



Capstone courses What, Why and How?

What Are Capstone Courses?

- ▶ A significant, culminating and assessed learning experience within a qualification, although it may also be non-credit bearing.
- ▶ Capstones are likely to implicitly or explicitly focus on providing students with an opportunity to integrate and apply prior learning, and to support the transition to professional life or post-graduate studies.

".....a complicated procedure erected as a means of announcing..... that the student has satisfactorily navigated the artificial life course constructed for his or her passage."

CAPSTONE EXPERIENCES

- Team projects
- Inter-disciplinary Projects
- Individual projects
- Case studies
- Seminars
- Theses
- Oral examinations
- Presentations
- Exhibitions
- Simulations
- Virtual Learning environments
- Guest Industry Speakers
- Peer Mentoring schemes
- Career planning
- Portfolios
- Analyses & reports
- Demonstration of a set of mastery skills
- Team teaching
- Formal leadership programs

WHAT EMPLOYERS ARE LOOKING FOR

- Teamwork
- Communication Skills
- Problem Solving
- Technological Skills
- Initiative & Enterprise
- Self Management
- Planning & organising
- Life-long learning capacity

WORKING WORLD EXPERIENCES

- Internships
- Co-operative Year
- Work shadowing
- Study tours
- Company analysis
- Company research
- Short placements
- 'Live briefs'
- Industry mentoring
- Community projects
- Business competitions

Building capabilities for graduate lifelong learning

New Generation Degree Generic Skills

- Positive teamwork
- Effective communication
- Critical thinking & Analysis
- Appropriate Computer usage
- Effective use of Information
- Application of theory to practice
- Interpretation & analysis of data
- Attention to detail
- Independence in learning
- Time management skills



Some Background



USA

- Appear to have emerged in USA, initially in Humanities
- Huge growth during the 1990s
- Growth has continued and extended to other disciplines

Australia

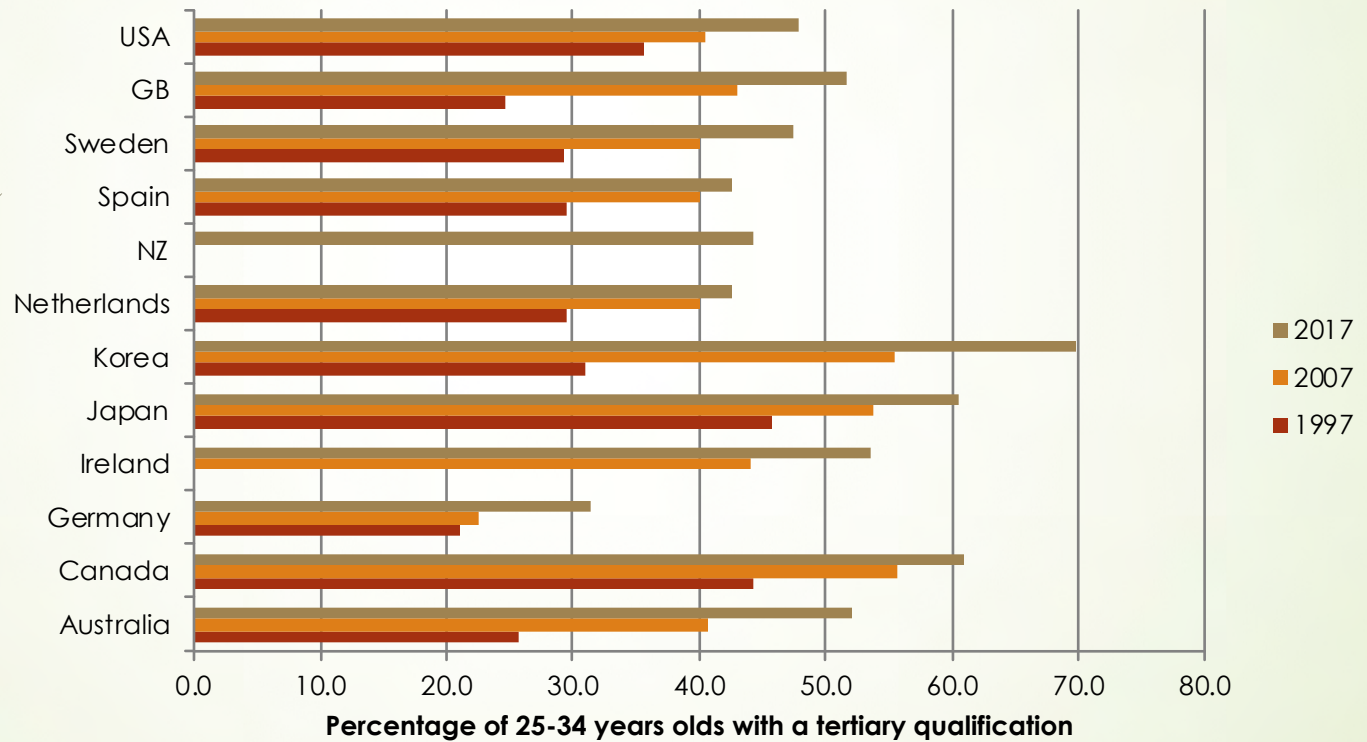
- Capstones have been in place for about 10 to 15 years, mostly in Arts disciplines
- 2013 – 700 capstones courses but only 4 in Science.
- Most common in Architecture & Creative Arts



