Understanding Capstone

examining the final year learning experience

Centre for Learning Enhancement And Research

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Contents

- Expected graduate capabilities

- What is a capstone experience

  -Why a capstone experience is important

  -How does it help students in their future

- Preliminary findings

- Conclusion

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What employers are looking for?

- Planning and organising
- Technological skill
- Initiatives and Enterprise
- Life-long learning capacity
- Problem solving
- Self-management
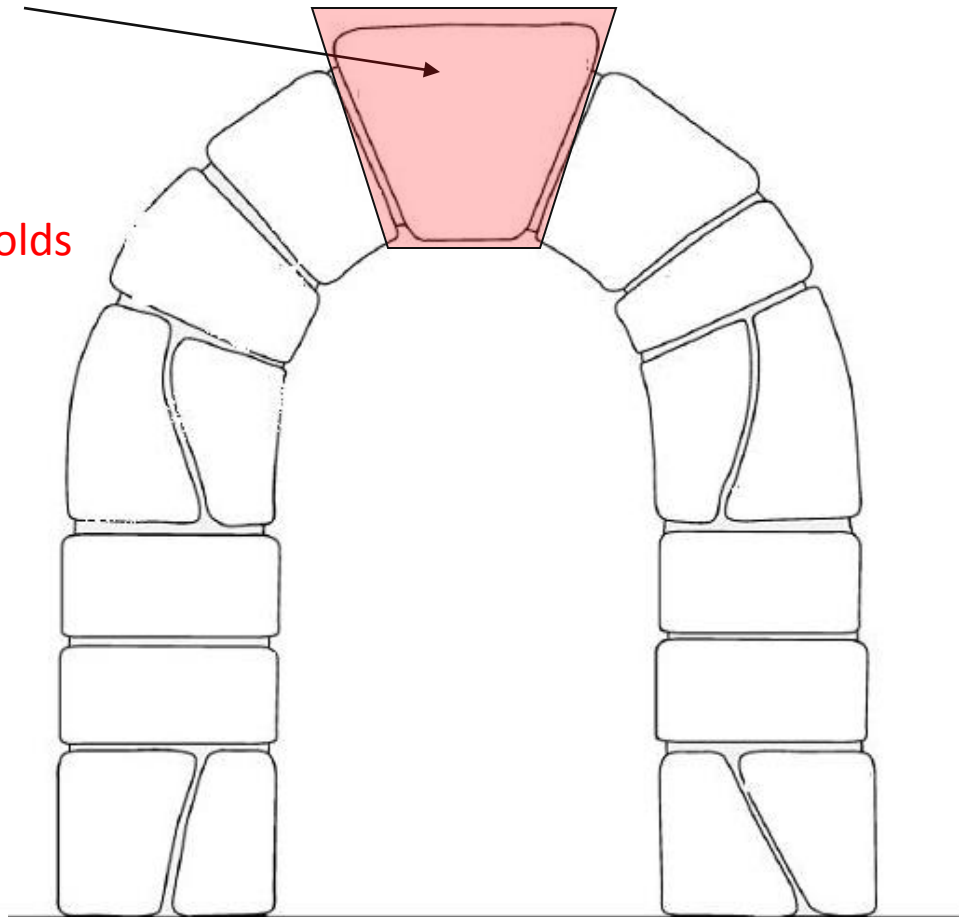- Communication skills
- Teamwork

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What is a Capstone?

Capstone

A Capstone is the finishing stone of a structure that holds all the fragmented parts together.

What is a Capstone Experience?

Final Year Project ≠ Capstone Experience

A capstone is a consolidation of the study experience to provide:

➢ A culminating experience in undergraduate studies

➢ Based on Authentic Assessment

➢ 4 Design Characteristics

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Capstone Experience: Two Emphases

A capstone activity is a **culminating experience** in the undergraduate students' university life. It is organised around two broad emphases:

