Multiple Models of Integrated Learning:

Conception, Effectiveness, & Creativity

Yin Cheong CHENG 鄭燕祥

President, Asia-Pacific Educational Research Association

Director, CIRD, Hong Kong Institute of Education

Conference on Integrated Learning: Research & Classroom Practice

HKIEd, 14 Dec 2007.

After 20 years……

- **In facing globalization, do we worry that our graduates will be unable to find an appropriate job locally or regionally and have to retire at the age of 30s to 40s?**
  - **Yes? No?**

After 20 years……

- **In facing challenges of competitions, can our graduates have the multiple thinking ability and creativity to achieve maximum opportunities and enjoy sustainable future development?**

- **How can they achieve these abilities? Integrated Learning or 通識?**

Implications from H Levin (1997) :

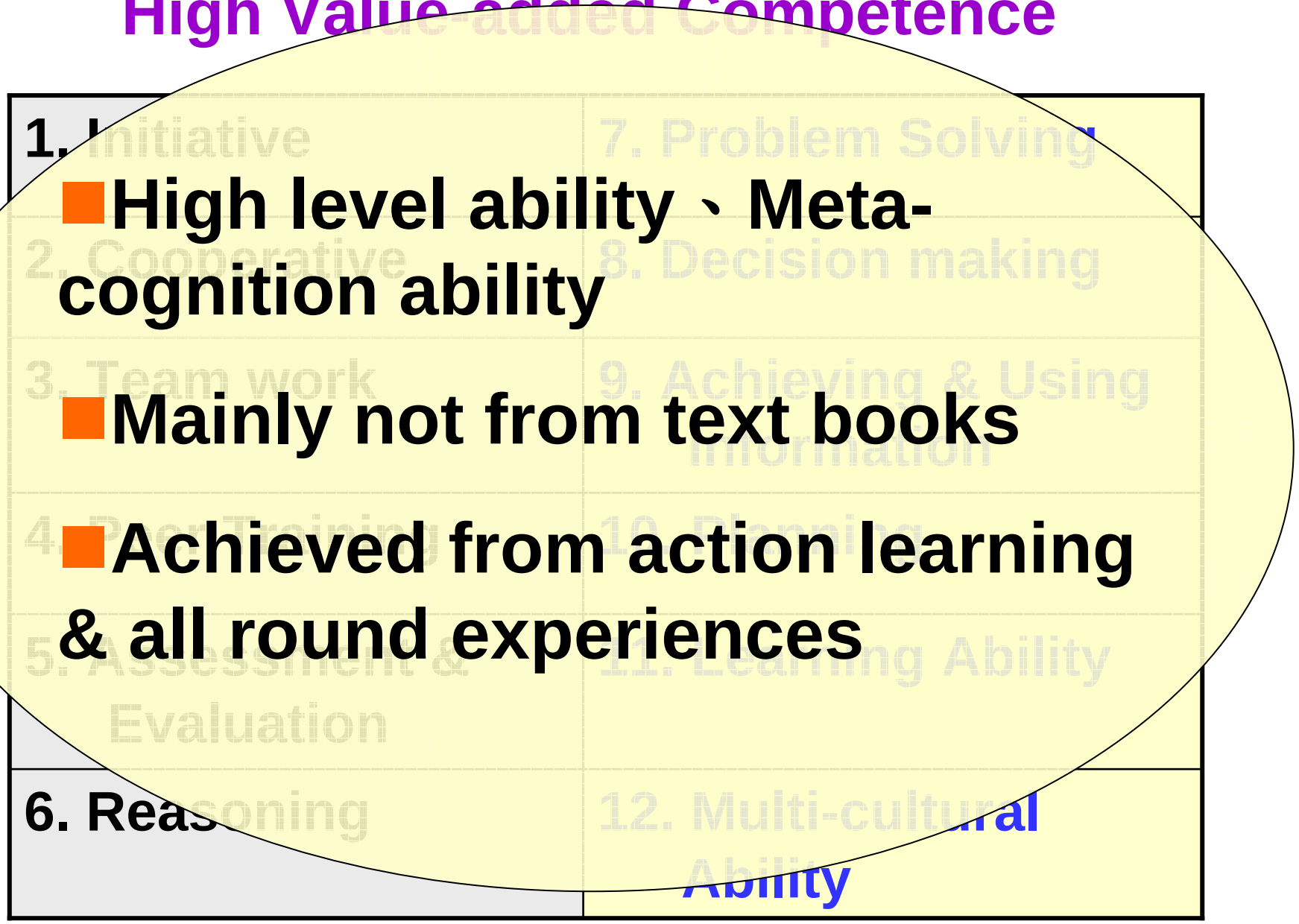
High Value-added Competence

1. Initiative	7. Problem Solving
2. Cooperative	8. Decision making
3. Team work	9. Achieving & Using Information
4. Peer Training	10. Planning
5. Assessment & Evaluation	11. Learning Ability
6. Reasoning	12. Multi-cultural Ability

Implications from H Levin (1997) :

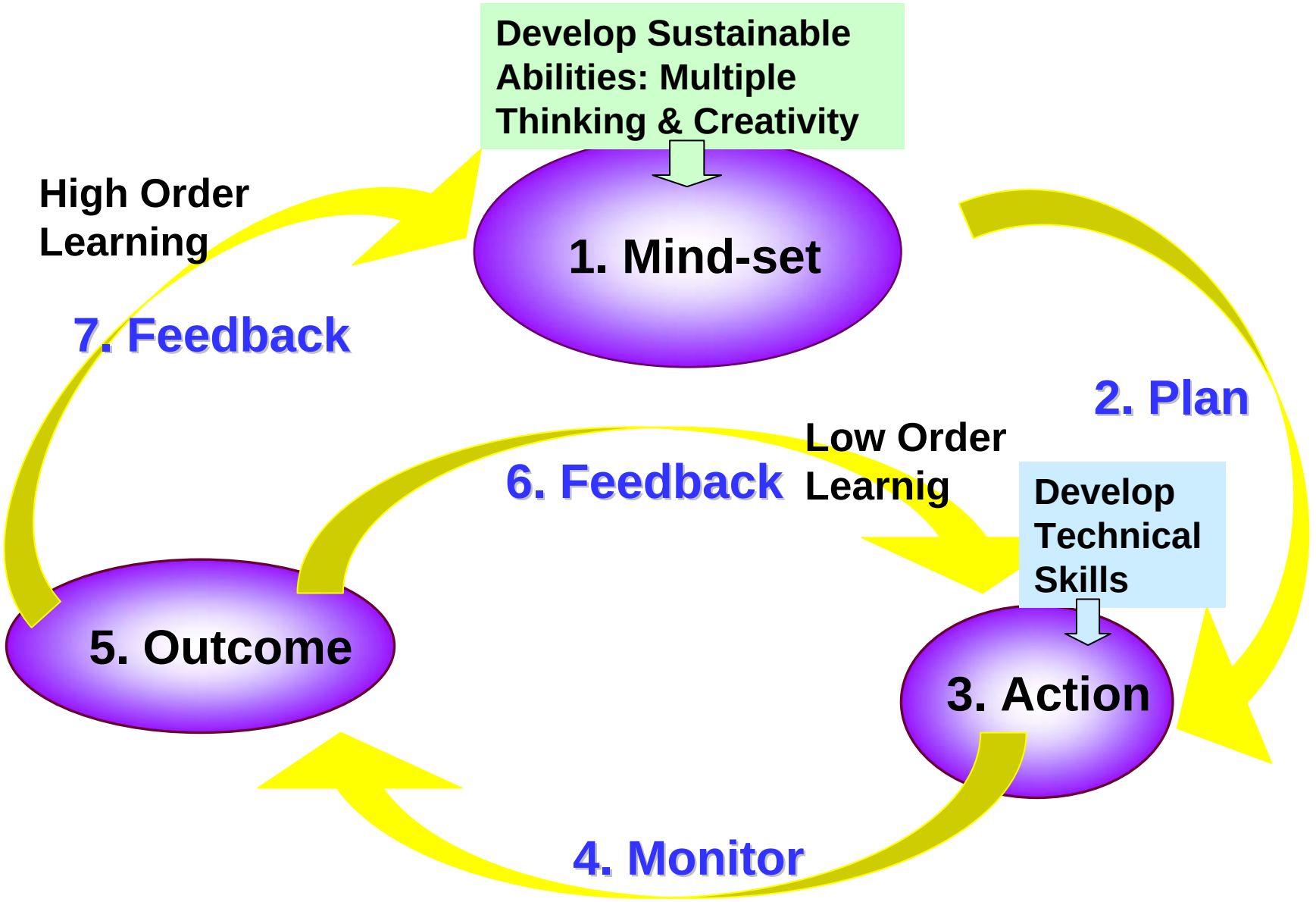
High Value-added Competence

- High level ability、Meta-cognition ability
- Mainly not from text books
- Achieved from action learning & all round experiences

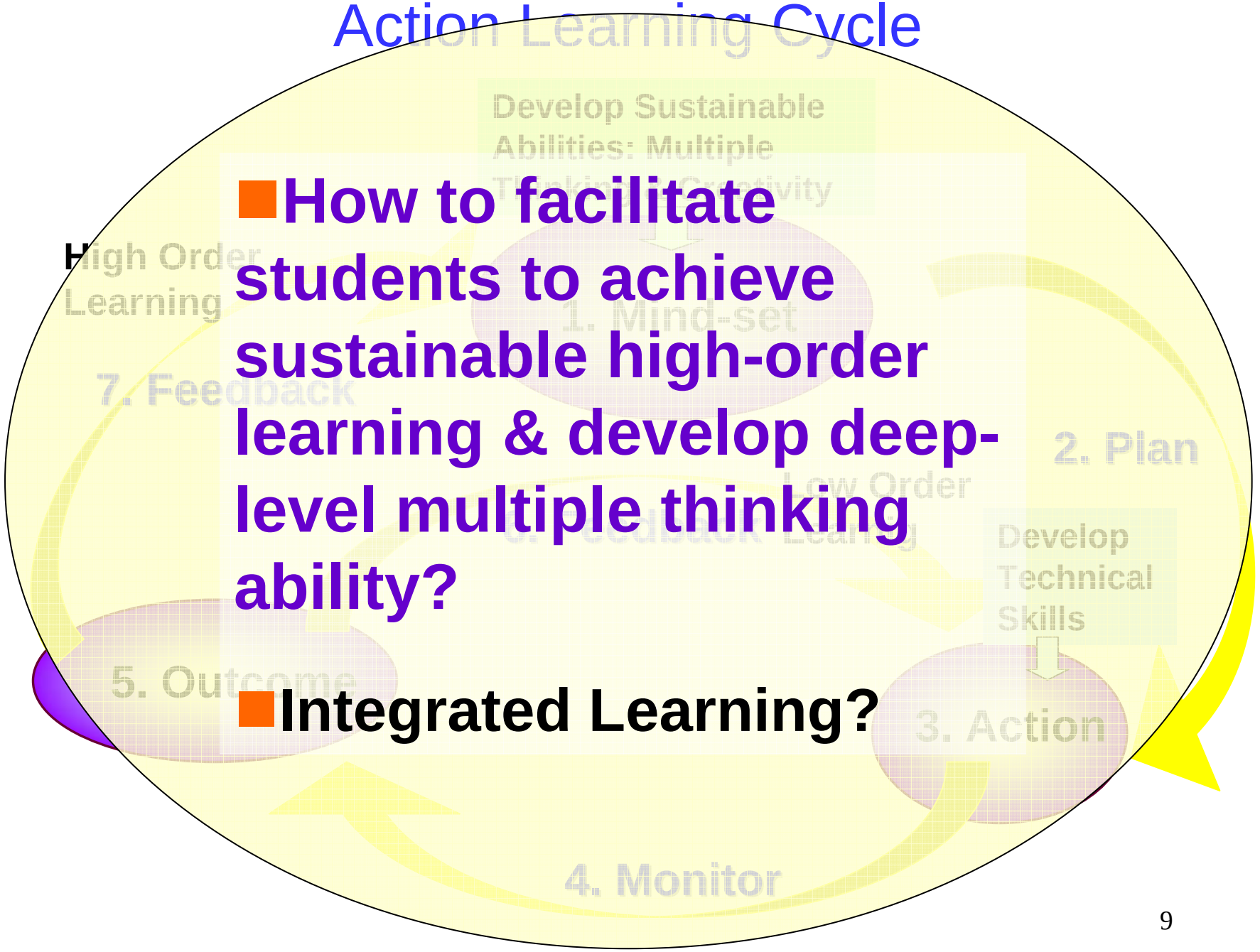


What is Action Learning?

