Train the Trainer Program

9th of September – 4th of October 2019

Oromia Justice Sector Professionals Training and Legal Research Institute, Adama, Ethiopia

A training on teacher- and training methodology

Organized in the framework of the Justice Capacity Building Project

READER

Trainers: drs. Michael Nieweg, drs. Cilia Born

Introduction

It gives us great pleasure to welcome you to this round of a four-week 'Training the Trainer" program organized in the framework of the *Justice Capacity Building Projec*t (2019-2022) sponsored by the Royal Netherlands Embassy in Addis Ababa, and implemented by the Vrije Universiteit Amsterdam (VU) in cooperation with the Oromia Attorney General in Addis Ababa.

May we also take this opportunity to introduce the colleagues who have been appointed by the VU to carry out the task of this training in the weeks ahead: drs. Michael Nieweg and drs. Cilia Born; both from the Netherlands, who are highly experienced and competent in the field of training and teaching methods.

As you may already be aware, the purpose of this training is to equip participants with adequate and advanced training-skills and modern techniques of teaching which will enable them to carry out their regular professional duties at their respective institutions. It should, however, be pointed out that trainees taking part in this program should not only learn skills on how to train/teach others, but also must obtain a broad exposure to and deeper comprehension on how education in general and effective training in particular is conducted in cross-cultural settings and in a variety of traditions.

This training builds upon and has benefited from the series of similar ventures implemented over the last two decades in cooperation with various institutions. What is unique about this program, though, is that the modules and manuals already in your possession have been carefully designed to assist trainees to be able utilize them in a number of ways during the training and afterwards.

- to help them partake in the sessions
- to utilize the material as a useful guideline and training manual back at work

It should also be underlined that the trainers in preparing the program have primarily taken account of up-to-date instructional and learning design processes in such a way that the organization of this training program and its objectives were based on the concrete needs and analysis of the trainees. It follows that the development of the instructional materials and the implementation of the program thereof are a logical outcome and commensurate with the stated purpose of the training.

It is, indeed, the case that the trainees in this program are drawn from different institutions with a variety of experiences. Nevertheless, their engagement in this endavour will provide them with a common ground to be able to eventually utilize and apply the skills they will have acquired from this program at their respective work environment.

In this connection, we would also like to point out that 'Certificate of Attendance' will be issued only to those who will have successfully completed the program. To that effect, trainees are strongly advised to be present and actively participate in all sessions.

Last but not least, the evaluation and assessment for this training which is scheduled to take place at the completion of the program will speak for itself as far as its relevance and effectiveness is concerned.

We wish you a productive and pleasurable stay!

Dr. J.H.M. van den Heuvel
Director, Center for International Cooperation
Vrije Universiteit Amsterdam

Dr. H.Gebreselassie
Project Manager/International Consultant
Vrije Universiteit Amsterdam

Foreword from the trainers

This reader and the online learning environment have been carefully composed to support academics in the legal profession in Ethiopia in designing training modules that serve the education of fellow Ethiopians on legal and social issues.

We selected relevant articles from high standing academics in the educational field. Some articles, both in the reader or in the learning environment, belong to the classics in education and may date back many years, still holding their relevance and freshness. Other articles are state of the art and reflect the present insights and developments in education. Some articles have been written specifically for the purpose of this training.

Most of the texts are freely available on the internet and can be accessed at any place, any time and on almost any device. This creates a great opportunity for personal development and education and enlarges the possibility of accessing didactical and pedagogical expertise. Where possible we have made references: the author, the year of publication, the title, the publisher, the url and the date of retrieval. Since we adjusted the original lay out of the texts to some extend, the presentation of the articles is different from one article to another.

One last word on the educational literacy of the trainees. The material in the reader is only a starting point for the trainees. Additional readings can be found in the online learning environment. Trainees are advised to read some articles on the topic that is discussed. Also it is advised to update your knowledge through further searches. New and relevant articles can be added to the online learning environment and shared with other trainees and/or colleagues at work. In this way knowledge keeps developing, and strengthening all instead of some.

Haarlem, the Netherlands; August 2019,

Michael Nieweg; trainer and course coordinator
Cilia Born; trainer and assessor

Introduction to the Train the Trainer Program 2019

I. Intended Learning Outcomes:

- To develop a training module and training materials
- To build this module on a relevant and exemplary professional problem
- To develop presentation skills and skills in engaging and educating trainees
- To develop skills on collaborative and Problem Based Learning and training
- To develop skills in constructive knowledge building

II. Basic structure of the program:

- The program runs for 4 weeks/5 days per week; 6 contact hours/day; self study and project work
    - Week 1 + 2: trainer and course coordinator: Michael Nieweg
      Theme: Problemdefinition, theoretical basis, midterm presentations
    - Week 3 – 4: trainer and assessor: Cilia Born
      Theme: Understanding students' perspectives, appliying theories and final assessment

- Daily schedule, unless programmed different:

Duration	*hours*	*Activity*
01:30	09:00 – 10:30	Academical subject
00:30	10:30 – 11:00	Break
01:30	11:00 – 12:30	Practical excercises
00:45	12:30 – 13:15	Lunch
01:30	13:15 – 14:45	Projects and groupwork
00:15	14:45 – 15:00	Consultation

1. Academic subject (plenary sessions with different teaching methods in order to enrich the learner experience - 'double loop' and 'strategic learning')
2. Practical excersises (skills training, micro teaching, assignments, quests and so forth)
3. Project and group work (the development of a teaching module)
    - Trainees will collaborate in working groups of no less then four and no more then five persons
    - Each working group will develop and deliver one teaching or training module
    - The plenary group will provide mutual support and feedback for the working groups
    - Plenary sessions may be devided into three sugroups. Participants will alternate in taking turns in order to moderate one subgroup.

Rubrics for the Assessment of the Trainer the Trainer Program on teaching and training methodology 2019
Organized in the Framework of the Justice Capacity Building Project 2019, Addis Ababa, Ethiopia.

These rubrics are based on the intended learning outcomes as mentioned in the outline of the program

1. The group developed a training module and training materials.

Marginal	Adequate	Good	Excellent
There is a module, but it is not structured. No instructions for students and teachers i.e. a study guide / teacher manual. There are no arguments for and explanation of the choices on theories and models.	There is a structured module with instructions for students and teachers i.e. study guide and teacher manual, but little arguments for and explanation of the choices on theories and models.	The well structured module with study guide and teacher manual. It has clear arguments for and explanation of the choices on theories and models.	As in 'good' but proves deep thinking on the choices made on theories and models as well as on ILO's TLA's and AT's .
No clear alignment between ILO's, TLA's and AT's.	Clearly defined ILO's. TLA's and AT's relevant to ILO's but alignment not always clear or consistent. Some activities are focused on student directed learning (PBL)	Clearly defined ILO's. TLA's and AT's align clearly and consistently. TLA's and AT's are focused on student directed learning. (PBL)	As in 'good' but TLA's and AT's are challenging given the problem and the student population.
No elaborated TLA's and/or Assessment.	Some examples TLA's and AT's, elaborated on student level. No instructions for the teacher.	Examples of different types of TLA's and aligning AT's, elaborated on student and teacher level.	As in 'good' but with a solid connection to the vision on education.
No clear description of resources, techniques and tools. Module for educational design and analysis	There is a description of resources, techniques and tools	There is a description of resources, techniques and tools and teaching methods.	As in 'good' and using different teaching methods.

2. The module is based on a relevant and exemplary professional problem.

Marginal	Adequate	Good	Excellent
A problem is defined. Very little evidence of relevancy for the profession.	The problem is relevant and exemplary for the profession and law system or educational system.	The problem is exemplary, complex and ill structured, with great relevancy for the profession, law or educational system.	The problem is exemplary, complex and ill structured, with great relevancy for the profession, law or educational system and society.
There is no obvious connection between problem and module.	The connection between problem and module is clearly described.	The connection between problem and module is clearly described.	It also provides a helicopter view on the problem and the way it can be solved through education.
Design is only at Unistructural level (SOLO)	Design is at least on Multistructural level (SOLO)	Design is at least on Relational level (SOLO)	Design is at least on Extended Abstract Level (SOLO)

3. The group demonstrates the obtained skills on presentation and engaging and educating trainees.

Marginal	Adequate	Good	Excellent
The group presents, but there's little use of the 10 golden rules. In role-plays, elevator pitches and micro teaching there is little sign of openness to students (peers) and willingness to support them in the learning process. In the module there's little sign of methods to engage and educate trainees an.	In the group presentations the group members show a moderate use of the 10 golden rules. In role-plays, elevator pitches and microteaching they demonstrate occasionally openness to students (peers) and willingness to support them in the learning process. In the module there are some methods and assignments that engage trainees and scaffold / help them to learn.	In the group presentations the group members make a relevant use of the 10 golden rules. In role-plays, elevator pitches and microteaching they demonstrate openness to students (peers) and willingness to support them in the learning process. In the module methods, assignments and assessment are structurally designed to engage trainee and activate deep learning.	As in 'good' and the presentations, micro teaching, methods, assignments and assessment are both creative and inspiring. In role-plays, elevator pitches and microteaching they demonstrate openness to students (peers) and really support them in the learning process. The module: as in 'good" and demonstrate a creative use of activities.

4. The group demonstrates the obtained skills on collaborative and problem based learning and training.

Marginal	Adequate	Good	Excellent
Very little collaboration. Group members frequently showed a lack of responsibility for process and product. No adequate planning. No reflection on the process of collaboration and problem based learning.	The group collaborated and showed responsibility for process and product. There was a planning, but little monitoring of the process. There was some reflection on the process of collaboration and problem based learning.	The group operated as a whole and contributed equal to the group work. There was a systematic approach to the group work, monitoring, reflecting and adjusting the process if necessary.	As in 'good' and the group showed a systematic approach, monitored the process, delegated tasks as well as integrated them, reflected on and evaluated the process and the products, balanced self- and group interests.

5. The group demonstrates obtained skills on constructive knowledge building and reflection.

Marginal	Adequate	Good	Excellent
In the performances during the course and in the module there are some references to theories and subjects that were at hand during the course. There's little sign of cooperatively obtained knowledge.	The group shows in performances and in the module a common knowledge base.	The group shows in their behaviour and in performances during the course as well as in the module that both the problem and the group work inspired them to build a common knowledge base.	As in 'good' and the common knowledge is explicitly based on theories that are at hand in the course.

PROGRAMME PER DAY AND WEEK

1.1 Monday 9 September 2019	INTRODUCTION TO HILL, PBL
09h00 – 10h30	Welcome and Introduction Focus and design of the training Introduction: four ways of thinking about learning and teaching Assessment
10h30 – 11h00	Break
11h00 – 12h30	Assignment, project learning, assessment. Project Phases Diverging candidate subjects
12h30 – 13h15	Lunch
13h15 – 14h45	Diverging candidate subjects continued
14h45- 15h00	Plenary wrapping up and looking ahead

1.2 Tuesday 10 September 2019	WHAT THE STUDENT DOES
09h00 – 10h30	Handing in reflection on 1.1 What the student does – Biggs & Tang Student motivation
10h30 – 11h00	Break
11h00 – 12h30	Urgency and Agency – HILL-model Principles of Problem Based Project Work
12h30 – 13h15	Lunch
13h15 – 14h45	Brainstorm on candidate study cases
14h45- 15h00	Plenary wrapping up and looking ahead

1.3 Wednesday 11 September 2019	REFLECTIVE PRACTICE
09h00 – 10h30	Reflection: feedback on paper 1.1 Reflective learning David Kolb Formative and Summative Evaluation
10h30 – 11h00	Break
11h00 – 12h30	Collaboration and Coaching – HILL-model Learning Styles – Vermunt and related theorists
12h30 – 13h15	Lunch
13h15 – 14h45	Converging subjects and Cases – Construction of Project Groups
14h45- 15h00	Plenary wrapping up and looking ahead

1.4 Thursday 12 September 2019	*SOLO Taxonomy → Enkutatash; program to be discussed ←*
09h00 – 10h30	Structure of Observed Learning Outcomes– Biggs & Tang Hybrid Learning– HILL-model
10h30 – 11h00	Break

11h00 – 12h30	Flipping the classroom
12h30 – 13h15	Lunch
13h15 – 14h45	Complexity and character study cases
14h45- 15h00	Plenary wrapping up and looking ahead

1.5 Friday 13 September 2019	**DECLARATIVE KNOWLEDGE**
09h00 – 10h30	Teaching declarative knowledge– Biggs & Tang
10h30 – 11h00	Break
11h00 – 12h30	Action and sharing – HILL-model
12h30 – 13h15	Lunch
13h15 – 14h45	Project work, preparing the team action-plan
14h45- 15h00	Plenary wrapping up and looking ahead

2.1 Monday 16 September 2019	**FUNCTIONAL KNOWLEDGE**
09h00 – 10h30	Teaching functional knowledge – Biggs & Tang
10h30 – 11h00	Break
11h00 – 12h30	Principles of Agile, Scrum and Design Thinking
12h30 – 13h15	Lunch
13h15 – 14h45	First team evaluation, finalizing team action-plan
14h45- 15h00	Plenary wrapping up and looking ahead

2.2 Tuesday 17 September 2019	**CONSTRUCTIVE ALIGNMENT-1**
09h00 – 10h30	Aligning Teaching Activities with Intended Learning Outcomes – Biggs & Tang
10h30 – 11h00	Break
11h00 – 12h30	Formal and informal learning – HILL-model
12h30 – 13h15	Lunch
13h15 – 14h45	Project work according to the team action-plan Peer consultation
14h45- 15h00	Plenary wrapping up and looking ahead

2.3 Wednesday 18 September 2019	**CONSTRUCTIVE ALIGNMENT-2**
09h00 – 10h30	Aligning Assessment Tasks with Intended Learning Outcomes – Biggs & Tang
10h30 – 11h00	Break
11h00 – 12h30	Assessment as Learning – HILL-model
12h30 – 13h15	Lunch
13h15 – 14h45	Working according to the team action-plan
14h45- 15h00	Plenary wrapping up and looking ahead

2.4 Thursday 19 September 2019	INSTRUCTIONAL DESIGN-4: CONSTRUCTIVISM AND CONNECTIVISM
09h00 – 10h30	Reflection Constructivism: history, methods, pro's and con's Connectivism: history, methods, pro's and con's
10h30 – 11h00	Break
11h00 – 12h30	Preparing the midterm presentation
12h30 – 13h15	Lunch
13h15 – 14h45	Evaluation of team and its members, based on the rubric Sending the midterm presentations by email **** no later than 20:00 hrs. **** Distribution before 21:00 hrs. by trainer by email
14h45- 15h00	Plenary wrapping up and looking ahead

2.5 Friday 20 September 2019	MIDTERM PRESENTATIONS & GROUP FEEDBACK
09h00 – 10h30	Opening Midterm presentations & group feedback
10h30 – 11h00	Break
11h00 – 12h30	Midterm presentations & group feedback
12h30 – 13h15	Lunch
13h15 – 15h00	*Note 1: prolongued schedule!* Midterm presentations & group feedback Evaluation week 1 and 2; looking ahead to week 3 and further *Note 2: trainer feedback on the midterm presentation follows at day 3.1*

****** Change of trainers ******

3.1 Monday 23 September 2019	HILL & BIGGS: WHAT'S IT ALL ABOUT?
09h00 – 10h30	Introduction trainer Cilia Born – trainees, Focus of the training in week 3 and 4 HILL & Biggs: What's all about?
10h30 – 11h00	Break
11h00 – 12h30	ILO's, TLA's, AT's… Reflection on trainer feedback midterm presentation
12h30 – 13h15	Lunch
13h15 – 15h00	Design your module in a Carpe Diem Session

3.2 Tuesday 24 September 2019	ENGAGING YOUR STUDENTS – CLASSROOM MANAGEMENT
09h00 – 10h30	TLA's, teacher roles and classroom management
10h30 – 11h00	Break
11h00 – 12h30	Energizer Make your intentions visible: Trainer manual / Study Guide
12h30 – 13h15	Lunch
13h15 – 15h00	Project time: Integration lessons learned in modules

3.3 Wednesday 25 September 2019	UNDERSTANDING YOUR STUDENTS - EMOTIONAL LITERACY
09h00 – 10h30	Emotional literacy, Self Determination Theory
10h30 – 11h00	Break
11h00 – 12h30	How to handle Emotional Literacy in your training and teaching, connecting with your participants
12h30 – 13h15	Lunch
13h15 – 15h00	Individual and Group Reflection on Emotional Literacy and your role as trainer – self assessment – Project Work (applying your findings in your training module)

3.4 Thursday 26 September 2019	ASSESSMENT AS LEARNING, TRAINER ROLES & LEARNER RESPONSIBILITY
09h00 – 10h30	Concepts and Theories on Assessment as Learning, The Power of Feedback and Scaffolding
10h30 – 11h00	Break
11h00 – 12h30	Skills training: spoken and written Feedback, scaffolding in assignments and instruction. Introduction Micro Teaching
12h30 – 13h15	Lunch
13h15 – 15h00	Project Work, ((applying your findings and decisions on assignments, assessment and feedback in your training module) Preparation Micro teaching

3.5 Friday 27 September 2019	COLLABORATION, COACHING & GROUP DYNAMICS
09h00 – 10h30	Theories on Group Dynamics and Coaching in class and in professional settings
10h30 – 11h00	Break
11h00 – 12h30	Role Playing: Coaching & Feedback
12h30 – 13h15	Lunch
13h15 – 15h00	Project Work: Peer Feedback on the drafts of the Trainer Manual / Study Guide Preparing Micro Teaching

4.1 Monday 30 September 2019	TEACHING PRACTICE-1 – PRESENTATION TECHNIQUES
09h00 – 10h30	10 Golden rules of presentation
10h30 – 11h00	Break
11h00 – 12h30	Skills Training: Elevator Pitches
12h30 – 13h15	Lunch
13h15 – 15h00	Energizer Transfer of peer feedback in training module: rethinking, considering…

4.2 Tuesday 1 October 2019	TEACHING PRACTICE-2 – HYBRID LEARNING – MICRO TEACHING
09h00 – 10h30	Hybrid Learning: Chances en Opportunities
10h30 – 11h00	Break
11h00 – 12h30	Micro Teaching
12h30 – 13h15	Lunch
13h15 – 15h00	Micro Teaching Feedback on Micro Teaching, Reflection on Feedback

4.3 Wednesday 2 October 2019	TEACHING PRACTICE-3 – EVALUATION
09h00 – 10h30	Monitoring and evaluating modules, lectures and trainings.
10h30 – 11h00	Break
11h00 – 12h30	Energizer Skills Training: Design your own module evaluation
12h30 – 13h15	Lunch
13h15 – 15h00	Project work: Finalizing Trainer Manual / Study Guide

4.4 Thursday 3 October 2019	TRANSFER & FINALIZING MODULES
09h00 – 10h30	Quiz Transfer of knowledge – double loop learning – how to engage your colleagues?
10h30 – 11h00	Break
11h00 – 12h30	Skills Training: Introducing the training module to your colleagues Finalizing the modules Note: handing in the final modules by email at GMT 12h30
12h30 – 13h15	Lunch
13h15 – 15h00	Preparing final presentation

4.5 Friday 4 October 2019	FINAL PRESENTATIONS – EVALUATION - CERTIFICATION
09h00 – 10h30	Final Presentations
10h30 – 11h00	Break
11h00 – 13h00	Final presentations Evaluation Certification

INDEX

Based on "Creating impact through future learning: The High Impact Learning that Lasts Model. London: Routledge Publishers. Dochy, F. & Segers, M. (2018).

High impact learning

After an analysis of your training programme (see chapter 6: Future L&D policies: gaming with building blocks), you can decide to work your way with your team to increase the impact of your programme through focussing at one or more HILL building blocks that are still not fully developed or lacking, or otherwise by focussing at one or more HILL building blocks that you want to strengthen as the core profile of your learning programme or module.

Bringing the learning close to work, to authentic situations and to the real problem of the organisation that the learner himself can 'feel' definitely will enhance impact.

Mostly, a change in mindset and way of acting will be stimulated when we change our jargon. We advise organisations, training institutes, programmes, etc. to stop using classroom language such as 'teachers, lessons, or teaching', but to create a whole new vocabulary that clearly expresses the target of creating impact, such as 'knowledge creation labs, change labs, transformational labs, coaches, work sessions, just-in-time expert lectures, just-in-time webinars, HILL sessions, discussion meetings, wrap-up sessions, knowledge sharing meetings, basic knowledge trainings, act & perform sessions, pitch and present meetings, etc.

Urgency, Hiatus, Problem

This first building block can be described as a clearly argued problem, an experienced challenge, a gap or problem that creates a sense of urgency for an individual or a group. This sense of urgency is an ideal starting point for a learning process.

While the other building blocks of the HILL model concern the learning process itself, we take off by asking ourselves where it all starts. Why would anyone learn something? What can – or should – be the starting point of a learning process that results in – or rather induces – high impact learning that lasts (HILL)?

Any learning process that aims to strengthen the potential to HILL, in our opinion has to start from a clearly substantiated problem, an experienced challenge, or an item that creates a certain sense of *urgency*. Such a sense of urgency can origin from an explicit experience that a certain problem needs to be solved urgently (e.g. a nurse encountering a certain logistic problem over and over again), from strong argumentation (e.g. a written argumentation sent to you by a client), from the power of persuasion from a problem owner (e.g. a client requesting

consultancy), or from a feeling of strong interest in a certain phenomenon (e.g. an employee highly interested in the phenomenon of 'supply chain management').

In short problems, challenges or gaps are the trigger for an employee to participate in a learning programme. Urgency is the motivational lever for the learner to fully take advantage of the other building blocks creating a powerful learning environment. Therefore, problems, challenges and gaps the employee experiences should be the basis of each training activity.

How to create urgency?

Working with problems, cases, or projects are well-known methods to increase the authenticity and attractiveness of a learning situation, which often results in a higher sense of learning that can in turn lead to experiencing learning as pleasant.

Stimulating or creating a sense of urgency at all levels of training is highly complicated. Earlier, we argued that a clear experience, strong argumentation, or the power of persuasion from the problem owner can contribute to this sense of urgency, but a strong interest in a phenomenon can already suffice. Sometimes, working in teams and formulating shared goals can clarify the urgency to the learner(s). Also making sure that the problem owner is close, increases urgency (either the learner himself is the problem owner – he wants to solve a specific problem, or a client's problem; or he can choose his own interest as a starting base for tackling a problem; or otherwise the problem owner is cooperating in the learning project).

We have organized the tips to create urgency in seven groups: fuelling curiosity and energy, an authentic problem as a trigger, closing the gap, setting goals, facilitate, make relevance of investing in learning explicit, experience and feedback

Fuelling curiosity and energy

- *Curiosity is empowering a person to learn, it is the basis of learning: fuel the learner's curiosity by triggering why-questions, by being curious yourself as a coach. If you are not a curious person, you are not a learner (David Fox).*
- *Answer question with questions; do not play immediately the expert that knows all answers, it might kill curiosity.*
- *Start of yourself as trainer with energy and transferring energy to the learners.*
- *Make learning an energizing activity, energy helps to create flow.*
- *Start from personal interests of learners or at least connect to it.*

An authentic problem as a trigger

- *Start from a problem, as authentic as possible: Take time to brainstorm on and discuss the problem with the learner in order to trigger curiosity to understand and solve the problem, to create ownership.*
- *Make the authenticity of the problem explicit from the start of the learning journey for example by inviting a third party (client, organisation, stakeholder, club,…) to formulate and describe the project assignment.*
- *Use highly actual problems or challenges they will face in the future and that have been on the agenda in team meetings.*
- *Embed the problem in a real-life case..*
- *Organise an immersion day: immerse learners into real cases.*
- *Take time to brainstorm, to create mindmaps, to unravel a problem or a clients initial question.*
- *Work with authentic material, real information from the professional field instead of for training purposes adapted or designed information.*
- *Go outside: look around and visit reality.*
- *Involve the problem owner, (s)he's the one that gets confronted with the problem daily.*
- *Invited speakers /experts that have tackled comparable problems.*
- *Let the learner/employee figure out how the problem could be solved, and facilitate the search process (without giving away the solution).*

Closing the gap

- *Let employees themselves reflect on a competences or knowledge and skills needed, for example by involving employees in strategic discussions on future of the organization or unit. This helps the employee to foresee the new roles and tasks to be fulfilled in the future and opens the discussion about what is needed in terms of competences. This analysis of competences needed is the stepping stone towards collaboratively defining the gaps in competences and the support needed to close the gap Invest time in letting the employee explain how (s)he perceives the gap.*

Setting goals

- *Ask learners to think about "where am I now" and "where do I have to go to". Coach the learner towards formulating his own learning question(s); this is intensive, but it pays back.*
- *Let learners describe themselves what is challenging to them.*
- *Ask the learning to make his burning ambition explicit.*
- *Formulate goals both on the individual and team level: what are we aiming at, what is at the horizon we want to reach? Ask learners to describe their ambitions, what their interest is, what their future plans are, let them describe their own goals, discuss and state their individual and team goals.*
- *When you set goals, take into account that learners are not blank sheets. They have a lot of very relevant experiences and in many cases a rich knowledge and skills base. Let learners bring up this richness of experiences, and prior knowledge, leave space and time for doing that and use it as a lever for formulating goals in terms of the next steps in their learning and development process.*
- *Expectation management: Check and discuss the expectations of the learners at the start and during a learning trajectory.*

Facilitate

- *Negotiate on more time and space for the learner's own development; make it part of the organisation's brand box.*
- *Avoid an assessment-systems or set of tests that kill 'personal urgency'.*
- *Make sure the learner has a complete picture of the whole process, if bits and pieces for this have to be learned; seeing and knowing the end-product is crucial.*

Make the relevance of investing in learning explicit

- *Discuss why an organisation invests so much in this learning trajectory.*
- *Demonstrate a raise in efficiency that learners will be able to reach when they master the content/method/application.*
- *Provide arguments that show that learners can speed up their career.*
- *Provide evidence that what will be learned is key to what will be needed or done.*
- *Let learners ask themselves: What's in it for me? And use this as a starting point.*
- *Perform a needs assessment with the learners.*
- *Use a 360° feedback report as a starting point.*

Experience and feedback

- *Give learners when needed eventually a "practice shock" – let them perform in practice even if you know they will fail in order to learn from failures (if accountable).*
- *Use feedback of supervisors, managers, or clients.*
- *Fuel the feeling of urgency through a regular feedback dialogue with the learners.*
- *Discuss mistakes, incorrect solutions; analyse the process and discuss the approach.*

Learner agency

This second building block, learner agency, focuses on ownership of the learner over his/her own learning.