1. Student development
- a culminating experience to facilitate transition generally into the workplace, or
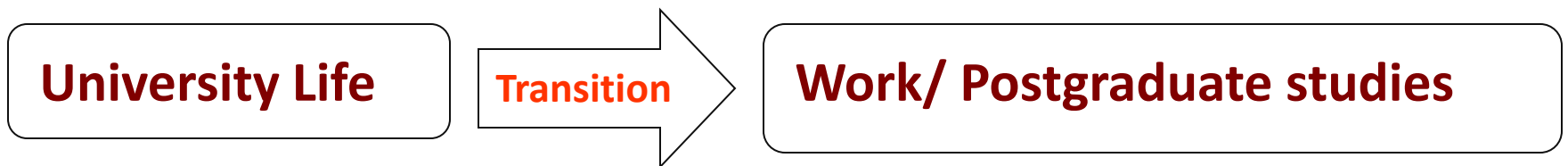
2. Assessment
- of programme level learning outcomes & to improve instructional practices
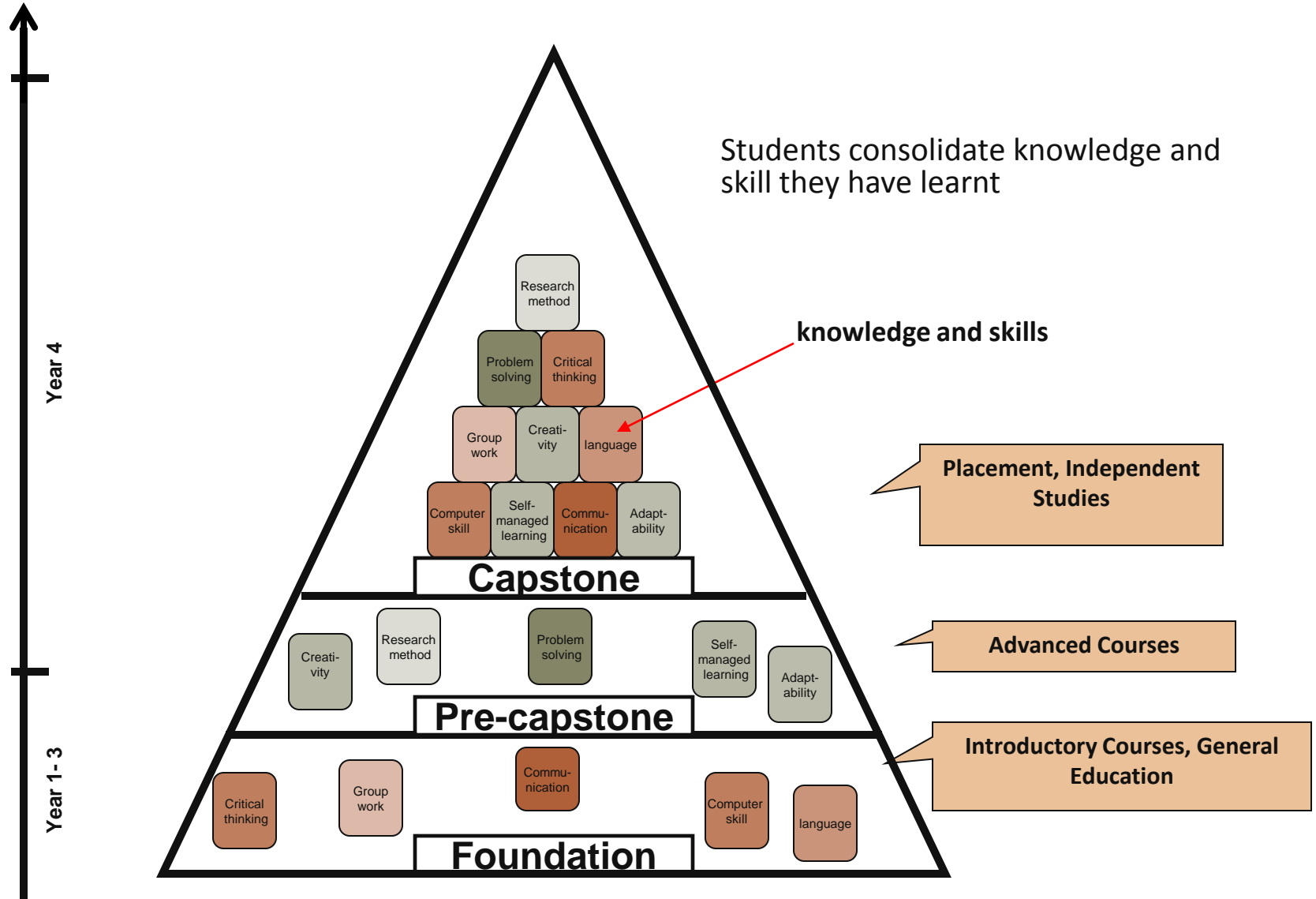
# Capstone Experience on student development
- 4 design characteristics

a. **Integrate** both knowledge and skills.

b. **Reflection** on development - academically, socially and personally.

c. **Closure on** their undergraduate student life.

d. **Transition** from undergraduate studies to work life or to postgraduate study.