Action Learning Cycle



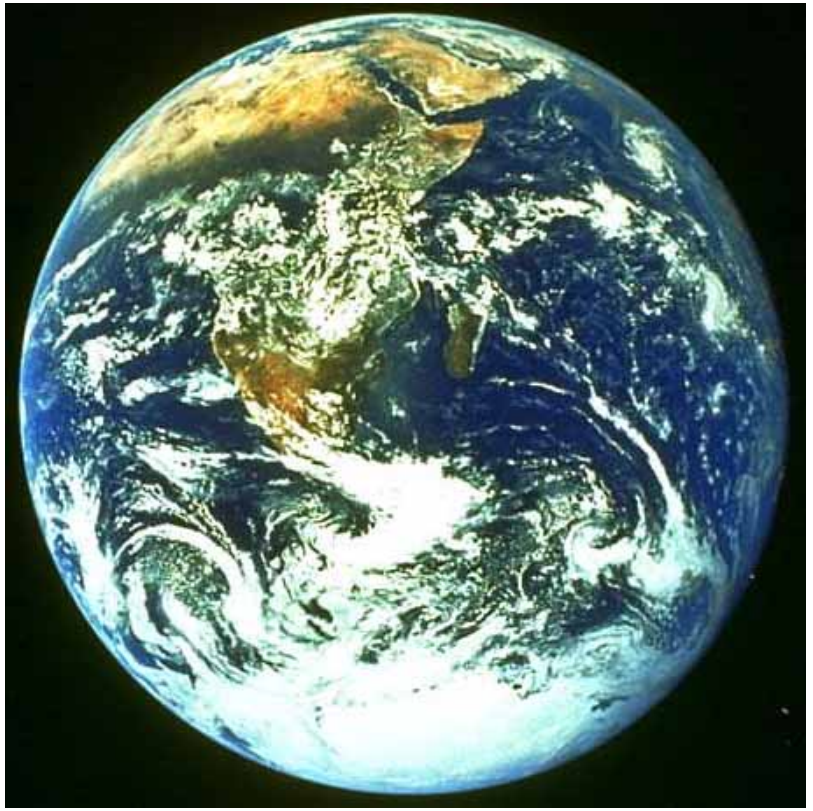
Action Learning Cycle



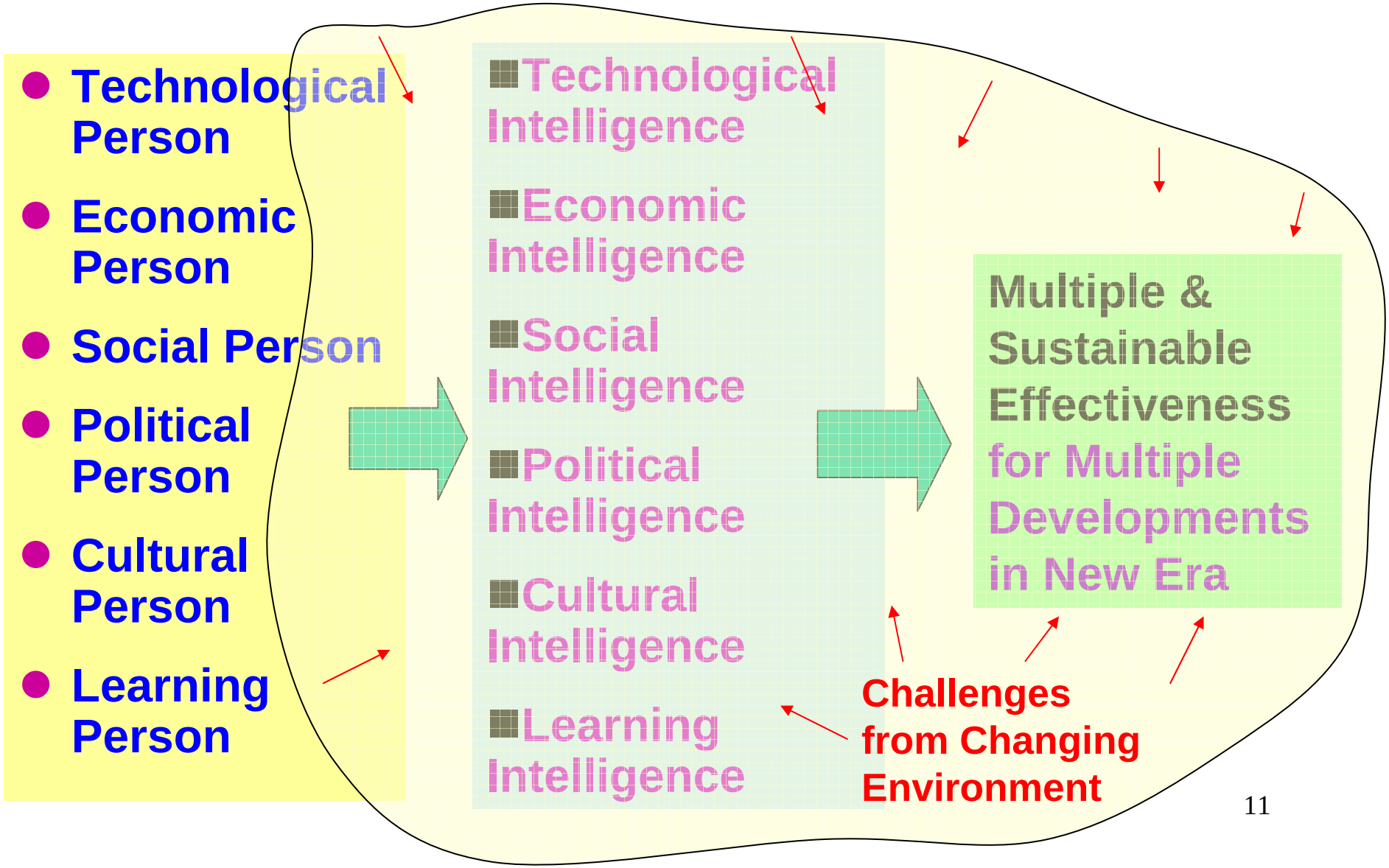
- **How to facilitate students to achieve sustainable high-order learning & develop deep-level multiple thinking ability?**
- **Integrated Learning?**

Multiple Developments in Globalization

- Technological Development
- Economic Development
- Social Development
- Political Development
- Cultural Development
- Learning Development

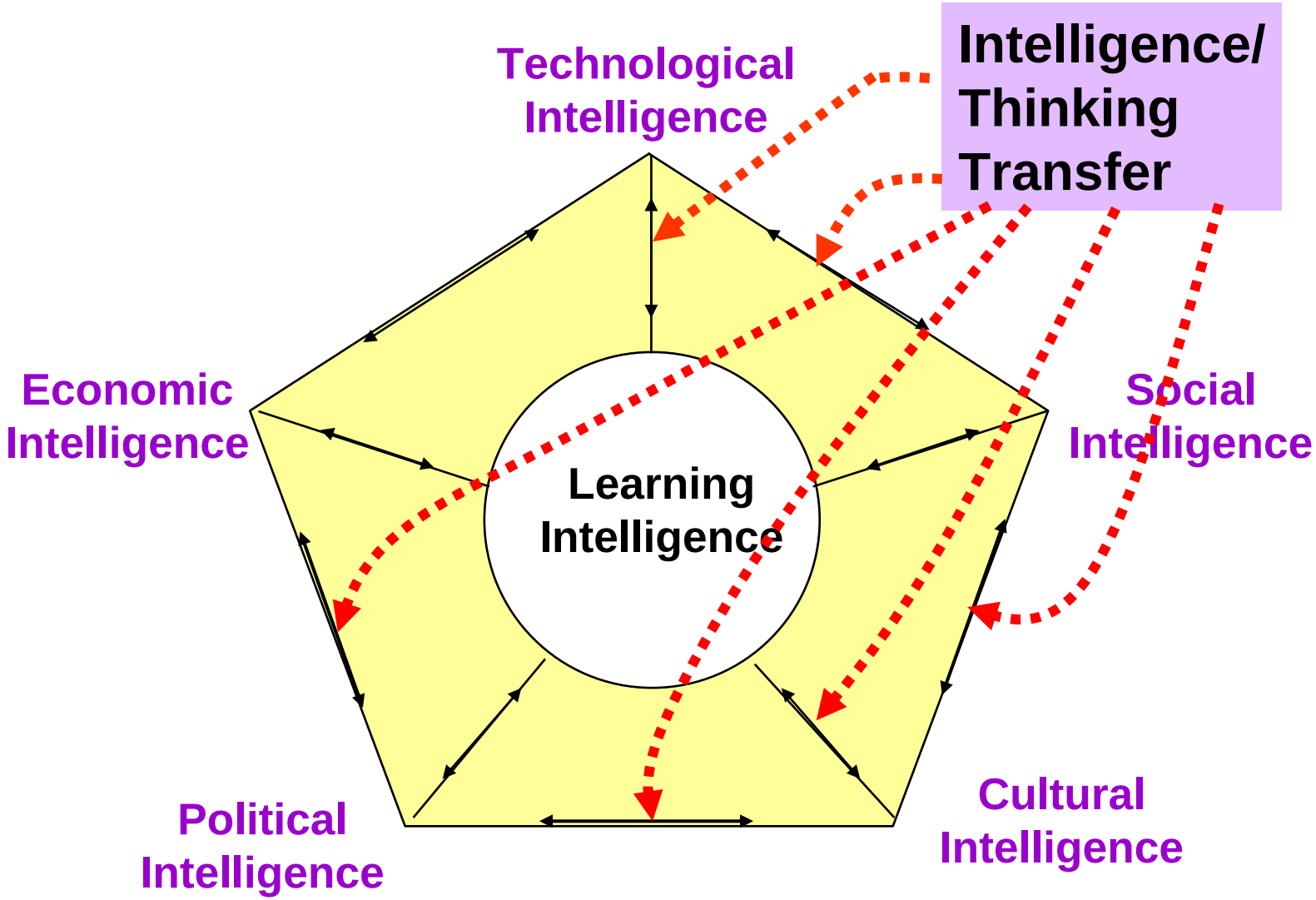


Multiple Developments & Contextualized Multiple Intelligences (CMI)



Pentagon Theory of Learning

for Development of CMI & Creativity



遷想妙得

- 饒宗頤
- 馬彥遠

Challenges to Our Education:

