
香港科技大學
THE HONG KONG
UNIVERSITY OF SCIENCE
AND TECHNOLOGY
CENTER FOR
ENGINEERING
EDUCATION
INNOVATION
Student LED
CENTER FOR
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EDUCATION
INNOVATION
Prof. Ben Y B CHAN
Center for Engineering Education Innovation
HKUST

is Student LED

Learning Experience Designer

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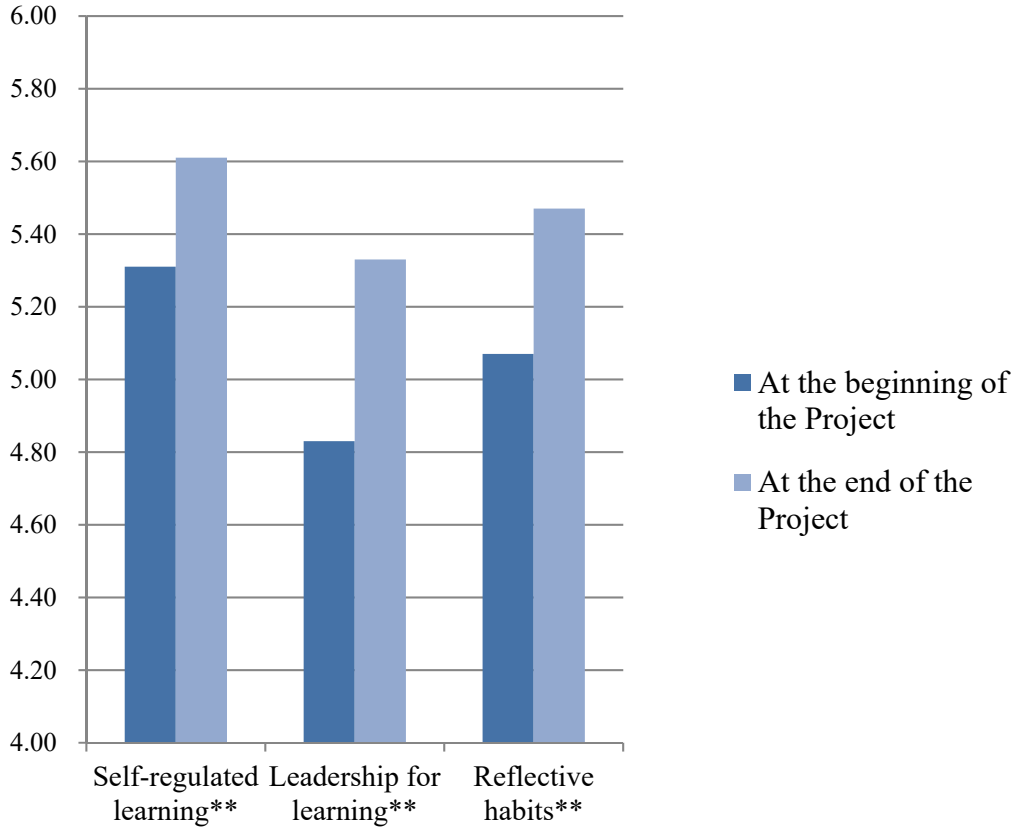
Findings (Overall)

Students reported significantly higher scores in all of the three development areas.

Median (Scale: 1-7, 1 being the lowest; 7 being the highest)



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The Paradigm Shift

What employers look for are people who, day in and day out, can work effectively with other people to come up with innovative solutions to problems that cannot be anticipated.

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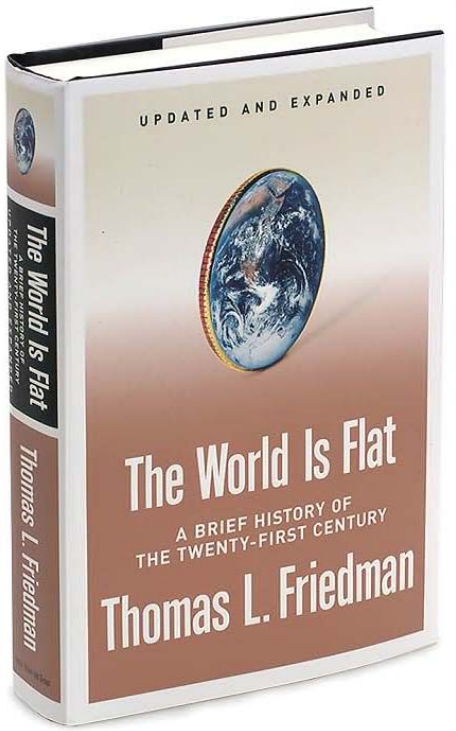
The Paradigm Shift

"The first, and most important, ability you can develop in a flat world is the ability to "**learn how to learn**" – to constantly absorb, and teach yourself, new ways of doing old things and old ways of doing new things."



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The Paradigm Shift

"Your career, if it is to be a successful one, will be a series of collaborations as a member of many different teams. And the secret to being a ***valued contributor*** *to those teams will be your development as a* ***lifelong learner****."*

--- Ellen Kullman
CEO, DuPont
23 May 2011
Commencement speech
at Lehigh University

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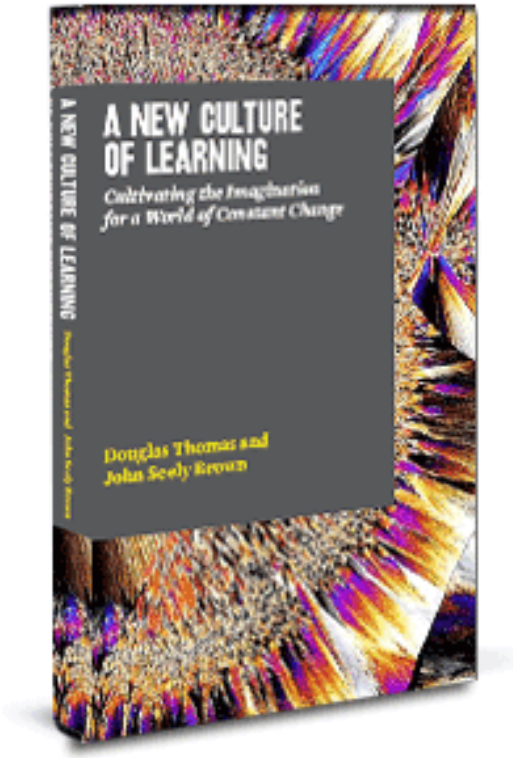
A New Century of Learning

- Learning in the **collective**
- Learning as **inquiry**
- **Playing** to learn