Why Introduce Capstones now?

- Global Massification of Higher Education
- More Diverse Student Cohort
- Greater Diversity in courses offered and specialisations
- Employer perspective
- Political influences
- Bachelor's degree no longer enough to stand out
- Student attitudes towards HE have changed
- Students do not feel work ready
- Students must compete in a global market

Growth of HE qualifications since 1997



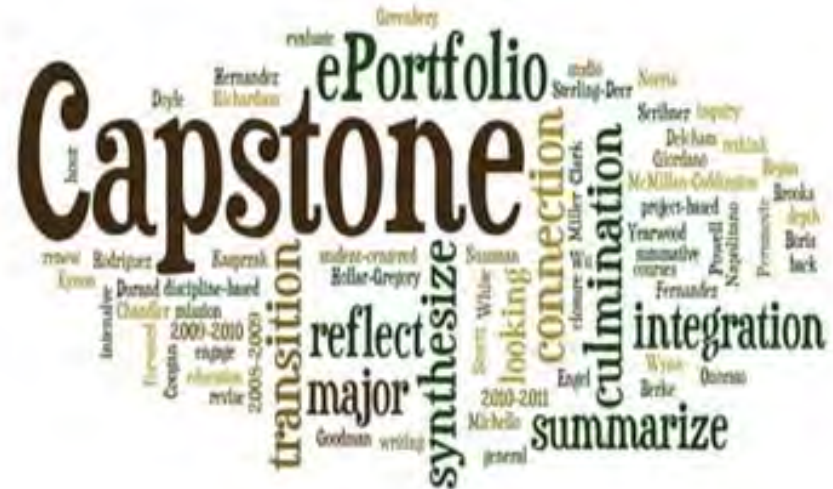