How well can we facilitate student's learning to

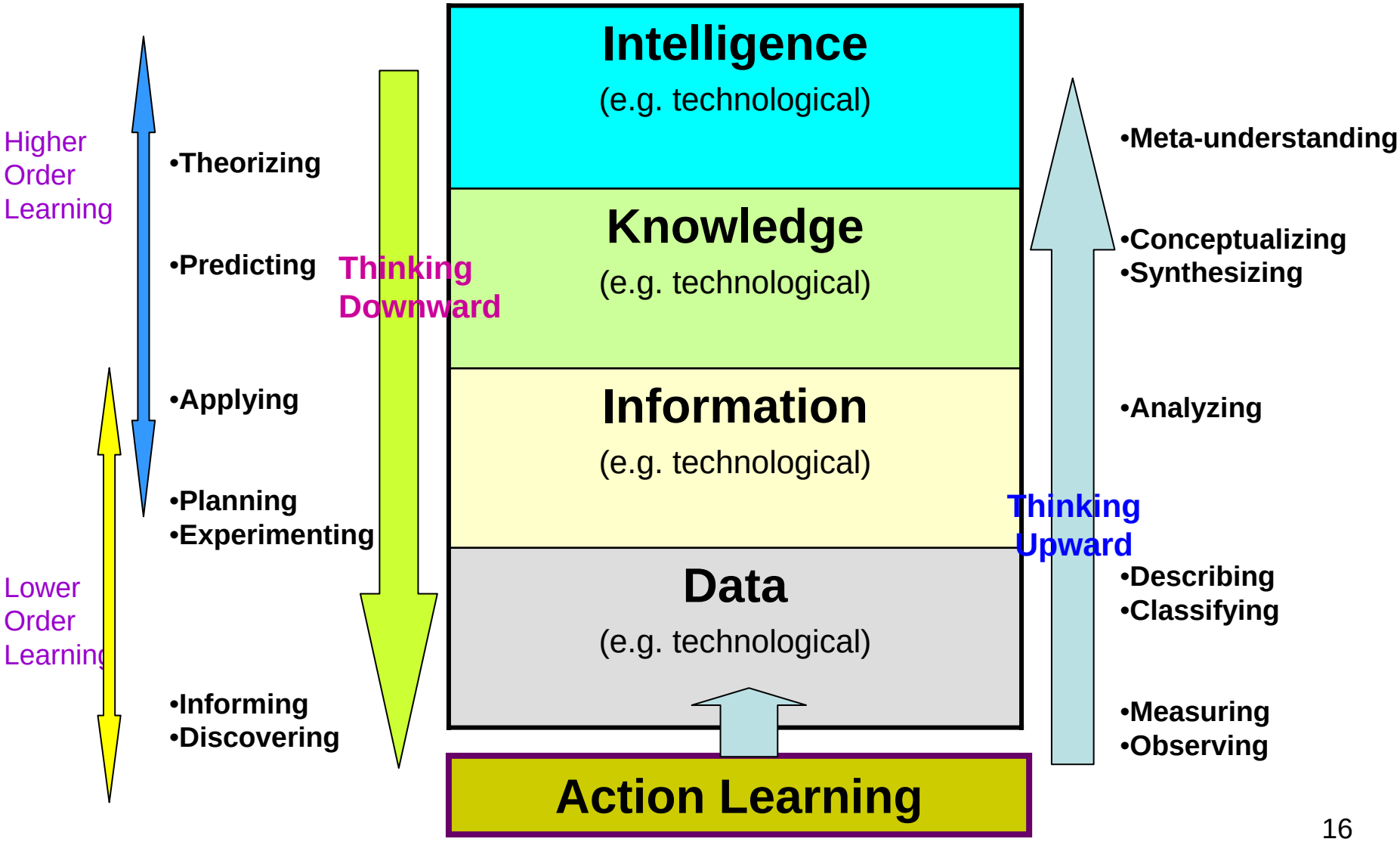
- **Develop CMI/ CMT?**
- **Perform Intelligence/ Thinking Transfer? → Creativity**

Challenges to Our Education:

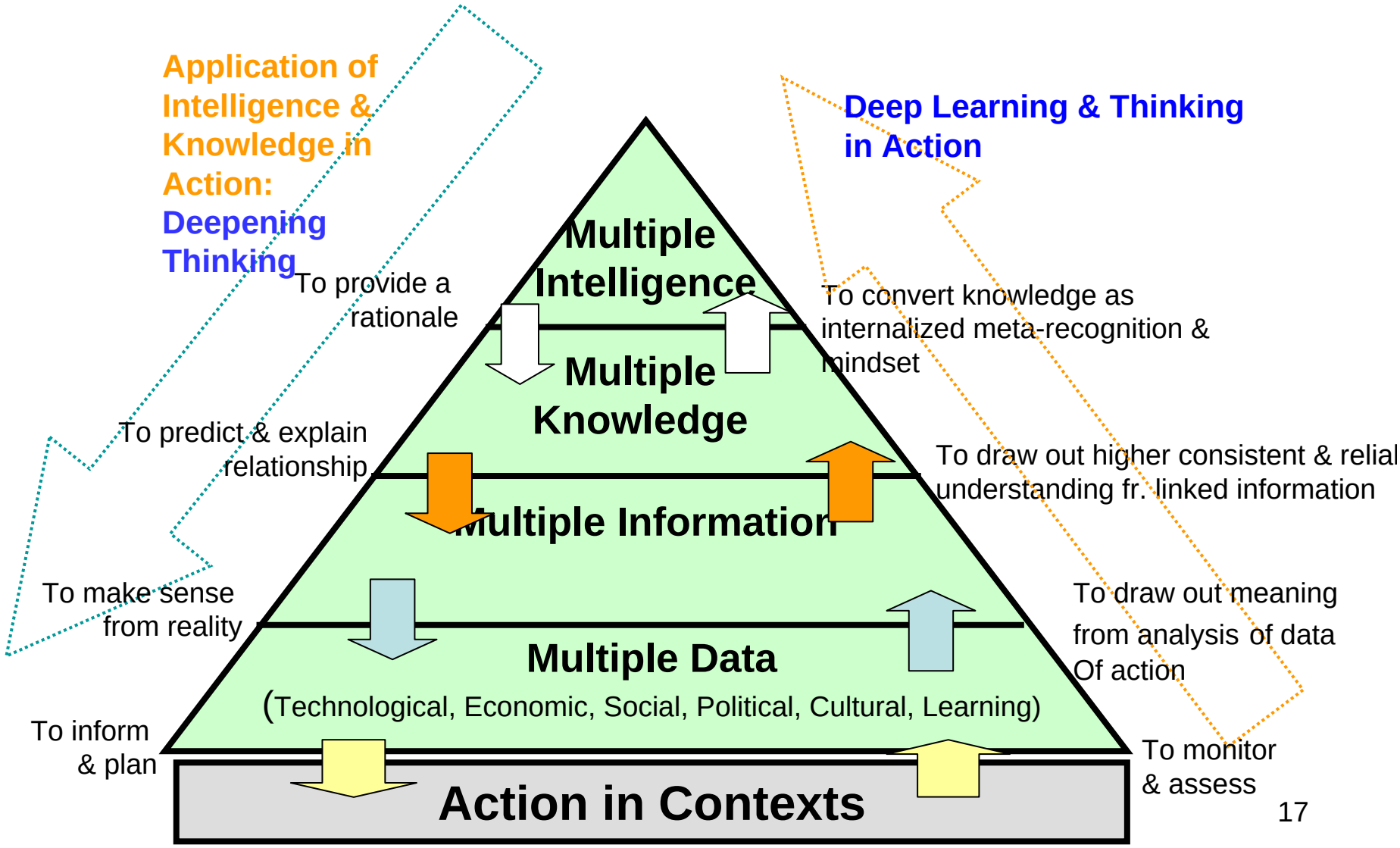
- Can integrated learning create optimal opportunity to promote CMT and Thinking Transfer?
- What kind of integrated learning would be effective?

Vertical Thinking in Learning

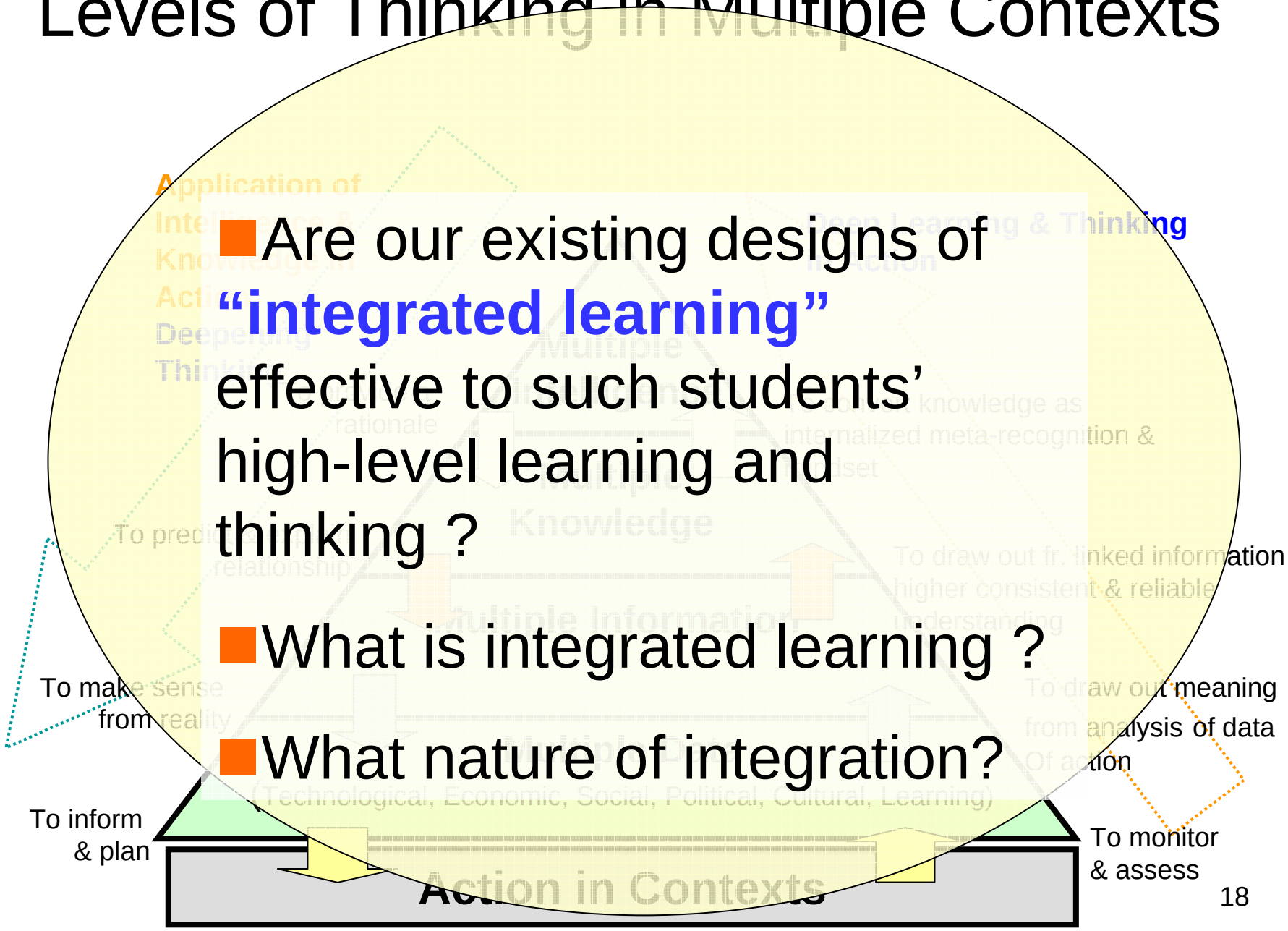
Within One Subject/ Domain



Levels of Thinking in Multiple Contexts



Levels of Thinking in Multiple Contexts



- Are our existing designs of **"integrated learning"** effective to such students' high-level learning and thinking ?
- What is integrated learning ?
- What nature of integration?

Basic Types of Integrated Learning

A. Content Types of Integration

1. **Subject Integration**
2. **Domain Integration**

B. Pedagogical Types of Integration

3. **Method Integration**
4. **Cognitive Integration.**

1. Subject Integration Type

Integrating the subject/ disciplinary content in learning

e.g.