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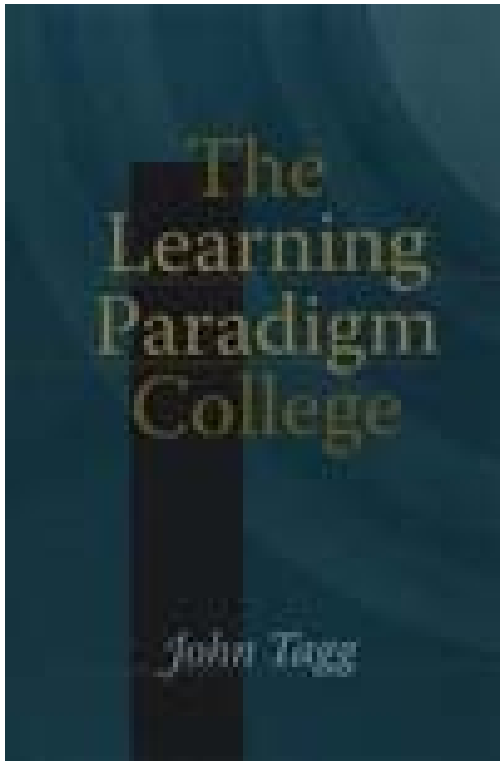
Douglas Thomas and John Seely Brown (2011)
A New Culture of Learning: Cultivating the Imagination For a World of Constant Change.

Learning Paradigm College

- The central theme of the paradigm shift:
  - The mission of an institution is to produce **LEARNING**,
  - NOT to provide instruction.



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(A groundbreaking book published by John Tagg in 2003 (Bolton: Anker) which has captured the attention of higher education institutions worldwide.)

A learning paradigm college…

Promotes intrinsically rewarding goals

Requires frequent, continual, connected, and authentic student performances

Provides consistent, continual, interactive feedback to students

Provides a long time horizon for learning

Creates purposeful communities for practice

Aligns all of its activities around the mission of producing student learning

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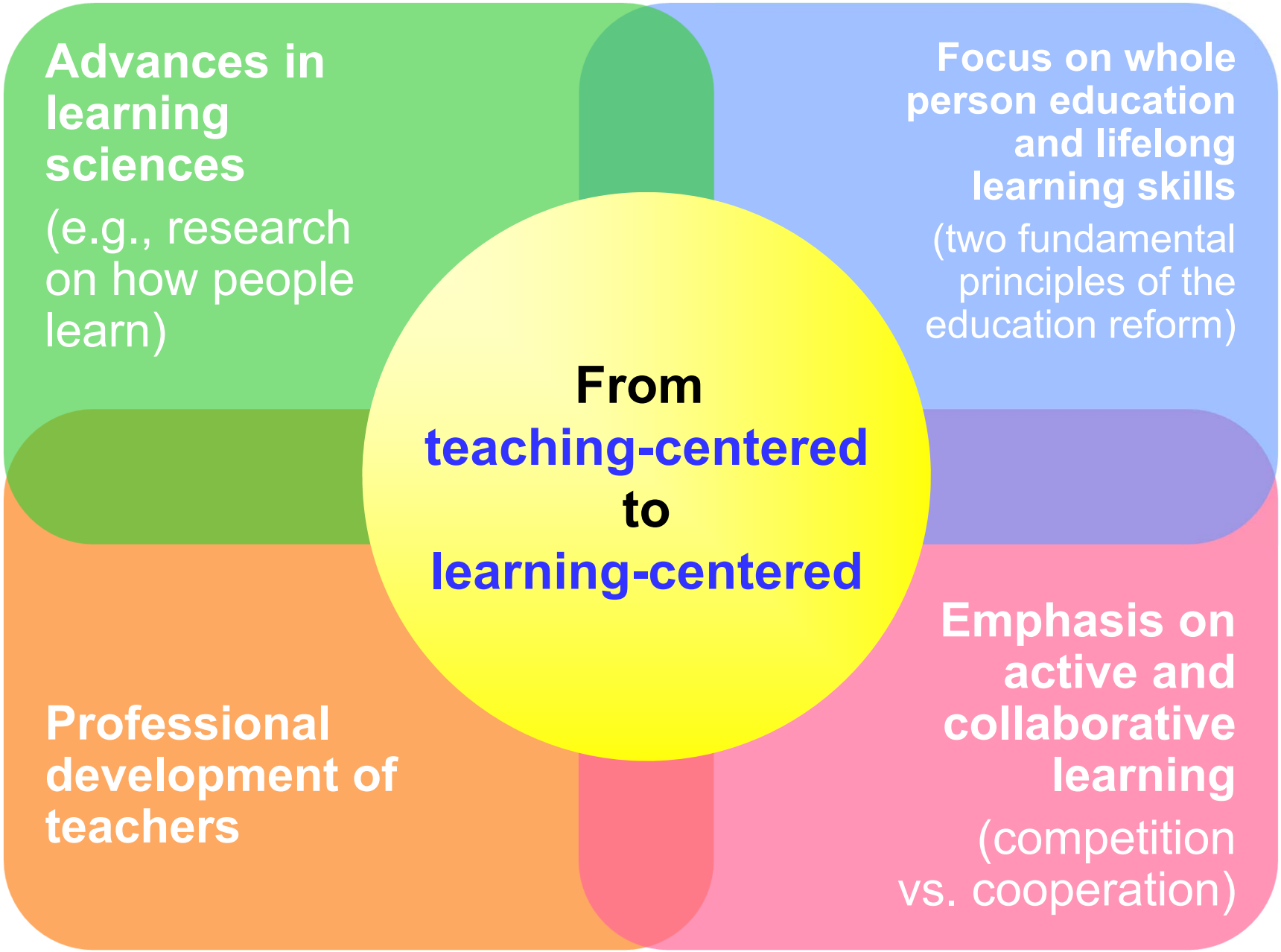
Source: John Tagg (2003)


Advances in learning sciences
(e.g., research on how people learn)
Focus on whole person education and lifelong learning skills
(two fundamental principles of the education reform)
From
teaching-centered
to
learning-centered
Professional development of teachers
Emphasis on active and collaborative learning
(competition vs. cooperation)

Student-LED

不是搞活動

乃是搞**學習**

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Student-led vs Student-LED

Student led project	Student LED project
Student as leader of the activity	Student as learning experience designer (teacher)
Design and plan for the activity	Design and plan for learning
Self-regulated learning	Self-regulated learning and/or “learning to teach; teaching to learn”
A good show	Learning happens
End-of-activity survey Self-reflection	Post-activity follow up; assessed with a body of quantitative and qualitative evidence; self-reflection

In a Classroom

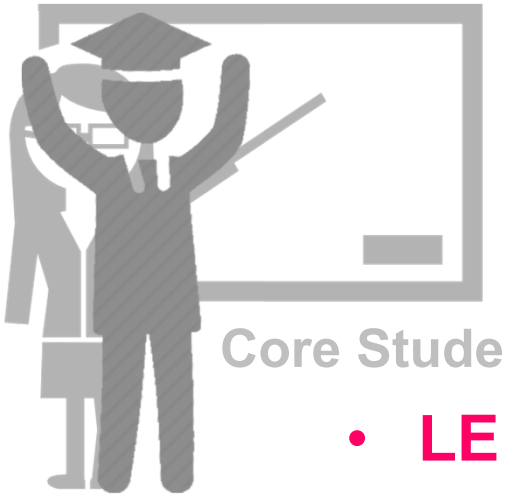
Teacher

- LE Designer

Students

- Learning Experience

In a Classroom



Core Student(s)