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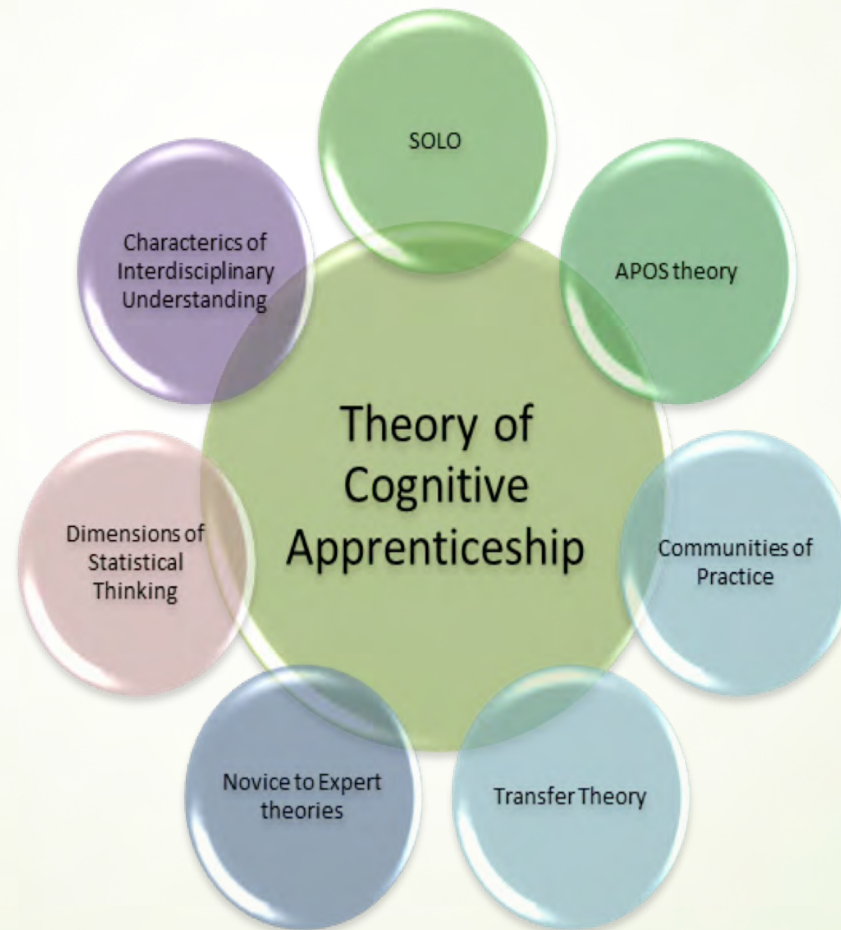
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Models of capstones

- Traditional Research project
- Project or problem based learning
- Multi-disciplinary and /or international experiences
- Work integrated learning
- Service- Learning



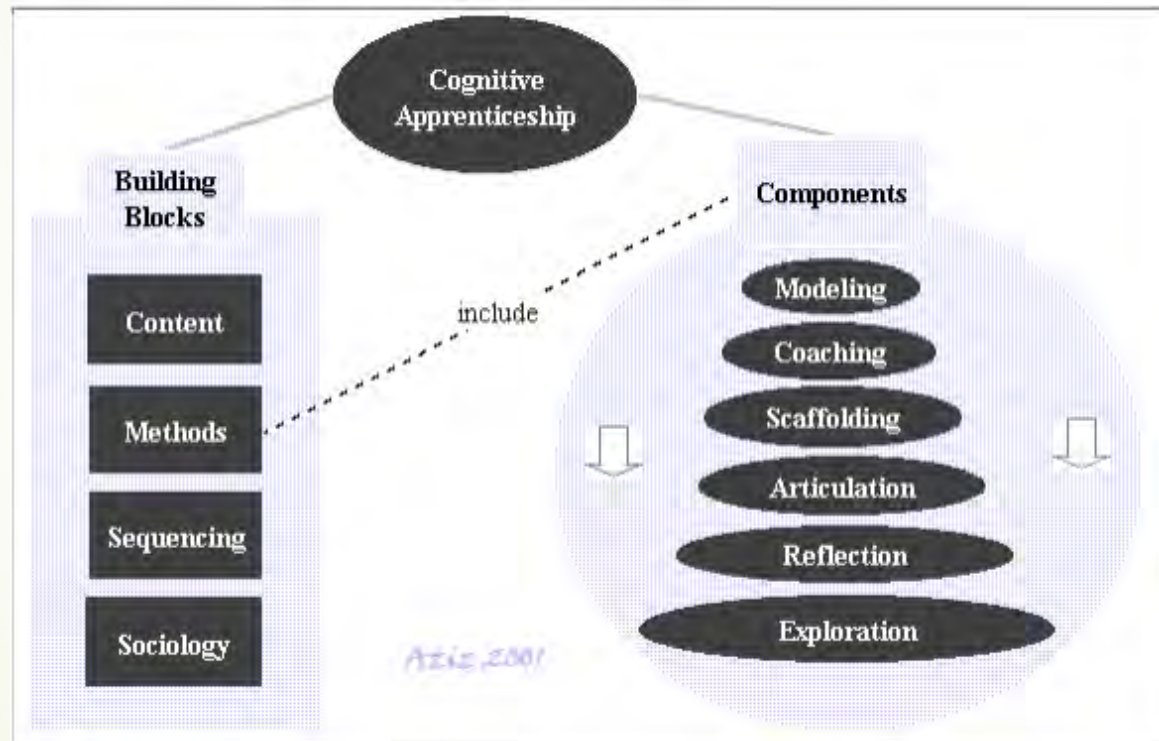
Learning theories that support aims of capstones