University Life → *Transition* → **Work/ Postgraduate studies**

Integration

Students consolidate knowledge and skill they have learnt

knowledge and skills

Year 4

Research method

Problem solving | Critical thinking

Group work | Creati-vity | language

Computer skill | Self-managed learning | Commu-nication | Adapt-ability

Capstone

Placement, Independent Studies

Creati-vity | Research method | Problem solving | Self-managed learning | Adapt-ability

Pre-capstone

Advanced Courses

Year 1- 3

Critical thinking | Group work | Commu-nication | Computer skill | language

Foundation

Introductory Courses, General Education

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- **Integrate** both knowledge and skills. (consider this in terms of declarative knowledge (DK) and procedural knowledge (PK) that encompasses skills, strategy and process.
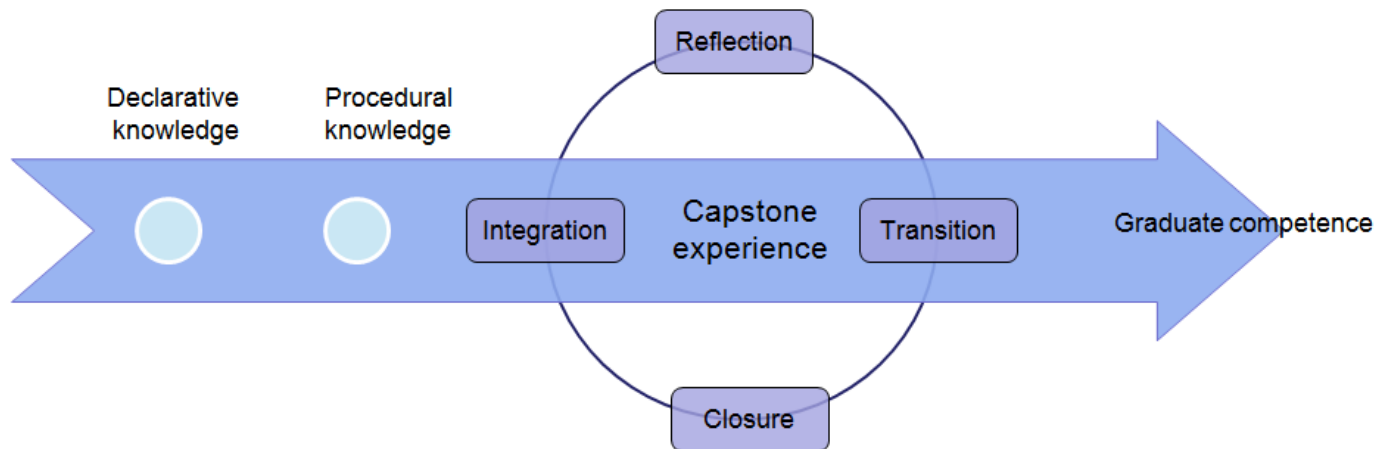
What is DK and PK ?

- Declarative knowledge (DK): Factual information

- Procedural knowledge (PK): Transformed by putting a series of declarative knowledge into practice. It involves skills, strategies and processes.

- For more information, please see:
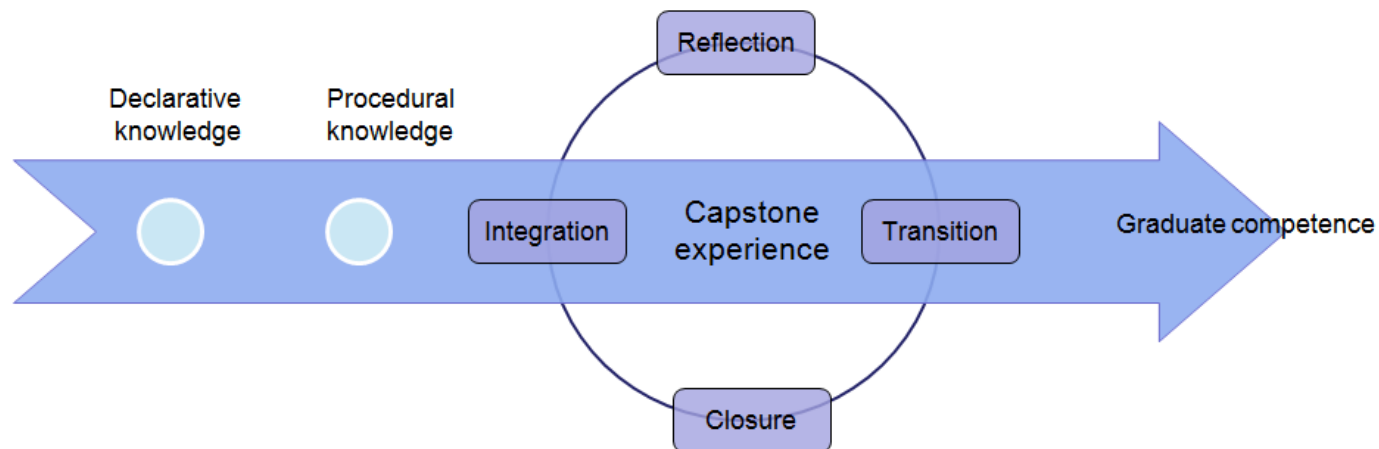
Having lectures

Having presentation

Individual project

Internship overseas

Transition

These activities are all authentic assessments, which help students to apply their knowledge to an authentic task and support a smooth transition to the working environment.