Every professional or individual is a manager: a manager of his/her own thinking, acting and functioning. Learner agency origins when a learner takes learning into his/her own hands. As such, learner agency is a mindset or attitude to adopt and to develop: day after day, the learner chooses to take up responsibility and ownership for his/her own learning and professional conduct. From this view, learning should not be regarded as something that is 'achieved' after following an L&D program or educational program. Instead, learning is something you need to keep thinking of and working on every day of your professional and personal life.

Learner agency enables a learner to (keep on) grow(ing). Not only within his/her organisation, job or function, but also in general functioning. It's those people who take their lives into their own hands that achieve what no-one thought possible. Steve Jobs, for example, wanted in his companies Apple or NeXT only creative employees that were willing to take on challenges, with a learner mindset.

How to create learner agency?

A High Impact Learning environment allows for a high amount of 'learner agency': it is not a trainer, a LMS or a teacher that determines and structures everything on beforehand; instead it is the learner him- or herself that has an increasing influence on what he/she does and learns, and how. The learner crafts his own learning and development trajectory. Agency emerges when the learner takes the next move: he or she takes initiative, acts on and decides about his/her learning process. Agency implies that learners are able to estimate the consequences of their choices, and accept these consequences.

In other words, agency is taking up responsibility for your own choices, the actions you perform, and the consequences for yourself and your environment. We have organised the tips to create learner agency in four groups: goal setting, openness for alternatives, support and room for own choices.

Goal setting

- *Let learners formulate individual and/or team goals*
- *Make learners rethink halfway their own learning goals and adapt these*

Openess for alternatives

- *Allow flexibility in (pathways to) solutions*
- *Stimulate finding original paths to solutions*

Support

- Make use of a PDP (personal development plan) or LDP (Leadership Development Plan)
- Providing an oversupply of trainings in a catalogue does not enhance learner agency
- Use mid-period reviews as a coaching moment
- Allow room for and stimulate reflection (How did we do? Was it efficient? Can we do this better/differently? Why? How will we do this next time?)
- Give adequate feedback, both on a task-level and on a process-level
- Next to critical feedback, also provide constructive feedback
- Provide always an overbalance of constructive feedback compared to critics
- Trust the learner
- Make sure you know the learner: remember his/her name to start with
- Build a culture where failing and making mistakes is allowed. Start with yourself: show that you see your mistakes, and demonstrate how you learn from them
- Lead by example – share ‘failure stories’ – manage reactions on others’ mistakes
- Use a portfolio as a tool for guidance
- Make sure you build a Learning Culture: It’s okay to make mistakes and learn from them
- Provide learners ways to excel in electives (e.g. different levels)
- Organize opportunities for learners to present their achievements to peers
- Provide variation to choose from in online learning paths (video, instruction, text, assignment; or any other path)
- Provide more open course programmes
- Integrate virtual action learning (VAL)
- Think how you can make learners owner of what they will do/learn; discuss this with them.
- Let learner produce their own product

- Open schooling: let learners choose and prove their competence through argumentation and documentation instead of organizing Pass/fail tests. This provides space to take ownership, while traditional testing usually hinders ownership
- Give employees 'training & development' opportunities instead of a financial end of year bonus
- Use flipped classrooms that learners can plan as they want and FtF meetings at prescheduled times

Room for own choices

- Give learners opportunities to choose to develop their own talents, interests, …
- Give learners the responsibility to manage their own project
- Let learners select their own peer-learners that join their project team
- Let learners choose goals
- Give voice and choice!!
- Gradually allow for more choices, and ask learners to respect the consequences of their choice(s)
- Learner agency is about choices one has within a learning programme: give learners room for determining which learning activities and approaches to undertake, multiple pathways to follow.

Collaboration & Coaching

There is substantial scientific evidence that collaborative learning is effective and therefore should be central in learning programmes. There are surely many different forms in which collaborative learning is taking place in a variety of ways such as cooperative learning, case based learning, project based learning, problem based learning, buddy systems, etc. Variation is crucial in learning, so we believe that diverse collaborative forms of working and learning should hold at least 1/3 of programme and not exceed 2/3.

How to create collaboration?

We organize the tips to create collaboration in two groups: implement collaborative learning, support learning through collaboration.

Implement collaborative learning

- *Implement teamwork as an opportunity for employees to learn from each other*
- *When the work is not oragnized in teams, facilitate and stimulate small group work to deal with certain questions or tasks. It creates an opportunity to learn from colleagues. Implement different types of working is small groups, from dyads, triads to teams up to 7 team members*
- *Organise a worldcafe*
- *Use a speeddating session to introduce learners to each other*
- *Organise the work in projects*
- *Projects for external clients increase the stake of the outcome to be delivered and therefore stimulate to make optimal use of the expertise of all team members*
- *Use (interprofessional) communities of practice*
- *Organise workplace learning in interprofessional teams*
- *Let learners choose buddies*
- *Integrate facebook groups and discussion fora in the process*
- *Implement workplace learning and internships in dyads*
- *Create enough variation in collaborative methods used.*

Support learning through collaboration

- *Use coaching at the right time to turn the collaboration into a learning opportunity*
- *Try to create open, clear and honest communication*
- *Try to create dialogues*
- *'Just-in-time' reflection and intervision about the creating professional products*
- *Give constructive feedback*
- *Listen and do not judge. Again: when asked give constructive feedback*
- *Increase motivation by handing out increasing responsibilities*

How to implement coaching?

There are many types of coaching. Here, we focus at individual coaching for a safe climate, and team coaching. According to Barendsen and Dochy (2017), team coaching contributes to team effectiveness and team innovativeness. It also can overcome well-known pitfalls and it increases the perceived efficiency and team climate. Team coaching can have an increased impact on the level of change and development within organisations due to its systemic approach, but certainly the group dynamics, the developmental level of the team and the

team's commitment during the coaching process do play also an important role. A crucial aspect of coaching is the feedback dialogue between the learner and the coach. Therefore, in addition to tips to coach for a safe climate and tips to coach a team, we formulate some tips for the feedback dialogue.

Tips to coach for a safe climate

- *Coaches know all learners by name.*
- *Coaches speak aloud about the talents of learners and their trust in high quality.*
- *Coaches speak out about individual qualities and rewards.*
- *Do model that you are a curious, excited person about learning; that you are curious to learn new things (David Fox).*
- *Set up learning environments where people see how much reward there is in being a curious person (Dave Fox).*
- *Set high expectations.*

Tips to coach a team

- *Stimulate team communication.*
- *Provide feedback on occurring team interaction processes.*
- *support the team to enhance the quality of their interactions.*
- *Create an open and trusting atmosphere and safety to share ideas and learn from each other.*
- *Focus at building shared commitment.*
- *Set clear expectations concerning team outputs.*
- *Encourage collaborative efforts.*
- *Stimulate team consensus on procedures and team goals.*
- *Provide encouragement and feedback.*
- *Provide insight into the team's way of working and identify areas of improvement.*
- *Encourage desirable performance behaviours.*
- *Give recognition and celebrate small successes.*
- *Intensify interpersonal relationships.*
- *Address conflicts openly and equip team members with conflict management skills for the future.*
- *Empower members by delegating tasks.*

- *Steer towards dividing responsibilities among team members.*
- *Encourage team members to give others the opportunity to experiment and work out problems on their own, instead of immediately providing solutions.*
- *Stimulate and encourage teams to coach themselves*
- *Preferably, your coaching should be voluntary where both coach and coachee perceive mutual benefits of engaging in the coaching process.*
- *Stop, look back, think and plan forward*
- *Help thinking about a coordinated and task-appropriate use of their collective resources.*
- *Monitor and scaffold not only the cognitive process of dealing with the task, but also the process of dealing with group processes.*
- *Stimulate and challenge learners to critically question their thinking in order to further extent, modify or deepen their understanding.*
- *Stimulate team members to act as a team*
- *Stimulate a shared commitment to the team and its task.*
- *Stimulate the team to critically reflect on the alignment of strategies and procedures used.*
- *Monitor and stimulate the contribution of each team member in order to make optimally use of the different expertise available.*
- *Stimulate that team members critically question and argue on each other's contributions.*
- *Make sure team members feel is safe to speak up, to not agree, and to discuss divergent ideas. Take actions to increase safe feelings such as e.g. Spending some time for informal activities so members learn to know each other from another perspective.*
- *Ask your team members after some weeks to reflect individually on the golden principles for successful team collaboration (that they come up with themselves): To what extent is the team working according to these 'principles'? Are all principles relevant? What critical events happened that might have caused negative tension in the team? How did you deal with it as a team? What positive flow did you experience as a team? What evoked this? To what extent do you feel your team reflects on the team cooperation during the project work? Discuss this in the team. And decide eventually to reformulate the golden principles.*
- *Focus on the strengths of peers.*
- *Support reflection and self-evaluation.*
- *Dialogue on outcomes, for inquiry and feedback.*
- *Give the feedback a developmental and not an evaluative purpose.*
- *Remember 'situated coaching': coaching behaviours can be more or less suitable depending on the team context and progression of the team.*

"But where do we get the time for a feedback dialogue?"

- *Implement a system of peer-feedback.*
- *Organize the feedback dialogue on the group level; focussing on patterns observed in the work done and stimulating peers to learn from each other.*
- *Individual feedback dialogue is just walking and talking – during meetings, learners should work constantly, coaches should 'walk and talk' (= constantly questioning, engaging, motivating, challenging = providing feedback).*
- *Ask for self-study on beforehand, so that your hours of contact time can focus on 'digging deeper', on action.*
- *Plan your feedback dialogue.*
- *View feedback dialogue as a part of the learning process.*
- *Put the responsibility with the learners.*
- *Make a more strict selection of relevant goals to go for; go for quality in learning instead of quantity. Less content is more time for feedback.*

Hybrid learning

All learning is a mix of different methods and formats nowadays, so all learning is blended. With this building block, we stress the importance of hybrid learning to create impact, a *well-thought mix between online and offline*. In short, a sequence of activities that follow an "online/ FtF/ online/FtF/ online/FtF/ online/FtF/…" sequence with well thought frequency and duration adapted to the context, domain, level of learners, etc.

'Online'	Offline'
• *video or web conferencing and chats* • *searching information on the web* • *using youtube*	• *face to face work meetings* • *studying materials on your own*

How to enhance hybrid learning?

We have organised the tips to enhance hybridity in two categories: tips to design hybridity and tips to support hybrid learning.

Design

- Create hybridity in learning modules, a sequence of activities that follow a "online/FtF/ online/ FtF/ online/FtF/ online/FtF/…" sequence with well thought frequency and duration.
- Think about alternative ways of hybrid learning such as the use of discussion for a, the use of social media etc in addition to the traditional way of making learning objects online available.

- Start hybrid learning trajectories always with a FtF meeting.
- Invest in time for someone to keep the discussion board going.
- 'Variation is the key of learning' (F.Marton).
- Vary in FtF activities: discussion, interaction, collab work, presenting, inspiration sessions, storytelling sessions…
- Keep on alternating online learning (chatrooms; video's; shared work on assignments; e-content; webinars, games, …) , and offline learning (FtF sharing, discussion, just-in-time lectures, mini-panels, etc.).

Support

- *Stimulate learners to create and post their own youtube video based on your assignments.*
- *Stimulate interaction and collaboration among learners, online as well as offline.*
- *Stimulate reflection as a useful step in defining the next steps in the learning trajectory.*
- *Support learners in making argued choices on how to go through the online learning offers, to craft ther own learning trajectory.*
- *Make explicit to the learner the purpose of the offlne and online activities and why the hybridity is designed as it is.*
- *Ask feedback to the learners about the hybridity.*
- *Check the learners' computer self-efficacy. If it is low, support the learner is getting to know how to use the online learning opportunities and to develop confidence in his or her online learning abilities.*

Action and knowledge sharing

In training, workplace learning and classes, learners cannot be active enough. Learners should be most of the time busy exploring, experimenting, testing, (re-) formulating hypotheses, evaluating hypotheses, making errors and learn from it, planning, reflecting and monitoring. (Michael, 2006). Active learning and knowledge sharing should go hand in hand: learning should become a process of linking practice to concepts through different iterations that is created and further deepened through discussions and/or collaboration.

Organisations could use their L&D programme to translate their strategic policy towards their employees. Sharing is a key in a good, acceptable and powerful translation.

How to enhance action and knowledge sharing?

We have formulated tips on how to realize an infrastructure for action and knowledge sharing and how to support and facilitate.

Infrastructure for action and knowledge sharing

- *Practice 'Learning by doing' by implementing debriefing sessions, time-out sessions during work, to shortly reflect on the work done and check if improvements are needed.*
- *Implement a variety of active learning methods:. problem-based learning, case-based learning, cooperative/collaborative learning/team work; think-pair-share or peer instruction; inquiry-based learning; discovery learning and technology-enhanced learning, etc.*
- *Increase diversity (in age and expertise, background) in teams according to the differences in expertise needed to get the work done.*
- *Coach diversity in order to make it an asset: start with individual reflections, follow up with 'small group discussions' and end with 'whole group agreement' (P. Rosseel).*
- *In a face-to-face setting use round tables, don't work as a teacher in front of a class.*
- *If your training or programme runs with multiple teams of learners, try to align your working rooms and facilities with HILL: permanent working rooms for teams and communities.*
- *Create a workbox series (share and document best evidence).*
- *Ask learners to share best evidence or cases on the learning platform.*
- *Encourage snack learning by sharing: share daily your event.*
- *Connect communities to practice.*
- *Do people talk to each other?*
- *Use smaller working rooms for teams that can be reserved for teamwork only.*
- *Implement intervision meetings.*
- *Provide a platform to exchange experiences and information.*

Facilitate and support

- *Stimulate peer-discussion, interaction in teams.*
- *Stimulate sharing information in all possible ways (FtF, platforms, apps, etc.) by showing the example (walk the talk).*
- *When using an LMS, it should strongly support sharing of know how, of work in progress and of products between learners and learner and coaches. (Blackboard and clones of blackboard are usually weak in this).*
- *Encourage a climate of respect for each others' findings/input.*

Flexibility - Formal & Informal learning

As learners, we can learn in classrooms, but many things we learn outside of formally structured and planned situations. We learn at work from problems, from errors, from questions, through changes, critical incidents, challenges, etc. in the authentic situation itself

and this sometimes adds to future performance improvement. Using more informal learning can only be enhanced through installing as much and as well as possible the optimal conditions for informal learning to appear. If learners never meet each other, chances for informal learning will decrease. If learners work together in the same room for a considerable amount of time during a week, informal learning is highly likely to appear.

How to enhance flexibility?

Facilitate informal learning- creat conditions for informal learning

- *Dare to deviate from the training manual to open the room for the learner to craft his own learning path.*
- *Leave room in the training program for casual learning moments.*
- *Discuss mistakes as powerful opportunities to learn.*
- *Use discussion moments and the network in the organisation.*
- *Stimulate learners to formulate their own goals.*
- *Brainstorm.*
- *Be an example of a flexible learner who sees learning opportunities everywhere.*
- *Avoid traditional lecture rooms with fixed seats as ' the place where learning happens'.*
- *Let learners influence the content to be learned, the relevance of it and how they will go about it.*
- *Provide multiple opportunities to learn. Are there ways to access and share information? Do learners have time and space to connect to others and collaborate?*
- *Recognise, reward and approve learning behaviour explicitly (by supervisors as well as colleagues).*
- *Do promote teamwork.*
- *Let your learners build networks and support and encourage that.*
- *Involve learners in task forces to experience critical incidents, challenges, etc.*
- *Let learners encounter challenging tasks.*
- *Remember that experiencing a high workload enhances informal learning.*
- *Remember also that a high workload combined with a feeling of not being under control with respect to tasks and timing, will result in less investment in learning.*
- *Create structural opportunities for communication, interaction, and cooperation.*
- *Organise regular meeting where units can meet and consult each other.*

- *Use trade union meetings as learning opportunities for the participants.*
- *Share internal job openings.*
- *Stimulate job rotation.*
- *Organise common breaks.*
- *Plan how to onboard new employees.*
- *Think about the architecture of the workplace in terms of proximity and therefore easy accessibility of colleagues.*
- *Enhance participation in internal and external networks.*
- *Plan meetings with external colleagues and visits to other organisations.*
- *Invite guest speakers.*
- *Organise communities of practice with external partners.*
- *Create opportunities for feedback and reflection.*
- *Use pdp's (personal development plans).*
- *Implement a buddy system or godfather/godmother system.*
- *Introduce internships so new ideas flow into the organisation which trigger employees to reflect.*
- *Increase the access to information and databases or systems.*
- *Promote having an idea box.*

Build a learning climate

- *Install a climate of trust and warmth among colleagues and supervisors.*
- *Strive for psychological safety when talking about learning.*
- *Make sure people trust their coworkers/managers enough to firmly state their opinions without repercussion.*
- *Install room for making mistakes, sharing them as a first step to reflect on them and learn from them.*
- *Stimulate critical questioning.*
- *Give your people time to learn and reward the use of it.*
- *Do allow and trust people to take responsibility in decision making processes.*
- *Install learning leadership.*
- *Let leaders facilitating learning behaviour.*

- *Let learning leaders promoting innovation and risk taking.*
- *Share and discuss the results of innovation and risk taking.*
- *Ask leaders to be an example of learning while working.*
- *Ask leaders to share critical learning experiences.*
- *Do create time for analysis and reflection?*
- *Do provide constructive feedback on a regular basis.*
- *Do appreciate and support of efforts to learn.*
- *Do provide feedback and rewards for proficiency.*
- *Do stimulate and reward learner agency.*

Assesment as learning

Some programmes do not need any assessment, since no certificates are given. These can surely use assessment as an instrument for learning (assessment for learning). Other programmes do assess for a certain qualification. In such programmes, there is a risk that assessment does become the sole focus of the learner and then turns all motivation into pure extrinsic motivation. When we were inquiring professional training programmes in schools, we hear too many students saying “I only learn when the exam is tomorrow” – a terrifying example of clear extrinsic motivation and no flow in learning. No wonder that impact is limited. That is not what we want, nor is it an ideal situation.

Many researchers have warned for the devastating effect of assessment on learning processes, but turning around such a culture can only be done in a process of a drastic turnaround.

Assessment as Learning means that…

- assessment is as much situated as the learning
- assessment can be done by the community / peers / trainers
- assessment of group learning is as important as the learning of the individual.
- ‘In vivo’ studies / ‘live’ projects of complex problem solving offer a richness on information on how a learner is progressing and what his current level of proficiency is.

There are also ways to combine 2G and 3G asssessments such as for example 2-stage assessments: learners perform the assessment individually first, turn their answers in, and then repeat the assessment in teams. Learners get timely feedback from each other and learn from the assessment via discussion and argumentation with peers. Team results are usually better.

When learners create their own portfolio in order to prove mastery over several competences, it is usually this portfolio evidence that is the starting point for a portfolio assessment dialogue. Of course it is helpful or indispensible for assessors that the learner does add a reflection paper to the portfolio, providing arguments that underpin the selection of certain evidence for the different specific competences. Our experiences have learned that portfolio's or Personal Development Plan can work excellent, but a minimum of structuring and guidelines should be given to the learner (and also certainly not too many structure and detailed guidelines or even presriptions).

Also assignments worked on during the learning trajectory are relevant sources of information track progress in learning. In all of these, exercising 'agency' in the use of your resources or tools that offer valid information on your progress as a learner, is a key issue in the assessment.

How to increase 'Assessment as Learning'?

How to make assessment a learning experience?

- *Enhance a strong integration of learning and assessment: learning is a process of continuously updating your competence (knowledge and skills) base with the assessment of where you are and how you proceed as important levers for the next step to take.*
- *Pay attention to the process of learning and not only to the outcomes; the input for improvement lies in both.*
- *A focus for learning is described by the destination for the learners' journey and precise learning objectives are not tightly pre-specified.*
- *Aim for an appropriate combination and planning of assessment methods and –moments.*
- *Create 2 stage assessments*

How to collect information that fuels the learning process?

- *Given learning is an individual as well as collaborative experience, use group assessments as well as individual assessments.*
- *Use self-, peer-, or co-assessment.*
- *Use entry-assessment as a starting point to match expectations: dialogue is an important tool to make clear what the starting point is for learning, on which fundament of competences (knowledge and skills) the learner can build.*
- *Stress inhibits learning: introducing high stake tests have been proven to induce stress that hinders the learner to perform optimally.*
- *Reduce testing drastically.*
- *Use the data available of what learners do during the learning process as an input for the feedback dialogue with the learner (portfolio's; PDP's).*

- *Stimulate learners to pro-actively seek for the feedback they need; support the learners in developing an attitude of feedback seeking.*
- *Make asking and giving feedback an attitude: feedup (where are you going to?), feedback (how does it go?), feedforward (how will you proceed?).*
- *Increase peer-assessments, in order to attain a natural habit to learn from each other and to show interest for others' work.*
- *Let learners discuss about how to operationalize the evaluation criteria for peer assessment.*
- *Avoid formative or diagnostic ' tests': they are usually summative; instead, provide constructive feedback constantly during meetings.*
- *Use Portfolio assessments.*
- *Introduce competence logs.*
- *If you have good arguments for administering a summative test, introduce a two-stage assessments (first an individual assignment; to hand in; then resolve that same assignment in team; and hand in).*
- *Use products as input for assessment.*
- *Determine criteria in interaction with learners.*
- *Use self-assessment.*
- *Use 180° feedback as a tool.*
- *Use 360° feedback as a tool for learning and assessment.*
- *Implement 3G assessment: how well exercise people 'agency' in their use of the resources or tools available to them to formulate problems, work productively and evaluate their efforts.*
- *Ask learners to document their feedback they received (to monitor progress).*
- *'In vivo' studies / 'live' projects of complex problem solving offer ample information on how the learner is doing.*
- *Audio and video recordings are useful tools to provide information on the progress of the learner.*

Other issues to think about:

- *Evaluation needs to be more holistic.*
- *AAL based on on-going performances or 'exit' exhibitions.*
- *Learners work across disciplines.*
- *Learners or instructors both can devise a task.*
- *Learners practise using accumulated knowledge and apply it to new situations.*
- *Learners engage in effective communication in oral, written and graphic forms.*
- *Reflections of learners are taking into account.*

The Higher Education Academy UK Centre for Legal Education
celebrating 10 years

Home » Resources » Teaching & learning practices » An introduction to problem-based learning

An introduction to problem-based learning

Lecture delivered to students on a constitutional and administrative law unit at Norwich Law School – to find out more read the case study on the unit.

What is problem-based learning?