Theory of Cognitive Apprenticeship,

Collins, Brown and Newman, 1989

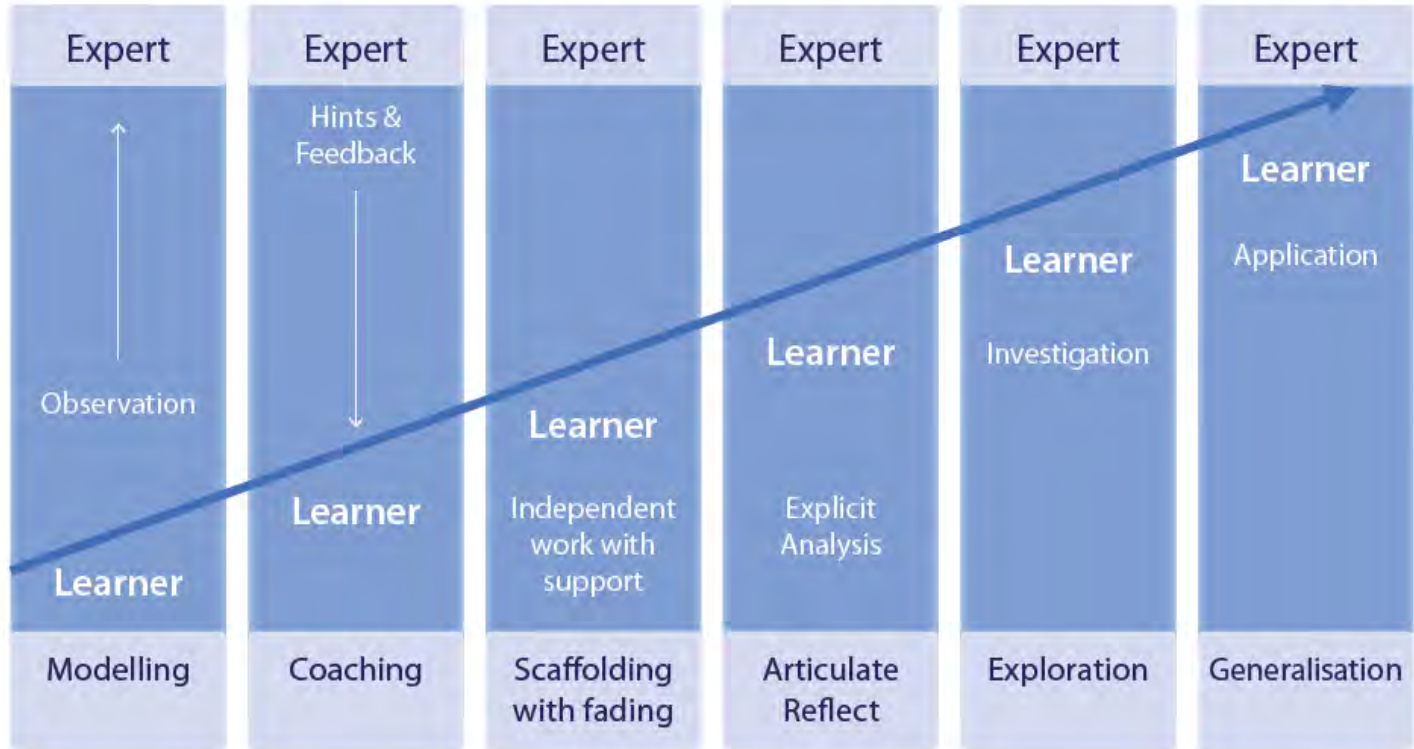
- Supporting the transition from novice to expert



- Ghefalli, A., Cognitive Apprenticeship, Technology and the contextualization of Learning Environments, Journal of Educational Computing, Design & Online Learnin, Volume 4, 2003

Transition from Novice to Expert

Cognitive apprenticeship



Translated by Professor Hinke Osinga

- https://commons.wikimedia.org/wiki/File:Cognitive_apprenticeship-1509489159.jpg

Pedagogical Approaches

Key Terms

Modeling
COGNITIVE APPRENTICESHIP
Coaching
Scaffolding
Reflection
Articulation
Exploration

Meet your coach!

