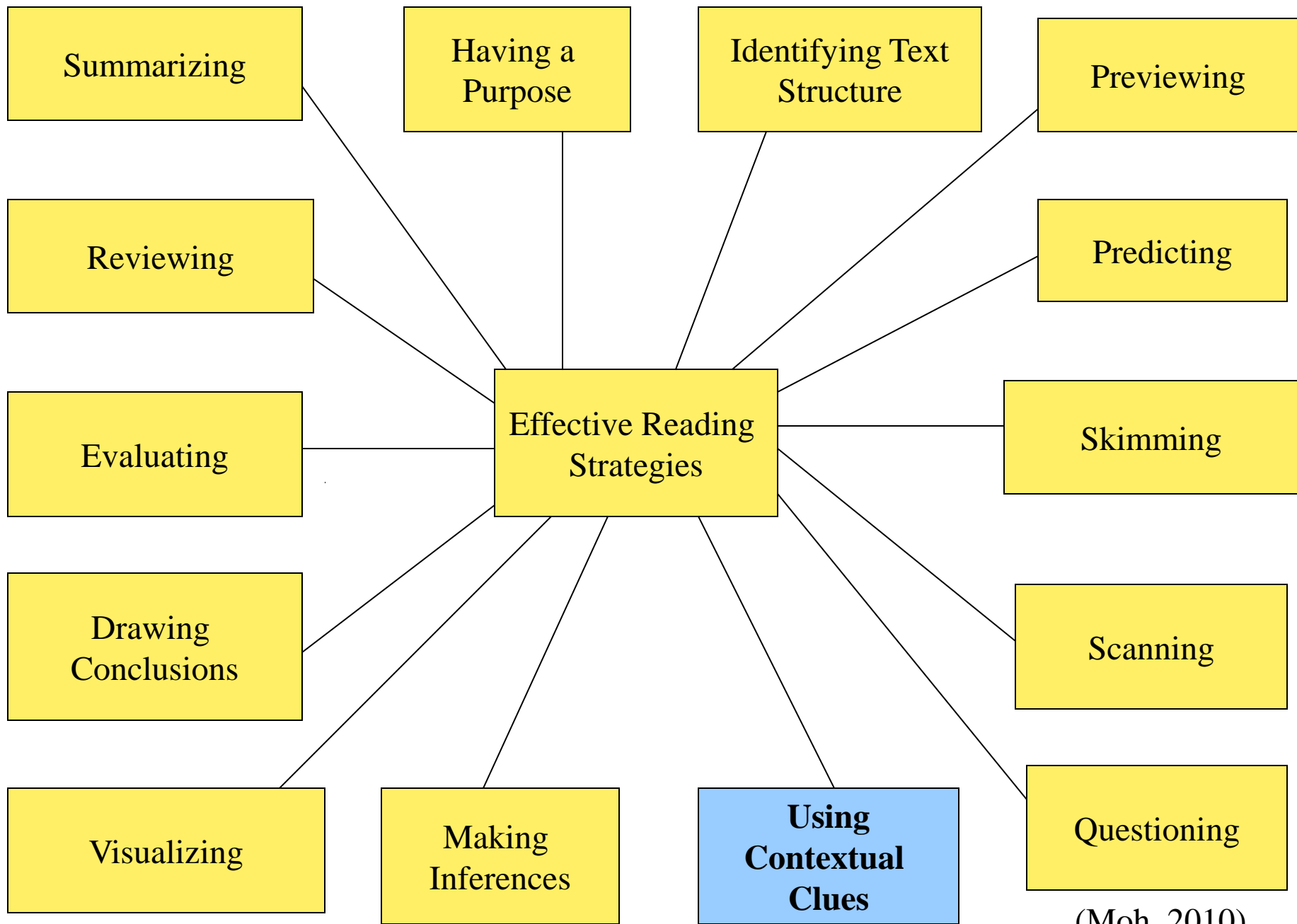
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- 4. Design the variation patterns corresponding to the critical features**
- 5. Select activities and teaching strategies for students to experience variation**