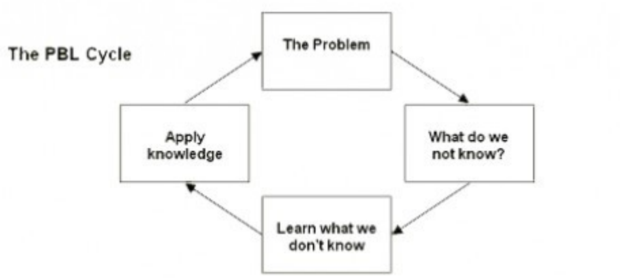
- mode of teaching in which responses to, and investigation of, a problem scenario drive students' learning
- lecturers become facilitators of students' learning rather than omniscient providers of knowledge
- students perceived/perceive themselves less as passive recipients of wisdom and more as active learners pursuing knowledge through research endeavour

Basic procedure:

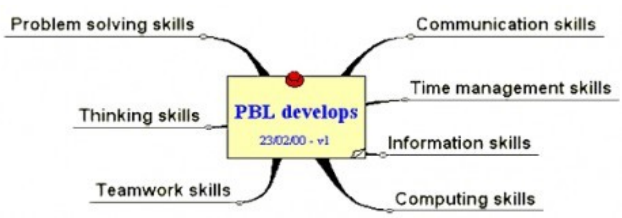
- students are presented with a problem scenario
- they identify what they think they do and do not know
- they gather further information and communicate this to one another
- they apply this new knowledge to the problem scenario
- they identify what they think they still do not know, and the process begins again

Benefits for students:

- greater emphasis on students' development of graduate skills central to prospective careers as lawyers, and transferable to other any professional context
- practised self confidence
- appreciation of the complexity or 'messiness' of real world problems, and a learned capacity to cope with uncertainty
- higher level of disciplinary understanding – students get to 'know' the law better



- an appreciation of the need for on-going personal professional development – commitment to 'lifelong learning' becomes a 'taken for granted' attitude – valuable, indeed indispensable, to any future career



(Source: http://www.dlsweb.rmit.edu.au/eng/beng0001/PBL-LIST/PBL)

Benefits for faculty:

- rewarding 'research-led' teaching
- opportunity to enhance coherence between research interests and teaching
- move away from didactic approaches allows fostering of 'better' relationships with students; respect for students maintained and strengthened

- a mark of distinction for the adopting law school – the Maastricht experience
- recognition by employers, prospective students, and other schools as a groundbreaking, innovative institution – a virtuous circle

Negative aspects (or why isn't anyone/everyone doing this?):

- institutional inertia: "if it ain't broke…"
- resource implications

Unit Timetable

Week	Lectures	Seminars
1		problem 1 workshop
2	overview of judicial review	
3		problem 1 moot
4	review of problem 1	
5		problem 2 workshop
6	overview of civil liberties	
7		problem 2 moot
8	review of problem 2	
9		problem 3 workshop
10	advanced judicial review and civil liberties	
11		problem 3 moot
12	review of problem 3	

The problems

- designed to cover the necessary curriculum content
- contain triggers to prompt students to investigate the identified core areas
- not easy: equivalent to three/four weeks' work

First formal meeting

Students will be presented with the problem scenario in advance of the problem workshop in each four week cycle, and should read over this material before attending the class. Each seminar group of 14-16 students will meet for a problem workshop during week 1 of each cycle. The seminar group will be subdivided into two study groups of seven or eight students. These groups will remain intact for the duration of the semester. These two study groups will be asked to consider the problem from the perspective of opposing actors in the problem. A member of staff will determine membership of the study groups.

Each study group will be asked to consider the scenario, to ensure that all members of the study group understand its details, and to identify what might be the main issues that arise from the problem. In particular, they will be asked to make a note of such information/knowledge as they believe they would need in order to respond to the issues raised; that is, the students attempt to identify what they do not know. They might also speculate as to possible solutions based on their existing knowledge, whether gained from previous legal studies or some other experience. As the workshop progresses, discussion should focus on such aspects of the problem scenario as the students believe they will need to investigate further in order to develop a solution. Students should also consider what resources they might use in order to answer their questions.

During this discussion, one student should be allocated the role of chairing the discussion. A second student should act as scribe. The chair, along with the members of the respective study groups, should ensure that each student is offered the opportunity to bring his/her viewpoints to bear in the collective discussion. The tutor will oversee the discussion, ensuring that the group does not stray too far from the core issues, and prompting consideration of any important issues that have been underplayed. The outcome of this discussion should be an agreed list of issues that each study group has identified as worthy of further research.

This list will form the basic agenda for research in preparation for the problem moot in week 3 of each cycle, but groups should expect their initial ideas to develop as they research further, read other groups views, and discuss issues in the interactive lectures. A member of staff may make some suggestions as to useful research sources. The research agenda produced by each study group should be posed on Blackboard for other groups to peruse, and perhaps to identify issues that they had not identified in the problem.

By the end of the problem workshop each study group of students should have determined how they are to proceed in researching the identified issues. They might decide that each student will investigate all the issues individually with each point being considered by more than one student, that they will work in pairs with each pair covering a number of the issues, that each individual student will be allotted one or two of the issues to research in depth, or that they will utilise a combination of these methods.

The first period of self-directed research and online discussion

Whichever approach the study group adopts, the students will need to arrange at least one meeting in advance of later formal classes to report back to each other on their research findings, and to discuss how these findings might help or hinder the resolution of the problem scenario. Each member of the study group should be prepared to report on their collective findings to the wider group. The study group as a whole can then refocus on such uncertainties, inconsistencies and disagreements as arise in the course of discussion. It is almost certain that students will identify further issues arising from the problem scenario during the course of their research that the group had not countenanced during the workshop. These can and should be added to the research agenda.

In addition to members of each study group working together, they will also have access to an online discussion of the problem scenario. This discussion will be overseen and contributed to by staff. Students can contribute findings from their own research, ruminate on the problem scenario, advise others of useful resources, and pose questions that have troubled them for others (students and staff) to consider and respond. The threads of this discussion will remain as a cumulative resource.

Interactive lectures

During the second week in the cycle the class as a whole will assemble for interactive lectures on areas of law pertinent to the problem. The basic format will include:

- the presentation by a member of staff of an overview of relevant law, with a heavy emphasis on the identification – but not full discussion – of the seminal cases and important statutes for each area of importance.
- the opportunity for individual students and study groups to enter comment and raise queries on any particular point. Such issues will then reflected upon by staff and the year group as a whole. The mode of operating, however, will not simply be the straight provision of information. The emphasis will be on guidance and not instruction.

To facilitate the interactive lecture process, it would be advantageous if study groups could meet in advance of lectures to reflect upon issues where further guidance may be sought. Moreover, it would be helpful if study groups sat together in order that an individual raising a point need not feel they are speaking merely on their own behalf.

Submission of skeleton argument and problem moot

Each study group will work together ultimately to develop and submit a short written report (skeleton argument) on the legal issues arising from the problem scenario. This must be submitted on Blackboard in advance of the problem moot scheduled for week 3 in each cycle to allow the opposing study group an opportunity to reflect on the likely arguments that will be raised in the moot. The moot itself will involve an opportunity for each study group to present its case, and to respond to questions, for a period of 20 minutes. Thus, the group should appoint two or three persons to represent them at this event. These representatives should be different for each problem. The class will conclude with comment from the tutor on the arguments presented, and the presentation style of those involved.

Problem review

In week 4 of each cycle one or two review lectures will involve further discussion of the problem, general comment on the solutions presented by groups in the mooting events, and a further opportunity for students to pursue particular matters further. In particular, the lecture is designed to allow staff to locate the expertise and knowledge gained by students within the wider context of the studies for the semester.

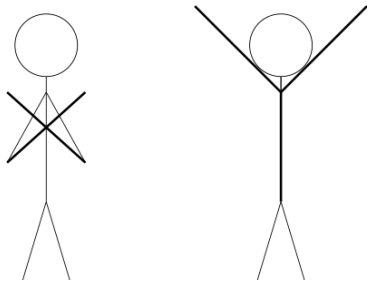
During the lecture, members of staff may present a series of minor variations on the factual circumstances and ask students to consider for the future what impact such changes might have had on the legal resolution of the problem.

It is hoped that some formal sessions and interviews will be videoed, with the footage being made available to students for self reflection and assessment.

Potential pitfalls

- dysfunctional groups
- lazy students
- domineering students
- missing the point(s)?/absence of safety net

Theory X and Theory Y



Mnemonic device for the two theories: a person refusing to work ("X") and a person cheering the opportunity to work ("Y")

Theory X and Theory Y are theories of human work motivation and management. They were created by Douglas McGregor while he was working at the MIT Sloan School of Management in the 1950s, and developed further in the 1960s.[1] McGregor's work was rooted in motivation theory alongside the works of Abraham Maslow, who created the hierarchy of needs. The two theories proposed by McGregor describe contrasting models of workforce motivation applied by managers in human resource management, organizational behavior,organizational communication and organizational development. Theory X explains the importance of heightened supervision, external rewards, and penalties, while Theory Y highlights the motivating role of job satisfaction and encourages workers to approach tasks without direct supervision. Management use of Theory X and Theory Y can affect employee motivation and productivity in different ways, and managers may choose to implement strategies from both theories into their practices.[2]

McGregor's Theory X and Theory Y and Maslow's hierarchy of needs are both rooted in motivation theory.[3] Maslow's hierarchy of needs consist of physiological needs (lowest level), safety needs, love needs, esteem needs, and self-actualization (highest level).[3] According to Maslow, a human is motivated by the level they have not yet reached, and self-actualization cannot be met until each of the lower levels has been fulfilled.[4] Assumptions of Theory Y, in relation to Maslow's hierarchy put an emphasis on employee higher level needs, such as esteem needs and self-actualization.[4]

McGregor also believed that self-actualization was the highest level of reward for employees.[4] He theorized that the motivation employees use to reach self-actualization allows them to reach their full potential.[4] This led companies to focus on how their employees were motivated, managed, and led, creating a Theory Y management style which focuses on the drive for individual self – fulfillment.[4] The next two sections will define and discuss McGregor's two theories (1) Theory X (2) Theory Y and give scenarios when each management style could be used. McGregor's perspective places the responsibility for performance on managers as well as subordinates.[5]

Theory X is based on assumptions regarding the typical worker.[6] This management style assumes that the typical worker has little ambition, avoids responsibility, and is individual-goal oriented.[6] In general, Theory X style managers believe their employees

are less intelligent, lazier, and work solely for a sustainable income.[6] Management believes employees' work is based on their own self-interest.[7] Managers who believe employees operate in this manner are more likely to use rewards or punishments as motivation.[7] Due to these assumptions, Theory X concludes the typical workforce operates more efficiently under a hands-on approach to management. Theory X managers believe all actions should be traceable to the individual responsible. This allows the individual to receive either a direct reward or a reprimand, depending on the outcome's positive or negative nature.[6] This managerial style is more effective when used in a workforce that is not essentially motivated to perform.[6]

According to McGregor, there are two opposing approaches to implementing Theory X: the hard approach and the soft approach.[8] The hard approach depends on close supervision, intimidation, and immediate punishment.[6] This approach can potentially yield a hostile, minimally cooperative workforce that may cause resentment towards management.[7] Managers are always looking for mistakes from employees, because they do not trust their work.[7] Theory X is a "we versus they" approach, meaning it is the management versus the employees.[7]

The soft approach is characterized by leniency and less strict rules in hopes for creating high workplace morale and cooperative employees.[8] Implementing a system that is too soft could result in an entitled, low-output workforce.[8] McGregor believes both ends of the spectrum are too extreme for efficient real-world application. Instead, McGregor feels that an approach located in the middle would be the most effective implementation of Theory X.[8]

Because managers and supervisors are in almost complete control of the work, this produces a more systematic and uniform product or work flow.[6] Theory X can benefit a work place that utilizes an assembly line or manual labor. Using this theory in these types of work conditions allows employees to specialize in particular work areas which in turn allows the company to mass-produce a higher quantity and quality of work.[6]

Theory Y managers assume employees are internally motivated, enjoy their job, and work to better themselves without a direct reward in return.[6] These managers view their employees as one of the most valuable assets to the company, driving the internal workings of the corporation.[6] Employees additionally tend to take full responsibility for their work and do not need close supervision to create a quality product.[2] It is important to note, however, that before an employee carries out their task, they must first obtain the manager's approval.[6] This ensures work stays efficient, productive, and in-line with company standards.

Theory Y managers gravitate towards relating to the worker on a more personal level, as opposed to a more conductive and teaching-based relationship.[6] As a result, Theory Y followers may have a better relationship with their boss, creating a healthier atmosphere in the workplace.[9] In comparison to Theory X, Theory Y incorporates a pseudo-

democratic environment to the workforce.[4] This allows the employee to design, construct, and publish their work in a timely manner in co-ordinance to their workload and projects.

Although Theory Y encompasses creativity and discussion, it does have limitations. While there is a more personal and individualistic feel, this leaves room for error in terms of consistency and uniformity.[4] The workplace lacks unvarying rules and practices, which could potentially be detrimental to the quality standards of the product and strict guidelines of a given company.

Humanistic psychologist Abraham Maslow, upon whose work McGregor drew for Theories X and Y, went on to propose his own model of workplace motivation, Theory Z. Unlike Theories X and Y, Theory Z recognizes a transcendent dimension to work and worker motivation. An optimal managerial style would help cultivate worker creativity, insight, meaning and moral excellence.[10]

Another innovative management style developed by William Ouchi is also called Theory Z.[11]

For McGregor, Theory X and Theory Y are not opposite ends of the same continuum, but rather two different continua in themselves. In order to achieve the most efficient production, a combination of both theories may be appropriate.[6] This approach is derived from Fred Fiedler's research over various leadership styles known as the contingency theory. This theory states that managers evaluate the workplace and choose their leadership style based upon both internal and external conditions presented. Managers who choose the Theory X approach have an authoritarian style of management. An organization with this style of management is made up of several levels of supervisors and managers who actively intervene and micromanage the employees.[12] On the contrary, managers who choose the Theory Y approach have a hands-off style of management. An organization with this style of management encourages participation and values individuals' thoughts and goals. However, because there is no optimal way for a manager to choose between adopting either Theory X or Theory Y, it is likely that a manager will need to adopt both approaches depending on the evolving circumstances and levels of internal and external locus of control throughout the workplace.[13]

Theory X and Theory Y also have implications in military command and control (C2). Older, strictly hierarchical conceptions of C2, with narrow centralization of decision rights, highly constrained patterns of interaction, and limited information distribution tend to arise from cultural and organizational assumptions compatible with Theory X. On the other hand, more modern, network-centric, and decentralized concepts of C2, that rely on individual initiative and self-synchronization, tend to arise more from a "Theory Y" philosophy.[14] Mission Command, for example, is a command philosophy to which

many modern military establishments aspire, and which involves individual judgment and action within the overall framework of the commander's intent. Its assumptions about the value of individual initiative make it more a Theory-Y than a Theory X philosophy.[15]

Scientific management

---

1. ^ *"Douglas M. McGregor". iwer.mit.edu. Retrieved 2018-04-11.*
2. ^ Jump up to: *a b "Beyond Theory Y". Harvard Business Review. 1970-05-01. Retrieved 2018-04-12.*
3. ^ Jump up to: *a b*
4. ^ Jump up to: *a b c d e f g*
5. ^ *Worth, Michael (2019). Nonprofit Management: Principles and Management. United States of America: SAGE. p. 248. ISBN 978-1-5063-9686-6.*
6. ^ Jump up to: *a b c d e f g h i j k l m Hattangadi, Vidya (December 2015). "Theory X & Theory Y" (PDF). International Journal of Recent Research Aspects. **2**: 20–21.*
7. ^ Jump up to: *a b c d NetMBA.com. "Theory X and Theory Y". www.netmba.com. Retrieved 2018-04-12.*
8. ^ *Maslow, Abraham (2009). "Theory Z". maslow.org. Retrieved 2018-10-23.*
9. ^ *Ouchi, William G (1993). Theory Z: How American Business Can Meet the Japanese Challenge. New York, NY: Avon Books. ISBN 9780380719440.*
10. ^ Vassiliou, Marius, David S. Alberts, and Jonathan R. Agre (2015). "C2 Re-Envisioned: the Future of the Enterprise." CRC Press; New York; pp. 98-99.
11. ^ Vassiliou, Marius, and David S. Alberts (2017). "Mission Command and Agile C2." Proc. 22nd International Command and Control Research and technology Symposium (ICCRTS).

This text is a summary from 'Motiveren van studenten in het Hoger Onderwijs; theorie en interventies'. Rob Martens, Monique Boekaerts, 2009 -*Motivating students in Higher Education,theory and interventions (2009)*
Michael R. Nieweg

1. INTRODUCTION:

1.1 Paradigms at play:

Motivation and

- behaviorism: students 'do their tricks' without nessecarily asking why, get rewarded. If not, motivation drops
- cognitivism: critics claim that this is about 'smart programming' by the teacher, developed in laboratory and then applied to the learning

Note: both paradigms do not take motivation into account

- constructivism is a way of thinking that includes motivational aspects in the design

1.2 Assumption: students are able to motivate themselves to learn, independend from the teacher.

1.3 Approach: arranging education so that it raises student actions, focussed on deeper learning, exporing, curiosity, collaboration.

1.4 Reality:

1. not all students have the nessecary regulative abilities (Vermunt, see 2.2)
2. these students show a surface approach to learning and/or choose a strategic approach 'like Robert' (see 1.5)
    a. they expect the teacher to tell them what to do,
    b. they expect the material to be arranged in a lineair and step-by-step manner
3. This gets reinforced when the teacher chooses the complementary role
    a. If the teacher uses a non-complementary role like tutoring, these students tend to make strategical choices.
    b. These students try to find 'the hidden curriculum' and behave accordingly

1.5 Conclusions:

1. Educational innovations often fail because of these effects
2. Educational innovations have succes when students are given time to develop new learning strategies – thus need time
   (PBL is not a 'pill' but a method to be mastered)
3. In the beginning of the educational change students report more self efficacy with well- and moderately structured cases
4. Teachers need to be trained
    a. Not all teachers can change their ideas, image of how students are
    b. Implementation needs suffucient time for the teachers,
    c. and also a good understanding by the managers
5. What you plan is not always what you achieve. There is an *intended (designed) curriculum;* an *implemented curriculum* and an *attained curriculum*

2. MOTIVATIONAL PROBLEMS:

2.1 Working definition

People are motivated when choose to engage in a task or activity and are committed to act accordingly

2.2 Characteristics of the student population

- Female students in general perform better then male students in general
- Research shows that succesful students are
    - Intrinsicly motivated
    - Have high self esteem
    - Are academicaly integrated
    - (please note that high or low intelligence did not discriminate for succes)
- There is a more or less stable fraction of
    - 10 % underperformancers
    - Together with the strategic 'low achievers' this group varies from 15 – 20%
    - The group middle achievers (with mixed motivations) varies from 60 – 70%
    - The group high achievers (intrinsically motivated) varies from 15 – 20%
- Underperformers can show 'self handicapping behavior'
    - posponing the work too long in an attempt to protect their self esteem
    - External locus of control: the study is too hard, the teachers are no good
    - Succes gets 'talked down' or is 'just luck' or a coincidence
- Advise:
    - Give specific feedback focussing only on the strength's of these students
    - Emphasize that failure is not a sign of inadequacy but a nessecary step in learning
    - Show them that there is more in life then the study to feed the self esteem
    - Build a buffer against dissapointment and failure: it is part of learning and of life

2.3 Exam anxiety

1. Students with exam anxiety perform worse than students without
2. Before the exam: fear leads to helplessness and regression to memorizing learning
3. During the exam:
    a. leads to blockade. *Especially with highly anxious students with well developed study skills, and easy questions/items!*
    b. Overestimation of difficulty of questions/items. *Distracts attention, reduces capacity*
    c. Irrelevant thoughts. *Reduces capacity.*
4. After the exam:
    a. Students attribute failure to themselves, making the next exam a threat instead of a challenge
5. General interventions:
    a. Cut down on the amount of (summative tests. Focus on the) exams.
    b. Support the individual students by coaching

3. INTRISIC AND EXTRINSIC ORIENTATION

3.1 Intrinsic motivation

Student is motivated to understand, apply, contribute, solve etc.
Research shows that these students perform better.
Internal locus of control

3.2 Extrinsic motivation

Students learn because they have to and because they get rewarded.
Research shows that these students perform 'uphill'; develop aversion, comprehend less, have a lower retention. In time they get demoralized.
External locus of control

Moreover, these students tend to

- Focus on the minumum demands
- Make a minimum effort
- Tend to fraude, crib, plagiarize
- Study just the extracts
- Skip classes
- Whine about credits, study hours etc.
- Choose more often to become a freerider

Conversely: if you see this behavior, you can help them to overcome their problems

3.3 Low self esteem

All students were children where to play was to learn – even if it was not intended to fulfill a learning goal. *Intrinsic motivation.*
Learning is externally motivated creates negative emotions and attributions.
Tell the students that study requires dealing with positive as well as negative emotions like stress, feelings of insecurity etc.

4. A GUIDED TOUR THROUGH THE MOTIVATION JUNGLE

Different paradigms, different theories. There are at least 34 main theories on motivation…!
Please note: a selection of the most influential theories are presented

4.1 the fourties and fifties

- Behaviorism: motivation does not play any role
- Cognitivism: motivation stems from needs and values. Answers can be improved by reinforcement and adding drivers to the teaching.
- No specific attention was given to the inner motivational drives

4.2 the fifties and sixties

Atkinsons 'Expectancy by Value' theory:
Task orientation: motivation is a mental proces producing energy to perform a task.

- Behavior is based on the chance of failure or succes
- The values attributed to the succes
- The expectation that succes can be achieved. This is determined by
    - The *choice to engage* or not
      students need to make choices all the time and can spend their time only once
    - the *intensity* of his actions
      depends on the judgement of his capacities to do this usually, compared with others, and in this specific area
    - the *persistence* of his actions
      depending on the expectatons of the result: the higher the more persistent.

Maslow's hierarchy of needs

Learner orientation: motivation is a need that the learner tries to fulfill

- See 2.2
- Maslow focuses on the merging of the learning outcomes and the student's needs.
  Example: the choice of litterature: a tough book about something uninteresting requires more effort then a tough book about something interesting

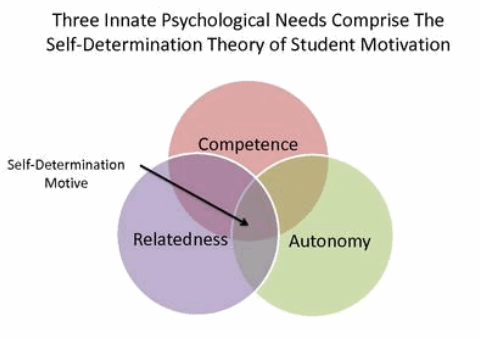
4.3 the nineties and the turn of the millenium

Self determination theory

Ryan and Deci

Evolutionary view on motivation: what strengthens, sustains, weakens motivation?

- R&D regard *intrinsic motivation* as evoking joy in the learning itself, not per se because of the reward. External drivers are internalized.
- Three basic needs:
  - Competence
  - Autonomy
  - Relatedness
- Implications for education: needs to meet all needs.
  Note: not all students value all basic needs similar. Nevertheless: external regulation disturbs the fullfillment of the needs.
- See 2.3 for the motivation continuum



Volitational strategies

When does one pass the Rubicon – makes the effort, decides 'to go for it'?

When does one stay on this side of the Rubicon – gets discouraged, distracted, annoyed?