- Deep Reflection
- Learning Experience
- LE Designer

Students

- Learning Experience

Student Interest Club

Student Committee

- **Activity Designer**

Students

- **Experience**

Student Interest Club

Student Committee

- LE Designer
- Learning Experience
- Deep Reflection

Students

- Experience

Student Interest Club

- LE Designer
- Learning Experience
- Deep Reflection

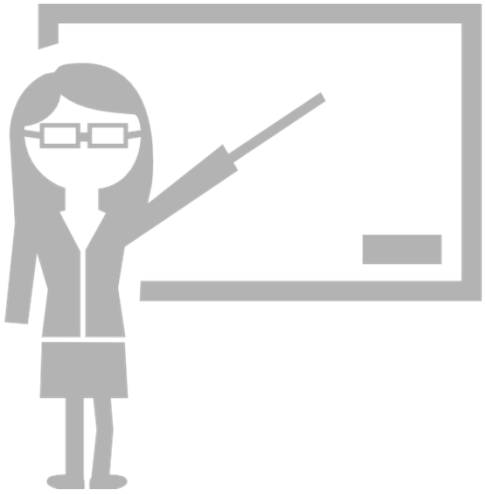
Core Student(s)

Student Committee

- Activity Designer
- Learning Experience

Students

- Experience



Teacher

Core
Student(s)