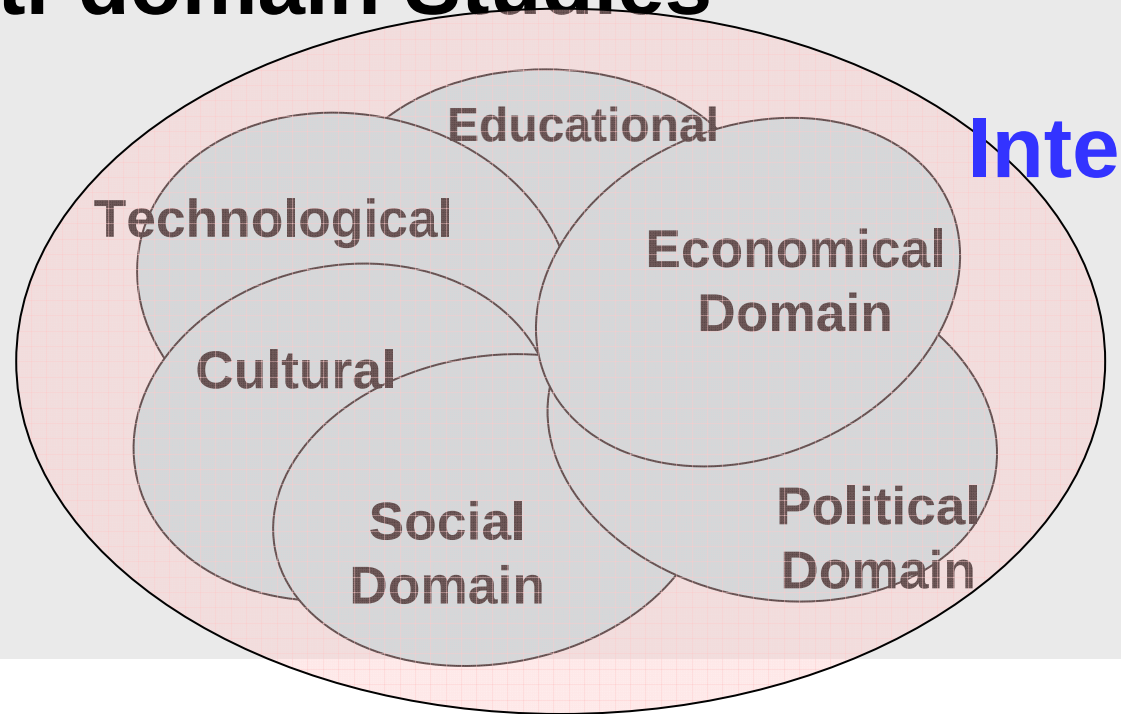
- **Integrated Sciences** (integrating Physics, Chemistry, Biology, etc.)
- **Integrated Social Sciences** (integrating Geography, Sociology, Economics, Political Science, etc.)
- **Integrated Humanities** (integrating Arts, Philosophy, History, Anthropology, etc…)

2. Domain Integration Type

Integrating different domains of knowledge or disciplines in learning

e.g.

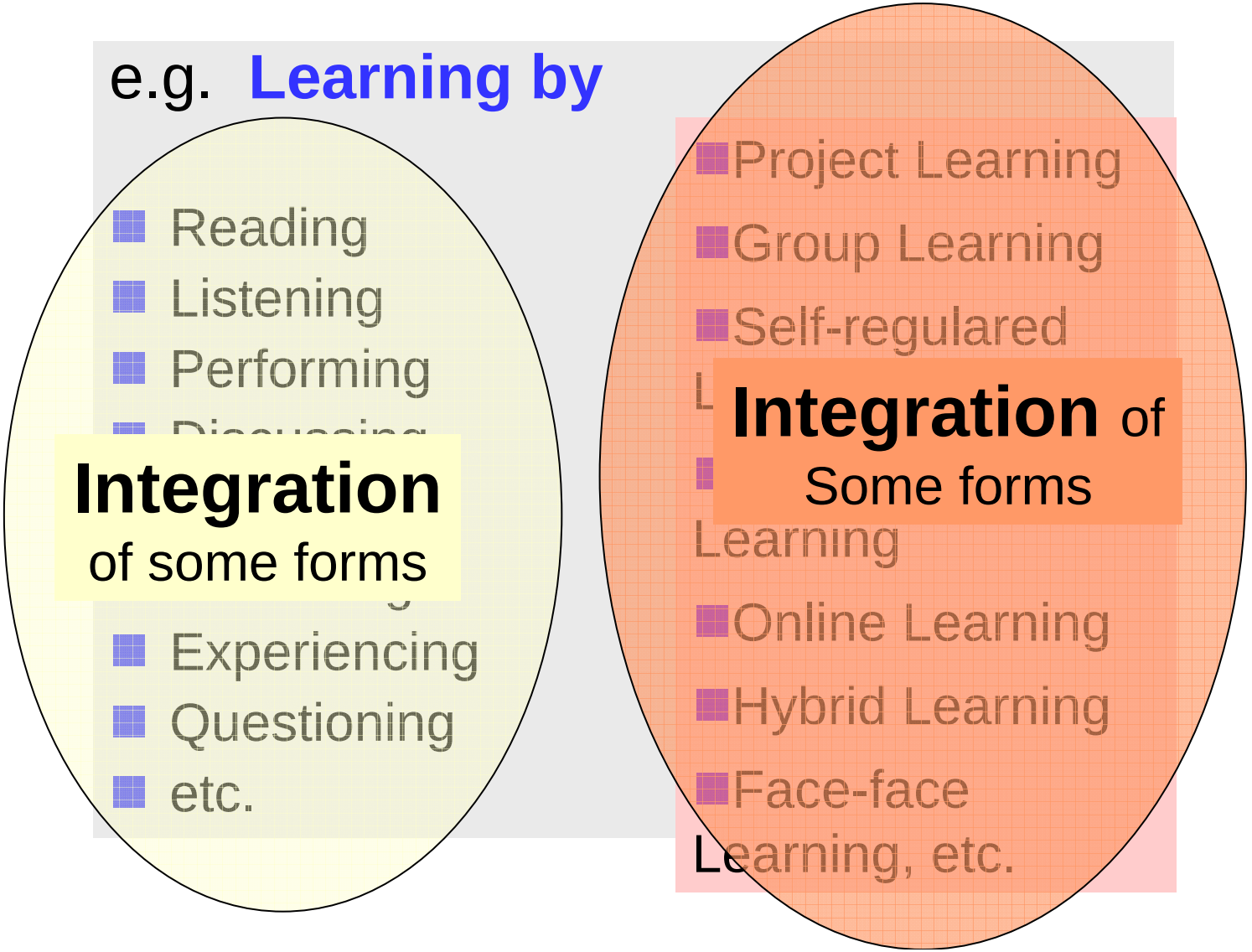
- **Multi-cultural Studies**
- **Multi-domain Studies**



Integration

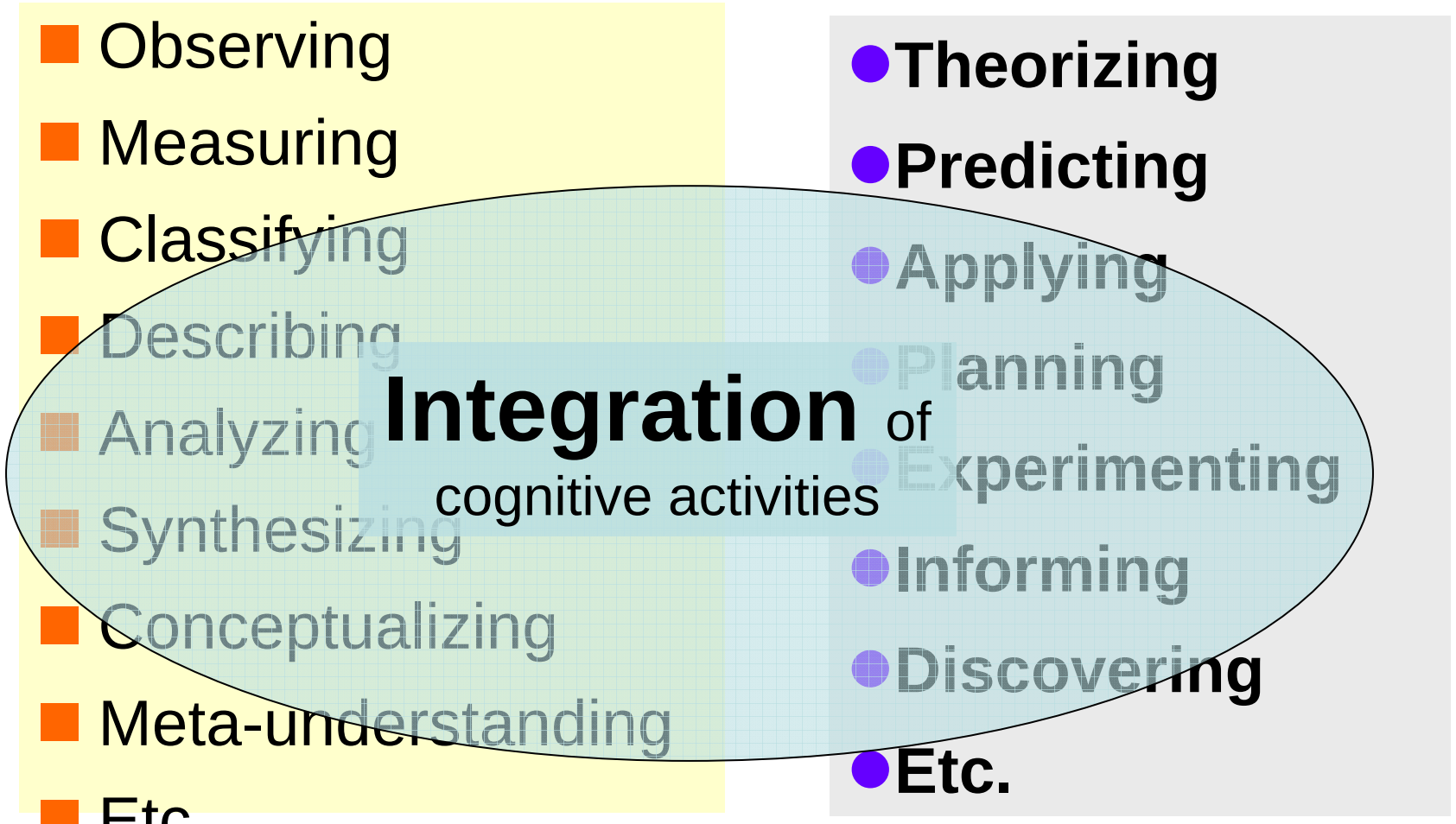
3. Method Integration Type

Integrating various methods in learning



4. Cognitive Integration Type

Integrating different cognitive activities in learning



Integration, Complexity & Effectieveness in Learning ?

- **Principle 1:**

- **More integration in content or pedagogy →**

- **More exposure & more complexity in learning**

Integration, Complexity & Effectiveness in Learning ?