Strategies are:

- Good working habits: discipline, use of aids and sources
- Environmental control: trying to adjust the environment to your needs
- Self-consequating: sticking to your intentions, reminding yourself that there is a task to do
- Interest-enhancement, as connecting dull theory to practice
- Mastery self-talk or self-encouragement: "I can do this!"
- Performance self-talk: "I can beat the others!" ('Muhammed Ali')

4.4 Teacher strategies:

- Identify students that disturb the study
- Encourage them to use volotational strategies
- Offer them the chance to develop their feeling of competence, autonomy and relatedness
- Understand your own influence on student motivation

Entwistle (2003) and teacher motivation

Student perceptions on the basis of earlier experiences influence their motivation

- Teachers generally achieve beter results with their students if they show
  - Enthousiasm
  - Willingness to explain
  - Drive to help students understand

- Teachers generally achieve lower results when they show
    - No sense of humor
    - Unfairness
    - Low expectancies of students
    - Too control directed behavior (and the opposite: too loose)

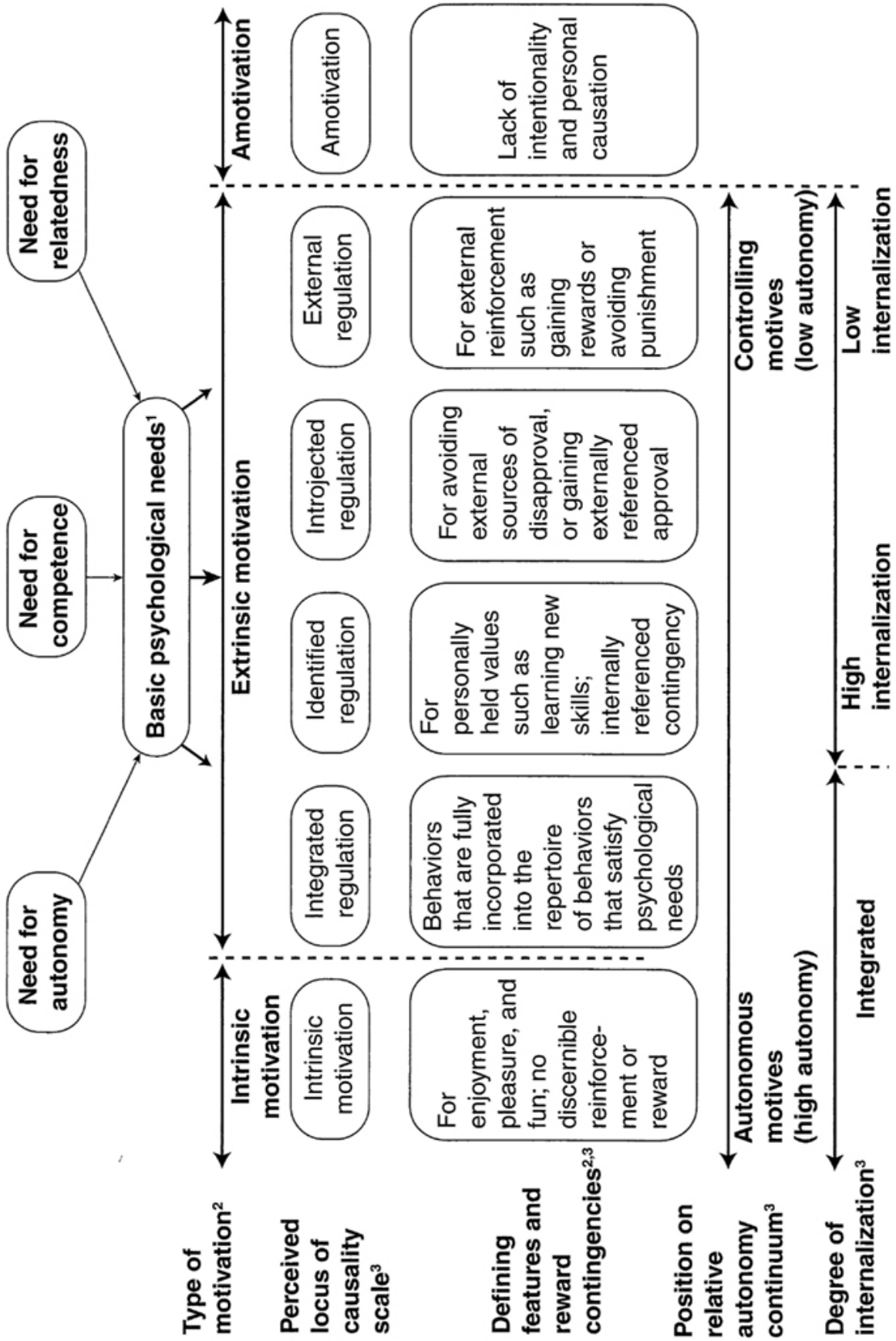
Not in the book: Sparreboom (2004): teachers move on a continuum of initiative:

Prescribe student behavior	Structure student behavior	Make students responsible	Utilize student autonomy	Neglect students's needs

<u>Interventions – some suggestions that enhance student motivation:</u>

- Why-information: why is a task relevant? Invites student to think about this. Evokes need for competency.
  The better this connects to the student needs, the more internalisation.
  Beware of patronizing, comparing with more succesful students and so on. You then disturb the need for autonomy.
- How-information: how to deal with a task, how to enhance your competencies? Let them make action plans, give feeback etc.
  Beware of overcharging the student – respect their skills. Also beware of oversimpification, especcially in complex learning tasks
- What-information: what are the expected results, criteria to be met, rewards.
  Make sure students experience the challenge within the 'zone of proximal development'
- Apply an 'authoritative style': you determine the frames; students are asked to contribute within this frame
  Beware of prescriptive or neglecting behavior
- Provide feedback mechanisms: *first* peerlearning, peerfeedback, *then* teacher feebdack
  If possible even before teacher feedback: confrontation with the feasability of their results.
  Beware for a climate of distrust, invest heavily in a climate of trust
- Involve students in your research, course design and assessment
  But: you make the decisions

Retrieved may 2015 from: http://journal.frontiersin.org/article/10.3389/fpsyg.2012.00611/full



How to construct and accomplish a project – a short overview

M.R. Nieweg, april 2014

1. **The problem to be solved:**
   a. Start with a context or an existing real case. Or write one.
   b. In the last case: adress the problem(s) of your client, and name him.
      This enables you to perform the project in the competition field

2. **Knowledge, skills and professional attitude**
   a. the problem matches a minimum body of knowledge, skills and professional attitude
      Students may use more than the required minimum: the problem may challenge them to do more
   b. the problem matches the studyphase
   c. the indepentent learning required is in the student's zone of proximal development

3. **Role taking**
   Students take the role of the professional: consultant, assistant, teacher, laywer. You may introduce a real client. Else the teacher takes the role of the client
   To avoid role confusion – let a collegue do this – you take this role for his class

4. **Assignment equals assessment**
   Solving te problem at a good level is the goal of project work
   a. A project is defined by an assignment leading to a professional product
      The quality of this product is the focus of the assessment: 'the asignment equals the assessment'
   b. Assigmemts reflect real professional tasks

5. **Phases of a project**

   a. ***Team development***
      i. Members of the project team introduce themselves to each other, including their personal learning objectives and questions for feedback during the project period.
      ii. The team sets up a collaboration contract with at least:
         1. Understanding of everyone's motivation for participation (meaningfullness)
         2. Agreements on how to establish and balance team and personal goals
         3. Agreements on how to establish and balance common and personal working methods
         4. Agreements on how to deliver and balance joint and personal input
         5. Agreements on how to collaborate with the project environment
         6. Agreements on the basic time table and milestones – to be refined in the project plan

   b. ***Preliminary research***
      i. Exploration and expectations
         "The client expects a first report of at least four similar problems and their solutions. They should shed light on the following aspects: …" (name issues –criteria- relevant to the problem at hand like rigor, effectiveness, ethics, equality, quality, sustainability and the like)
      ii. Collecting specifications
         The client asks to list possible specifications the final result has to answer to. Students find these by
         1. analizing the problem – you've 'hidden' them in real world words
         2. analyzing the four similar problems
            (creates transfer of understanding in equal situations)
      iii. Analysis of the specifications
         What exactly do they imply?
      iv. Students define their own product specifications
      v. Students create their own proposal

1. It describes the problem as they have redefined it; the result they offer the client, the working procedure and the milestones.
2. For the teacher they add an appendix with the group organisation and working plan

c. ***Presentation of the proposal / project definition***
This is the first milestone. It contains a project defenition, the project results, collaboration with the client and stakeholders, the final time table including milestones, and quality control.

d. If the client (and/or the teacher) accept these, the students may proceed. If not, they have only one chance to adjust their proposal within 3 days - not longer. The 'client' makes this known beforehand.

e. ***Project launch and execution***
Make provisions for meetings, coaching, consultation, use of literature, Just-In-Time lectures or workshops – preferably on demand of the students and not pre-planned. Workshops are preferable: there students can directly apply the knowledge. That is: only of the teacher invites them to do so – and does not do it himself in any way!

f. ***Project performance control***
During the executing phase of the project plan the project team compares the status, progress and quality as well as the team collaboration to the actual plan. When needed schedules are adjusted and decisions about resources are taken.

g. ***Project closure***
After the project tasks are completed and the client has approverd the outcome, the team performs an evaluation to highlight the project succes and/or learn from the project history.
After this each member of the project team reflects on his/her own performance, using 360-degree feedback. This is related to his/hers personal learning objectives, the collaboration contract and the project outcomes.

Problem-based Project Work – a short introduction to background and methodology[1]

Kirsten Nøhr

Problem-Based Learning (PBL) is an educational strategy. A method to organise the learning process in such a manner that the students are actively engaged in finding answers by themselves. Throughout time, great teachers and pedagogues have always understood the effectiveness of these principles. Socrates made a point of questioning the student in order to activate latent knowledge, and the Chinese philosopher Confucius stressed the importance of involvement with a few often quoted lines:

> Talk to me... and I will forget
> Show me... and I will remember
> Involve me... and I will understand
> Step back... and I will act

Parallel to the development of PBL and for a long time almost independently, a tradition of *project pedagogy* has been emerging in education. Learning by doing and experiential learning were two of the principles that dominated the development of this particular system. Following the students revolts in the late 60'ies, a strong moment arose in social science during the 70'ies regarding project work as a possible factor contributing to change in society. In particular this was true in North European countries like Denmark, Germany and the Netherlands (Negt and Kluge, 1972; Negt, 1968; Jansen and van Kammen, 1976), however, the advantage turned out to be learning and achievement of new skills.

The principles of the project pedagogy can be defined as:

> .. a form of teaching in which students – in collaboration with teachers and others – explore and work with a problem in close relation to the social reality in which it exists. This entails that the work is to continually increase perspectives and deepen the awareness that the problem is to be approached from different angles across traditional professional boundaries, and that the selection of theories, methods, and tools is to be based on the chosen problem. The role of the teacher is not only to communicate knowledge, but in particular to act as initiator, inspiration, frame-builder, and consultant. The work is to result in a concrete product, be it an oral presentation, a written report, or expressed in other media or actions. (Berthelsen *et al.,* 1977)

Five central principles can be identified:

- Problem-orientation
- Project-organisation
- Interdisciplinary considerations
- Participant control
- Exemplary function

The term *problem* should be understood in a broader sense than (simply) a problem: it can be wondering about something; a paradox or a conflict that needs to be researched.

The *project* aspect can be defined as follows:

[1] Introduction is inspired from Erik de Graaff and Anette Kolmos (eds), Management of Change, 1-8. 2007 Sense Publishers.

> A project is a complex effort that necessitates an analysis of the target (problem analysis) and that must be planned and managed, because of desired changes that are to be carried out in people's surroundings, organization, knowledge and attitude to life; it involves a new, not previously solved task or problem; it requires resources across traditional organizations and knowledge; it must be completed at a point in time determined in advance. (Algreen-Ussing, 1990)

Since individuals cannot be expected to solve such complex tasks by themselves, group efforts are involved. *Interdisciplinarity* involves the crossing of professional discipline borders – hence, the problem analysis and the solutions considered are not confined to traditional professional boundaries.

Participant control means that the participants themselves make the relevant decisions and control the progress of the process. Because they choose and define the problem themselves, the ensuing learning is experienced as meaningful. *The exemplary principle* guarantees that the students learn not just isolated elements. They also have to learn to link theory and practice. The things they learn should provide examples of central aspects within the overall professional goals.

Several authors distinguish between subject-oriented and problem-oriented project work. *Pedersen* (in: Olsen, P.B. & Pedersen, K., 2005) underlines this crucial difference:

> In *subject-oriented* project work, the group has no clear focus. Anything that can be brought under the subject heading is interesting. For example, the group may draw up four chapters outlines that are related only by virtue of the fact that they elucidate different aspects of the same subject. They do not, however, make up a coherent analysis of a research problem. This method may be adequate in early stages of education, as the aim there is to acquire general knowledge and overview.
>
> In *problem-oriented* project work, however, it is not adequate. The group no longer merely has to arrange its chapters under a title, but use them as elements in a coherent analysis of a central, relevant question: a *research problem*. If the group succeeds in forming such a thread between the chapters, then it will find it easy to draw conclusions. The group will be able to give answers and solutions and suggest courses of action. The learning aim is not merely general knowledge and forming an overview, but the development of analytical skills and an ability to argue and present solutions and answers to challenging questions.

Research Problem and Problem Formulation[2]

Good questions, and therefore good problem formulations:

1. – require *knowledge.* The problem formulation should not, as many students believe, radiate a lack of knowledge: on the contrary. In order to be able to formulate the research problem precisely, it is necessary to be thoroughly acquainted with the issue under investigation. This includes knowing which areas are *not* relevant. In addition, it is important that the problem formulation is *precise and unambiguous*; in other words, that it employs clearly defined terms, which in turn require knowledge to be understood. An interviewer is only able to ask good questions if he knows about the subject matter.
2. – are seldom the ones you begin with, but more often those you end up with. The interviewer will only be able to ask good questions if he or she has researched the

[2] Olsen, P.B. & Pedersen, K. (2005), p. 23 ff.

material prior to the interview and listens actively to the interviewee. This is similar to the way the problem formulation grows out of the project work. And although it is strongly recommended that students define their problem early on in the project, they should not expect to arrive at a precise and fruitful problem formulation until the project work is well under way. Thus it is not unusual for students to have to reformulate and clarify their problem formulation several times in the course of a semester's project work.

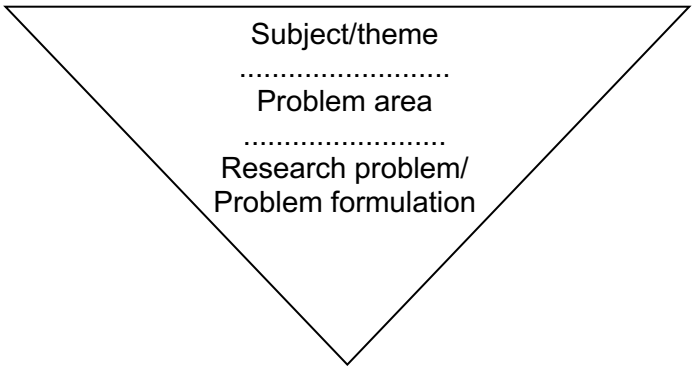
These two points often surprise students who are new to project work. There are probably several reasons for this. One of them is that primary and secondary school students are taught to do written work as follows: first you formulate a question you want to answer, then you draw up an outline, and finally you write the essay. According to this hopeless model, students do not have to return to the question and refine it during the course of the work, but simply let it stand in its original primitive formulation.

Olsen & Pedersen in their book use the terms:

- *Research problem*, or simply *problem*, to refer to the epistemological problem which is at issue in the project.
- *Problem formulation,* when referring to the actual description of the research problem. In other words, the 1-5 lines in which the group attempts to formulate the specific epistemological problem posed by the research problem.
- *Problem area*, to refer to the theoretical and empirical context that makes the research problem a research problem. In other words, the knowledge I have of the world, or a part of it, which is necessary for defining and explaining the problem clearly.

The fourth concept is *the subject* or *the theme:* a wider and not very precisely defined area of knowledge. (In our international semester, the subject could be Corporate Responsibility or Global Governance). The subject or theme is not formulated as a problem, but rather as an area of interest.

This conceptual hierarchy can be shown visually as follows:



The problem area is the horizon within which the problem is formulated, but that, of course is not the end of the matter. There are good and bad problem formulations. Below is listed ten points to check as applicable at various stages of the project work. The list is meant as a guideline and a help to make a good problem formulation. It can be used not only in the starting phase, but also halfway through and at the end:

1. *It should be challenging.* Does the problem formulation contain a real problem that points to a gap in your own and the academic community's reserve of knowledge, and among

your analysis's target group? Is your question so banal or simplistic that it will not be able to sustain a thoroughgoing analysis? As J. Winther writes, with a good problem formulation, you sense the report's conclusion will be not so much an 'er, well' experience as an 'a-ha' experience.

2. *It should contain two links and their relation.* In a problem formulation with two links and their relation, you explore the connection between one link (link 1) and another (link 2). In the problem formulation 'What environmental benefits are to be expected from a tripling of petrol taxes?', there are two links and a relation: link 1 is 'a tripling of petrol taxes', link 2 is 'what environmental benefits' and their relation is 'are to be expected'. The characteristic of the first link is that it can be expected to affect the second link.

3. *It should imply a course of action.* A good problem formulation makes it relatively easy to differentiate between relevant and irrelevant material, and to map out a clear direction for the project work. This way, the group will have an easier time finding out what needs to be researched when the time comes to convert the problem formulation into a project plan and a method.

4. *It should be workable and researchable.* In other words, you must be able to translate the problem formulation into concrete analysis. Will you be able to find the sources and data that are necessary to analyse the problem? For example, a problem involving the analysis of foreign countries or informal and hidden decision-making processes.

5. *You should find it interesting.* You should be passionate about your research problem and the analysis it gives rise to. Your interest may also be connected to methodology (e.g. interviews, statistics, theoretical or empirical work).

6. *It should be clear and unambiguous.* You should be able to quickly explain to others what your project is about and what new knowledge it will contribute to your field.

7. *There should only be one problem formulation.* As soon as two or more research problems are formulated in the same project, the focus is split and it becomes hard to assess priorities. In by far the most cases, there are also hierarchies of two to three problem formulations, with one problem formulation playing a more important role than the others and thus reducing the others to subordinate problems.

8. *It should be relevant to your studies.* The problem formulation must lead to an investigation that will satisfy your course requirements. With reference to point 2., assess whether your problem formulation can satisfy your course requirements without requiring you to make awkward or forced logical leaps. Read your course requirements, but start with you problem formulation. If you start by thinking strictly in terms of the course requirements, you risk blocking the creative process.

9. *It should be specific enough to allow you to answer it in the allocated time.* An almost obligatory problem in any project is that the problem formulation in its initial form is too broad to allow for a thoroughgoing analysis.

10. *It should be ethically defensible.* It is often relevant to ask whether the problem formulation implies an ethically defensible investigation. Who would be able to use its results, and for what (e.g. an organizational analysis of a company)? What effects might the investigation have on the people or groups who will be contacted (e.g. sociological analyses of certain kinds of work environments, or of vulnerable groups)?

Don't despair! *No* group has ever been able to assess its research problem from all these points of view immediately after having formulated it. However you can help yourself on your way with two exercises, which you can do with varying degrees of intensity. Discussing the following two points in the group and with your supervisor for only two hours will give you a sense of the quality of your problem formulation in relation to points 1-6 and 8 above:

- *Definition of concepts.* When you formulate your research problem, you will be using concepts that are not just words, but concepts with a certain meaning or interpretation. Examples of this are 'unemployment', 'institution', 'key actor', 'society', 'state', 'administration', 'policy area', 'individual', and 'interest rate'. Defining these concepts can help you communicate the problem formulation to the reader and to be clear about it yourselves. A discussion about concepts will clarify the way in which the problem formulation is to be understood, and kick-start the analysis. After all, such concepts are keywords in the project, and by finding out how best to define them, you will open a door to the theoretical analysis of the problem. If the problem formulation is constructed in the form of two links and their relation, the key concepts will be an integral part of it.
- *Hypotheses or structuring questions.* When trying to make the problem formulation more concrete, it may be wise to formulate a series of hypotheses (not necessarily as part of a formal research strategy, but as process tools, understood as possible conclusions) or structuring questions that divide the analysis up into smaller parts. With hypotheses, you make more or less educated guesses about the project's conclusion from the start. This makes it easier to control the project, because you always have to keep in mind both the point of departure (the problem formulation) and the final destination (the conclusion). The purpose of structuring questions, or analytical questions, is to divide the problem formulation up into smaller and therefore more accessible minor questions. Like hypotheses, they make it easier to get an overview of the work, the group's resources and the possible content of the project. When you try to guess the conclusion or formulate structuring questions, you get both a sense of whether the project will actually produce new knowledge, and of whether the problem formulation is realistically possible to analyse.

Group forming process

Students' ability to work with others is severely tested in group-organised research projects. The group co-operation must be built up from scratch. There is no employer to decide on work and meeting schedules and assign specific tasks. Moreover, the work's content and methods are not integrated into routines and habits (…) it is a process of *learning by doing.* It continually requires clarifying discussions that can divide the group in terms of viewpoints and interests.[3]

For the problem-based Project Work it is essential that the groups are working with problems which are of real interest for themselves. Therefore it is important to spend the time needed to form groups, with the students' own ideas for projects as a starting point. One model is to find which project ideas the students have by starting with a collective brainstorming. All ideas are written on a board. The students present their ideas for the ones who are interested, in smaller groups. This phase can be repeated, so that students can walk around and discuss several different ideas with each other. Preferably the process should not be finished in one day but be stretched over a period, so that the students have time to find out more about their ideas, to reflect upon the issues and to discuss with each other. The supervisors/teachers function as consultants in this process. It is important to set a final time for the group formation before the process begins.

[3] Arno Kaae (2005), p. 87, in: Olsen, Poul Bitsch & Pedersen, Kaare (2005)

The following three principles apply to the method:

- The student's (academic) interests are the starting point for the group formations.
- Students must demonstrate an active openness towards other interested students.
- *No* groups are formed before *everyone* has formed a group.

When the groups are formed they should draw up a co-operation agreement, taking into consideration the *Code of Conduct* for the Minor ACT. It is important that everyone in the group is clear about their expectations for the group work, and just as important that they tell the rest of the group from the start.

For the Minor ACT a group size of minimum 3 and maximum 5 students has been decided.

References

Algreen-Ussing, H. and Fruensgaard, N.O. (1990) *Metode i projektarbejde*, Aalborg University Press.

Berthelsen, J., Illeris, K., and Poulsen, S.C. (1977) *Projektarbejde*, Kbh.: Borgen.

Jansen, T. and van Kammen, A.-R. (1976) *Projectonderwijs: Afleren en aanleren*, Purmerend: Muusses.

De Graaff, Erik and Kolmos, Anette (eds) (2007) *Management of Change*, 1-8. Sense Publishers.

Negt, O. (1968) *Soziologische Phantasie und exemplarisches Lernen. Zur Theorie der Arbeiterbildung,* Frankfurt am Main.

Negt, O. and Kluge, A. (1972) *Öffentlichkeit und Erfahrung: Zur Organisationsanalyse van bürgerlicher und proletarischer Öffentlichkeit*, Frankfurt am Main.

Olsen, Poul Bitsch & Pedersen, Kaare (2005) *Problem-Oriented Project Work – a workbook*, Frederiksberg: Roskilde University Press. ISBN 87-7867-307-0

Winther, Jenny (1984) *Undersøgelsesmetodik og Rapportskrivning – en vejledning*, Socialpœdagogisk Bibliotek, Munksgaard, København.

Reflective learning, reflective practice

journals.lww.com/nursing/Pages/articleviewer.aspx

Jacobs, Steven MN, MA Ed, RN

Nursing2016: May 2016 - Volume 46 - Issue 5 - p 62–64
doi: 10.1097/01.NURSE.0000482278.79660.f2

Department: LEARNING CURVE

Free

IT'S IMPORTANT that nurses practice self-reflection. But what exactly does self-reflection mean and why is it important? Further, how is it enacted and conveyed to others? As an educator, I had a classroom experience that led me to examine these questions in depth. In this article, I discuss what I learned.

Mandate for reflective practice

I was teaching an introductory nursing course and, like all good nurse educators, I spoke of the need for students to begin the process of self-reflection within their practice. I said we all need to engage in this process because as nurses, we must constantly evaluate our actions, behaviors, responses, and the decisions we make while practicing nursing. I discussed how reflective practice is a professional obligation; the College of Nurses of Ontario mandates that practicing nurses engage in reflective practice.[1] During my discussion, I also showed some lecture slides that described reflective practice. One slide showed a robot with the notation that, as nurses, we can't act blindly, without reflection or critical thinking.

A few weeks later, when I asked why nurses need to engage in self-reflection, one student wrote only, “Because nurses aren't robots.” At first, I was dismayed and disappointed by this simple answer—but really, what kind of answer was I expecting? As I reflected, I realized that we do a disservice to this concept in nursing curricula. We say nurses need to engage in self-reflection, but we don't explain or model what reflection really is. For much of our curriculum, we teach content, but do we as educators consistently reflect if learning has actually occurred?

Reflection is much more than revisiting how we administered a particular medication. Authentic reflection requires not only providing rationales for our actions, but also constantly exploring and examining ourselves and our own growth. This includes every aspect of our nursing practice, from skills to communication to interactions with others. Reflection not only ensures that we followed all the rights of medication administration, but also that we relate to our patient and colleagues in a humane, holistic manner.

Freire stated that those who wish to commit themselves to others need to constantly reexamine themselves. True reflective practice provides a way for nurses to escape impulsive, routine, and judgmental assumptions about situations, practice, colleagues, and patients.[2]

Reflective learning or practice?

Henderson, Napan, and Monterio use the term *reflective learning* to describe consciously thinking about and analyzing actions.[3] *Reflective practice* is the process of obtaining new insights through self-awareness and critically reflecting upon present and prior experiences.[4]

More recently, reflective learning has been defined as a process of holding experiences up to a mirror in order to examine them from different perspectives, whereas reflective practice assists one to explore what exists "just beyond the line of vision."[5] Similarly, the College of Nurses of Ontario states reflective practice is a process of nurses' reviewing aspects of their practice to decide what's working and what could be done differently.[1]

But reflective practice in nursing and/or nursing education is more complex than a single definition. As Bagay reminds us, reflection is a multifaceted process of action that each professional nurse considers throughout his or her entire career.[6]

Bulman, Lathlean, and Gobbi wished to uncover a greater understanding of how reflection is perceived and used by nursing students and instructors in an educational context. They found that reflection is associated with one's professional motivation to "move on" and "do better" in practice in order to learn from the experience, and critically examine one's "self."[7] This isn't new. Over 80 years ago, Dewey articulated this type of reflection as important to an active search for solutions to difficulties from past experiences in order to learn.[8] Bulman et al. also found that reflection was associated with humanistic nursing, emphasizing the importance of active expression of oneself to holistically care for others.[7]

Within education, much discussion has centered on the importance of teaching students to develop critical thinking skills through the use of reflection, both within and outside the profession of nursing.[9-12] Fulton expands on this and argues that nursing educators also need to encourage students to be curious thinkers.[13] Curious thinking uncovers problems. Because curious thinkers are more interested in the questions than the answers, they question everything in their practice, beginning the process of authentic and complete reflection.[13] Authentic reflection is action-oriented. It's an active process of discovering oneself.