Workplace

Graduation

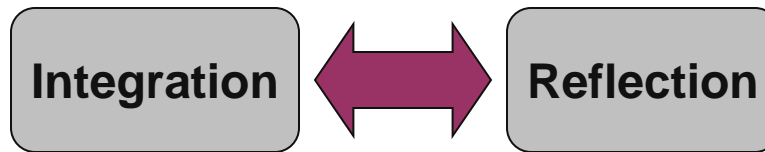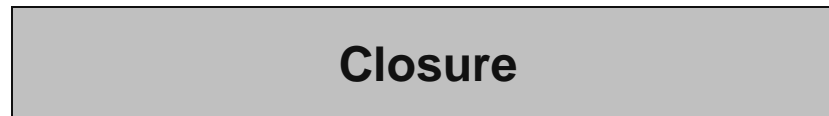**Fieldwork**

Conceptualizing the capstone experience

Undergraduate
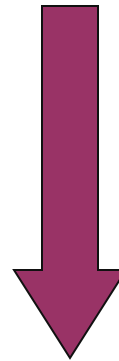
Students consolidate knowledge they have learnt

Integration ⟷ **Reflection**

Students reflect on their development academically, socially and personally.

Closure

A completion on their undergraduate study. Give them confidence to their ability.
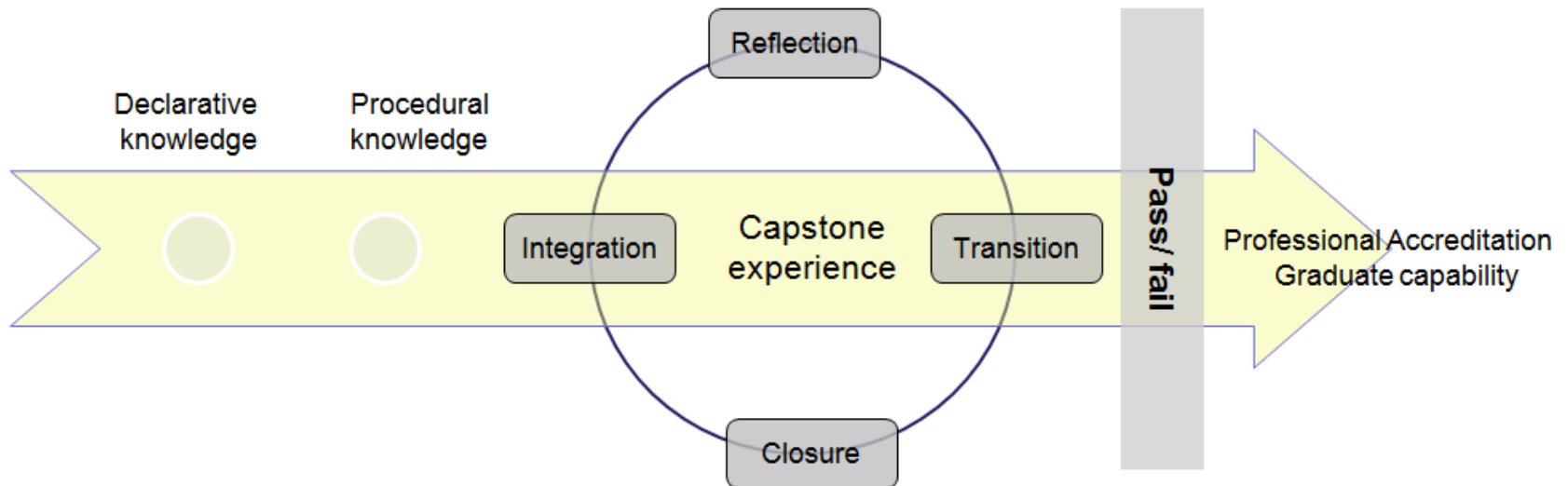
Transition

Transition from undergraduates to employee or post-graduates, with required capabilities

Work / postgraduate study

Capstone Experience on assessment

To assess programme level learning outcomes and improve instructional practices.