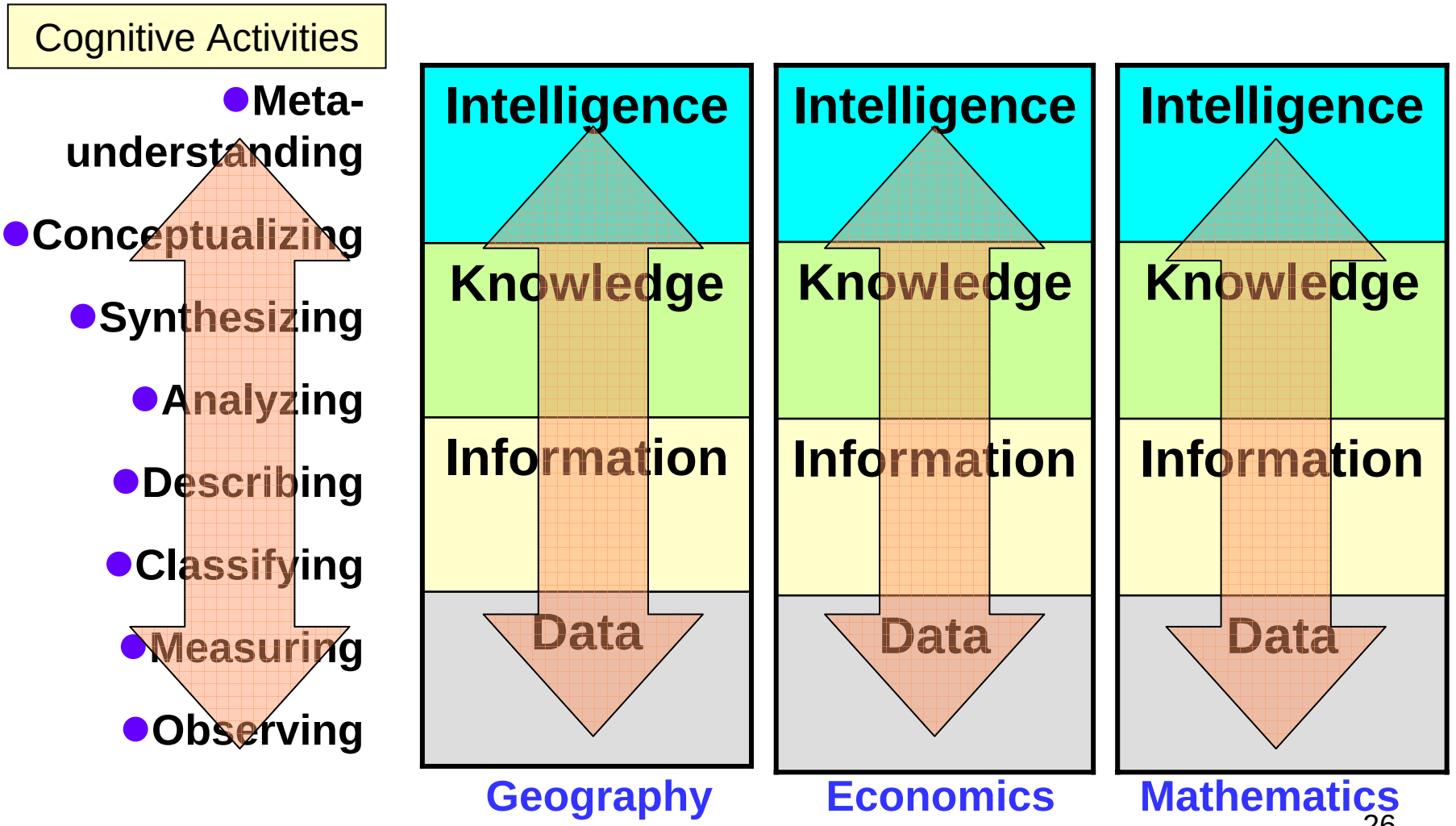
- **Principle 2:**

- **More exposure & more complexity in learning →**

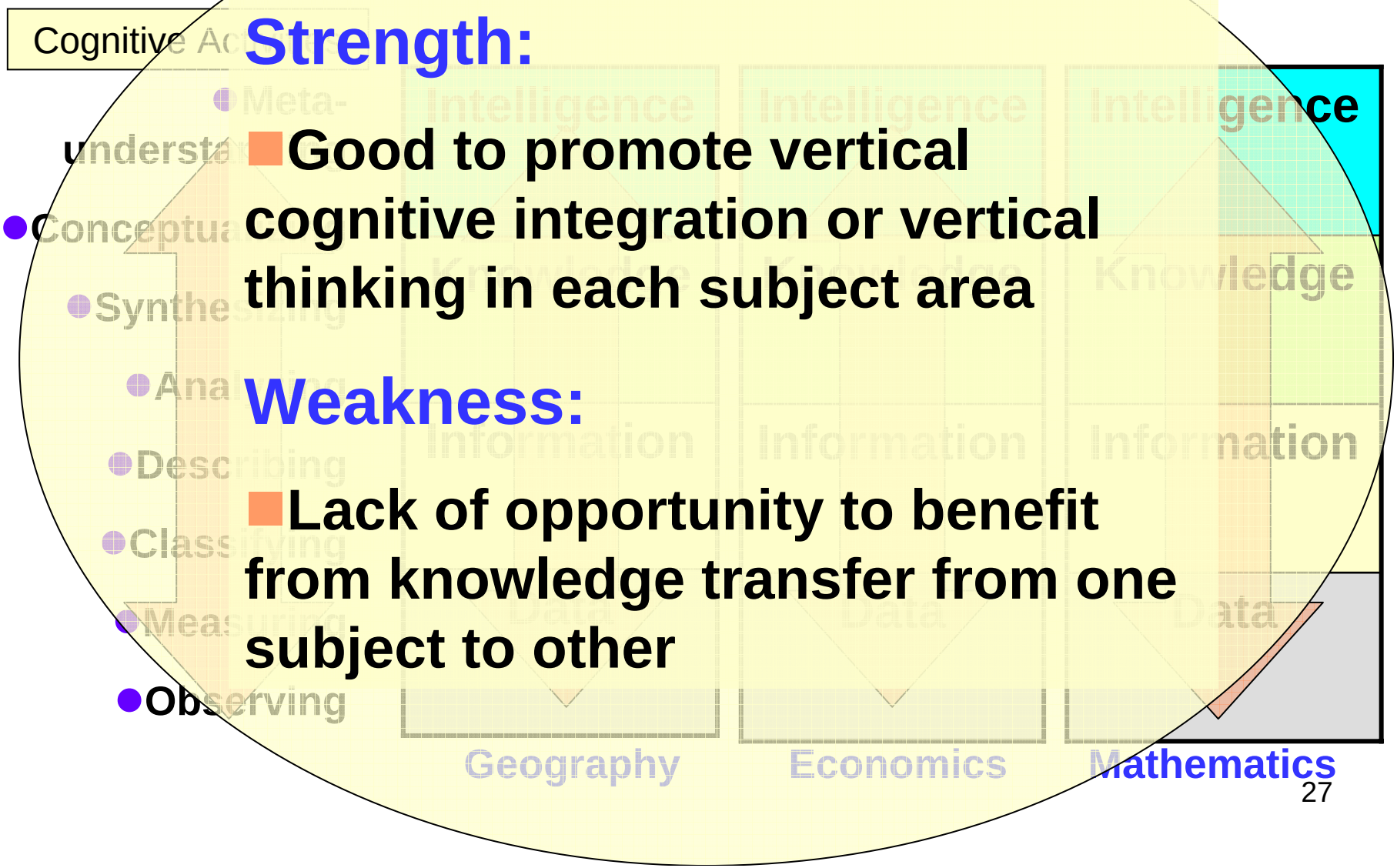
- **More demanding for & challenging to students' limited ability, effort & time**

- **May not result in learning more and deeper, depending on various factors**

Traditional Learning: Vertical Cognitive Integration in Separated Subject Learning



Traditional Learning: Vertical Cognitive Integration in Separated Subject Learning



Strength:

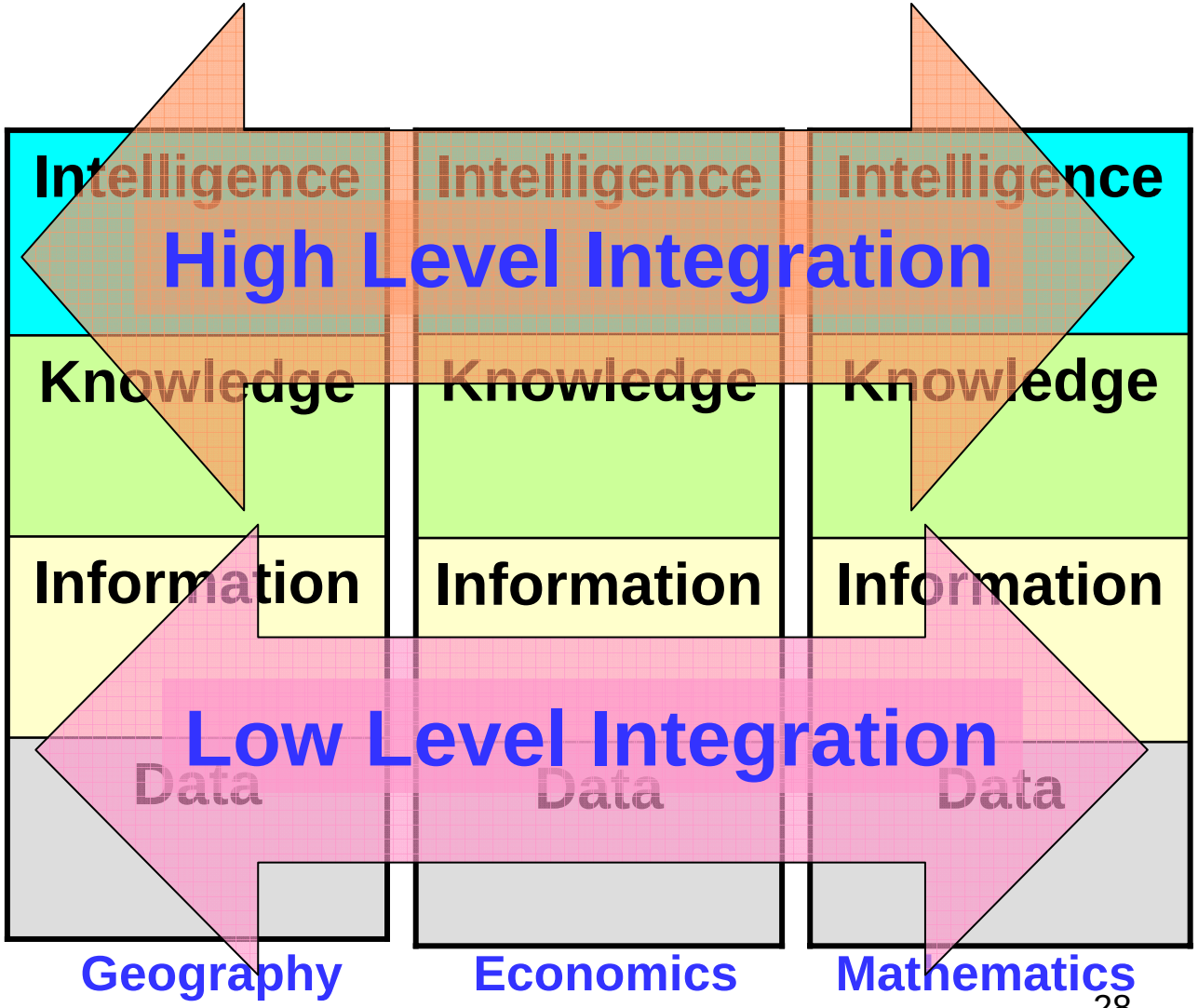
- Good to promote vertical cognitive integration or vertical thinking in each subject area

Weakness:

- Lack of opportunity to benefit from knowledge transfer from one subject to other

High Level vs Low Level
Horizontal Subject Integration

- Meta-understanding
- Conceptualizing
- Synthesizing
- Analyzing
- Describing
- Classifying
- Measuring
- Observing



Level of Cognitive Integration & Subject Integration in Learning?