Necessary practice

Johnson states that reflection is necessary to determine how one learns and one thinks, make sense of information, think critically, view problems from varying perspectives, develop new insights, bridge theory and practice, and understand one's strengths and

weaknesses.[11] Reflective practice in nursing correlates to the development of critical, autonomous, and advanced practitioners.[14] In short, reflective practice is necessary to:

- develop coping strategies
- enhance interprofessional communication
- increase students' understanding of nursing practice
- promote the expression of feelings
- make sense of personal emotional practice challenges
- help nursing students to know themselves.[15-17]

It's obvious that reflective practice is much more than simply wondering how one's shift went, and it's more than simply discouraging nurses and nursing students from applying their knowledge and skills robotically. Reflection for nursing students also helps them bridge the gap between new information they're learning and their prior knowledge.[18] These connections help to deepen their understanding of the content and material. They not only learn to solve problems, but also to help others and use their learning in “new and imaginative ways.”[18]

|

Tools for reflection

But how does one actually engage in reflective practice within nursing? Henderson, Napan, and Monterio offer a five-point reflection scale (reporting, responding, relating, reasoning, reconstructing) that can be viewed as a continuous circle.[3,11] Gibbs offers another reflection model with six components (description, feelings, evaluation, analysis, conclusion, action plan).[19]

Of course, these are only two models of reflective practice; there certainly are others. What's most important to consider is the fact that with these and other models, reflection is an active, deliberate, and cognitive process in which one examines a situation from varying perspectives, is open to new knowledge and information, and looks for numerous explanations and outcomes.[11]

But how often do we describe these models of reflection to nursing students? We ask them to write reflections on how their day went, but we don't often ask them to authentically reflect on how they interact with others. Sure, we talk to them about being professional with all colleagues and peers. We say it's necessary to exude professionalism, but we rarely explain to students that this requires them to constantly reflect upon how they act with others, what they actually say, and how they say it.[20] Only then will reflective practice serve the larger purpose of holistically enlightening nurses.

How educators can model reflective practice

Nurse educators must model reflective practice. One of the ways I do this is by asking my students to complete an anonymous evaluation of our class. I explain to students that I want their input about how I can best teach (and reach) them, and how we can all work together to enhance the learning environment. I do this early in the semester; the following week, I discuss their comments, ideas, and opinions. I incorporate as many of their thoughts as I can during the balance of the semester. Brookfield promotes this type of reflective practice in education because it allows instructors to see themselves through their students' eyes.[21]

Although educators often engage in reflection about our own actions and communication, we need to remember that sound education is always more about the process than the product.[22] Our job is to constantly view the world from different perspectives. And this can be achieved only by modelling and engaging in true reflection of all our actions and communications as educators.

|

REFERENCES

1. College of Nurses of Ontario. *Professional Standards*. 2013. www.cno.org/en/learn-about-standards-guidelines/educational-tools/learning-modules/professional-standards/.
Cited Here...

2. Freire P. *Pedagogy of the Oppressed*. New York: The Continuum International Publishing Group Inc.; 2005.
Cited Here...

3. Henderson K, Napan K, Monterio S. Encouraging reflective learning: an online challenge. In: R. Atkinson, C. McBeath, D. Jonas-Dwyer, R. Philips, eds. *Beyond the Comfort Zone: Proceedings of the 21st ASCILITE Conference*; 2004.
Cited Here...

4. Freshwater D, Taylor B, Sherwood G. *International Textbook of Reflective Practice in Nursing*. Oxford, UK: Blackwell Publishing; 2008.
Cited Here...

5. Freshwater D. The scholarship of reflective practice [position paper]. Indianapolis, IN: Sigma Theta Tau International; 2012.
Cited Here...

6. Bagay JM. Self-reflection in nursing. *J Prof Nurs*. 2012;28(2):130–131.
7. Bulman C, Lathlean J, Gobbi M. The concept of reflection in nursing: qualitative findings on student and teacher perspectives. *Nurse Educ Today*. 2012;32(5):e8–e13.
8. Dewey J. *How We Think: A Restatement of the Relation of Reflective Thinking to the Educative Process*. Lexington, MA: DC Heath and Company; 1933.

Cited Here...

9. Bolton G. *Reflective Practice: Writing & Professional Development*. 3rd ed. London: Sage; 2010.
Cited Here...

10. Bourdieu P. *Science of Science and Reflexivity*. Cambridge: Polity Press; 2004.

11. Johnson JA. Reflective learning, reflective practice, and metacognition: the importance in nursing education. *J Nurses Prof Dev*. 2013;29(1):46–48.
12. Swanwick R, Kitchen R, Jarvis J, McCracken W, O'Neil R, Powers S. Following Alice: theories of critical thinking and reflective practice in action at postgraduate level. *Teaching in Higher Education*. 2014;19(2):156–169.
Cited Here...

13. Fulton JS. Reflections on teaching nursing. *J Infus Nurs*. 2014;37(4):229–230.
Cited Here...

15. Elmqvist C, Fridlund B, Ekebergh M. Trapped between doing and being: first providers' experience of “front line” work. *Int Emerg Nurs*. 2012;20(3):113–119.
Cited Here...

16. Ip WY, Lui MH, Chien WT, Lee IF, Lam LW, Lee DT. Promoting self-reflection in clinical practice among Chinese nursing undergraduates in Hong Kong. *Contemp Nurse*. 2012;41(2):253–262.

18. Doyle T. *Learner-Centered Teaching: Putting the Research on Learning Into Practice*. Sterling, VA: Stylus Publishing LLC; 2011.
Cited Here...

19. Gibbs G. *Learning by Doing: A Guide to Teaching and Learning Methods*. Further Education Unit, Oxford: Oxford Brookes University; 1988.
Cited Here...

20. Dewey J. *Democracy and Education*. Los Angeles, CA: Merchant Books; 2009.
Cited Here...

21. Brookfield SD. *Becoming a Critically Reflective Teacher*. San Francisco, CA: Jossey-Bass; 1995.
Cited Here...

22. Palmer PJ. *The courage to Teach: Exploring the Inner Landscape of a Teacher's Life*. San Francisco, CA: John Wiley & Sons Inc.; 2007.
Cited Here...

Kolb - Learning Styles

simplypsychology.org/learning-kolb.html

SimplyPsychology

Saul McLeod, updated 2017

David Kolb published his learning styles model in 1984 from which he developed his learning style inventory.

Kolb's experiential learning theory works on two levels: a four-stage cycle of learning and four separate learning styles. Much of Kolb's theory is concerned with the learner's internal cognitive processes.

Kolb states that learning involves the acquisition of abstract concepts that can be applied flexibly in a range of situations. In Kolb's theory, the impetus for the development of new concepts is provided by new experiences.

> "Learning is the process whereby knowledge is created through the transformation of experience"

The Experiential Learning Cycle

Kolb's experiential learning style theory is typically represented by a four-stage learning cycle in which the learner 'touches all the bases':

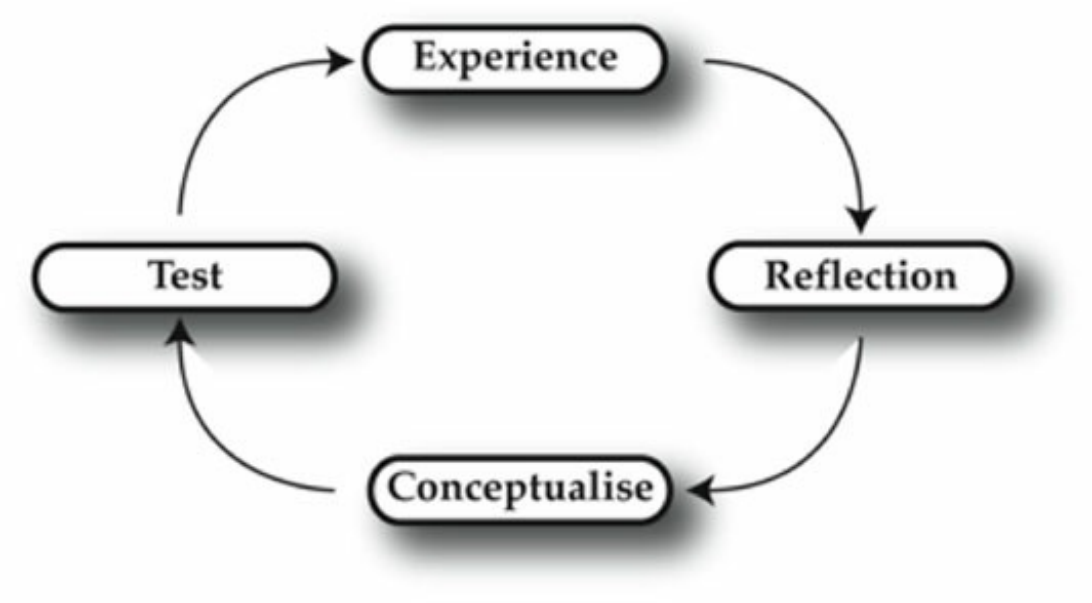
1. **Concrete Experience** - (a new experience or situation is encountered, or a reinterpretation of existing experience).

2. **Reflective Observation of the new experience.** (of particular importance are any inconsistencies between experience and understanding).

3. **Abstract Conceptualization** (reflection gives rise to a new idea, or a modification of an existing abstract concept).

4. **Active Experimentation** (the learner applies them to the world around them to see what results).

Effective learning is seen when a person progresses through a cycle of four stages: of (1) having a concrete experience followed by (2) observation of and reflection on that experience which leads to (3) the formation of abstract concepts (analysis) and generalizations (conclusions) which are then (4) used to test hypothesis in future situations, resulting in new experiences.



Kolb (1974) views learning as an integrated process with each stage being mutually supportive of and feeding into the next. It is possible to enter the cycle at any stage and follow it through its logical sequence.

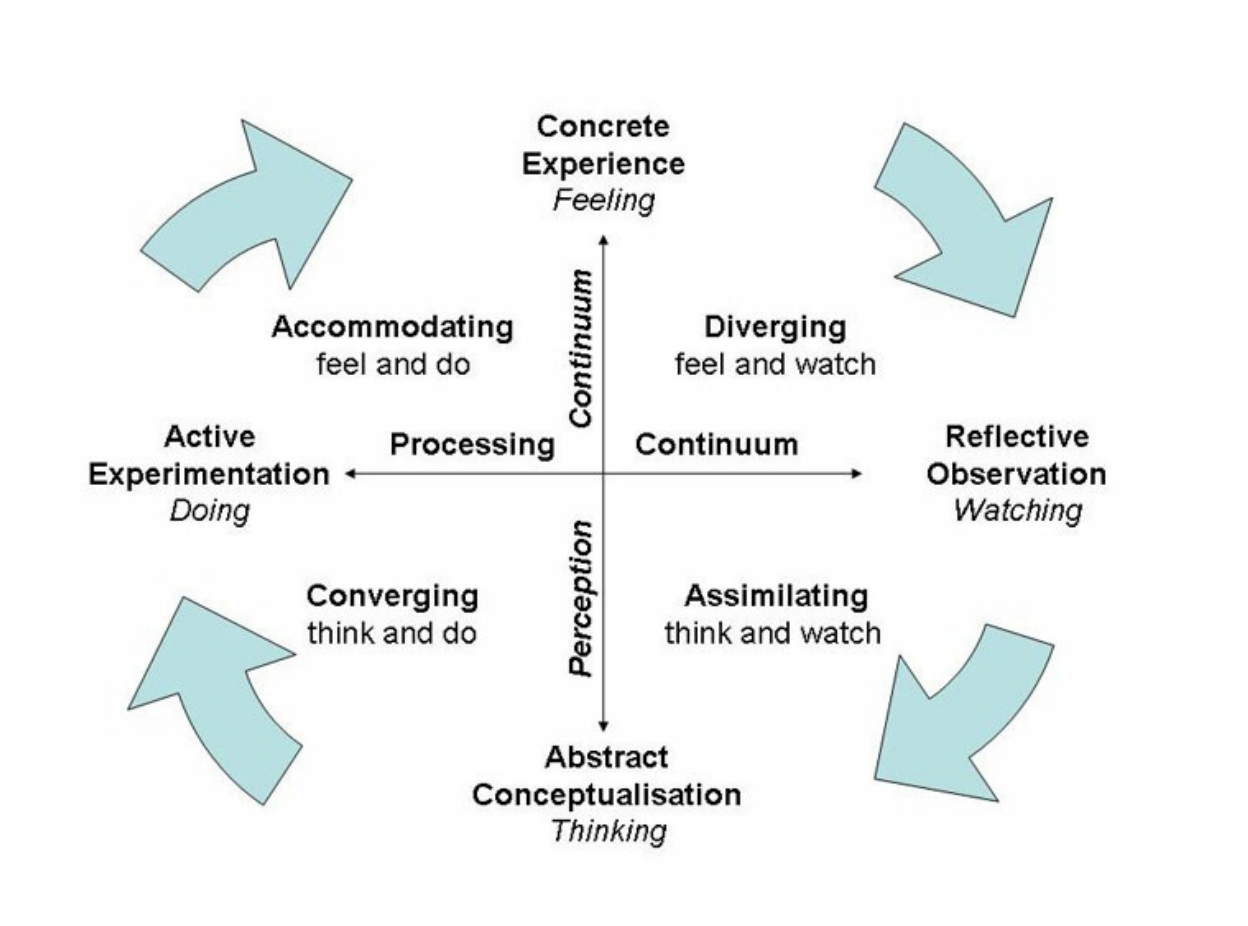
However, effective learning only occurs when a learner can execute all four stages of the model. Therefore, no one stage of the cycle is effective as a learning procedure on its own.

Learning Styles

Kolb's learning theory (1974) sets out four distinct learning styles, which are based on a four-stage learning cycle (see above). Kolb explains that different people naturally prefer a certain single different learning style. Various factors influence a person's preferred style. For example, social environment, educational experiences, or the basic cognitive structure of the individual.

Whatever influences the choice of style, the learning style preference itself is actually the product of two pairs of variables, or two separate 'choices' that we make, which Kolb presented as lines of an axis, each with 'conflicting' modes at either end:

A typical presentation of Kolb's two continuums is that the east-west axis is called the **Processing Continuum** (how we approach a task), and the north-south axis is called the **Perception Continuum** (our emotional response, or how we think or feel about it).



Kolb believed that we cannot perform both variables on a single axis at the same time (e.g., think and feel). Our learning style is a product of these two choice decisions.

It's often easier to see the construction of Kolb's learning styles in terms of a two-by-two matrix. Each learning style represents a combination of two preferred styles. The matrix also highlights Kolb's terminology for the four learning styles; diverging, assimilating, and converging, accommodating:

	Active Experimentation (Doing)	**Reflective Observation (Watching)**
Concrete Experience (Feeling)	Accommodating (CE/AE)	Diverging (CE/RO)
Abstract Conceptualization (Thinking)	Converging (AC/AE)	Assimilating (AC/RO)

Learning Styles Descriptions

Knowing a person's (and your own) learning style enables learning to be orientated according to the preferred method. That said, everyone responds to and needs the stimulus of all types of learning styles to one extent or another - it's a matter of using emphasis that fits best with the given situation and a person's learning style preferences.

Here are brief descriptions of the four Kolb learning styles:

Diverging (feeling and watching - CE/RO)

These people are able to look at things from different perspectives. They are sensitive. They prefer to watch rather than do, tending to gather information and use imagination to solve problems. They are best at viewing concrete situations from several different viewpoints.

Kolb called this style 'diverging' because these people perform better in situations that require ideas-generation, for example, brainstorming. People with a diverging learning style have broad cultural interests and like to gather information.

They are interested in people, tend to be imaginative and emotional, and tend to be strong in the arts. People with the diverging style prefer to work in groups, to listen with an open mind and to receive personal feedback.

Assimilating (watching and thinking - AC/RO)

The Assimilating learning preference involves a concise, logical approach. Ideas and concepts are more important than people. These people require good clear explanation rather than a practical opportunity. They excel at understanding wide-ranging information and organizing it in a clear, logical format.

People with an assimilating learning style are less focused on people and more interested in ideas and abstract concepts. People with this style are more attracted to logically sound theories than approaches based on practical value.

This learning style is important for effectiveness in information and science careers. In formal learning situations, people with this style prefer readings, lectures, exploring analytical models, and having time to think things through.

Converging (doing and thinking - AC/AE)

People with a converging learning style can solve problems and will use their learning to find solutions to practical issues. They prefer technical tasks, and are less concerned with people and interpersonal aspects.

People with a converging learning style are best at finding practical uses for ideas and theories. They can solve problems and make decisions by finding solutions to questions and problems.

People with a converging learning style are more attracted to technical tasks and problems than social or interpersonal issues. A converging learning style enables specialist and technology abilities. People with a converging style like to experiment with new ideas, to simulate, and to work with practical applications.

Accommodating (doing and feeling - CE/AE)

The Accommodating learning style is 'hands-on,' and relies on intuition rather than logic. These people use other people's analysis, and prefer to take a practical, experiential approach. They are attracted to new challenges and experiences, and to carrying out

plans.

They commonly act on 'gut' instinct rather than logical analysis. People with an accommodating learning style will tend to rely on others for information than carry out their own analysis. This learning style is prevalent within the general population.

Educational Implications

Both Kolb's (1984) learning stages and cycle could be used by teachers to critically evaluate the learning provision typically available to students, and to develop more appropriate learning opportunities.

Educators should ensure that activities are designed and carried out in ways that offer each learner the chance to engage in the manner that suits them best. Also, individuals can be helped to learn more effectively by the identification of their lesser preferred learning styles and the strengthening of these through the application of the experiential learning cycle.

Ideally, activities and material should be developed in ways that draw on abilities from each stage of the experiential learning cycle and take the students through the whole process in sequence.

References

Kolb, D. A. (1976). *The Learning Style Inventory: Technical Manual*. McBer & Co, Boston, MA.

Kolb, D. A. (1981). Learning styles and disciplinary differences. *The modern American college*, 232-255.

Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development* (Vol. 1). Englewood Cliffs, NJ: Prentice-Hall.

Kolb, D. A., & Fry, R. E. (1974). *Toward an applied theory of experiential learning*. MIT Alfred P. Sloan School of Management.

Kolb, D. A., Rubin, I. M., & McIntyre, J. M. (1984). *Organizational psychology: readings on human behavior in organizations*. Prentice Hall.

How to reference this article:

McLeod, S. A. (2017). Kolb - learning styles. Retrieved from www.simplypsychology.org/learning-kolb.html

Formative Evaluation of Student Learning

inside.trinity.edu/collaborative/resources/student-learning-materials/formative-evaluation-student-learning

What is Formative Evaluation?

Formative evaluation includes any form of classroom interaction that generates information on student learning, which is then used by faculty and students to fine-tune their teaching and learning strategies, respectively, during the teaching-learning process.

Methods of formative evaluation include:

Faculty use formative evaluation to identify gaps between what students understand and/or skills they possess relative to expected learning objectives for a course, unit of content, and/or activity and then offer feedback to help students close these gaps, before they confront high-stakes tests and assignments.

This information can also enable the faculty member to objectively evaluate any assumptions they hold concerning what and how students are learning. In turn, students can benefit from frequent and thoughtful feedback that promotes their own self-awareness (metacognition) and self-regulation of the learning process.

Formative evaluations differ from summative exams, reports, and related assignments which provide a static picture of student learning (typically at the end of curricular units) and do not afford students low-stakes opportunities to correct mistakes and/or adjust their study habits. It follows that summative assessments can be formative when accompanied by instructional feedback that enables students to make learning adjustments and improve future work within a course.

Formative evaluations encourage an ongoing, reciprocal exchange between faculty and student(s) that can move students toward expert self-monitoring of their work and intellectual persistence. It can also move them from risk-avoidance behaviors toward a mastery goal orientation. Research on formative assessment practices also point to gains in student motivation and achievement in the classroom.

Benefits of formative evaluation are more likely when:

1. evaluation techniques provide appropriate 1:1 measure for stated learning objectives that are accompanied by clear criteria for success
2. evaluation encourages students to learn from mistakes and is not linked to grading practice or other forms of judgment
3. faculty encourage a mastery goal orientation (growth focus) over a performance goal orientation (competition focus)

4. faculty provide models and instruction to help students connect formative feedback with metacognitive practice

A complex mix of factors act upon, and are embedded in, evaluation strategies and student-faculty interactions. As a result, the use of formative evaluation practices does not guarantee measurable benefits in student learning, motivation, and self-awareness. Opportunities to document these outcomes may be further confounded by decisions and compromises made in formulating classroom research.

For example:

- how can instructors help students transfer newly acquired learning behaviors to new situations?
- what effect size(s) should researchers use to reliably gauge benefits of formative evaluation on student learning outcomes?

Support References

Anderman, E.M., C.C. Austin., and D.M. Johnson. (2002). The development of goal orientation. In: The Development of Achievement Motivation, ed. A. Wigfield and J.S. Eccles, 197-220. New York Academy Press

Black, P. and D. William. (1998). Assessment and classroom learning. Assessment in Education: Principles, Policy and Practices, 5(1), 7-74

Butler, R. (1988). Enhancing and undermining intrinsic motivation; the effects of different feedback conditions on motivational perceptions, interest and performance. Journal of Educational Psychology, 58(1), 1-14.

Filsecker, M. and M. Kerres. (2012). Repositioning formative assessment from an educational assessment perspective: a response to Dunn & Mulvenon (2009). Practical Assessment, Research & Evaluation, 17(16), 2-9

Kingston, N and B. Nash. (2011). Formative Assessment: A meta-analysis and call for research. Educational Measurement: Issues and Practice, 30(4). 28-37

Meece, J.L., Anderman, E.M., and L.H., Anderman. (2006). Classroom goal structure, student motivation, and academic achievement. Annual Review of Psychology, 57, 487-503.

Shepard, L.A. (2000). The role of assessment in a learning culture. Education Researcher, 29(7), 4-14.

Classroom Assessment Techniques

inside.trinity.edu/collaborative/resources/student-learning-materials/formative-evaluation-student-learning/classroom

Background

Classroom Assessment Techniques (CATs) are a form of ungraded formative evaluation used by faculty to monitor student learning before and between summative exams or assignments and to then direct instructional strategies to better meet student needs.

They include simple tools and flexible procedures to evaluate student's:

- prior knowledge, recall, and understanding of concepts
- critical and creative thinking skills
- application, performance, and problem-solving skills
- capacity for self-reflection and self-regulation as learners
- reactions to faculty instruction and related classroom practice
- response to class activities, assignments, and materials

Examples:

- An instructor might adapt a background knowledge probe to understand what students' already know or remember about course subject matter.
- An instructor might use Documented Problem Solutions to evaluate to what extent students are aware of the cognitive steps they go through in solving a complex problem.
- An instructor might use a One Sentence Summary to determine how well students distinguish the key point of a learning activity or lecture.
- Another instructor might use a TtR2 to enable students retention of important concepts

Using Classroom Assessment Techniques

Prospects for successful use of CATs to improve student learning increase when faculty:

- write assemble student learning objectives for course units and activities
- clearly explain the purpose and process for using a CAT(s) with their students
- select (adapt) a CAT that best facilities measurement of a specific learning objective(s) and meets the instructors' concerns for time allocated to preparation, use, and review
- determine how they will analyze information collected using a CAT
- use results to provide students with feedback that is timely, explicit, and appropriately integrated into the class. Close the loop so that they understand what you have learned from their responses and how your suggestions or revisions can help them address gaps in learning
- do not grade student responses to a CAT

Knowledge Surveys

inside.trinity.edu/collaborative/resources/student-learning-materials/formative-evaluation-student-learning/knowledge

Background

Knowledge surveys consist of a set of questions that cover the full breadth of content and levels of inquiry within a course. Students typically complete the survey at the beginning, middle, and end of the course, indicating their perceived ability to answer questions about selected course concepts and content. A knowledge survey may also be modified to include a smaller set of questions for use between exams. It follows that Knowledge Surveys may be used to evaluate the effectiveness of new pedagogies and any impact they have on students' acquisition of content knowledge. They may also be used by academic departments to evaluate curricula.

Benefits of Knowledge Surveys

For Faculty:

- through writing the survey, faculty distinguish ancillary information from core concepts and course content
- when survey questions are classified using Blooms Taxonomy, they can reveal the instructional emphasis placed on various levels of understanding
- the survey serves as an outline for articulating course learning objectives
- pre-course surveys can be used to assess students prior knowledge of a subject area while both pre- and mid- course survey responses allow faculty to prioritize class time to address student learning deficiencies and needs
- a survey may be used to assess the overall learning of a class and, when results are evaluated longitudinally within a semester, provide information about learning gains.