After reading some basic concepts
about capstone,
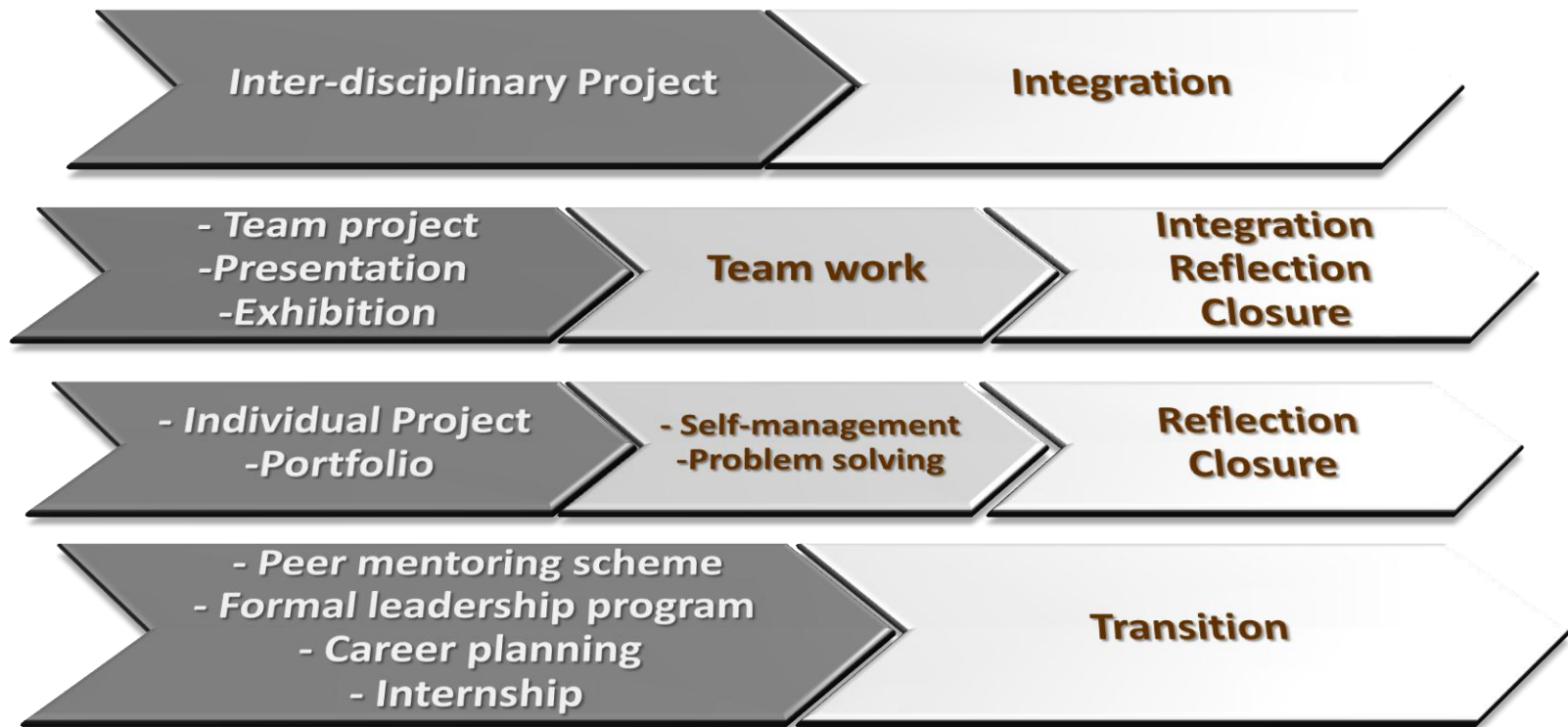**let us try to put it in our courses!**

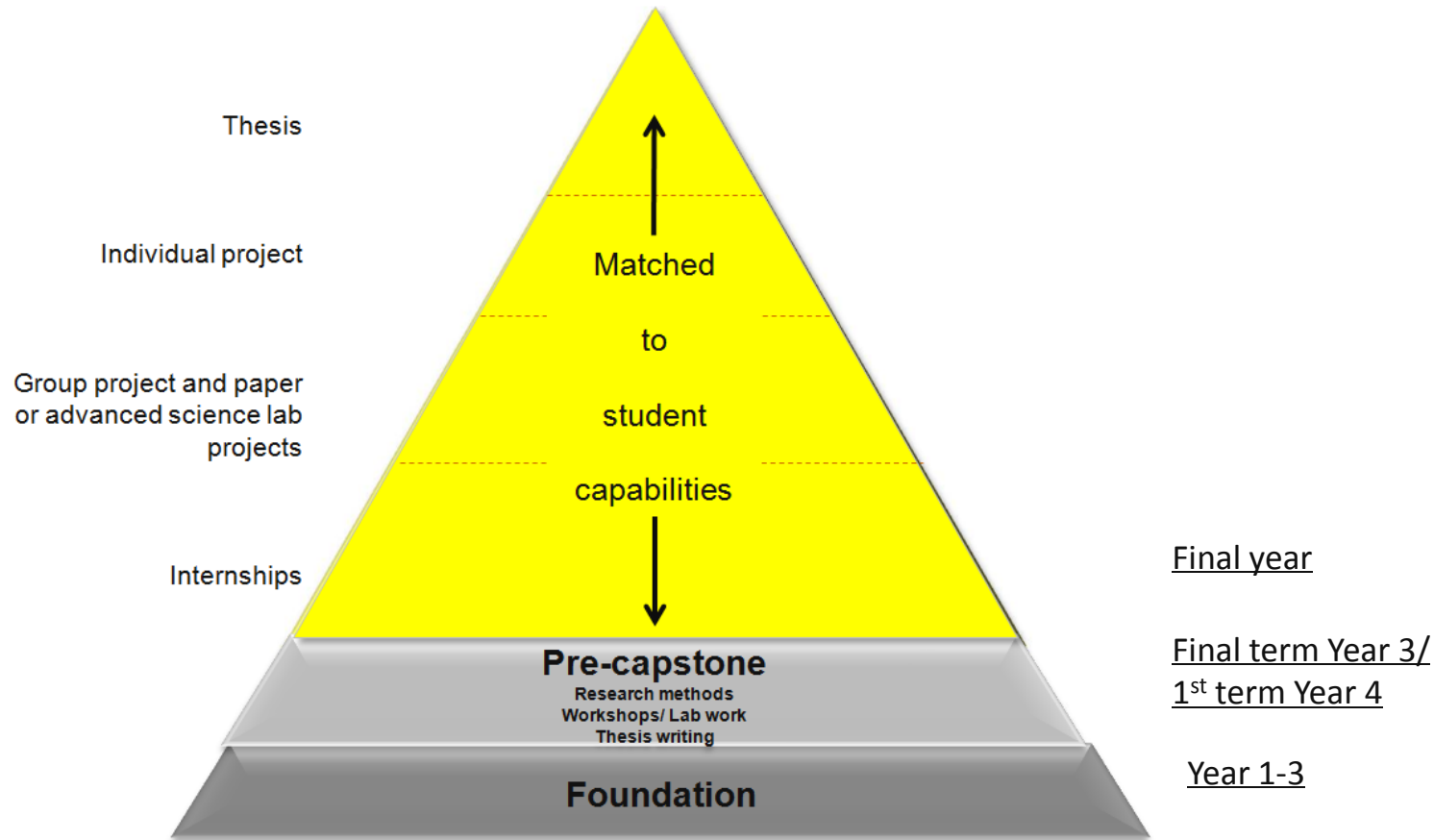# Possible capstone options to align with the expected learning outcomes