# A Variation-based Framework of Effective Teaching and Learning

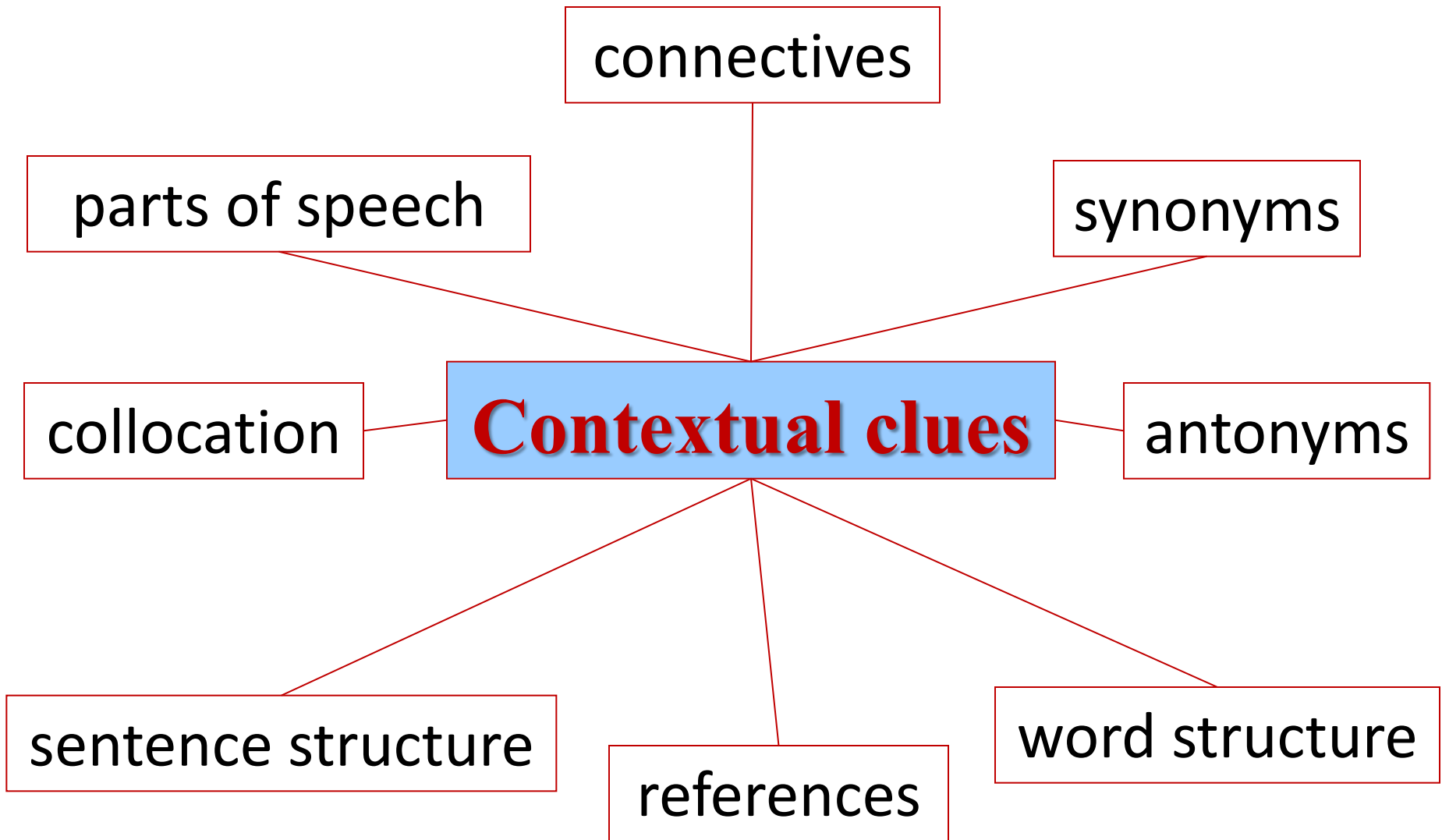