Student
Committee

Target Group

Learning as a competency

Attitudes

- Self-confidence
- Motivation
- Self-efficacy

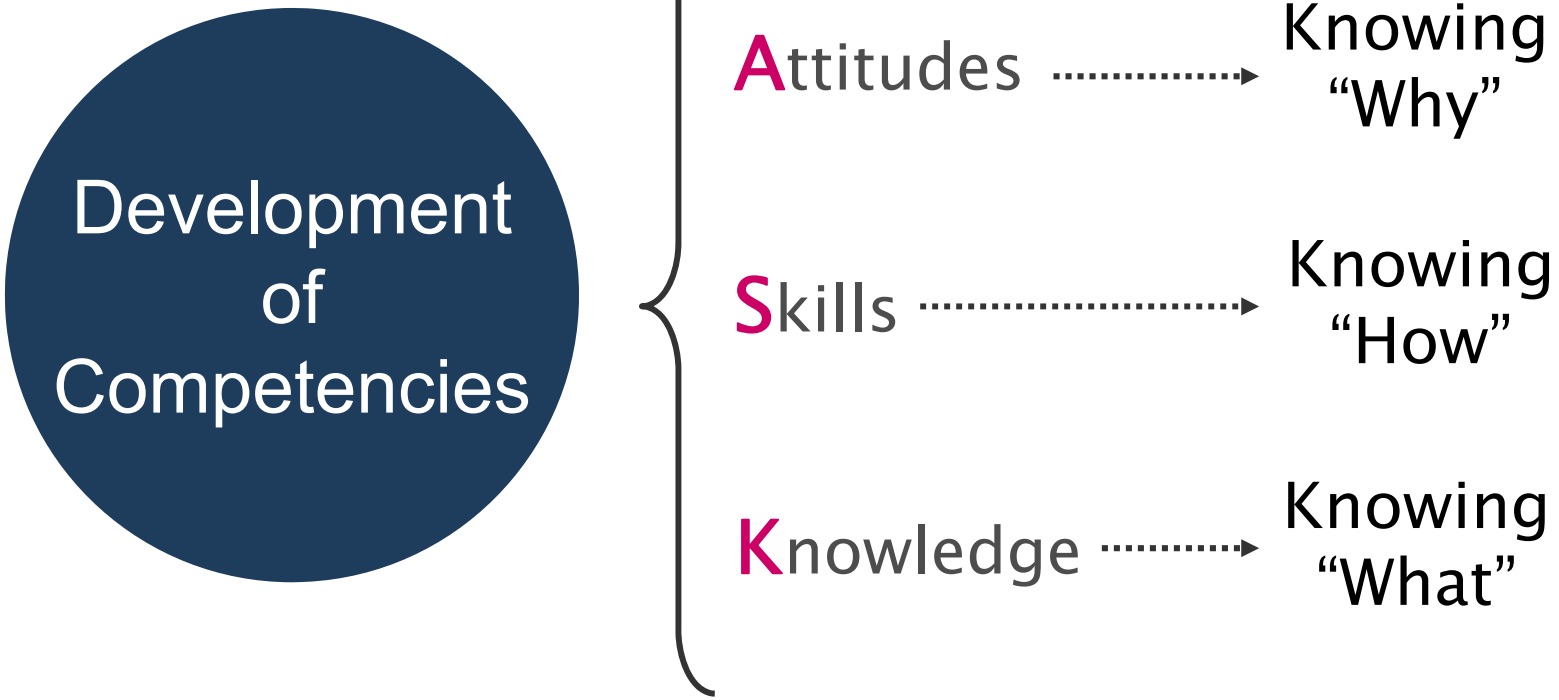
Skills

- Time management
- Goal setting and realization
- Reflection/ critical thinking

Knowledge

- Knowledge of learning
- Knowledge of oneself as a learner

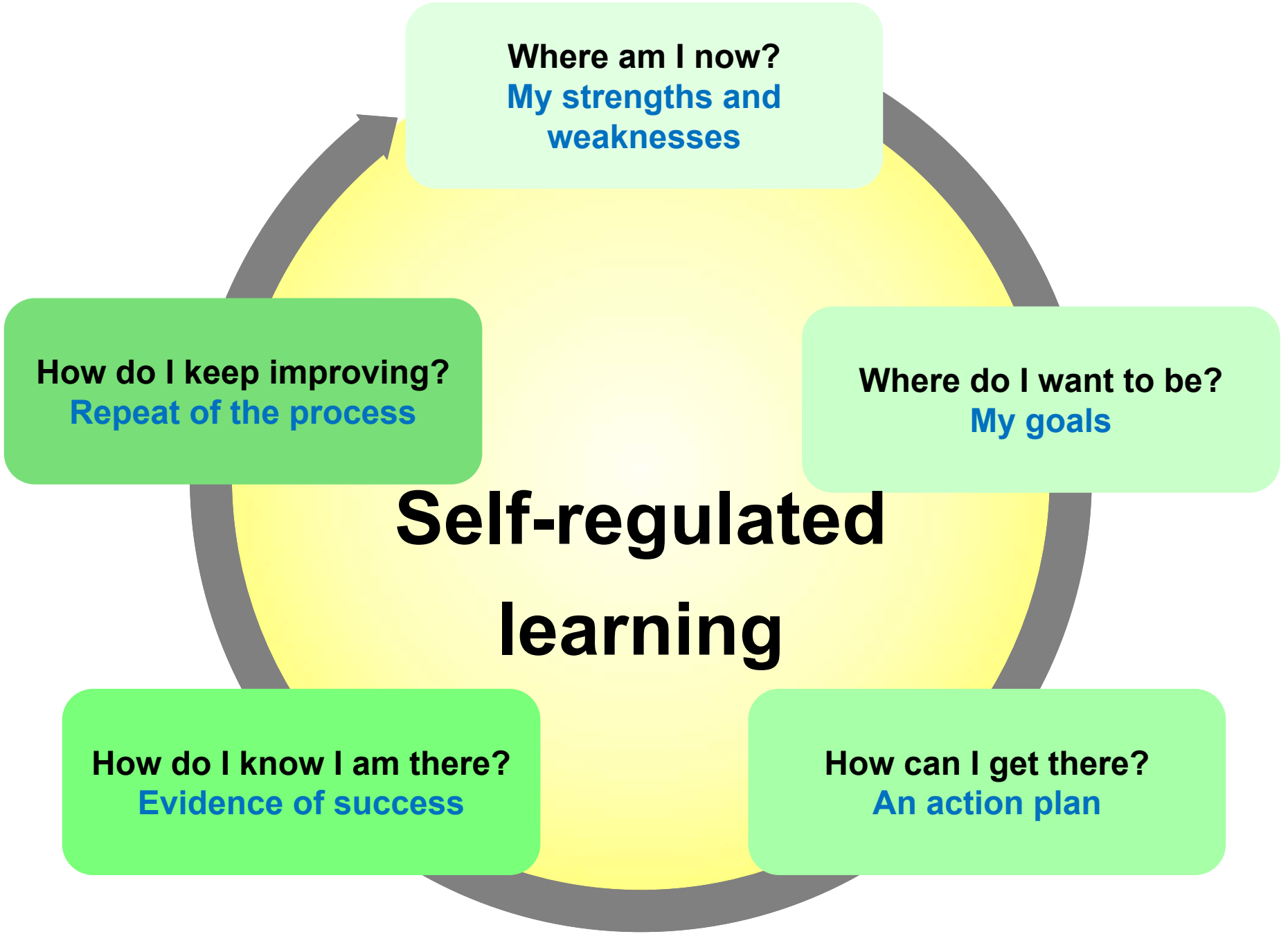
Development of Competencies



Self-directed (regulated) and lifelong learning

Principle: To become self-directed learners, students must learn to assess the demands of the task, evaluate their own knowledge and skills, plan their approach, monitor their progress, and adjust their strategies as needed.

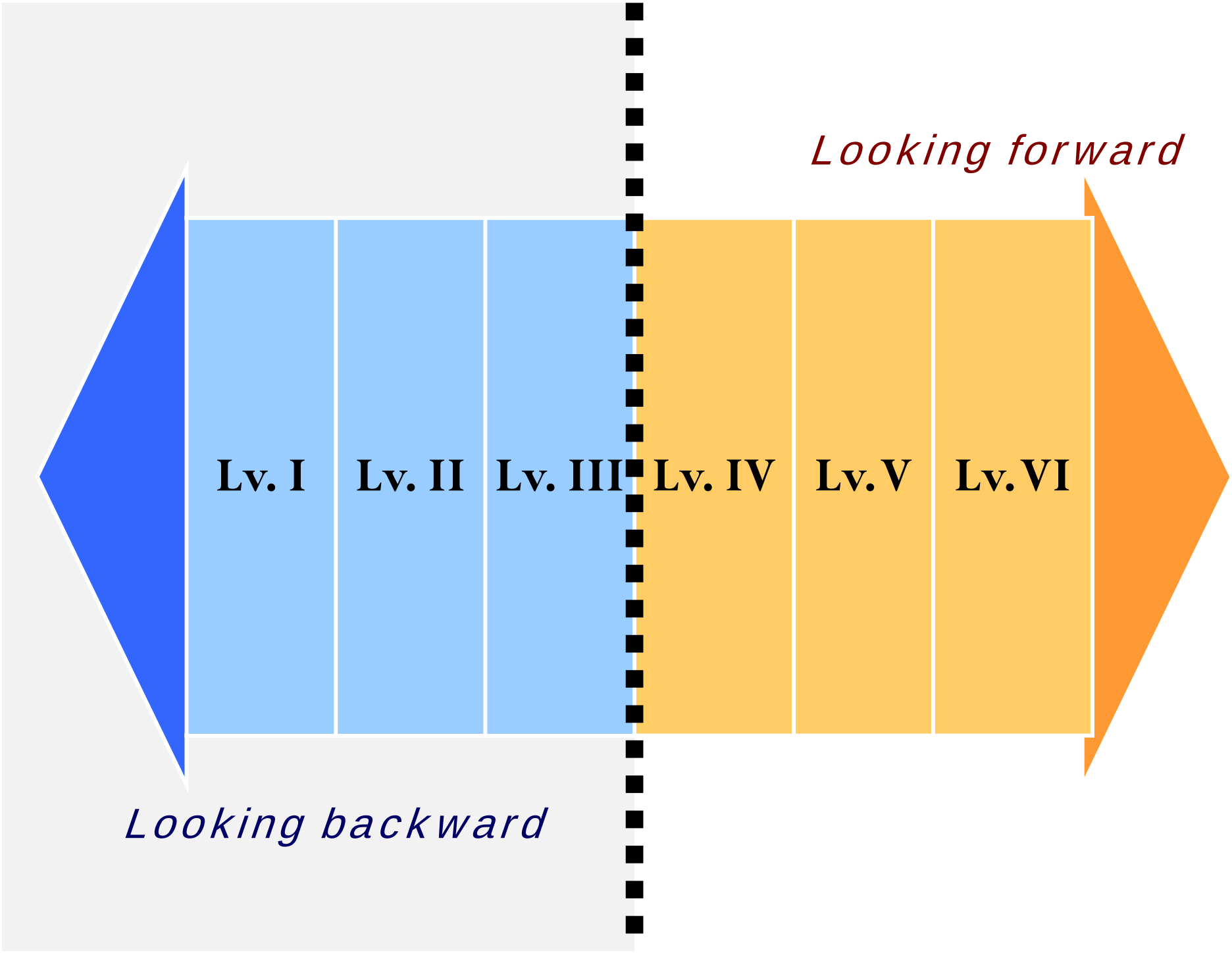
Susan Ambrose et al. (2010) *How Learning Works,* San Francisco: Jossey-Bass, p. 191.