What are we assessing (Indicative)	How (Authentic learning activities) (Indicative)	Authentic Assessment methods (Indicative)
University community	Project work, service	Group project, self reflection
Discipline knowledge	Project work, group presentation, simulation, thesis	Presentation, peer assessment, group projects, reflection
Academic skills, self-directed learning e.g. research, collaboration	Group presentation/case analysis/ Simulation/ Lab experiment report	Presentation, participation, peer assessment
Self awareness	Reflection journal / Blog	Group contribution
Leadership skills/Teamwork/ Interpersonal skills	Group project, team-based activities, career planning	Group project, peer assessment, reflection, presentation
Problem-solving skills	Case analysis/ Group/ research project/ simulation	Group project, peer assessment, reflection
Citizenship	Service learning	Not assessed

Activities that can fulfill capstone characteristics

Inter-disciplinary Project	Integration	
- Team project -Presentation -Exhibition	Team work	Integration Reflection Closure
- Individual Project -Portfolio	- Self-management -Problem solving	Reflection Closure
- Peer mentoring scheme - Formal leadership program - Career planning - Internship	Transition	

Matching students capabilities to a capstone experience- An illustration

Thesis

Individual project

Group project and paper or advanced science lab projects

Internships

Matched

to

student

capabilities

Pre-capstone
Research methods
Workshops/ Lab work
Thesis writing

Foundation

Final year

Final term Year 3/
1st term Year 4

Year 1-3

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Reviewing and evaluating the final year learning experience in CUHK
in terms of capstone characteristics:

(Integration, reflection, transition & closure)

Data collection

- Conducted in June

- GCQ 2009 - Graduate Capabilities Questionnaire

- Target: 2009 undergraduates

- Response: 303

Questions of 4 design characteristics

Closure
- My final year learning experience was a meaningful achievement.
- My final year learning experience was a suitable completion of the undergraduate programme.

Integration
- My final year learning experience in undergraduate programme emphasised consolidation of my previous learning

Reflection
During my undergraduate final year learning experience
- I could review knowledge learnt in the programme.
- I could demonstrate my competence in the discipline.

Transition
My final year learning experience offered me:
- useful knowledge for workplace application.
- practical skills for workplace competence.
- ethical standards and positive attitude for workplace context.