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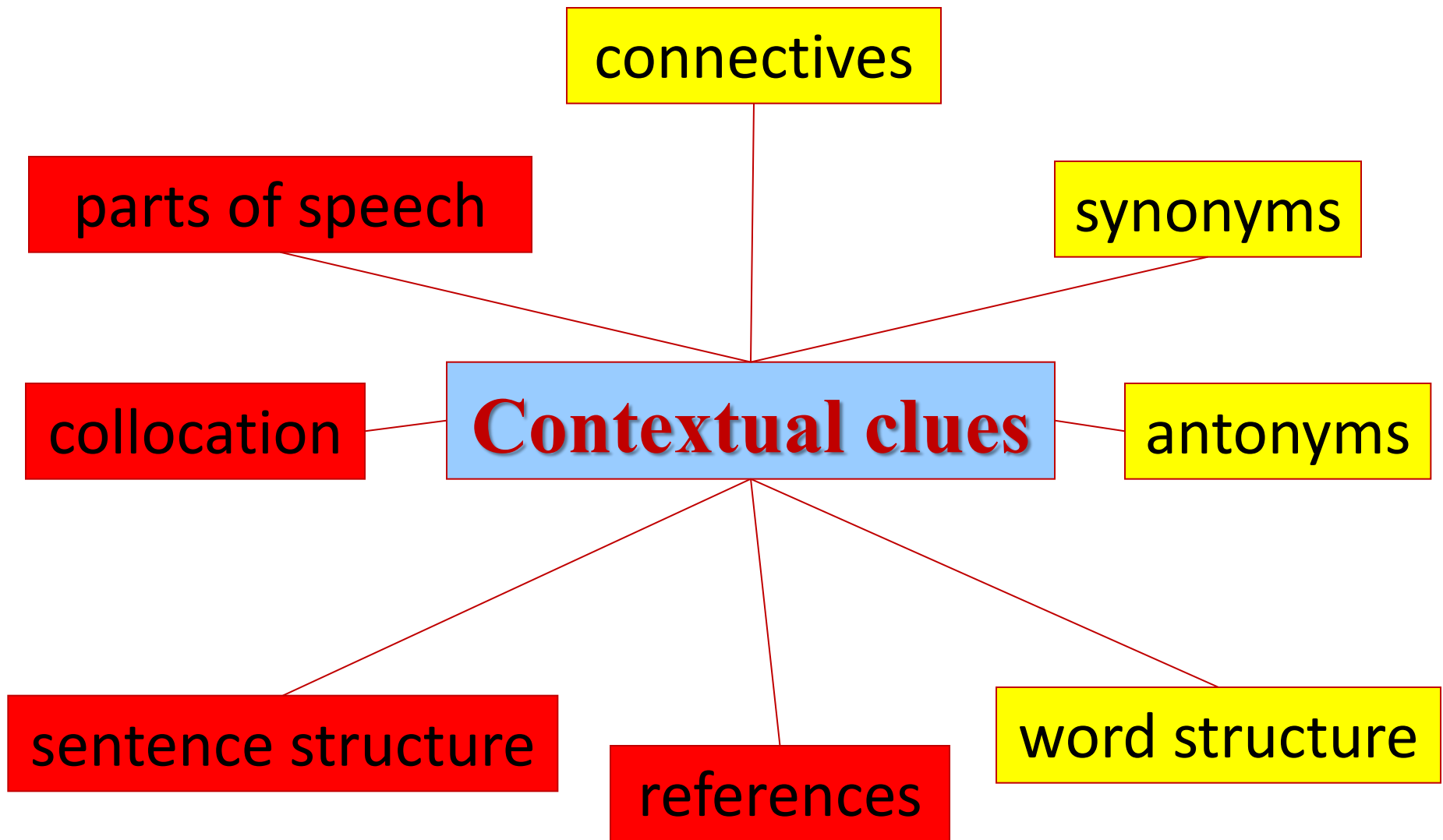