Cognitive Apprenticeship
learning theory

Definition
Cognitive apprenticeship learning theory refers to the relation between the instructor and his or her student(s). The teacher will guide the students through a concept or problem in order for them to gain an understanding of the process. In this type of learning, teachers encourage self monitoring and motivation for their students.

Modelling
The teacher carries out a task so the students can observe and build an understanding

Coaching
The teacher will interact by giving

Scaffolding
The teacher will guide his or her students through a problem (similarly to coaching). They will gradually remove themselves until the students are on their own

Articulation
The teacher will provoke higher ordered thinking by asking questions that will lead to an observation or problem solving.

Exploration
Teachers will "push students into a mode of problem solving on their own. (Collins, Brown,

Student Centered Learning
Cognitive Apprenticeship is implemented by the 6 strategies listed... They all encourage students to become more

My Learning
Maths
Science
History
English

MY TV
STAR
FLASH



Some assessment ideas focussing on employability skills

- Discipline specific 'Pepeha' or 'Elevator Speech'
- One from Three
- Job interview tasks
- Executive vs Technical summaries
- Case Studies of open-ended problems
- Self-assessment questionnaires
- Write a CV & covering letter
- Panel Session with Employers and recent graduates

Discipline 'Pepeha' or

The Elevator Speech

- It is a quick introduction you could share with someone you meet in an “elevator” to sell your capabilities
 - *“Tell me about yourself” question/cover letter*
- A 20-30 second advertisement about YOU and what skills, qualifications, and characteristics you will bring to the company
- Write it out, practice it OUT LOUD, share it with people you trust for feedback
- You **don't have to share the entire speech**, or share it with every recruiter you speak to, but be prepared in case you have the opportunity






Student Perceptions of Geography Capstone Course

(27 responses)

- ▶ 60% thought time management would be most challenging
- ▶ All identified 'soft skills' as very important for future careers
- ▶ Most concerned about:
 - ▶ "Supervisor being lazy or disorganised"
 - ▶ "working in a group with un-motivated people"
 - ▶ "I lack report writing skills"
 - ▶ "I am used to just following instructions"



Student reflections on Geography capstone course

(10 responses)

- 80% found solving open-ended questions the most challenging
- 50% found report writing very challenging
- 40% found oral presentation very challenging
- Student comments:
 - “It was great!” , “Good fun!”
 - “Experiences can vary substantially according to supervisor”
 - “I liked how very experiential the course was, stark contrast to any other course I’ve taken”



Student Comments from Focus Group

- ▶ “In other courses [some students] would do whatever it takes to get a good grade. In this course we weren’t in competition with each other and could support each other to do well”
- ▶ “Report writing seems like a basic skill but we’ve never been taught to do it”
- ▶ “A bit too much independence too quickly”
- ▶ “Students were terrified of seminars”
- ▶ “Made me feel more confident about applying for summer research scholarships.”
- ▶ “Post-grad is not so terrifying now, I realise it is achievable”



Staff Perceptions of Geography Capstone Course

- Most challenging aspects – marking and preparation
- Most beneficial aspects for students – group work, ethical considerations, communication skills, writing skills, quantitative skills
- Meet with group – once a fortnight or once a week
- Total contact time per semester – 25 hours
- Total marking time per semester – 25 hours
- Main concerns – work-load
- Most rewarding – often sparks student interest in research which leads to more post-grad students



Thanks for listening !

➤ Any questions?

➤ Rachel Passmore

➤ r.passmore@auckland.ac.nz

➤ 923 8779