Data

Types of FYP-like final year learning experience	n	%
Guided studies/ Directed studies	26	9.2%
Practicum	20	7.0%
Project (Final Year)	168	59.2%
STOT	65	22.9%
Seminar/ Selected Topics	30	10.6%
Thesis	63	22.2%
Others	10	3.5%
None of above	**52**	**18.3%**
At least one or above	**232**	**81.7%**

Data

| Faculty		n	%	n	%
		Have FYP		**None of above**	
Art		41	75.9%	13	24.1%
Business		38	76.0%	12	24.0%
Engineering		45	97.8%	1	2.2%
Science		57	83.8%	11	16.2%
Social Science		55	83.3%	11	16.7%

Evaluating the final year experience

1. Students who did FYP perform better among all the 4 areas.
2. Transition is the weakest area.
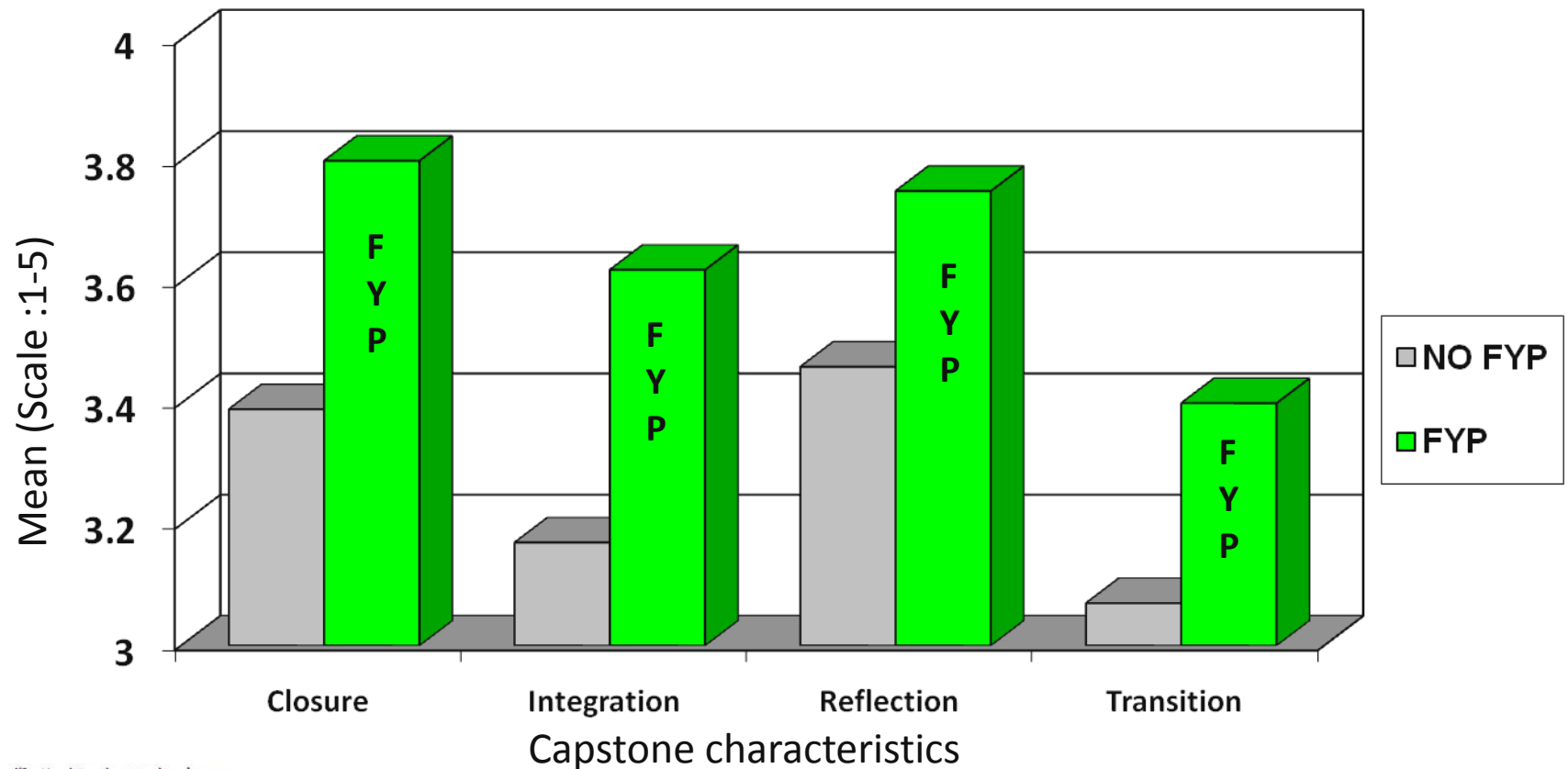
Evaluating the capabilities of the graduates