(Moh, 2010)





# **A Variation-based Framework of Effective Teaching and Learning**

- 1. Sort out the structure of the object of learning**
- 2. Understand students' ways of seeing the object of learning**



# Understand students' ways of seeing OL

- Prior knowledge (fractions)
- Use of strategies / skills (contextual clues)
- Thinking process (addition)
- Current understanding (questioning in class)
- Learning difficulties (the image)



# A Variation-based Framework of Effective Teaching and Learning

1. Sort out the structure of the object of learning
2. Understand students' ways of seeing the object of learning
3. **Identify the critical features based on students' learning difficulties**



**Tom \_\_\_\_\_(eat) an apple every day.**  
**Tom \_\_\_\_\_(eat) three apples every day.**

**Confirmed Object of learning:** to build up the awareness of subject-verb agreement in positive statements (simple sentences) of the simple present tense.

**Confirmed Critical features:**

1. The concepts of subjects, verbs and objects.
  - A subject is the noun or pronoun (or persons or things) that does the action.
  - A verb talks about an action (**only action verbs are used**).
  - An object receives the action of the verb.
2. The verb is determined only by the subject in terms of number (singular or plural) and person (first, second, and third person).
3. For the third person singular subjects (singular nouns, uncountable nouns, etc.), we change the verb form by adding either ‘-s’ or ‘-es’ (the third person singular verb) in the simple present tense. For the other subjects, there is no change to the verb form.



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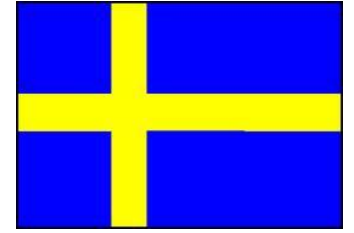
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**4. The verb form is not determined by the object.**



# A Gothenburg case



## **OL: The ability to understand a text**

CFs:

1. The text can be understood by using the words and phrases you know.

2. you can apply the following strategy to get the meaning of a text:

1) ONE sentence at a time.

2) Focus on what you KNOW and translate the words and phrases you UNDERSTAND.

3) Use these words and try to understand the meaning of the words and phrases surrounding that word and the whole sentence.

4) Read the other sentences in the same way.

5) Draw conclusions on what the text is about.

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# The functions of Variation

- Variation for Generalizing Rules
- Variation for Comparing Differences
- Variation for Separating Concepts
- Variation for Integrating Features

# Variation Patterns

- **Variation** is controlled focused organized changes/differences in the teaching arrangement (including language examples, activities, etc.) (contextual clues).
  - Controlled with some features kept constant
  - Focusing on the CFs
  - Organized to logically illustrate the structure of CFs (a good speech)

