Ch. 2
Cognitive development and language

Part II

Vygotsky 維高斯基

- Lev Vygotsky (1896 – 1934)
  - Russian psychologist
  - Died at the age 38 because of tuberculosis (肺結核).
- His work
  - Studied early Piaget's work and developed similar psychological tasks.
  - produced 7 books and a dozen articles.
  - He taught secondary schools, engaged in teacher education, and conducted anthropological work in cultural comparison and learning.
  - His work was banned in Russia for many years because he referenced Western psychologists.
  - In the past 30 years, some of his work are translated and have become major influences in psychology and education.

Frontispiece of Lev Vygotsky and facing title page from the original Russian edition (1934) of *Thought and Language*

Vygotsky's sociocultural view of learning and development

- Development is mediated
  - The child's development is structured through, embedded in, and mediated in and by relationship with peers and adults.
  - Before these functions become an integral part of the personality, they manifest themselves in the "outer" world as interaction between the child and the people around him or her.
  - They emerge in the social context and area gradually absorbed and transformed "inwardly."
  - Social interaction as analytically prior to individual functioning.

Vygotsky's socio-cultural theory of cognitive development

- **Children construct knowledge**
  - They don't just copy what they hear.
  - They internalize external worlds.
  - Learning is not only constructed but co-constructed.

Vygotsky's socio-cultural theory of cognitive development

- **Development cannot be separated from social context**
  - Cultural tools and symbol systems that enhance cognitive development.
  - The social sources of individual thinking:歷史、文化脈絡、經驗
  - 大人對於小孩的教導乘載著文化的工具以促進效率

Vygotsky's socio-cultural theory of cognitive development

- **Language plays a central role in mental development**
  - Represents externalized thoughts.
  - Self-regulation (自我調整)
    - 會將意義內化成自己的架構
    - 意義、符號、連結、內化、練習
  - The role of private speech

Differences between Piaget's and Vygotsky's theories of egocentric or private speech

	Piaget	Vygotsky
Developmental significance	Inability to take other's perspective and engage in reciprocal communication	To communicate with the self for the purpose of self-guidance and self-direction.
Course of development	Declines with age.	Increases at younger ages and gradually loses its audible quality to become internal verbal thought.
Relationship to social speech	Negative; least socially and cognitively mature children use more egocentric speech.	Positive; private speech develops out of social interaction with others.
Relationship to environmental contexts		Increases with task difficulty. Serves a helpful self-guiding function in more complex situations.

Vygotsky's socio-cultural theory of cognitive development

□ **Learning can lead development**
  - Learning can enhance development
  - The Zone of Proximal Development (ZPD) （近側發展區）

Zone of Proximal Development

Skills too difficult for a child to master on his/her own, but that can be done with <u>guidance</u> and <u>encouragement</u> from a knowledgeable person.

What is Known

What is not Known

實際發展程度
(level of actual development)

Learning

可能發展程度
(level of potential development)

- 鷹架構築(Scaffolding)
  - 例子： counting & numbers
  - 例子：從注音到閱讀
  - 你的經驗呢？

- 引導下的參與(guided participation)及認知學徒制 (cognitive apprenticeship)

- Purpose of learning
  - 終將成為能夠獨立學習的個體。

Guidelines for applying Vygotsky's ideas in teaching

1. Tailor scaffolding to the needs of students.
2. Make sure students have access to powerful tools that support thinking.
3. Build on the students' cultural funds of knowledge
4. Capitalize on dialogue and group learning.

5 min discussion

- 在你過去的教學歷程中，你有什麼幫學生搭鷹架的經驗嗎？請分享與討論。

Limitations of Vygotsky's theory

- 太過強調社會文化的重要性
  - 小孩子可能在還沒有太多文化影響前就學會了很多事情。
- 沒有提出發展變化的認知機制或過程
  - 例如無法說明學生因為有什麼樣的認知發展上的改變而使得他可以有辦法瞭解較複雜的認知作業。
- 死得太早，沒有說出他的理論對教學的應用
  - 許多教學上的應用都是後人想出來的，不知道他本人是否同意。

語言發展

□ 兒童語言的發展有天生的能力，而且發展得很早
- 出生四天就可以辨別音素，即ba-ba, pa-pa的區別，而且辨別出世界上各種的語言中的音素。
- 三個月就可以發出咕咕的聲音與笑聲，六個月就可以逐漸將母語中獨特的音群組成音素，七八個月就會使用真正的音節(如neh-neh)牙牙學語，十個月就只對母語中的音素敏感。
  □ 小孩會自己整理出因應的語音與文法結構
  □ 若沒有父母的互動，只有放影片，無法學會語言
- 四個月後，大腦突觸大量成長後逐漸修剪。在九個月(約大腦白質發展完成後)成爆發性的成長。
  □ 兒童語言學習在早年的重要性

The implication of Piaget's & Vygotsky's theory for teachers

- Piaget
    - Understanding and building on students' thinking
    - Activity and constructing knowledge
    - The value of play

- Vygotsky
    - The role of adults and peers
    - Assisted learning
    - Teaching and the "magic middle"