Where am I now?
My strengths and weaknesses
Where do I want to be?
My goals
How can I get there?
An action plan
How do I know I am there?
Evidence of success
How do I keep improving?
Repeat of the process
Self-regulated learning

Six levels of reflection

Level VI	**Adaptive, self-regulating** Adapting to new situations
Level V	**Transfer** Application of learning to new situations
Level IV	**Internalization, connecting, chunking** Making the connection
Level III	**Making meaning** Reflecting on the learning experience
Level II	**Superficial, surface learning** Record and make explicit the experience
Level I	**Passive** Experience only

Source: The Windmills Programme (2001)


Looking forward
Lv. I
Lv. II
Lv. III
Lv. IV
Lv. V
Lv. VI
Looking backward

Approaches to Learning

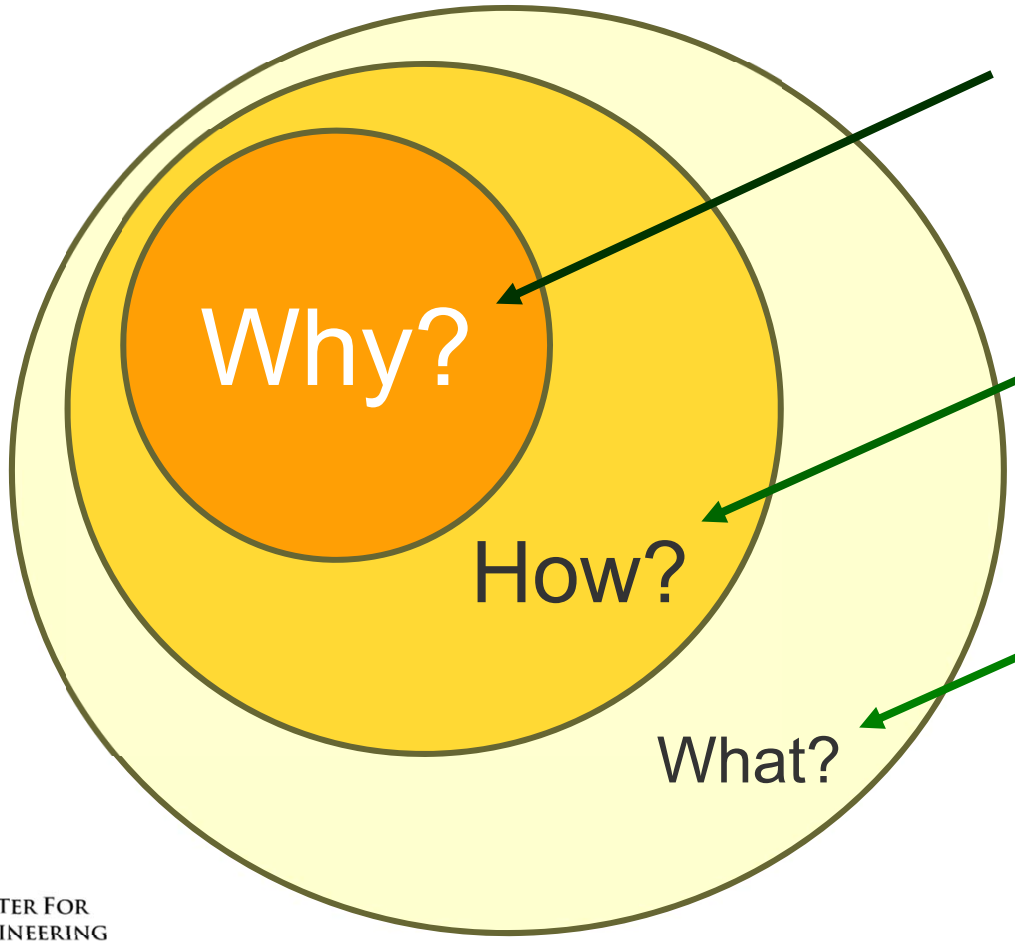
Approach	Motive	Strategy
Deep	Intrinsic: study to *actualize interest and competence* in particular academic subjects.	Read widely, interrelate with previous relevant knowledge.
Surface	Instrumental: main purpose is to *meet requirements minimally*: a balance between working too hard and failing.	Limit target to bare essentials and reproduce through rote learning.
Achieving	*Obtain high grades*, whether or not material is interesting.	Behave as "model students" in organizing one's time and working space.

J. B. Biggs, *Student Approaches to Learning and Studying*, Australian Council for Education Research (1987).

Project Rationales and Objectives

- Engaging students **as a deep learner** in OLE as a result of enabling students to reflect deeper.
- Enhancing students' **engagement** and their sense of **ownership** as well as developing **students' reflective habits**.
- Fostering **self-regulated learning** capacities among students.