For Students:

- the surveys clarify course objectives and serve as study guides to relevant knowledge
- the survey helps students develop self-assessment skills related to their learning strategies
- comparison of survey results throughout the course can help students "see" their learning progress

References

Bowers, N; Brandon, M. and C Hill. (2005). The use of a knowledge survey as an indicator of student learning in an introductory biology course. Cell Biology Education 4 (4), 311-322.

Nuhfer, E., and D Kipp. (2001). The Knowledge Survey: A Tool for All Reasons. To Improve the Academy (21), 59-78.

Wirth, Karl and Dexter Perkins. (2005). Knowledge Surveys: An Indispensable Course Design and Assessment Tool. Innovations in the Scholarship of Teaching and Learning.

Websites

Merlot ELIXR: a digital case story repository

On The Cutting Edge: Science Education Resource Center at Carleton College

Structured Mid-Semester Feedback

inside.trinity.edu/collaborative/resources/student-learning-materials/formative-evaluation-student-learning/structured

Student perceptions of faculty teaching are often gathered by means of structured interviews while classes are in session. This allows faculty to make instructional adjustments that can increase student motivation and lead to improved end-of-term teaching evaluations. Faculty response to structured feedback has also been linked to improved student acceptance of instructional changes, including non-traditional methods to support active learning.

The Small Group Instructional Diagnosis (SGID) process is a particularly effective means of collecting structured feedback from students. Its value derives from the collection of student comments on a course's strengths and weaknesses that is both candid and confidential. The process is enabled by a facilitator who conducts in-class interviews and then responds to the instructor with a description of the issues, concerns, and ideas raised by the students. This summary is presented to the instructor in typing to ensure student anonymity. No records of the SGID are retained by the facilitator nor does the facilitator discuss the results with anyone other than the instructor. Facilitation is typically provided through a campus teaching and learning center or by a trained staff person working outside of the instructors department.

Faculty can also collect mid-term feedback anonymously from students using in-class or online surveys. Both have the potential benefit of reducing the time allocated to compiling responses. The absence of facilitated dialogue, however, limits opportunities for students to compare views and for faculty to identify specific issues that underlie the collective sentiment of their students, as well as the emotional register of these concerns. Similarly, faculty do not derive the full benefit of constructive suggestions offered by their students.

Implementing the SGID Process:

- an instructor and facilitator meet to discuss the SGID process and schedule the interview; the latter requires ~30 min of class time
- on the scheduled day, the instructor introduces the facilitator, explains the purpose of the interview, then leaves the classroom
- the facilitator divides students into small groups to discuss what aspects of the course either facilitates or hinders their learning and what specific suggestions they might offer for improvement
- group information is shared with the class and the facilitator then guides the students to reach a consensus on their responses
- the facilitator meets with the instructor at a later time to discuss the results and consider strategies for faculty-student dialogue and/or fine-tuning the instructional approach
- the instructor then responds to the student feedback during the next class period

such that students understand the effects of their feedback and specific steps taken by the instructor to assist their learning.

Faculty use of SGID does not imply there are problems in classroom instruction or teaching effectiveness. In fact, this process is often adopted by faculty who already receive favorable end-of-term evaluations but wish to promote two-way communication in the classroom, generate conversation on course goals and learning outcomes, and/or evaluate new instructional approaches.

Scheduling a SGID

To learn more about the SGID process and/or schedule one for any of your courses, please contact Tom Jenkins at tjenkins@trinity.edu or Katherine Troyer at ktroyer@trinity.edu. A date can be scheduled at any time. Faculty who have participated in SGID and would like to facilitate for a colleague(s) can find support and training through the Collaborative.

Supporting References

Chen, Y., and Hoshower, L.B. (2003). Student evaluation of teaching effectiveness: An assessment of student perception and motivation. Assessment and Evaluation in Higher Education, 28(1), 71-88.

Coffman, S.J. (1998). Small group instructional evaluation across disciplines. College Teaching, 46(3), 106.

Diamond, M.R. (2004). The usefulness of structured mid-term feedback as a catalyst for change in higher education classes. Active Learning in Higher Education, 5(3), 217-231.

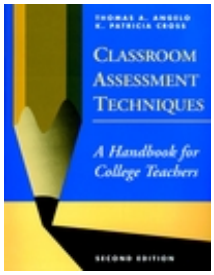
Herman, J.H., and M., Langridge. (2012). Using small group individual diagnosis to improve online instruction. In: To Improve the Academy: Resources for Faculty, Instructional, and Organizational Development, Groccia, J.E. and L. Cruz (eds), 31, 229-243. Jossey-Bass.

Redmond, J.C., and Swan, K. (1982). A process of midterm evaluation incorporating small group discussion of a course and its effect on student motivation. Washington, DC: U.S. Department of Education Educational Resources information Center.

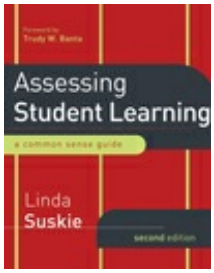
Smuts, B. (2005). Using class interviews to evaluate teaching and courses in higher education. South African Journal of Higher Education, 19(5), 943-955.

Sources of Information

Books:



Angelo and Cross (1993) have written an excellent overview of the theory, selection, and use of CATs in, "Classroom Assessment Techniques: A Handbook for College Teachers". Fifty techniques are presented that can be adapted for specific teaching contexts.



Additional information can be found in Suskie (2009), "Assessing Student Learning: A Common Sense Guide". This text describes a wide variety of topics related to the assessment process, as well as the use of results to inform and improve teaching, learning, planning, and decision making

Websites:

Vanderbilt University Center for Teaching Indiana University Center for Innovative Teaching and Learning University of Tennessee at Chattanooga

Journal Articles:

Angelo, T. A. (1990). Classroom assessment: Improving learning quality where it matters most. New Directions for Teaching and Learning, 42: 71–82.

Divoll, K.A., Browning, S.T., and W.M. Vesey. (2012). The ticket to retention: A classroom assessment technique to improve student learning. The Journal of Effective Teaching, 12 (2), 45-64

Esenbach, R., Golich, V., and Curry, R. 1998. Classroom assessment across the disciplines. New Directions for Teaching and Learning, 75: 59-66.

Goldstein, G.S. 2007. Using classroom assessment techniques in an introductory statistics class. College Teaching, 55, 77-82.

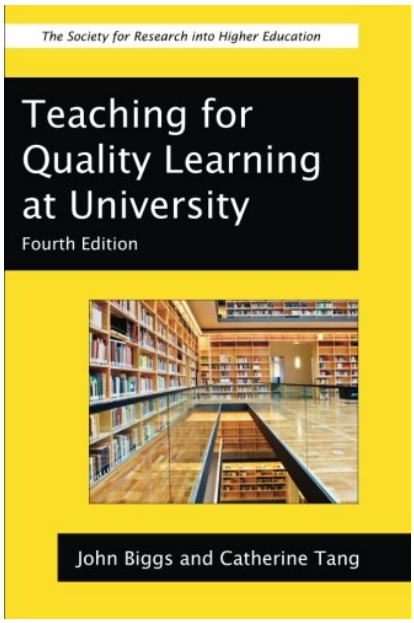
Steadman, M. 1998. Using classroom assessment to change both teaching and learning. New Directions for Teaching and Learning, 75: 23-35.

Simpson-Beck, G. 2011. Assessing classroom assessment techniques. Active Learning in Higher Education, 12(2), 125-132

Deep Learning, Constructive Aligment, SOLO-Taxonomy and PBL

M.R. Nieweg, may 2015

1. Deep and surface learning



Biggs and Tang (2007, pg 77, 78) describe two kind of approaches to learning: *"surface, which is inappropriate for the task at hand, and deep, which is appropriate. Students using a surface approach try to fool us into believing that they understand by rote learning and quoting back to us, sometimes in great detail. Students using a deep approach try to get at the underlying meaning of their learning tasks.*
(…) The approaches come about partly because of student characteristics, but also because students react differently to their teaching environment in ways that lead them into surface or deep learning. The teaching environment is a system, a resolution of all the factors present, such as curriculum, assessment, teaching methods and students' own characteristics. If there is imbalance in the environment, for example a test that allows students to respond in a way that does not do justice to the curriculum, or a classroom climate that scares the hell out of them, the resolution is in favour of a surface approach. What this means is that we should be consistent."
This shows clearly that deep and surface learning is *behavior* in esponse o ontext nd onditions, and that it is *not* a personality trait of the student. Which is important: e an try to influence behavior – and even better: we can understand it. Be hounest at some point in time we all applied surface approchoaches, didn't we?
So, the real challenge for a teacher is how to get students to apply a deep learning strategy. Biggs and Tan discuss three related points of attention for the teacher:

1. Focus on the student activities efore, uring nd fter lass, nd rrange he eaching nd learning ctivities ccordingly. The opposite behavior is taking a detached attitude, disregarding the effects of your own teaching, and explaining differences in arning utcomes s the result of differences between students.
2. Observe and analyse what deep learners, acing earning ask, do differently than superficial learners – what are the first doing different, better, more than the latter?
3. Arrange your classes, modules and curricula in such a way that the behavior of the deep learner is equired o chieve ood esult.

This last teacher focus is discussed in length in the concept of Constructive Alignment, to be found in a seperate article in this reader. It will be briefly introduced here.

2. SOLO taxonomy

Biggs and Tang differentiate the behavior of superficial and deeper learners more deeply in their 'SOLO' axonomy. OLO' tands or 'Structure of Observed Learning Outcomes' describing the behavior a student may choose when dealing with an educational challenge.

1. At the prestructural level in act o arning as ccured – the student has no answer to almost every question. (Teacher: "what is a cow?". Student: "uhhh…"[1])
2. At the unistructural level the student is able to mention one relevant aspect, without being able to place it in context. (Teacher: "what is a cow?". Student: "that's when you're milking"). The student has learned to define, identify nd o do a simple procedure.
3. At the multistructural level the student can name several relevant aspects, ut independently of each other. (Teacher: "what is a cow?". Student: "a cow gives us milk and when slaughtered also oil, meat, fat, bone and leather"). The student has learned o define, describe, list, do an algorithm and to combine aspects.
4. At the relational level the student can name several relevant aspects into a coherent whole. (Teacher: "what is a cow?". Student: "the essential difference between a Jersey cow and a Hereford Angus cow is that the latter is smaller than the first, but produces a lot more milk"). Details are connected to conclusions of which the meaning is understood. The student has learned o ompare, to contrast, explain causes, o equence, to analyse and so forth.
5. At the highest level, the extended abstract level, he tudent can generalize information beyond the given context. (Teacher: "what is a cow?". Student: "cattle or kye are domesticated ungulates, a member of the subfamily Boviniae. I hink en esponsible or he iversification of cattle by selecting on genetic characteristics, like aste f he eat, he ilk, ize, olor, o name a few".) Here the student clearly has learned to evaluate, to theorize, to generalize, to hypothesize and to research facts, as well as to reflect.

The superficial learners reach to level 3; deep learners reach to level 4 and 5. This is illustrated in figure 1 below, where the student behavior is described in verbs, since verbs reflect behavior.

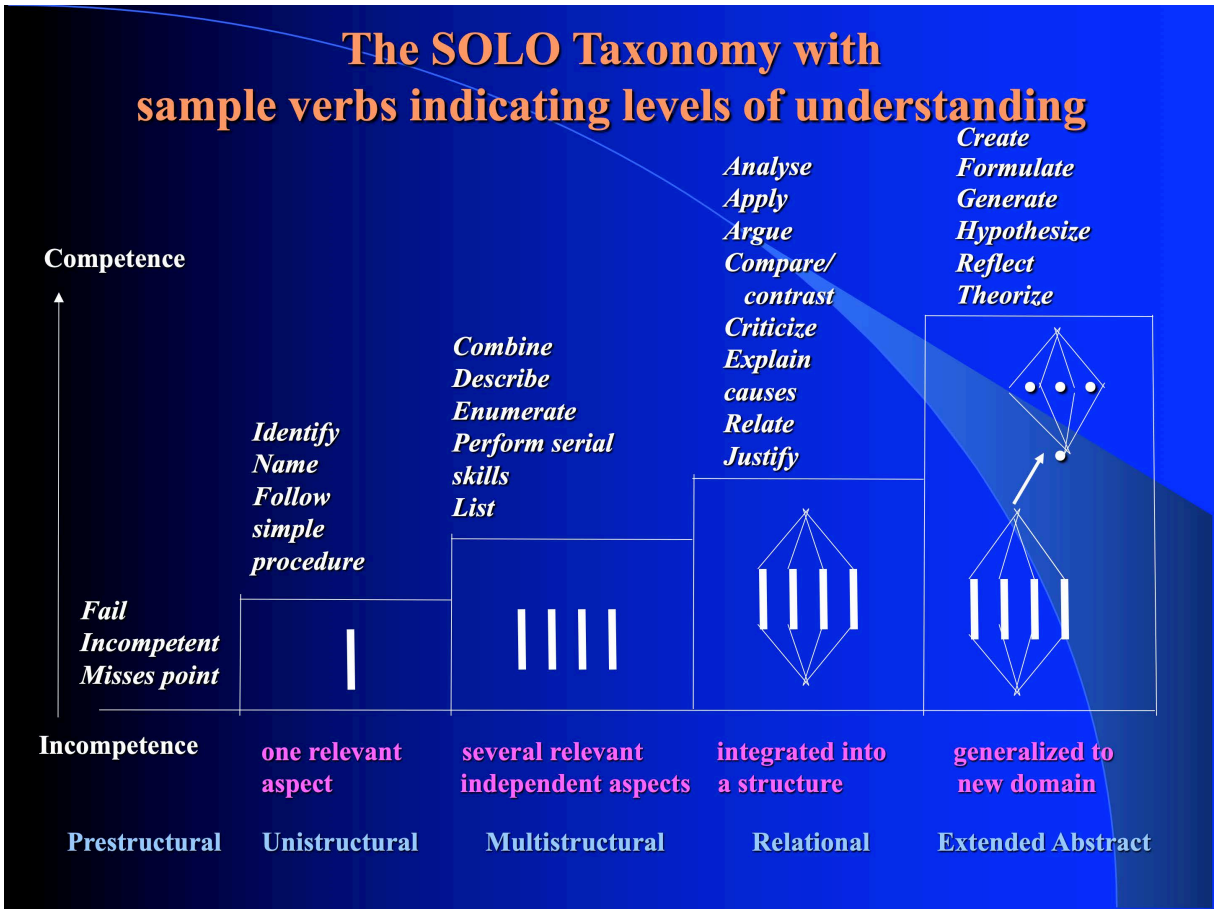


Figure 1 SOLO-taxonomy: Structure of Observed Learning Outcomes; www.johnbiggs.com.au

[1] Quotes are taken from the film 'Teaching Teaching Understanding Understanding', o e ound n ouTube.

3. Constructive Alignment

As described in the article *Constructive Alignment and why it is important to the learning process*, elsewhere in this reader, is about aligning the intended learning outcomes with the teaching and learning ctivities, nd lso ith he ssessment asks.
With reference to the SOLO taxonomy the desired student behavior is framed in the intended learning utcomes. he ext tep o ractice this same behavior that is what the classes are all about. Finally the student is asked to show his mastery of this behavior at the assessment or test. In other words: the same level of verbs are used all the time. When a teacher designs a course on the unistructural r ultistructural vel, he ehavior e ets hat escribed e ccompanying verbs no more. You may assess your student on a higher level, but most of them may not be able to reach that level untrained.
The opposite is also true: he eacher may use intended arning utcomes n elational f ven extended abstract level. But when the test requires only to tick boxes in a multiple choice test, his noble motives will not be met. Students usually quickly understand what pays out more: doing well at the test or doing well during class. When the test mostly requires a multistructural level it asks for little ore han uperficial arning trategy. Forgetting what has been learned, s permitted right after the test. There is a large body of research evidence that in fact this occurs.

Therefore the art of teaching is also the art of alinging the three elements (1) intended arning outcomes, (2) teaching & learning activities and (3) assessment tasks, in uch ay hat tudents ill have to use the desired behavior. This is illustrated in figure 2 below.

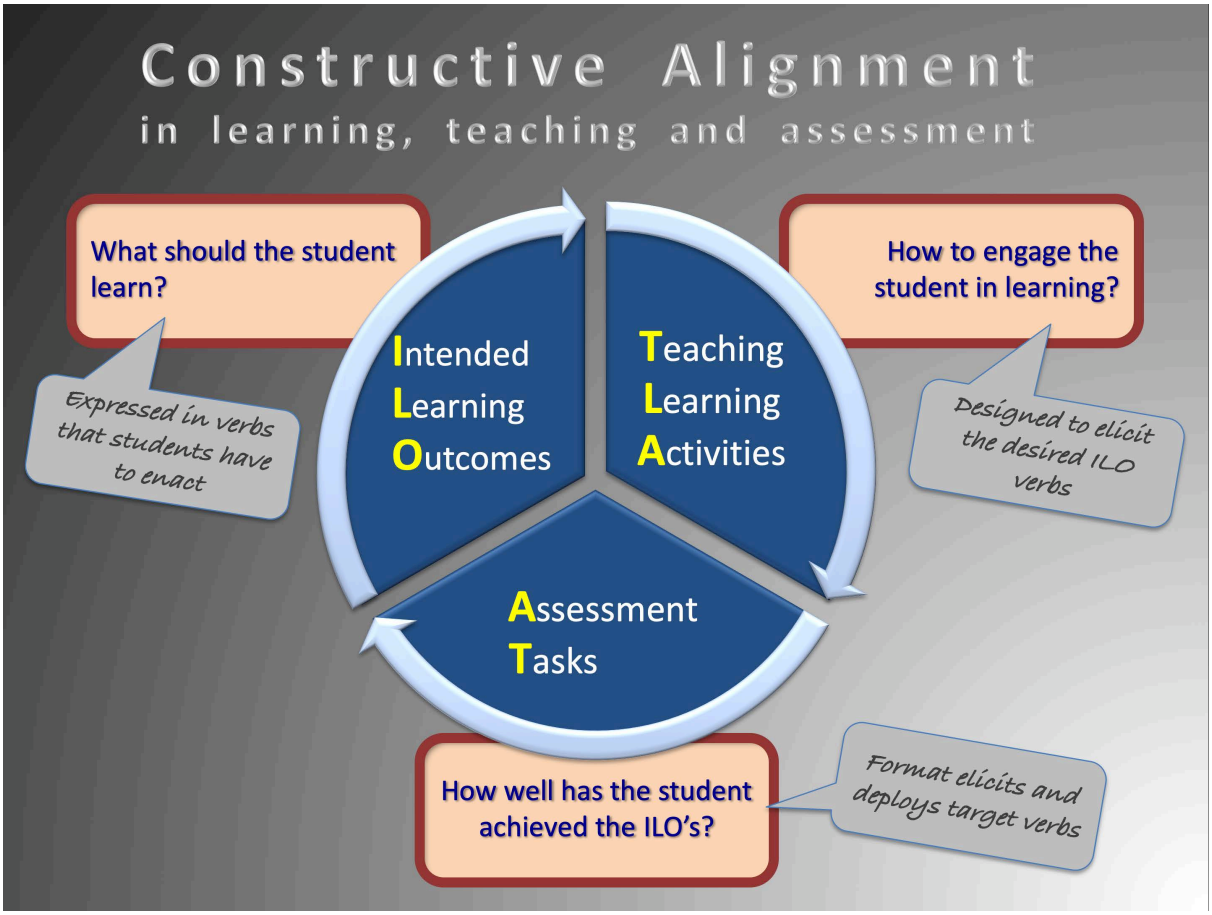


Figure 2 M.R. Nieweg, after Biggs & Tang (2007,2011); Teaching for Quality Learning at University

4. PBL requires deep learning

In the film Teaching Teaching Understanding Understanding, students with a preference for superficial approaches to learning, are symbolized by the actor called 'Robert'. The opposite, students with a preference for a deep approach to learning, are symbolized by the student 'Suzan'. This film shows how Robert merely responds to a system that does not foster student ambitions. Only intrinsicly motivated students like Suzan – the minority of our students will aim at deeper understanding, regardless of the teacher's approach.
In ther ords: teaching methods, applying, at best, the multistructural level, create Roberts. This teacher can make students work harder by focussing on more details and maximum coverage of the literature. esearch ver ecades how hat he pposite appens: tudents se verview, they increasingly focus on details and on short term effort. The learning becomes 'strategic' i.e. superficial. Meeting the requirements with the least effort becomes more important then deep understanding and a general overview.

Specificly PBL requires of higher order skills, uch s analysing, comparing, problem solving, hypothesising and so on. Besides these congnitive skills it also requires collaboration, multidisciplinary thinking, independent tudying and so on. Therefore a PBL course should phrase the intended arning utcomes t he elational, nd/or he xtended bstract vel. sing wer vel verbs gives students an excuse to underperform.

At the assessment task however, the whole range of verbs in the SOLO taxonomy may be used, in order evaluate which level a student has actually reached. The highest verb represents the maximum achievement, to be rewarded with an A. The lowest acceptable verb represents the minimum requirement, to be rewarded with a D. This should prefarably be on at least the relational level. Surface achievements should therfefore lead o n , ailure.

During the learning activities – the teacher may coach students using verbs on a slightly higher level then this student performes, thus supporting him to enter his zone of proximal development. Since the higher levels encompass the lower ones, usually it not possible to achieve a higher order cognitive level while skipping the lower ones. Therefore; an assignment on relational or extended abstract level *requires* knowledge on at least multistructural level.

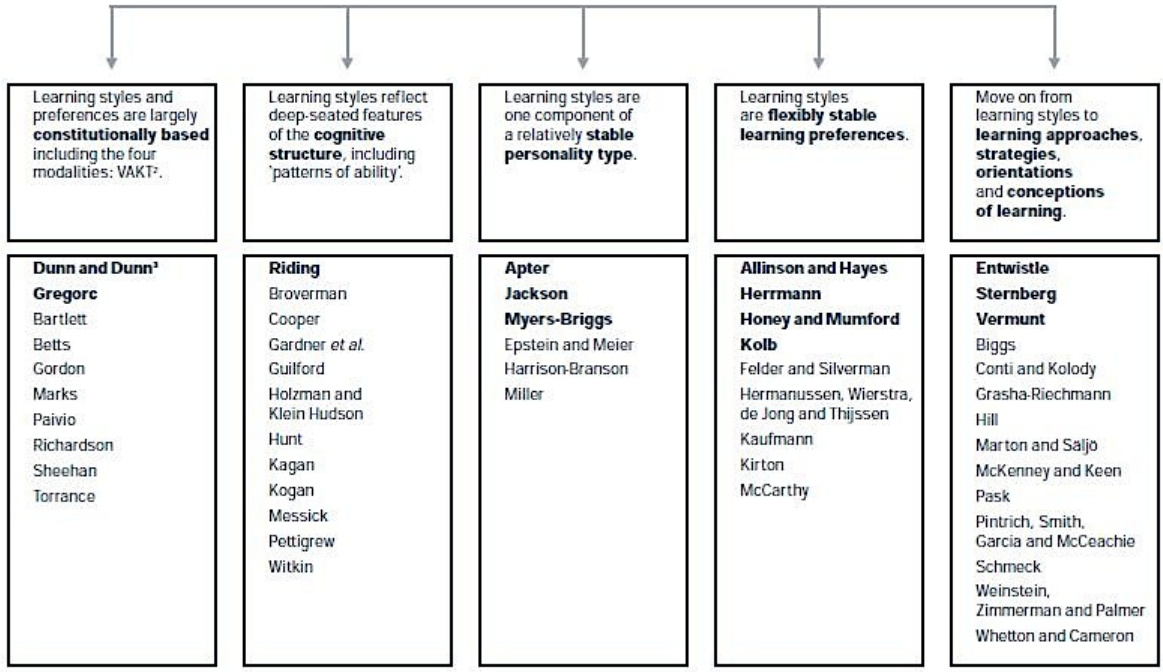
One final word. In order to challenge students in PBL it is best to construct 'messy' cases and assigment: problems with 'sub problems' like conflicts of interest, different stakeholders, dilemma's and so on. These must be part of the narrative instead of a 'list that students have to answer to'. A narrative focusses students on deep learning. Lists may lead to surface learning (Robert: "OK, let's split the case in seperate issues; that's the easiest way" and leave it at that, while Susan probabely continues with "… and then look for the coherence and the context"). The the case complexity increases uring he ears, while the scaffolding deminishes. But cases stay 'messy' routine problems don't create much learning.