- **Principle 3:**

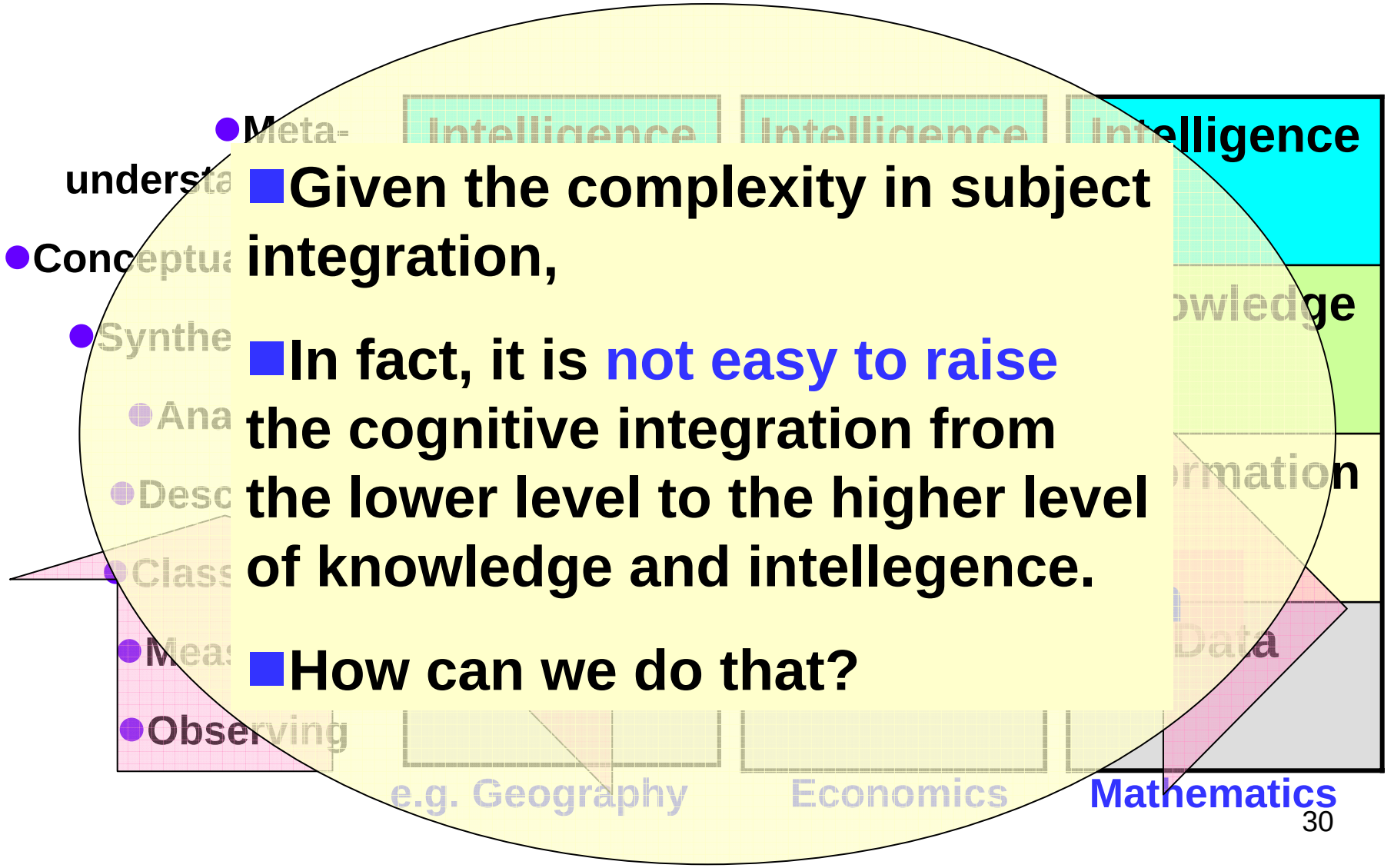
Given the complexity & difficulty in subject integration & the limited time & ability,

→There is a tendency that both students and teachers adopt low level of cognitive integration involving mainly data & information

→Result in low level learning and thinking

→Education Bubbles in integrated learning

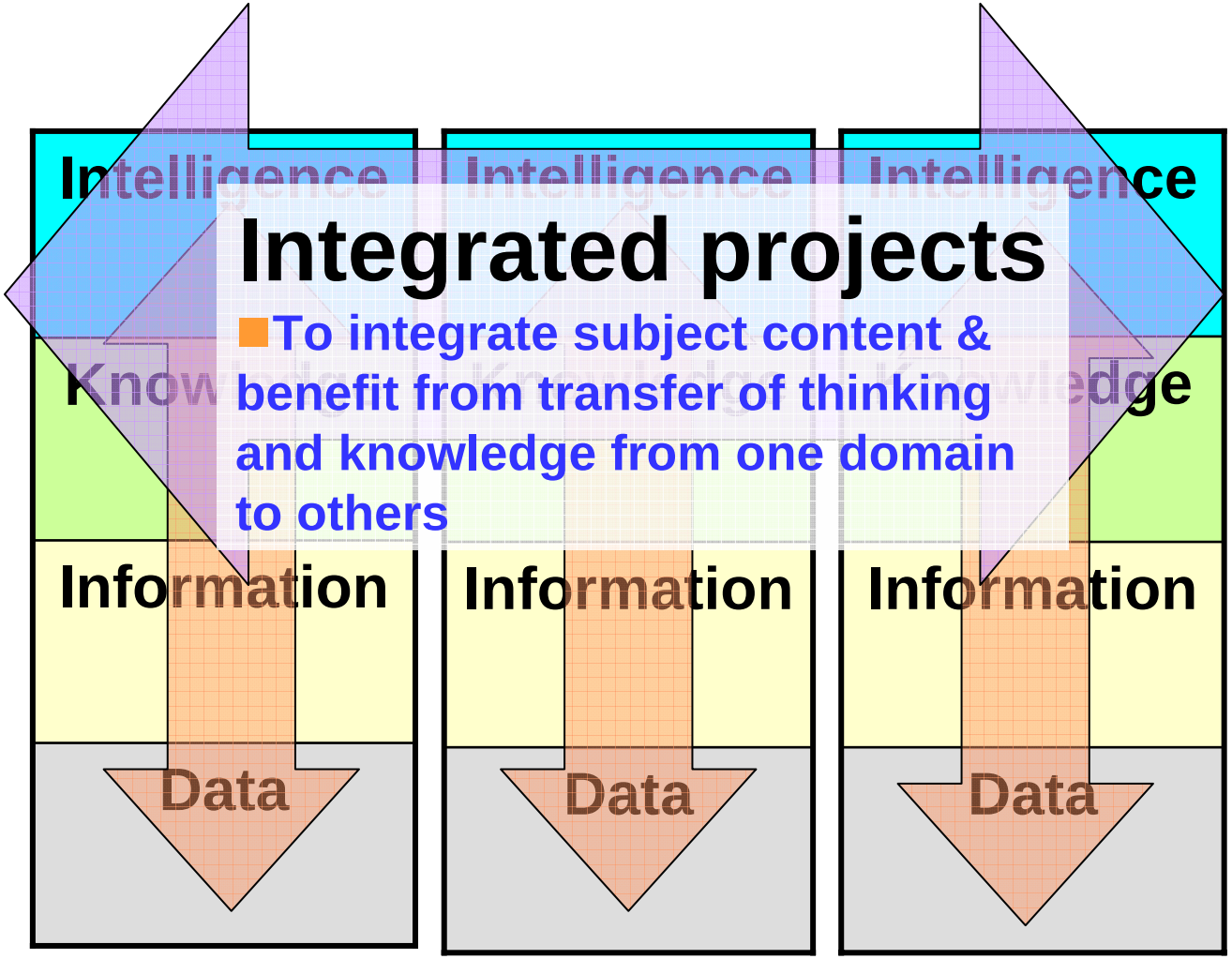
How to raise the cognitive level of Horizontal Subject Integration ?



- Given the complexity in subject integration,
- In fact, it is not easy to raise the cognitive integration from the lower level to the higher level of knowledge and intellegence.
- How can we do that?

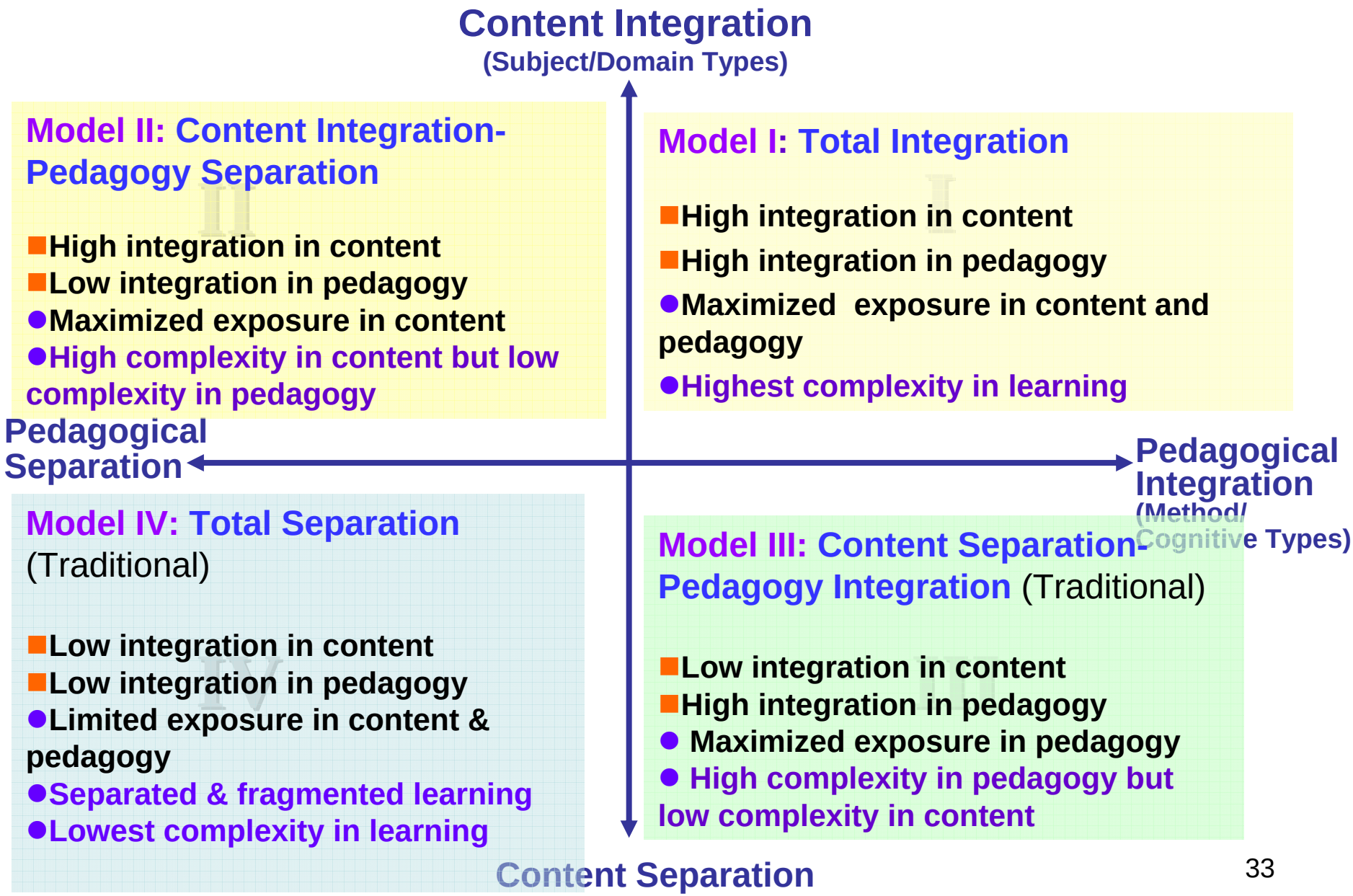
How to maximize both Vertical Cognitive Integration & Horizontal Subject Integration ?