Roles of students



Students as learning experience designers and teachers

Students as process owners

Students as participants

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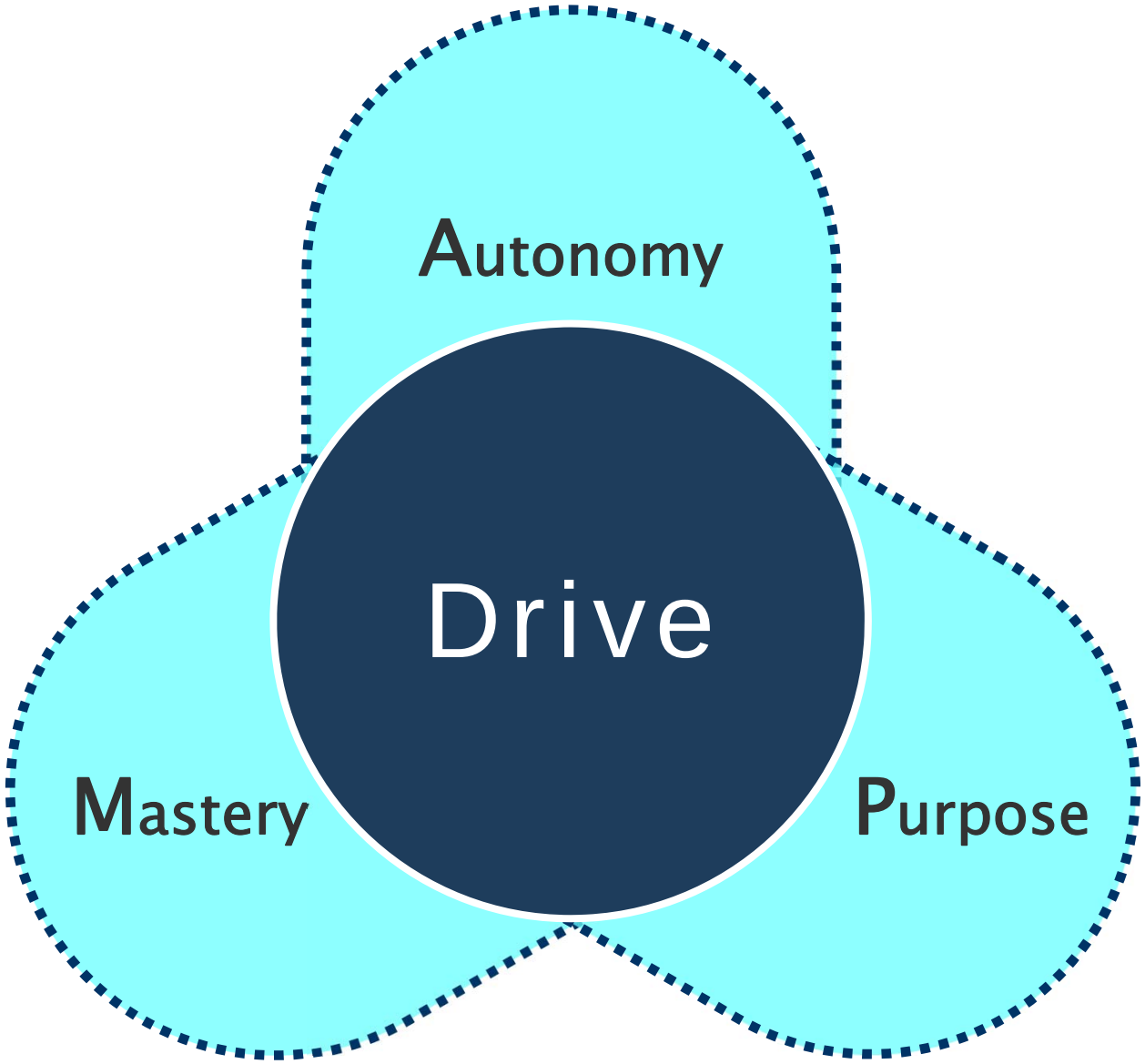
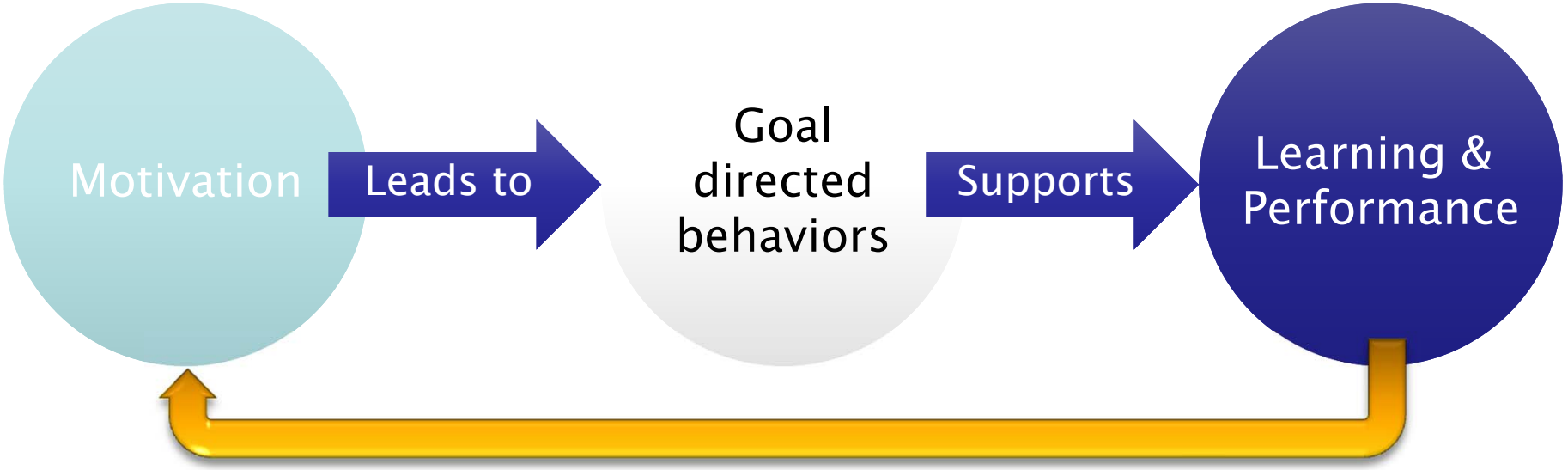
“BEGIN WITH THE END IN MIND”

Covey 1989



Daniel H. Pink (2009) *Drive: The Surprising Truth About What Motivates Us*, Canongate

A Framework for success



Adapted from: Susan Ambrose et al. (2010), *How Learning Works,* San Francisco: Jossey-Bass, Chapter 3.

Building on existing practice: *OLE contexts*

Emerging practices	Established practices	Advanced practices
Level 1-3	Level 4-5	Level 6
Students as PARTICIPANTS	Students as EFFECTIVE LEARNERS	Students as SELF-REGULATED LEARNERS
PARTICIPATION	OWNERSHIP	AUTHORSHIP

Deep Learner with Sustainability & Wider Transfer

Three Discussion Areas

- In what ways can students benefit from Student-LED experiences?
- What are the facilitators and inhibitors for students' learning in context?
- How to find evidence of learning in Student-LED?

Two Key Theoretical Concepts (1)

"An inner endorsement of one's actions—the sense that one's actions emanate from oneself and are one's own" (Deci & Ryan, 1987)

- Autonomy
  - I want to do the project.
  - I have freedom to decide whether to do it or not.
  - I have a choice over how I would like to work on my project.

Two Key Theoretical Concepts (2)

- Supplemental instruction / peer-led instruction

"Senior or more capable students teaching and helping junior students or less capable ones" (e.g., Stone and Jacob, 2006)

Student-LED, Student-Led and Teacher-Led

Student-LED	Student-Led	Teacher-Led
Students have high *autonomy*.	Students have high *autonomy*.	Students have low *autonomy*.
Students design learning experiences (*supplemental instruction*).	Students plan and carry out activities.	Students undertake tasks designed by the teacher.
Teachers provide support and guidance.	Teachers provide support and guidance.	Teachers design learning experiences and give instruction.

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Adopt Student-LED Approach in HK?

Pros

- High level of autonomy enables students to take ownership of their learning process

- Supplemental instruction benefits both the student teachers and the fellow students (*teaching to learn, learning to teach*)

- Some successful examples in the US and the UK

Cons

- High level of autonomy could confuse students especially those who are used to a teacher-led environment

- Chinese students are seen as relatively passive and not value autonomy (Yuen, 2010)

- Challenges in promoting student-centred learning in HK (Yeung, 2009) and few successful experiences in Asian countries

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Promoters of student learning

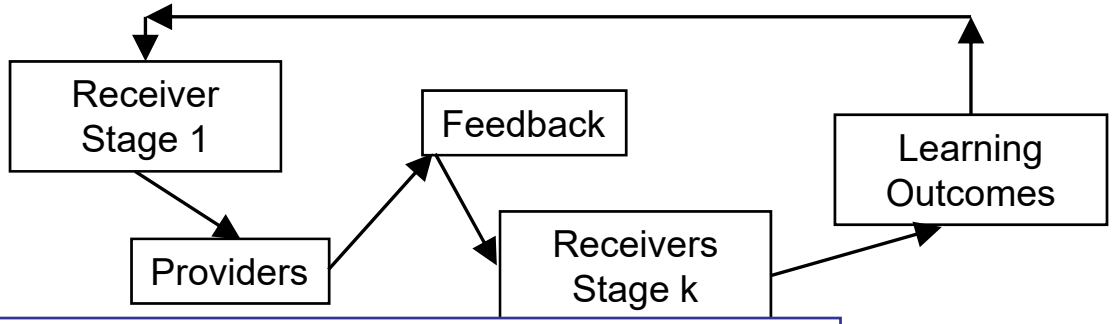
- *"Feedback is central to the development of student learning"* (Hattie and Timperley 2007; Hounsell 2003)