5. VermuntÂ Learning Styles

Learning styles	Learning components			
	Cognitive processing strategies	Regulation strategies	Learning orientations	Mental models of learning
Meaning-directed	deep processing	self-regulation	personal interest	construction of knowledge
Reproduction-directed	stepwise processing	external regulation	certificate and self-test-directed	intake of knowledge
Application-directed	concrete processing	both self and external regulation	vocation-directed	use of knowledge
Undirected pattern	hardly any	lack of regulation	ambivalent	stimulating education and cooperation

6. Families of Learning Styles

Figure 4
Families of learning styles



SOLO-TAXONOMY – Structure of Observed Learning Outcomes

HvA-hbo-ict; Michael Nieweg, 14.11.2018

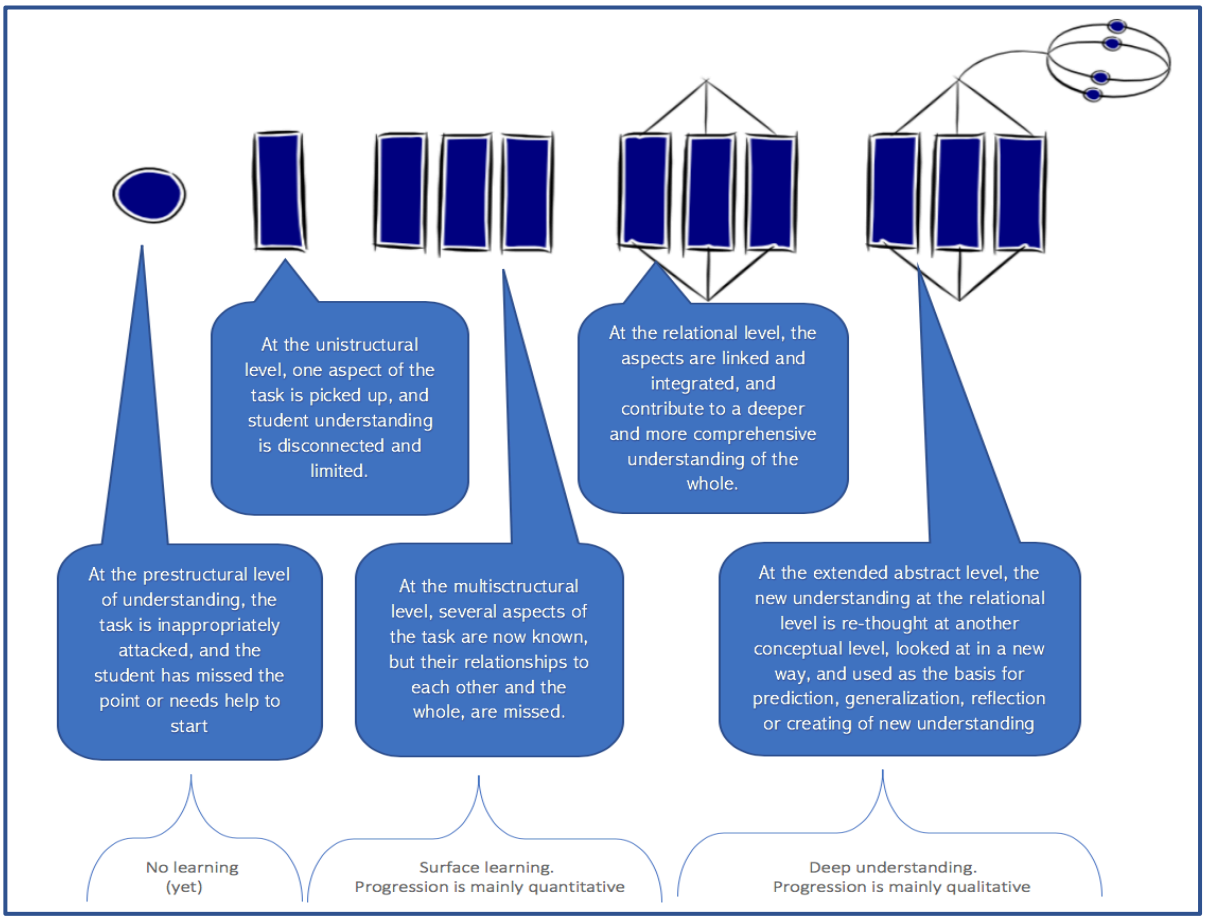
What's SOLO?

The SOLO-taxonomy provides a simple, reliable and robust model for two levels of understanding: surface learning and deep learning (bron).

Furthermore, it enables students to self-assess their progress and to give useful feedback to each other. In contrast to the 'end of program test', students are now able to describe what they need to do in order to progress, as well as to use the advice given by fellow students and teachers.

- *Surface understanding* comes from "the intention to get the task out of the way with minimum trouble while appearing to meet course requirements" (Biggs, 2003, p14). This often includes rote learning content, filling an essay with detail rather than discussion and list points rather than providing background or context**.**
- *Deep understandi*ng comes "from a felt need to engage the task appropriately and meaningfully, so the student tries to use the most appropriate cognitive activities for handling it" (Biggs, 2003, p16).

Using this last approach, students make a real effort to connect with, and understand what they are learning. This requires a strong base knowledge for students to then build on seeking both detailed information and trying to understand the bigger picture. In a quick representation:



What about Bloom's taxonomy?

First: we are talking about the taxonomy that is revised in 2001. For more info, click here.

Second, Bloom's taxonomy is just about the knowledge domain. Learning comprises much more than that. SOLO stems from an evidence-based theory on learning and teaching. It addresses ascending levels of cognitive complexity; which is very helpful by placing the student in the driver's seat and providing ample feedback, feed-forward and feed-up[1].

From a scientific viewpoint, the advantages are summed up in detail here.

What are learning outcomes?

Learning outcomes are no more or less, the outcomes of the learning process of a student: *what he is expected to be able to DO as a result of a learning activity.* This sentence can be broken into three pieces:

[1] Feedback: reflects on the work that is done. Feed forward: focusses on what can be done next. Feed up: establishing a purpose or goal. These can be directed towards the task, the process, the self-regulation and personal feedback to the student.

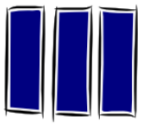
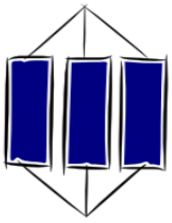
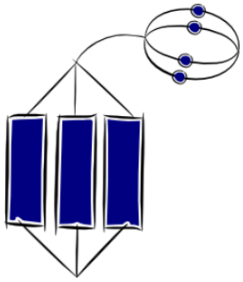
1. *'Expected':* the 'intended learning outcomes[2]' are in the student's possession from the start of the program onwards. It is their 'manual to the learning';
2. *'To be able to do'* refers to the developed professional behavior a student can demonstrate at the end. Behavior covers the integrated set of skill, knowledge and/or attitude;
3. *'As a result of a learning activity'* means that the student can do something after the learning activity, that he could not do before. The learning activity has a clear 'added value'.

Have a look for yourself!

Teaching Teaching & Understanding 1/3 (8:13) link
Teaching Teaching & Understanding 2/3 (6:19) link
Teaching Teaching & Understanding 3/3 (6:00) link

Behavior requires verbs

Below some verbs are phrased that may be helpful when phrasing the intended learning outcomes on the relational level, and then to describe the levels higher and lower. Please note that the verbs illustrate the mental activity, when operating on that level. Of course, you are free to use synonyms.

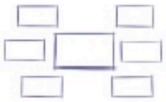
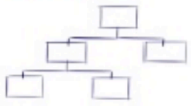
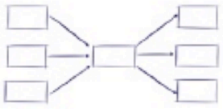
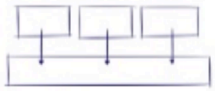
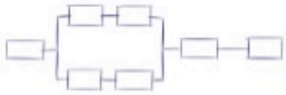
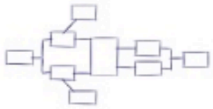
				
Prestructural level	Unistructural level	Multistructural level	Relational level	Extended abstract level
Misses the point	Count	Advanced search	Apply	Abstract
	Define	Annotate	Analyze	Analyze critically
	Draw	Classify	Argue	Compose
	Count	Carry out	Characterize	Create
	Copy	Combine	Conclude	Evaluate
	Find	Compute	Compare	Hypothesize
	Identify	Describe	Contrast	Invent
	Imitate	Discuss	Construct	Justify
	Label	Enumerate	Debate	Formulate
	Match	Follow a procedure	Discuss	Generalize
	Memorize	Illustrate	Differentiate	Generate
	Name	List	Distinguish	Imagine
	Order	Narrate	Examine	Make an original case
	Quote	Outline	Expand, enlarge	Modify
	Recall	Paraphrase	Explain causes, effects	Negotiate
	Recite	Report	Integrate	Originate
	Recognize	Separate	Interview	Predict
	Record	Sequence	Judge	Prove from first principles
	Repeat		Make an analogy	Reflect
	Retrieve		Make a case	Realize remote transfer
	Tell		Organize	Theorize
			Outline	
			Predict	
			Question	
			Reason	
			Review	
			Rewrite	
			Solve a problem	
			Summarize	
			Translate	
			Transfer	

[2] 'Intended' means that learning outcomes have, to a degree, an open nature. The student has a certain range in which the learning outcomes may be realized – and is not restricted to a specific and narrow defined framework.

Examples

At the prestructural level of understanding, the task is inappropriately attacked, and the student has missed the point or needs help to start	At the unistructural level, one aspect of the task is picked up, and student understanding is disconnected and limited.	At the multistructural level, several aspects of the task are now known, but their relationships to each other and the whole, are missed.	At the relational level, the aspects are linked and integrated, and contribute to a deeper and more comprehensive understanding of the whole.	At the extended abstract level, the new understanding at the relational level is re-thought at another conceptual level, looked at in a new way, and used as the basis for prediction, generalization, reflection or creating of new understanding.
"I don't' know" (no attempt to answer). *"So that they are different from apples"* (Irrellevant answer) *"Ehhh… I have no idea…"* (Misses the point all together)	*"A cow is when you're milking"* (Correct explanation based on a few elements of prior knowledge)	*"Cows give us milk, and when slaughtered they give us oil, meat, fat, bone and leather"* (Correct explanation of multiple elements of prior knowledge, but independently)	*"The essential difference between a Jersey cow and a Herford Angus cow, is that a Jersey cow produces a lot more milk, but is substantially smaller".* (Good and insightful explanation)	*"Cattle are domesticated ungulates, member of the subfamily Boviniae, and it seems to me that humans must have to be the root cause for the diversification of cattle, because they were selected for different genetic characteristics, like milk, meat, size, color and behavior, to name a few"* (Very good, insightful. Goes beyond what the intended learning outcomes state).
Biggs: *Lower than 'marginal', amongst other things due to inadequate attempts to achieve a higher level (which could potentially be improved).*	Biggs*: Insights at declarative and procedural level and the use of lower-order learning activities. In addition, there are clear (unsatisfactory, but improvable) attempts to achieve a higher level.*	Biggs*: Insights at declarative, procedural and conditional level and the use of learning activities such as describing, expanding, enlarging, classifying, ordering, implementing, discussing, summarizing, outlining, reasoning, distinguishing etc., leading to satisfactory learning results*	Biggs: *Insights at declarative, procedural and conditional level plus the use of higher order learning activities, leading to satisfactory learning results*	Biggs: *The best understanding that can reasonably be expected and that encourages further knowledge development. In addition to the learning activities of the previous level, this level includes the ability to think beyond the frames and perspectives, offered in class.*

Just one last example…:
(bron)

Prestructural	Unistructural	Multistructural	Relational	Extended abstract
	Define 	Describe 	Sequence  Classify  Compare and contrast  Cause and effect  Analyse  Analogy 	Generalise  Predict  Evaluate 

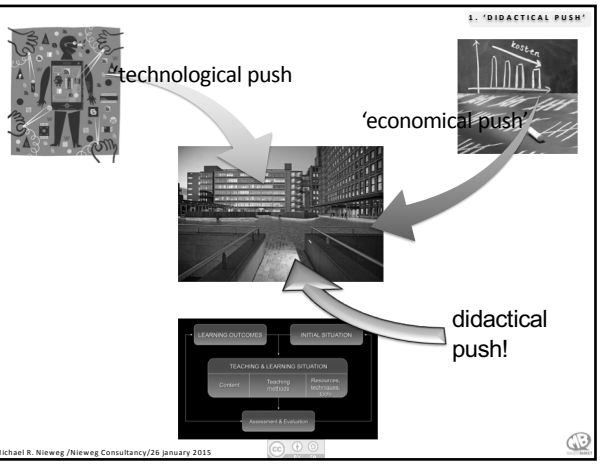
One model, four perspectives on blended teaching and learning

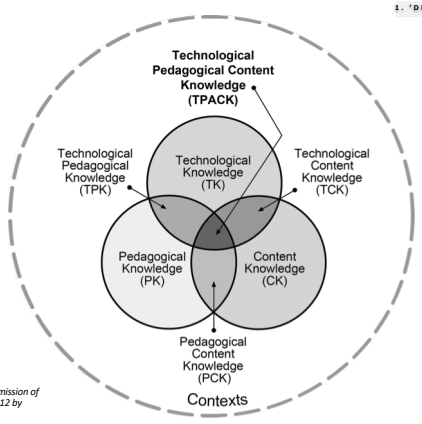
Weblecture and online workshop
27 january 2015
Organized by Business Academy Aarhus and Hogeschool van Amsterdam

Michael Nieweg - mrnieweg@xs4all.nl

Content presentation

The chapters are indicated in the 'organizers' on the top-right of each slide





Reproduced by permission of the publisher, © 2012 by www.tpack.org

Blended learning is a multidisciplinary job

This asks for a T-shaped professional:

Collaboration Communication and Interaction skills; attitude, creative thinking	***Multi-step approach*** as strategy for problem solving	***General Knowledge*** of the related professions / disciplines
	Expertise Content knowledge and skills in own profession / discipline	

2010, Oskam & Nieweg: 'Ingenieuze Ingenieurs: over nut en noodzaak van de T-shaped professional (Weggeman)'

BLENDED LEARNING

is first of all about learning

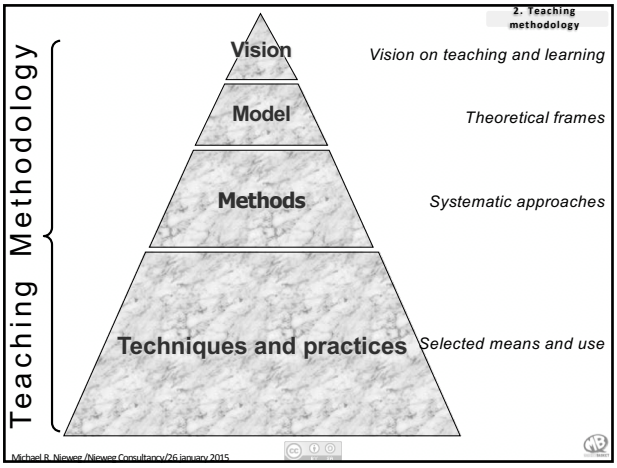
and only then about how technology supports it

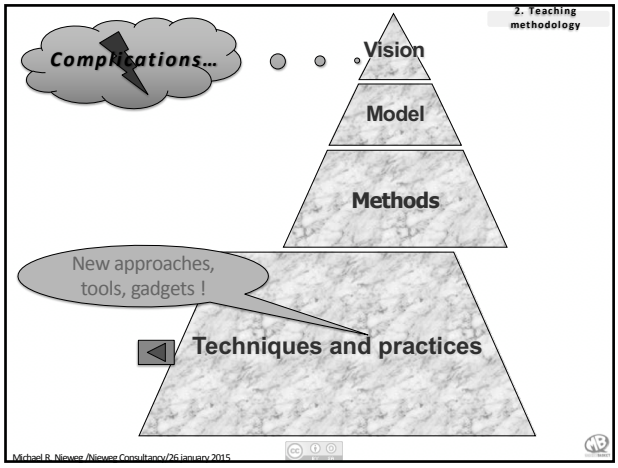
because…

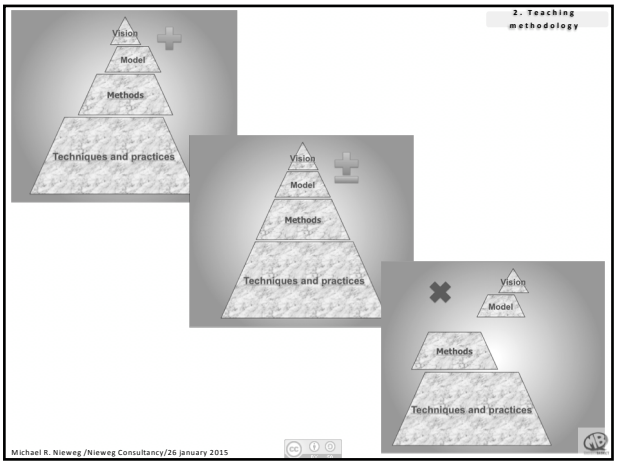
learning is driven by psychological processes

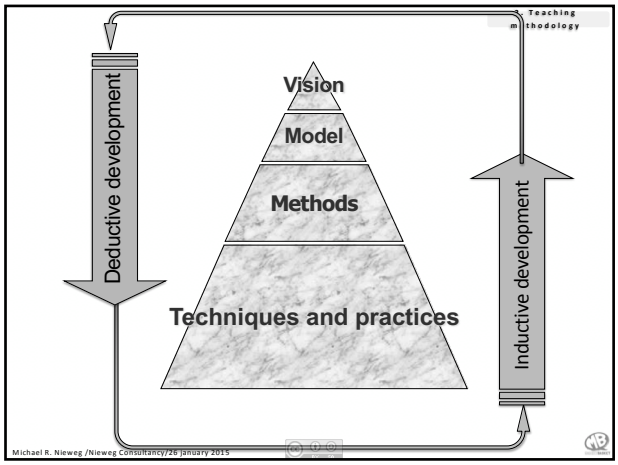
carried by students, teachers, recourses, enthusiasm, insights, desires and dilemmas…

Discussions like…
To Lead or to tempt? Führen oder wachsen lassen? Nature or nurture? Learning by listening or learning by doing? Ambition or obligation? To observe or to experiment? "Tell me and I will forget – show me and I will remember – involve me and I will understand?" Knowledge first or problem first? To deduce or to experience? Etcetera…









Old or new wine in new bottles?

SUBSTITUTION	• Transferring program 'as is' to the new context • Minimal adaptations and only small adjustments • Short term, practical focus • Continuation of standing practices
TRANSITION	• Programs are modified to the new context • Substantial adaptations, strengthening program • Midterm, tactical focus • Improvements on operational level
TRANSFORMATION	• Redesign • New paradigms • Long term, strategical focus • Change oriented (process, product, context)

What *is* it that we're looking for?

GOAL: OBVIOUS ADDED VALUE

Time and place independent	Flexible
Virtual en physical	Mass as well as customized
Personalization and community building	Activation of all
Critical thinking	Appeal to intrinsic motivation
Shared ownership	Deep understanding
Multiple contexts	Just in time en just enough
Continuous workflow	Sharing and developing knowledge
More time on task	Digital library
Parallel, not serial, learning processes	Meaningful learning

Two dimensions

1. Control over learning process
1. Control over content

Student directs learning process
Teacher plays complementary role

1. Control over learning process

Teacher directs learning process
Student plays complementary role

Study of (abstract) aspects of reality

2. Control over the content

Study of (concrete) events in reality

Student directs learning process
Teacher plays complementary role

Specialist Field

Competition Field

Study of (abstract) aspects of reality

Study of (concrete) events in reality

Instruction Field

Practise Field

Teacher directs learning process
Student plays complementary role

Student directs learning process
Teacher plays complementary role

'enfant sauvage'

Dimension 'control over learning process'
The extremes are hypothetical

programmable student'

Teacher directs learning process
Student plays complementary role

Academic teachers and students tend to act in the bottom half of this dimension
…specifically in the first half of the study

Teachers sometimes feel that students are…
… too dependent and too consumptive

Students sometimes feel that teachers are…
… too bossy or just too supportive

Teacher and student: unequal relationship
Watzlawick's Five Axioms

Pragmatics of Human Communication, Paul Watzlawick (1967)

1. **One cannot *not* communicate**
   (axiom 1: when people are together, they interpret one each others behaviour)
2. **Every communication has a content and relationship aspect - the latter classifies the former** (axiom 2: there is always metacommunication)
3. **Teacher and student interpret each others behavior in the context of cause and effect** (axiom 3: everybody punctuates to their own insights)
4. **People communicate verbally and non verbally** (axiom 4: discrepancies induce miscommunications
5. **People treat each other either equal or unequal**
   (axiom 5: "Inter-human communication is either symmetric or complementary. This depends on whether the relationship is based on differences or parity"

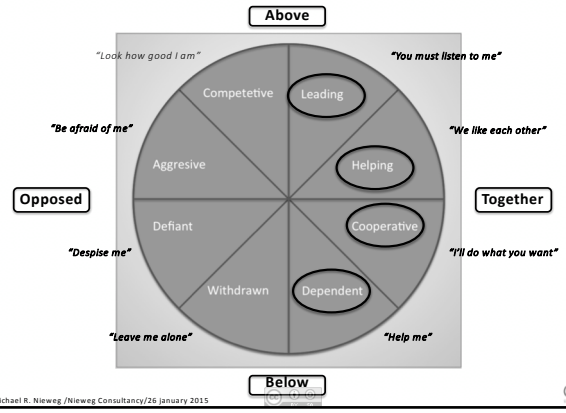
It is only human…

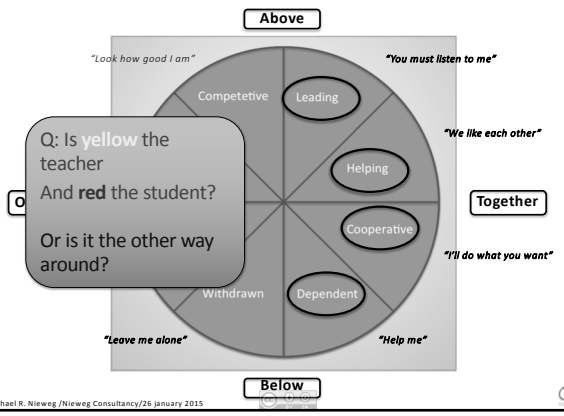
Van Vliet, V. (2012). Rose of Leary. Retrieved [26.01.2015] from ToolsHero: http://www.toolshero.com/rose-of-Leary

It happens to the best…

De in het verhaal besproken fotoserie van de Amerikaanse president Johnson die in 1957 Theodore Green terechtwijst. Foto's George Tames / The New York Times

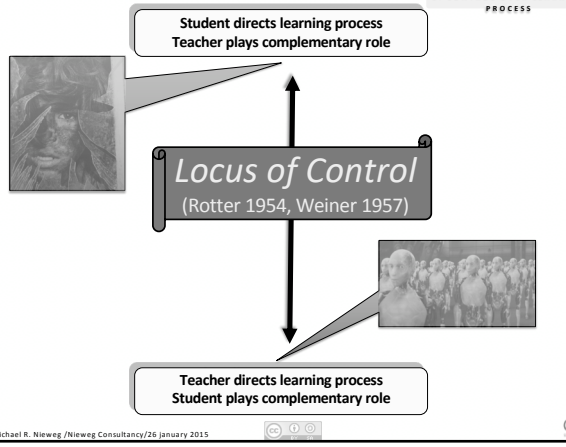
1957: senate majority leader Lyndon B. Johnson works over Theodore F, Green, chairman of the Senate Foreign Relations Committee





Q: Is **yellow** the teacher
And **red** the student?

Or is it the other way around?



What can students control?

- Operate on the basis of goals and criteria
- Use 360 degrees feedback
- Evaluate on outcomes and process
- Improve outcomes when needed
- Be accountable

- Orientate on subject and context
- Formulate goals and stakes
- Explore expert knowledge and benchmarks
- Inventory of prior knowledge and resources

Evaluate | Orientate | Implement & Monitor | Plan & Organize

- Execute as planned
- Search literature, study, apply
- Obtain feedback
- Guard and adjust progress and collaboration

- Define goals and criteria
- Formulate desired learning outcomes
- Choose and plan learning activities
- Collaborate, coordinate and divide tasks at hand

After: Taks, 2003. Zelfsturing in leerpraktijken. Dissertation Universiteit Twente, Enschede. English summary available

Student directs learning process
Teacher plays complementary role

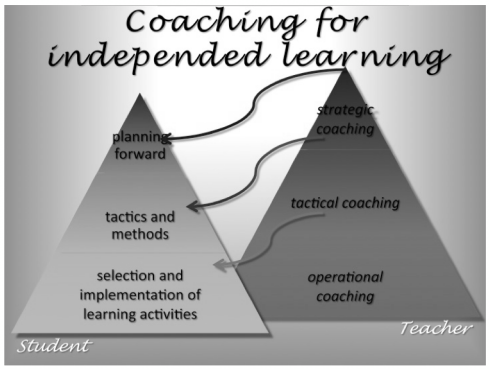
Mentored Learning (van Rossum en Hamer, 2010)
Evaluate | Orient | Implement | Plan

Independent learning
Implement | Plan

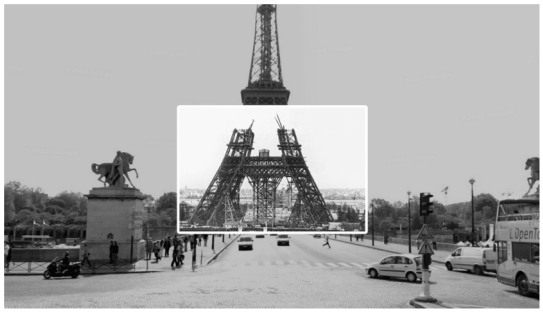
Active learning
Implement

Teacher directs learning process
Student plays complementary role

Vygotski's zone of proximal development



Scaffolds shrink as the student grows



Study of (abstract) aspects of reality

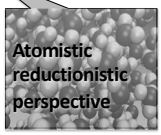
2. Control over the content

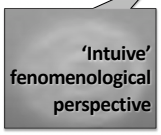
Study of (concrete) events in reality

Dimensie control over the learning content
Again, the extremes are hypothetical

Study of (abstract) aspects of reality

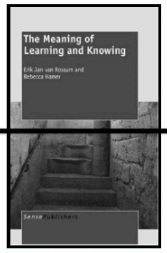
Study of (concrete) events in reality





6. CONTROL OVER CONTENT

How to define knowledge…?