- Meta-understanding
- Conceptualizing
- Synthesizing
- Analyzing
- Describing
- Classifying
- Measuring
- Observing

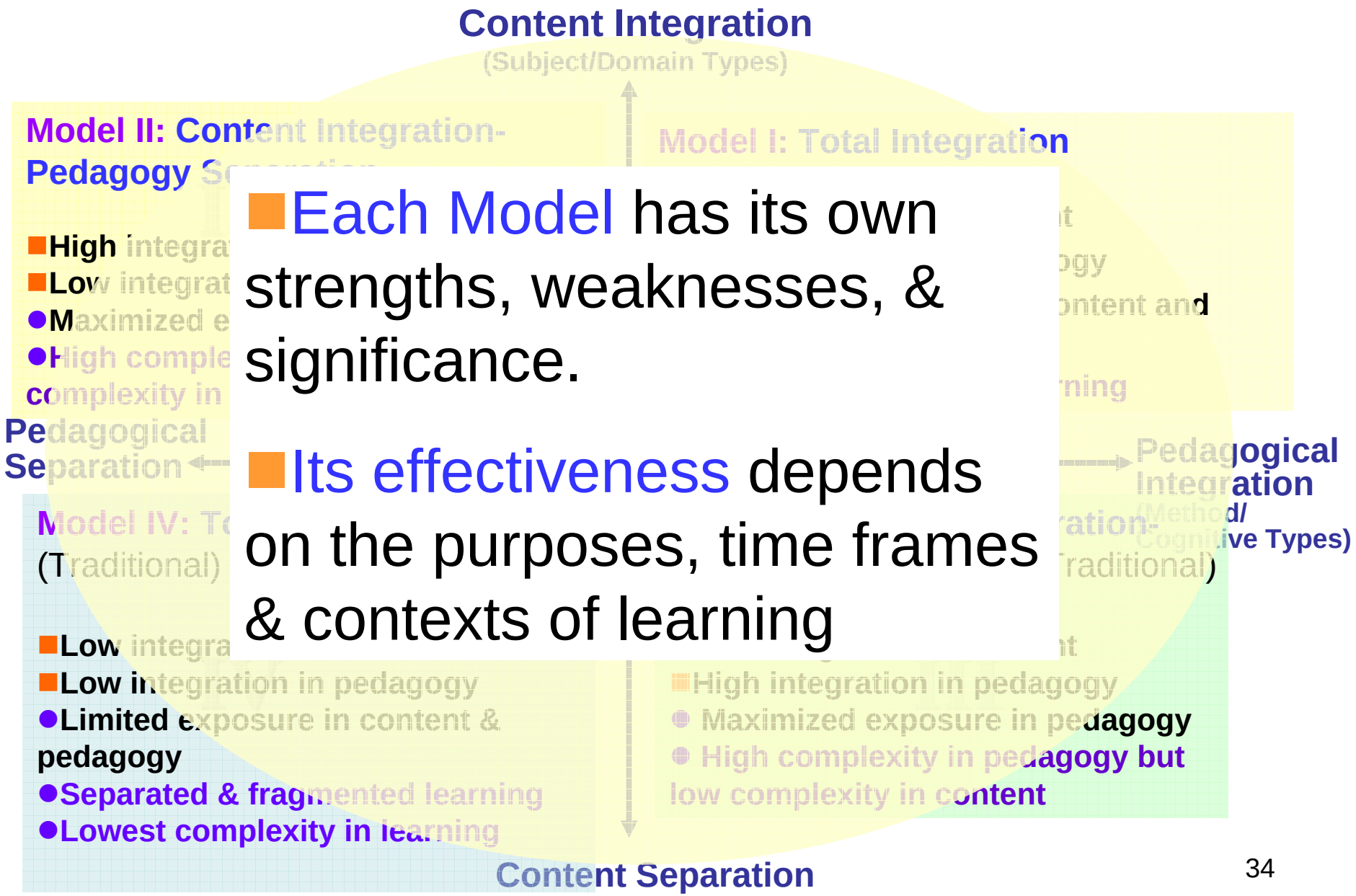


- **What implications for development of integrated learning in Hong Kong and international community?**

4 Models of Integration in Learning

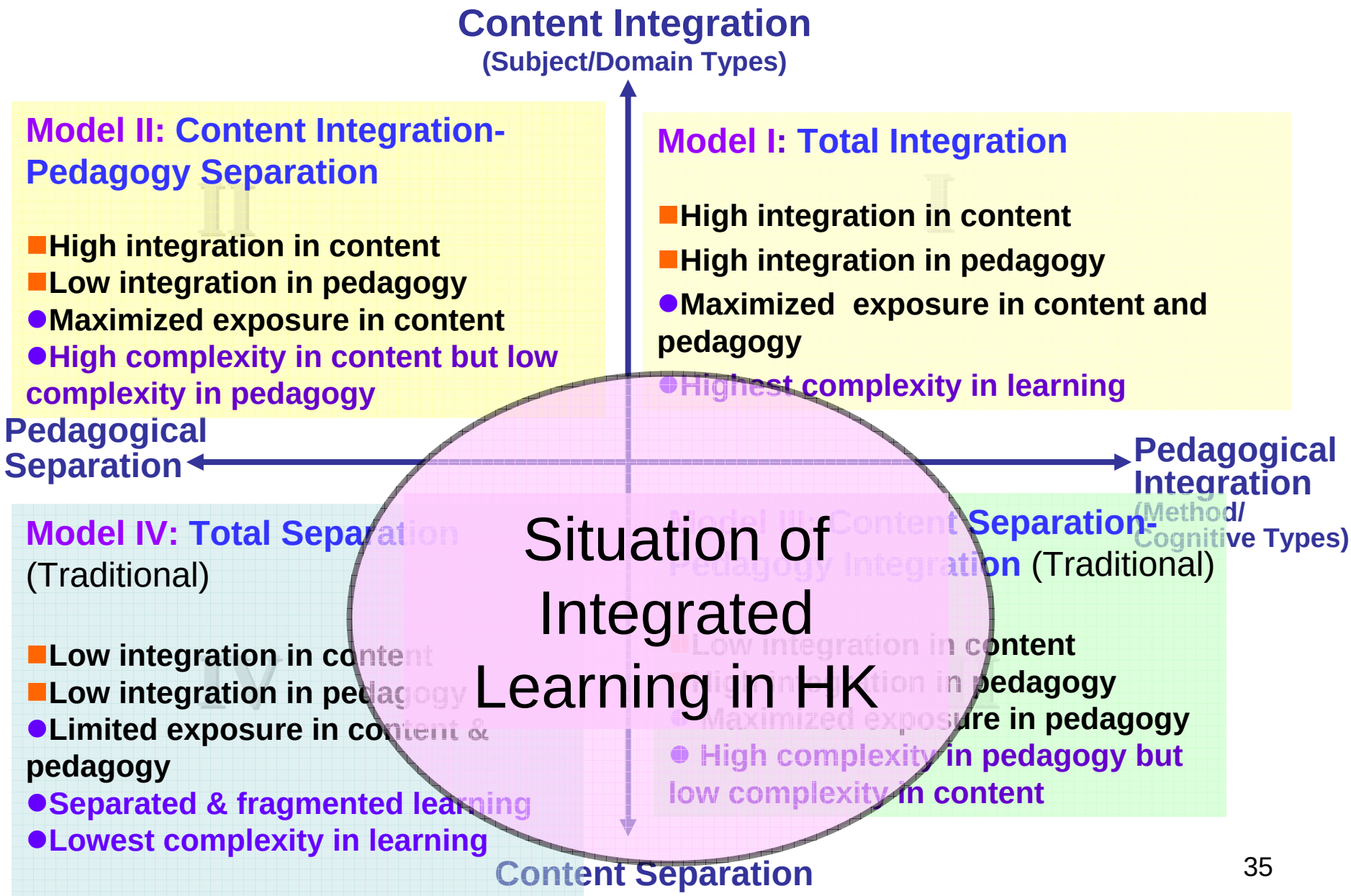


4 Models of Integration in Learning



- Each Model has its own strengths, weaknesses, & significance.
- Its effectiveness depends on the purposes, time frames & contexts of learning

4 Models of Integration in Learning

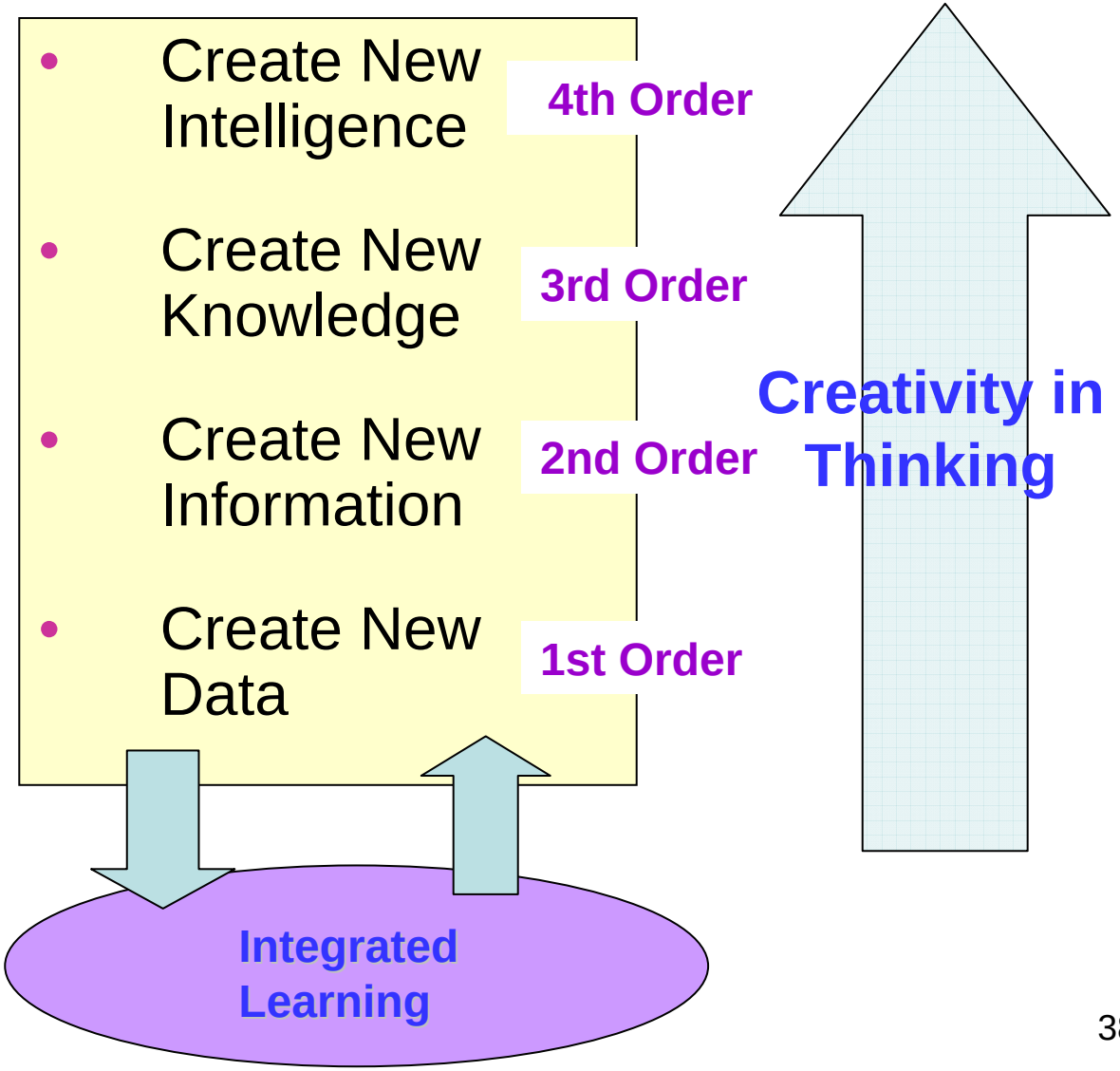


- What implications for understanding the relationship between Integrated Learning and Development of Creativity?