- "Students often view comments by tutors on their work as *difficult to understand* (e.g. Weaver 2006); *lacking specific advice on how to improve* (e.g. Higgins, Hartley, and Skelton 2001); or *difficult to act upon* (e.g. Gibbs 2006; Poulos and Mahony 2008)

Feedback to Learning Theories

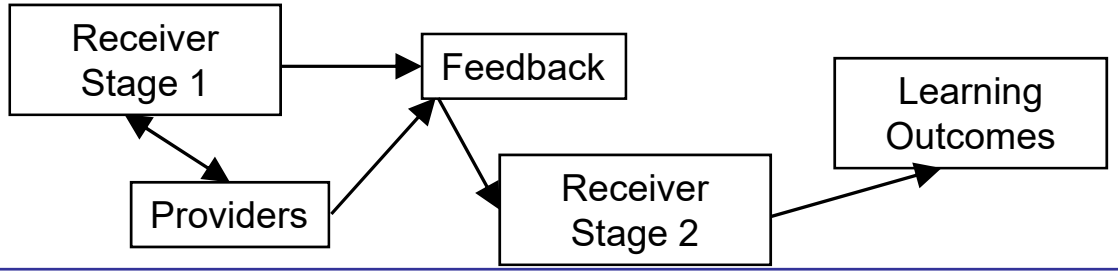
e.g. Student: I think we can improve our classroom environment

Meta-Cognitivism and Social Constructivism



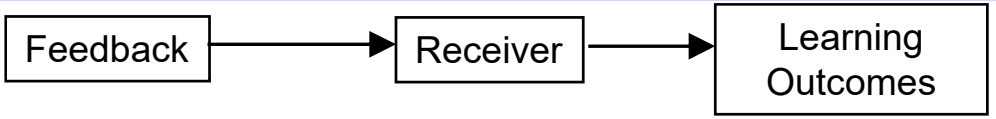
e.g. Teacher: Is running in classroom good or bad?

Social Cultural Theory



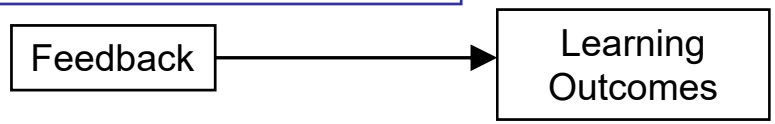
e.g. Teacher: Bad students run in classrooms, you should not run.

Cognitivism



e.g. Teacher: Detention for running in classroom

Behaviorism



Feedback to Learning Theories

- Behaviorism focuses on visible behaviour of students, which can be manipulated by means of stimuli such as praise and punishment *(Atkinson, Atkinson, & Hilgard, 1983; Skinner, 1968).*
- Cognitivism stresses human information processing *(Newell & Simon, 1972; Shuell, 1986).*
- Social cultural theory highlights human intentions and possibilities and how these can be developed *(Vygotsky, 1978).*
- Meta cognitivism emphasizes students learn to learn *(Brown, 1987; Garner, 1987).* Self-regulated learning *(Boekaerts, Pintrich, & Zeidner, 2000)* fits into this learning theory.
- Social constructivism focuses on how learners are actively engaged in constructing their knowledge *(Jonassen, 1991; Paris & Byrne, 1989; VanderBilt Cognition and Technology Group, 1990).*

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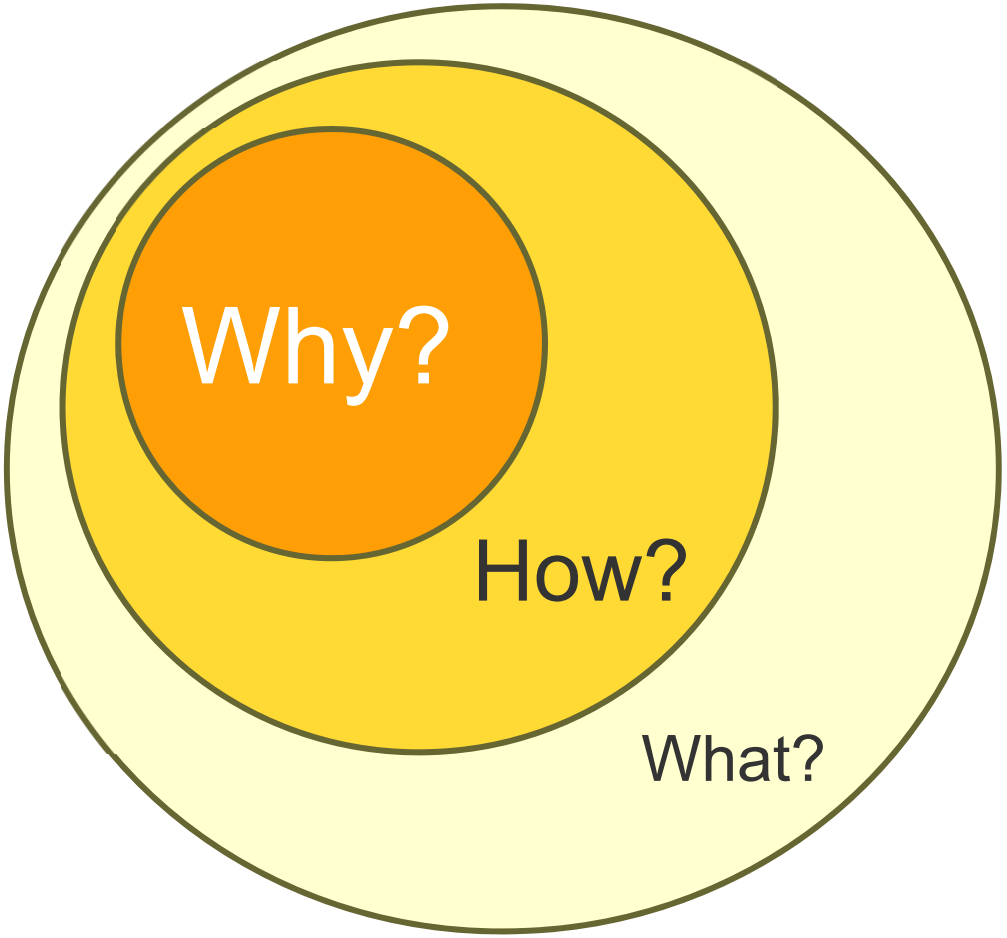
Adapted from Thurlings, MCG Marieke, Vermeulen, Marjan, Bastiaens, TJ, & Stijnen, PJJ. (2013). Understanding feedback : A learning theory perspective. Educational Research Review, 9, 1-938x.