The mean of the students who have done FYP is slightly higher than those without FYP, but the difference is not significant.
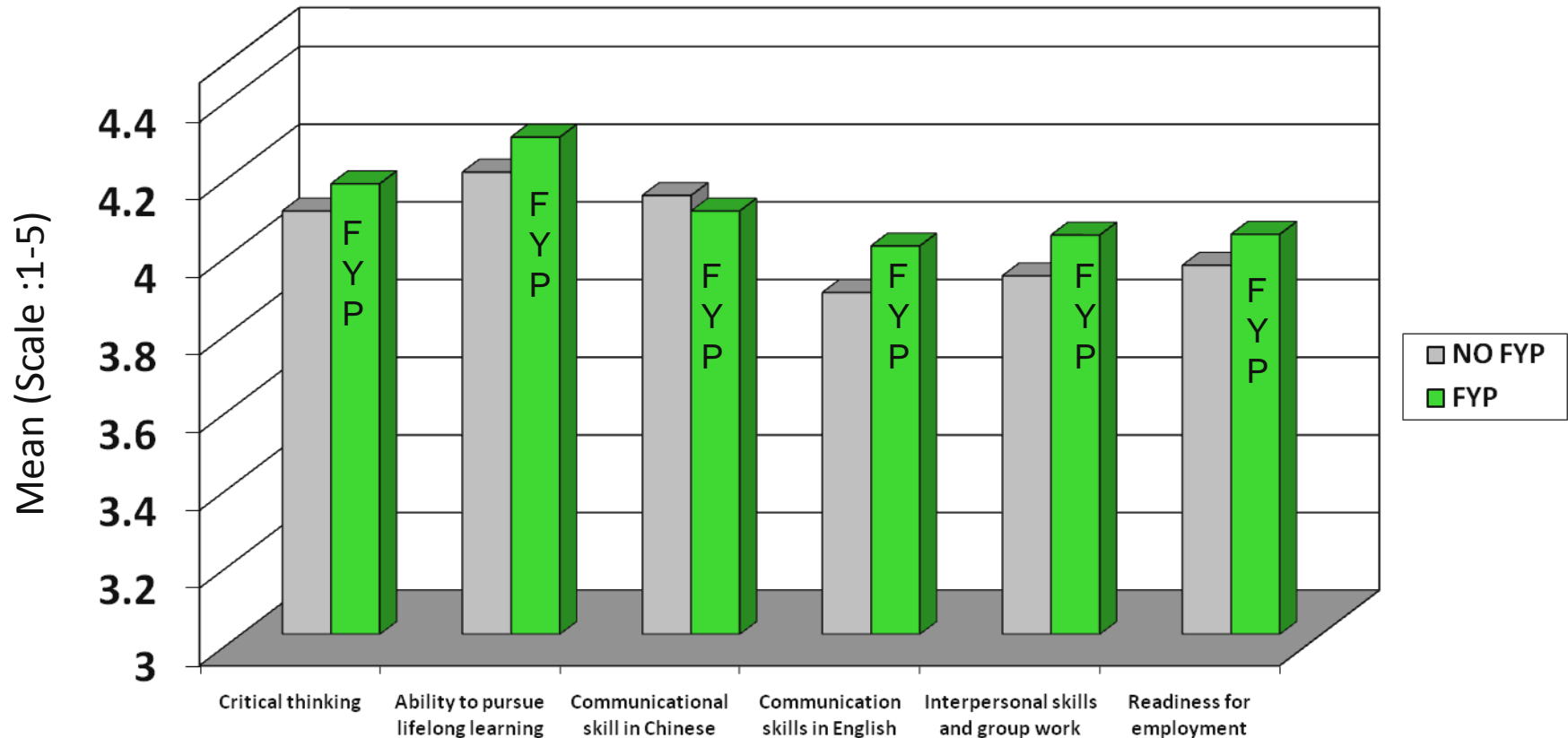
Findings:

Chart 1 : Evaluating the final year experience

a. Students who did a FYP reported better results across the four design characteristics

b. Transition is the weakest area in the FYP experience

Chart 2: Evaluating the capabilities of the graduates

a. The mean of the students who have done FYP is slightly higher than those without FYP, but the difference is not significant.

b. Without distinct scores, there is a weak relationship between doing FYP and being more capable.

Chart 1 : Evaluating the final year experience

a. **FYP is useful but limited as a part of capstone experience**

b. **Transition is the weakest area**

The existing course design appears to be too academic

➢ Explain with real life examples and current issues so that students can apply theory into practice
➢ Provide internship programmes
➢ Provide professional career guide
➢ Facilitate presentations, debates and discussions to improve their presentation and leadership skills
➢ Practicum and self-learning are good for them to be self-managed
➢ Individual work such as portfolios and self-reflection also gain positive feedback among final year students

Chart 2 : Evaluating the capabilities of the graduates

a. The mean of the students who have done FYP is slightly higher than those without FYP, but the difference is not significant.

b. Without distinct scores, there is a weak relationship between doing FYP and being more capable.

➢ Authentic assessment should be used in order to support the development of students

➢ A variety of design options in capstone experience are suggested.

Conclusion

1) Students who did a FYP performed better across all 4 design characteristics

2) Transition is the weakest area in the FYP design

3) A weak relationship between doing FYP and being more capable is noted

To equip students with expected capabilities – Capstone experience

- ➢ FYP ≠ Capstone experience

- ➢ 4 Capstone characteristics
  (Integration, Reflection, Closure, Transition)

- ➢ Authentic Assessment

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