Creativity
in Integrated Learning

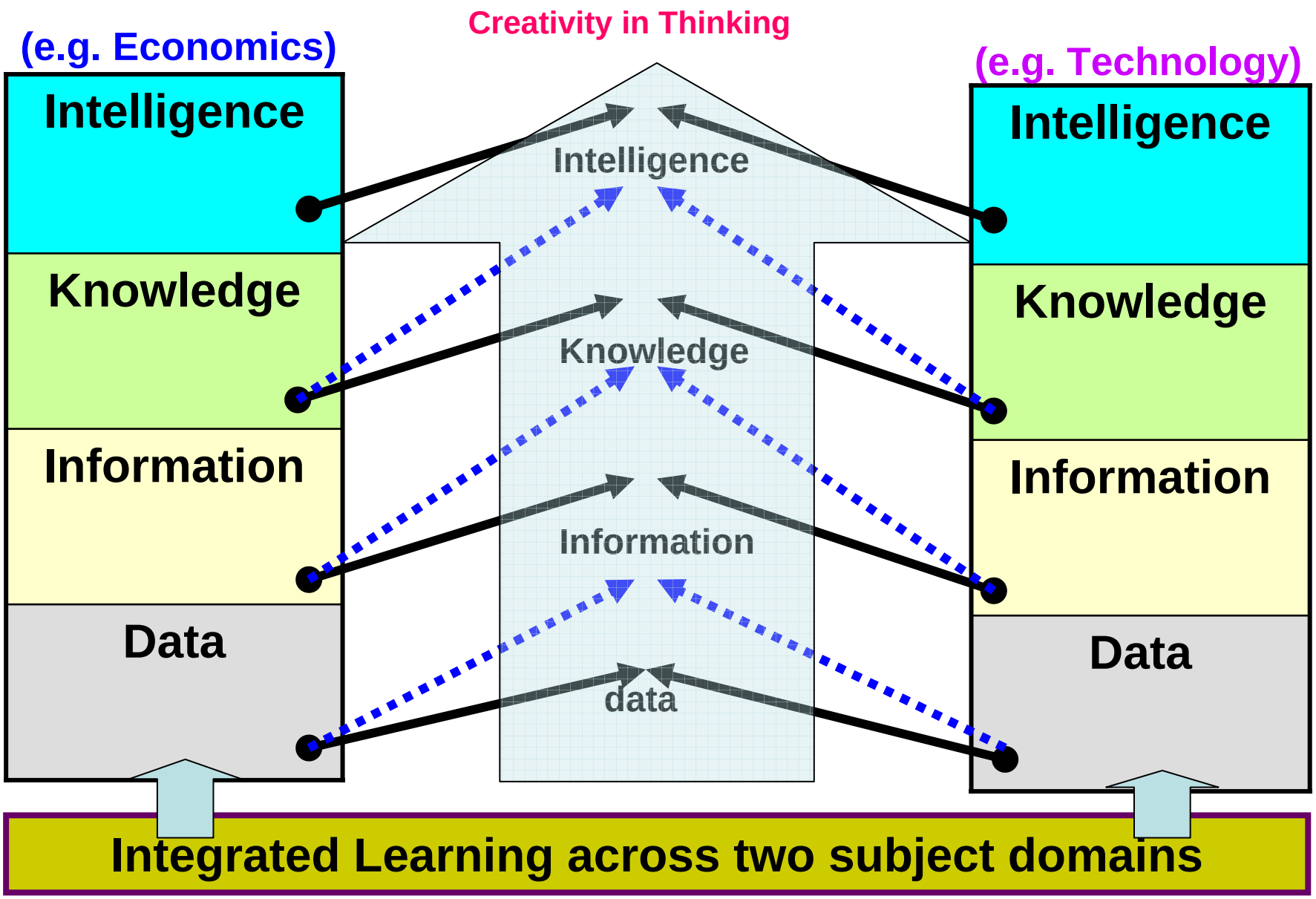
- as ability to create *new data, new information, new knowledge* or/and *new intelligence* in integrated learning

Hierarchy of Creativity
in Integrated Learning



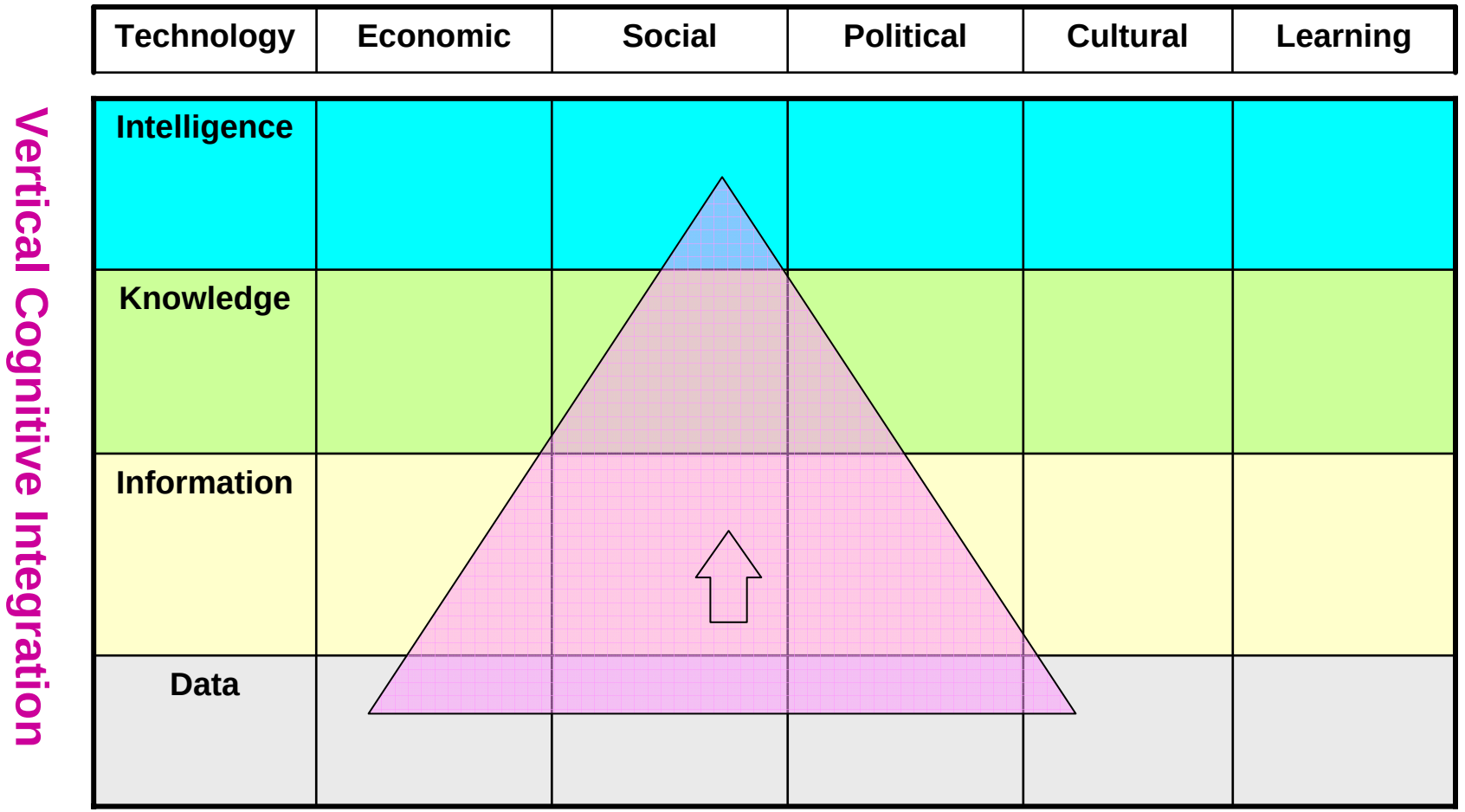
- *Ways* to enhancing creativity in integrated learning?

1. Creativity in Integrated Subject Learning



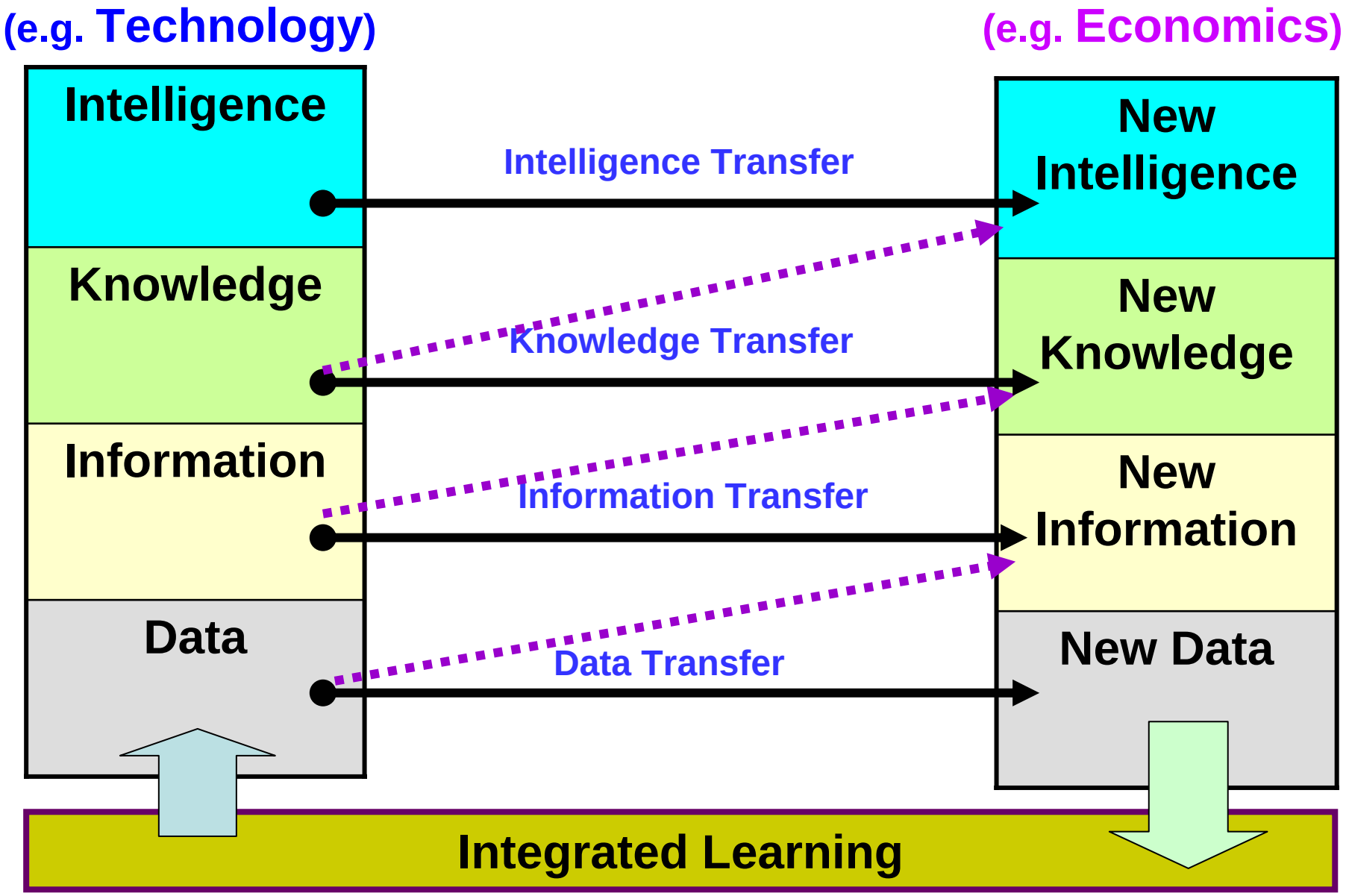
2. Creativity in Integrated Project Learning

(e.g. aims at development of social thinking and intelligence)



Integrated Learning across 4 Subject domains

3. Creativity by Transfer in Integrated Learning



- **I hope, our schools would facilitate their students successfully in integrated learning.**

- **All our students can become high-order active learners to pursue life-long developments in future**

Acknowledgment:

- This is one of the reports from a research project on school-based management and paradigm shift in education in Hong Kong schools. The research team would like to acknowledge the support of the Competitive Earmarked Research Grant awarded by the Research Grants Council of University Grants Committee of the Hong Kong SAR Government to their research project (HKIEd8003/03H) that contributed to development of this presentation.

- **Reference: Cheng, Y.C. (2005). New Paradigm for Reengineering Education: Globalization. Localization & Individualization. Dordrecht, The Netherlands: Springer**