Part 2

- Summative vs. Formative feedback
- What is your most effective strategy of giving feedback?
  - Timing
  - Task-related characteristics
  - Affective and emotional characteristics
  - Effects on learners
- Share your good practices and challenges faced when providing feedback

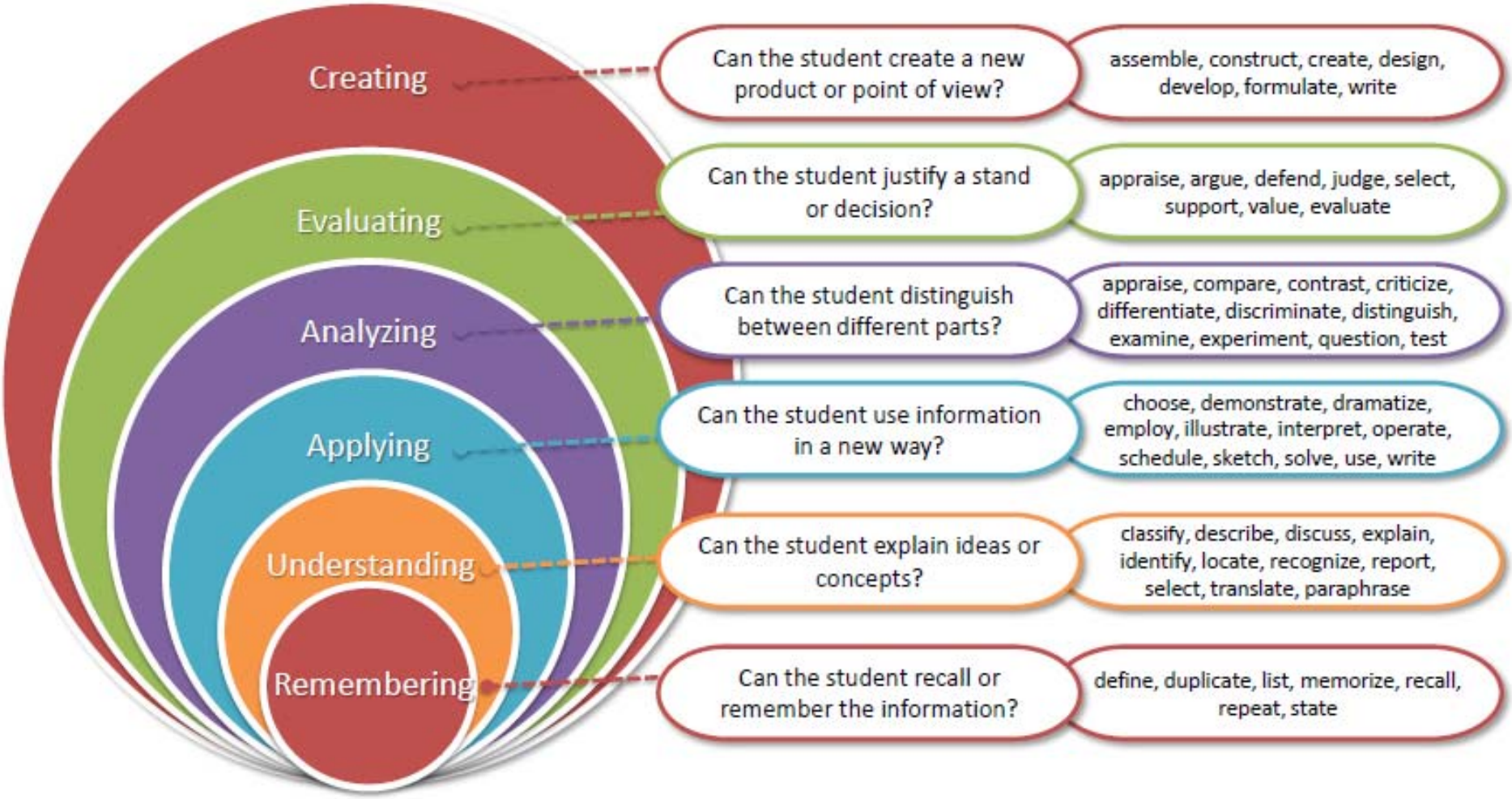
The Golden Circle



TED: Simon Sinek

Simon Sinek (2009) *Start with Why: How Great Leaders Inspire Everyone to Take Action.* New York: Portfolio.

Bloom's taxonomy

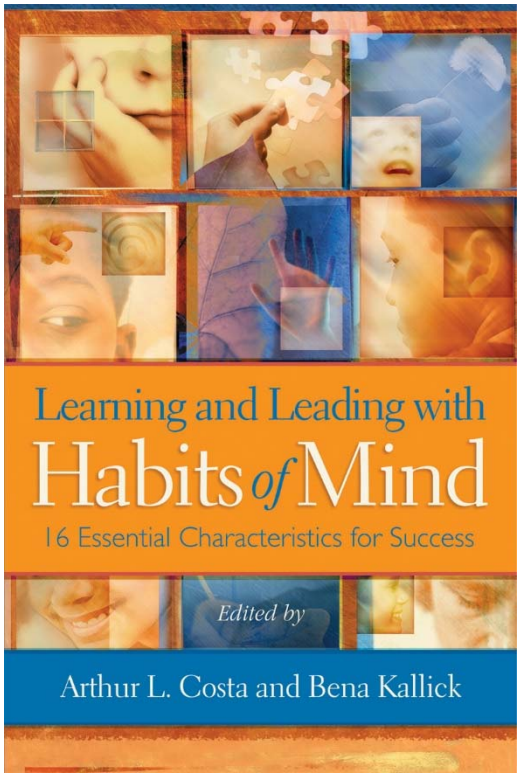


Bloom, B., Englehart, M. Furst, E., Hill, W., & Krathwohl, D. (1956). Taxonomy of educational objectives: The classification of educational goals. Handbook I: Cognitive domain. New York, Toronto: Longmans, Green

Components of an effective reflection

- ✓ Avoid being restrained to a single template
- ✓ Use of repetitive exercises may easily lead to repetitive responses.
- ✓ Relate to emotions
- ✓ Extract evidence of success from experience
- ✓ Articulate deep thinking
- ✓ Transform *activity* experience to *learning* experience

"Reflection on work enhance its meaning. Reflection on experiences encourages insight and complex learning."



Arthur L. Costa and Bena Kallick, Dec 2008, Ch. 12 Learning Through Reflection Learning and Leading with Habits of Mind

Concluding Remarks

- Student-LED generated positive impacts on student development in self-regulated learning, leadership for learning, and reflective habits
- Hong Kong secondary school students value autonomy and are willing to take ownership with support from their teacher

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