**The students need to experience the variation so that they can master the CFs.**

**(The Cantonese Opera)**



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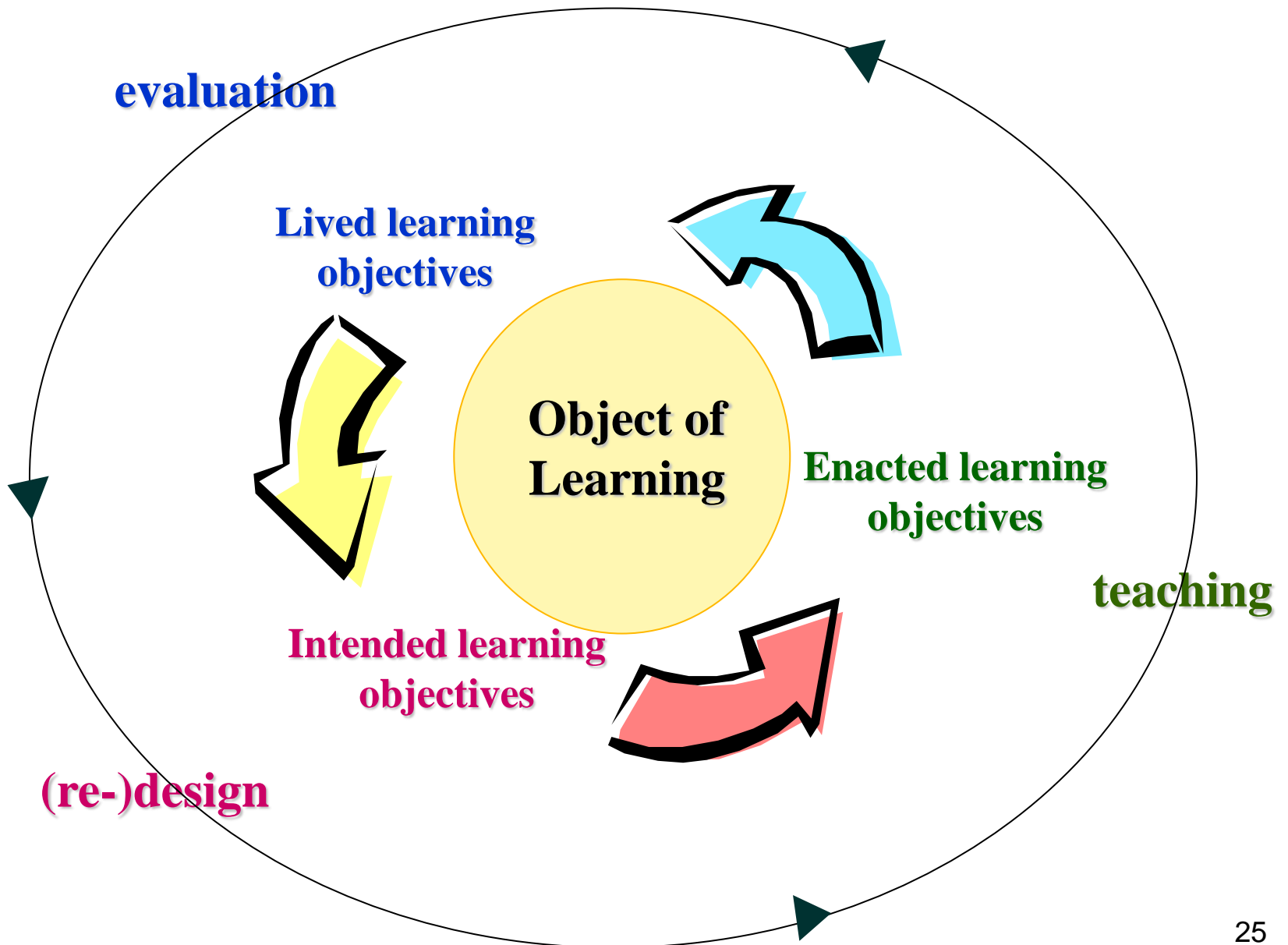
# Important teaching strategies

- Questioning techniques (alliteration)
  - Focus on the CFs
  - Guide students to experience variation and discern the CFs
- Use of visual aids (blackboard, PPT)
  - Help highlight the CFs
  - Show the learning process (focus, logic)
- Cooperative learning (Little Angel)

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# Teaching is a deliberated art.

- We need to be more sensitive to **student learning**
- We need to **choose the CFs** more carefully
- We need to **present CFs with variation** systematically and purposefully
- We need to engage students in continuous learning with **various strategies**

# **How to cater for individual differences, especially SEN students?**



# The true meaning of education

**Life influencing life**

**If we keep our hopes and try our best in teaching, our students will also do the same.**



# Useful websites

1. Centre for Learning Study  
(<http://www.ied.edu.hk/cls>)
2. Learning Study Forum  
(<http://www.learningstudies.hk>)
3. TALON  
(<http://www.ied.edu.hk/talon/>)
4. WALS 2013  
(<http://www.walsnet.org/2013/>)