Study of (abstract) aspects of reality

Study of (concrete) events in reality

6. CONTROL OVER CONTENT

Six perspectives on knowledge

1. Absolute knowing	2. Transitional knowing	3. Independent knowing	4. Contextual knowing	5. Knowing on own authority	6. Internal foundation
Knowledge is certain and true.	Not all knowledge is certain	Much knowledge is uncertain	Perspectives on reality determine knowledge	Idem	Knowledge and self realization are connected
There are indisputable answers	There are some disputable answers	There are good thinking methods and arguments	Answers are constructs	There is relativism	There is relevance
Teachers are the authority	Authorities do not always agree	Teachers are knowledge coaches	Teachers help students to organize knowledge claims	Teachers are 'critical friends' in the field of knowledge	Mentors growth from 'learning to know' to 'learning to be'
Students are their echo and memorize	Students have to memorize and also to understand	Students begin to think for themselves	Students engage in dialoge with others	Students are 'authors' of their own perspectives	Learning is growing, needed for a meaningful life

6. CONTROL OVER CONTENT

Independent knowing | Contextual knowing

Transitional knowing | Knowing on own authority

Casebased learning
In context
Simulated
Exemplary

Study of (abstract) aspects of reality

Study of (concrete) events in reality

Knowledge as an end
Search for universal truth
Specialistic
Can be standardized

Knowledge as a mean
In context
Authentic
Unique (n=1)

7. COMPOSITION OF THE BLEND

Student directs learning process
Teacher plays complementary role

Specialist Field

Collaboration Field

Study of (abstract) aspects of reality

Study of (concrete) events in reality

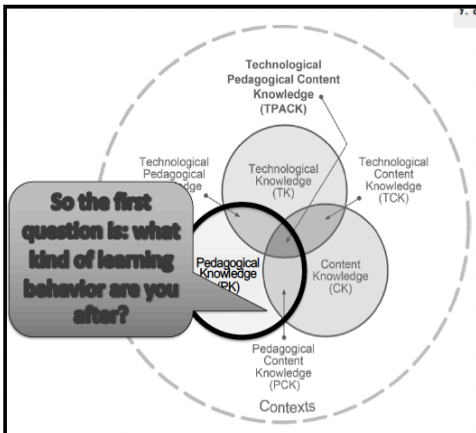
Instruction Field

Practise Field

Each perspective has different degrees of control

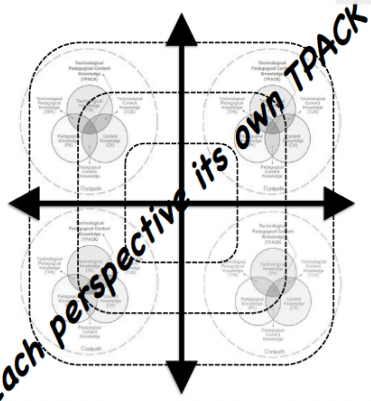
Teacher directs learning process
Student plays complementary role

7. COMPOSITION OF THE BLEND

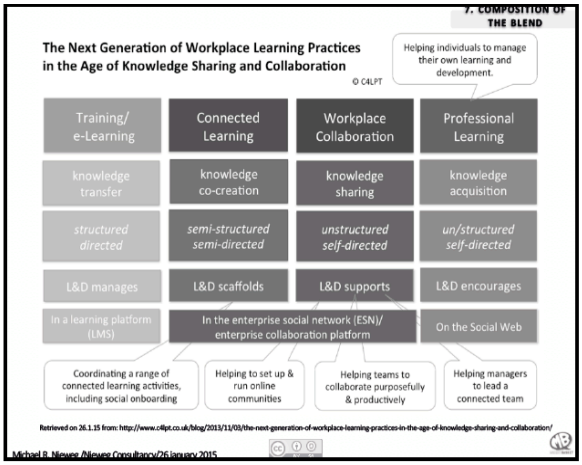


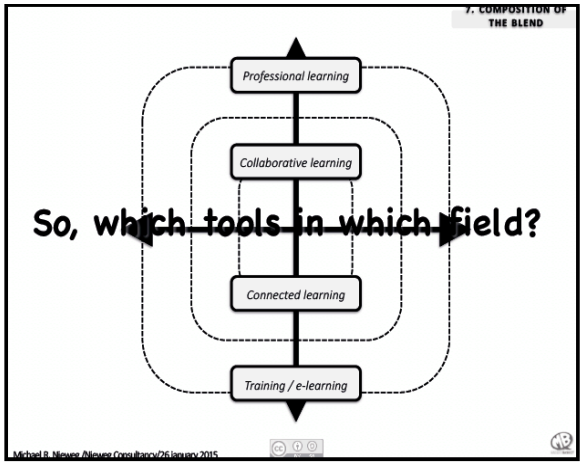
So the first question is: what kind of learning behavior are you after?

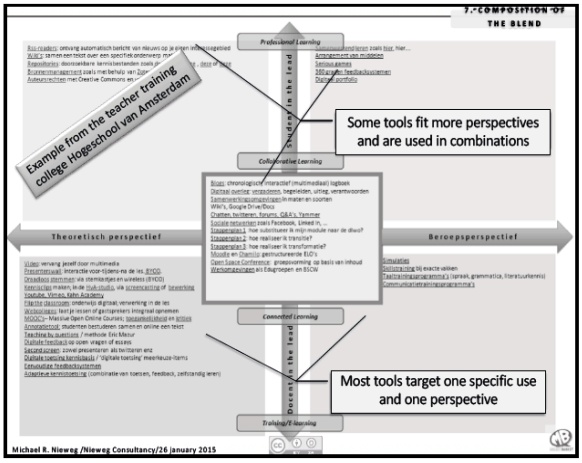
7. COMPOSITION OF THE BLEND

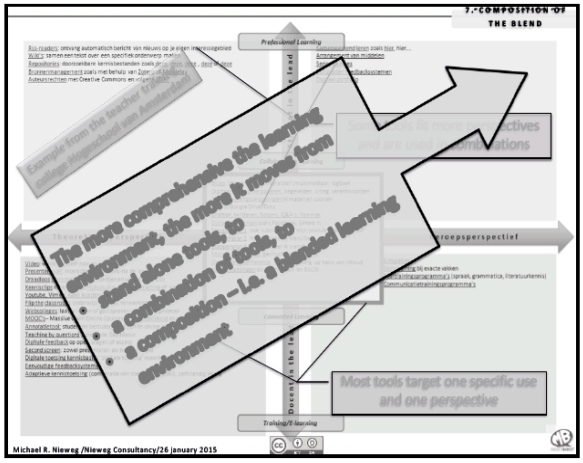


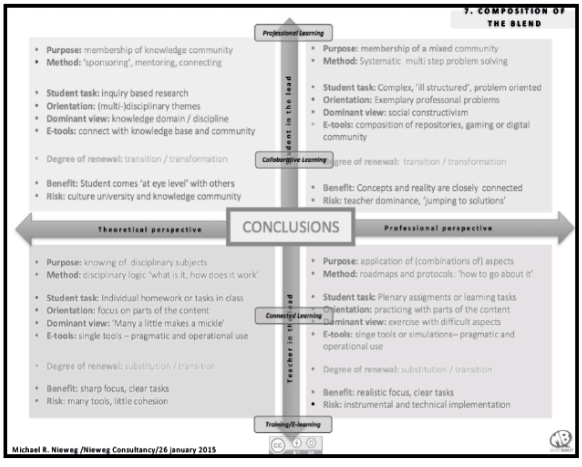
Each perspective its own TPACK

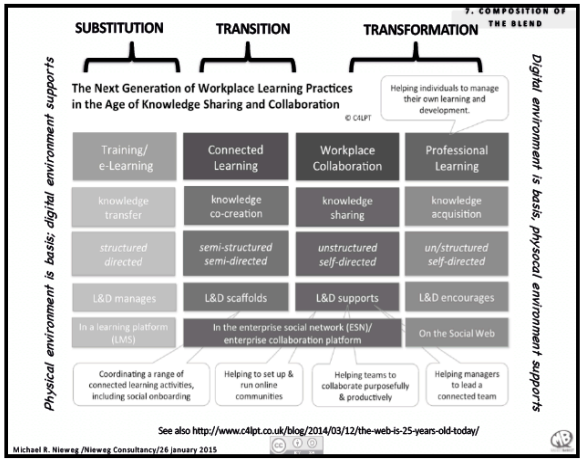

7. COMPOSITION OF THE BLEND
The Next Generation of Workplace Learning Practices in the Age of Knowledge Sharing and Collaboration
© C4LPT
Helping individuals to manage their own learning and development.
Training/ e-Learning
Connected Learning
Workplace Collaboration
Professional Learning
knowledge transfer
knowledge co-creation
knowledge sharing
knowledge acquisition
structured directed
semi-structured semi-directed
unstructured self-directed
un/structured self-directed
L&D manages
L&D scaffolds
L&D supports
L&D encourages
In a learning platform (LMS)
In the enterprise social network (ESN)/ enterprise collaboration platform
On the Social Web
Coordinating a range of connected learning activities, including social onboarding
Helping to set up & run online communities
Helping teams to collaborate purposefully & productively
Helping managers to lead a connected team
Retrieved on 26.1.15 from: http://www.c4lpt.co.uk/blog/2013/11/03/the-next-generation-of-workplace-learning-practices-in-the-age-of-knowledge-sharing-and-collaboration/
Michael R. Nieweg /Nieweg Consultancy/26 January 2015


7. COMPOSITION OF THE BLEND
Professional learning
Collaborative learning
So, which tools in which field?
Connected learning
Training / e-learning
Michael R. Nieweg /Nieweg Consultancy/26 January 2015


7. COMPOSITION OF THE BLEND
Example from the teacher training college Hogeschool van Amsterdam
Some tools fit more perspectives and are used in combinations
Most tools target one specific use and one perspective
Theoretisch perspectief
Beroepsperspectief
Michael R. Nieweg /Nieweg Consultancy/26 january 2015


7. COMPOSITION OF THE BLEND
The more comprehensive the learning environment, the more it moves from stand alone tools, to a combination of tools, to a composition – i.e. a blended learning environment
Most tools target one specific use and one perspective
Michael R. Nieweg /Nieweg Consultancy/26 January 2015


7. COMPOSITION OF THE BLEND
Purpose: membership of knowledge community
Method: 'sponsoring', mentoring, connecting
Student task: inquiry based research
Orientation: (multi-)disciplinary themes
Dominant view: knowledge domain / discipline
E-tools: connect with knowledge base and community
Degree of renewal: transition / transformation
Benefit: Student comes 'at eye level' with others
Risk: culture university and knowledge community
Purpose: membership of a mixed community
Method: Systematic multi step problem solving
Student task: Complex, 'ill structured', problem oriented
Orientation: Exemplary professional problems
Dominant view: social constructivism
E-tools: composition of repositories, gaming or digital community
Degree of renewal: transition / transformation
Benefit: Concepts and reality are closely connected
Risk: teacher dominance, 'jumping to solutions'
CONCLUSIONS
Theoretical perspective
Professional perspective
Purpose: knowing of disciplinary subjects
Method: disciplinary logic 'what is it, how does it work'
Student task: Individual homework or tasks in class
Orientation: focus on parts of the content
Dominant view: 'Many a little makes a mickle'
E-tools: single tools – pragmatic and operational use
Degree of renewal: substitution / transition
Benefit: sharp focus, clear tasks
Risk: many tools, little cohesion
Purpose: application of (combinations of) aspects
Method: roadmaps and protocols: 'how to go about it'
Student task: Plenary assigments or learning tasks
Orientation: practicing with parts of the content
Dominant view: exercise with difficult aspects
E-tools: singe tools or simulations– pragmatic and operational use
Degree of renewal: substitution / transition
Benefit: realistic focus, clear tasks
Risk: instrumental and technical implementation
Michael R. Nieweg /Nieweg Consultancy/26 january 2015


7. COMPOSITION OF THE BLEND
SUBSTITUTION
TRANSITION
TRANSFORMATION
Physical environment is basis; digital environment supports
Digital environment is basis, physical environment supports
The Next Generation of Workplace Learning Practices in the Age of Knowledge Sharing and Collaboration
© C4LPT
Helping individuals to manage their own learning and development.
Training/ e-Learning
Connected Learning
Workplace Collaboration
Professional Learning
knowledge transfer
knowledge co-creation
knowledge sharing
knowledge acquisition
structured directed
semi-structured semi-directed
unstructured self-directed
un/structured self-directed
L&D manages
L&D scaffolds
L&D supports
L&D encourages
In a learning platform (LMS)
In the enterprise social network (ESN)/ enterprise collaboration platform
On the Social Web
Coordinating a range of connected learning activities, including social onboarding
Helping to set up & run online communities
Helping teams to collaborate purposefully & productively
Helping managers to lead a connected team
See also http://www.c4lpt.co.uk/blog/2014/03/12/the-web-is-25-years-old-today/
Michael R. Nieweg /Nieweg Consultancy/26 January 2015

EDUCAUSE LEARNING INITIATIVE

7 THINGS YOU SHOULD KNOW ABOUT...™

FLIPPED CLASSROOMS

Scenario

For the past two weeks, Kyle has been taking a flipped course in designing food gardens. Before he attends each class, he watches videos of short lectures recorded or recommended by his instructor. Each lecture comes with a brief online quiz that offers him immediate feedback on whether he missed any essential points. Today as he enters class, he glances at the schedule on the whiteboard. For the first half hour, teams will discuss how the content of the video lectures on microclimates, insect predation, and disease control will inform their team projects. Professor Dalton circulates among the tables to see if anyone has questions.

Kyle's team will be repurposing an area the size of an urban backyard into a visually appealing garden that is also a functional food source. It's part of the larger class project to reclaim a strip of city land by building a demonstration food garden. "I think we should bring in disease-resistant blueberries, grapes, and pome fruits," says Coleen, looking at the rough drawings they have made so far. Dalton stops to look over their design. "Check the nursery catalogs on the front table," he suggests. "Disease-resistant strains are clearly marked in their listings." As they search the catalog and discuss which diseases might be a problem in dwarf apples, pears, blueberries, and grapes, Kyle enters their cultivar choices in their Google Docs space. They are turning to a discussion of microclimates and plant placement when a chime signals discussion is over.

In the second half of the class, team monitors each retrieve two flat boxes from the front of the class. One box contains a stack of pins and various leaves preserved in plastic. The second box has a foam insert topped by a paper grid; each square is labeled with a nutritional deficiency or a disease common to food plants. During the next half hour, each team is to identify the disease or nutritional deficiency and pin the correct leaf in the right spot on the grid. Dalton is on hand, directing attention to clues and sometimes challenging their choices.

As he leaves, Kyle reflects that the hands-on activities have given him a far better grasp of the information and more confidence in what he has learned than he could have gotten from an in-class lecture.

1 What is it?

The flipped classroom is a pedagogical model in which the typical lecture and homework elements of a course are reversed. Short video lectures are viewed by students at home before the class session, while in-class time is devoted to exercises, projects, or discussions. The video lecture is often seen as the key ingredient in the flipped approach, such lectures being either created by the instructor and posted online or selected from an online repository. While a prerecorded lecture could certainly be a podcast or other audio format, the ease with which video can be accessed and viewed today has made it so ubiquitous that the flipped model has come to be identified with it.

The notion of a flipped classroom draws on such concepts as active learning, student engagement, hybrid course design, and course podcasting. The value of a flipped class is in the repurposing of class time into a workshop where students can inquire about lecture content, test their skills in applying knowledge, and interact with one another in hands-on activities. During class sessions, instructors function as coaches or advisors, encouraging students in individual inquiry and collaborative effort.

2 How does it work?

There is no single model for the flipped classroom—**the term is widely used to describe almost any class structure that provides prerecorded lectures followed by in-class exercises**. In one common model, students might view multiple lectures of five to seven minutes each. Online quizzes or activities can be interspersed to test what students have learned. Immediate quiz feedback and the ability to rerun lecture segments may help clarify points of confusion. Instructors might lead in-class discussions or turn the classroom into a studio where students create, collaborate, and put into practice what they learned from the lectures they view outside class. As on-site experts, instructors suggest various approaches, clarify content, and monitor progress. They might organize students into an ad hoc workgroup to solve a problem that several are struggling to understand. Because this approach represents a comprehensive change in the class dynamic, some instructors have chosen to implement only a few elements of the flipped model or to flip only a few selected class sessions during a term.

3 Who's doing it?

A growing number of higher education individual faculty have begun using the flipped model in their courses. At Algonquin College, a video production class has been using this model to explain the workings of editing software, a procedure that is notoriously difficult to explain in a standard lecture. Short tutorial video lectures let students move at their own pace, rewind to review portions, and skip through sections they already understand,

more >>

Declarative knowledge

Declarative knowledge or **descriptive knowledge**, also or **propositional knowledge**, is the species of knowledge that is, by its very nature, expressed in declarative sentences or indicative propositions. This distinguishes descriptive knowledge from what is commonly known as "know-how", or procedural knowledge, that is, the knowledge of how, and especially how best, to perform some task.

What is the difference between knowledge and beliefs? A belief is an internal thought or memory which exists in one's mind. Most people accept that for a belief to be knowledge it must be, at least, true and justified. The Gettier problem in philosophy is the question of whether there are any other requirements before a belief can be accepted as knowledge.

The article Knowledge (philosophy) discusses the view of philosophers on how one can tell which beliefs constitute actual knowledge.

People have used many methods to try to gain knowledge.

1. By reason and logic (perhaps in cooperation with others, using logical argument).
2. By mathematical proof.
3. By the scientific method.
4. By the trial and error method.
5. By applying an algorithm.
6. By learning from experience.
7. By an argument from authority, which could be from religious, literary, political, philosophical or scientific authorities.
8. By listening to the testimony of witnesses.
9. By observing the world in its "natural state"; seeing how the world operates without performing any experiments.
10. By acquiring knowledge that is embedded in one's language, culture, or traditions.
11. By having a divine illumination or revelation from a divine agency.
12. By some claimed form of enlightenment following a period of meditation. (For example, the Buddhist enlightenment known as bodhi)
13. By dialogical enquiry (conversation). See Gadamer, Bohm, Habermas, Freire, on dialogue, learning and knowledge acquisition/negotiation: http://www.infed.org/biblio/b-dialog.htm

---

Knowledge can be classified into a priori knowledge, which is obtained without needing to observe the world, and a posteriori or empirical knowledge, which is only obtained after observing the world or interacting with it in some way.

Often knowledge is gained by combining or extending other knowledge in various ways. Isaac Newton famously wrote: "If I have seen further... it is by standing on the shoulders of giants".

Inferential knowledge is based on reasoning from facts or from other inferential knowledge such as a theory. Such knowledge may or may not be verifiable by observation or testing. For example, all knowledge of the atom is inferential knowledge. The distinction between factual knowledge and inferential knowledge has been explored by the discipline of general semantics.

There are many different disciplines that generate beliefs that can be regarded as knowledge. They include science (which generates scientific theories), law (which generates verdicts), history (which generates history), and mathematics (which generates proofs).

Scientists attempt to gain knowledge through the scientific method. In this method, scientists start by finding a phenomenon of interest, which generates questions. A scientist then picks a question of interest, and based on previous knowledge, develops a hypothesis. The scientist then designs a controlled experiment which will allow her to test the hypothesis against the real world. She then makes predictions about the outcome of the test, based on the hypothesis.

At this point the scientist carries out the experiment, and compares her predictions with her observations. Assuming that there were no flaws in the experiment, then if they match, then this is evidence in favour of the hypothesis. If they do *not* match, then the hypothesis has been falsified. The next steps are peer review and publication, through which the results are distributed to other scientists.

A hypothesis that has been shown to accurately and reliably predict and characterize some physical phenomenon, and has been sufficiently peer-reviewed and tested, may become a scientific theory. Scientific theories are widely regarded as knowledge, though they are always subject to further revision or review should new data come to light.

To use scientific theories, they must be applied to the specific situation in hand. For example, a civil engineer might use the theory of statics (a branch of physics) to determine whether a bridge will hold up. This is one case where new knowledge is generated from scientific knowledge by specialising it to an individual instance.

What constitutes knowledge, certainty and truth are controversial issues. These issues are debated by philosophers, social scientists, and historians. Ludwig Wittgenstein wrote "On Certainty" - aphorisms on these concepts - exploring relationships between knowledge and certainty. A thread of his concern has become an entire field, the philosophy of action.

There are a number of problems that arise when defining knowledge or truth, including issues with objectivity, adequacy and limits to justification. Beliefs are also very problematic not least because they are either true or false, and therefore cannot be

adequately described by conventional logic. An action likewise can be taken or not, but there is the troubling idea of an "event" is, an action taken by nobody, or nobody who you can blame.

Some people hold that science does not actually tell us about the physical world that they live. They hold that the world cannot be understood by science, but rather by religious revelations, mystical experience, or literary deconstructionism.

What we hold to be knowledge is often derived by a combination of reason from either traditional, authoritative, or scientific sources. Many times such knowledge is not verifiable; sometimes the process of testing is prohibitively dangerous or expensive. For instance, some physics theories about the nature of the universe, such as string-theory, require the construction of testing equipment currently beyond our technology. Since such theories are in principle subject to verification or refutation, they are scientific; since they are not proven experimentally, they are not considered certain knowledge. Rather, in such cases we have certain knowledge only of the theory, but not of what the theory describes.

"Of the three ways in which men think that they acquire knowledge of things—authority, reasoning, and experience—only the last is effective and able to bring peace to the intellect." (Roger Bacon, English alchemist and philosopher)

Good Teaching: The Top Ten Requirements

Richard Leblanc, Ph.D.
York University (Toronto, Canada)

Editor's note: In 1998, professor Leblanc was awarded the Seymous Schulich Award for Teaching Excellence. His top ten requirements for good teaching was originally published in The Teaching Professor, Vol. 12, # 6, 1998.

1. GOOD TEACHING is as much about passion as it is about reason. It's about not only motivating students to learn, but teaching them how to learn, and doing so in a manner that is relevant, meaningful, and memorable. It's about caring for your craft, having a passion for it, and conveying that passion to everyone, most importantly to your students.

2. GOOD TEACHING is about substance and training students as consumers of knowledge. It's about doing your best to keep on top of your field, reading sources, inside and outside of your areas of expertise, and being at the leading edge as often as possible. But knowledge is not confined to scholarly journals. Good teaching is also about bridging the gap between theory and practice. It's about leaving the ivory tower and immersing oneself in the field, talking to, consulting with, and assisting practitioners, and liaising with their communities.

3. GOOD TEACHING is about listening, questioning, being responsive, and remembering that each student and class is different. It's about eliciting responses and developing the oral communication skills of the quiet students. It's about pushing students to excel; at the same time, it's about being human, respecting others, and being professional at all times.

4. GOOD TEACHING is about not always having a fixed agenda and being rigid, but being flexible, fluid, experimenting, and having the confidence to react and adjust to changing circumstances. It's about getting only 10 percent of what you wanted to do in a class done and still feeling good. It's about deviating from the course syllabus or lecture schedule easily when there is more and better learning elsewhere. Good teaching is about the creative balance between being an authoritarian dictator on the one hand and a pushover on the other. Good teachers migrate between these poles at all times, depending on the circumstances. They know where they need to be and when.

5. GOOD TEACHING is also about style. Should good teaching be entertaining? You bet! Does this mean that it lacks in substance? Not a chance! Effective teaching is not about being locked with both hands glued to a podium or having your eyes fixated on a slide projector while you drone on. Good teachers work the room and every student in it. They realize that they are conductors and the class is their orchestra. All students play different instruments and at varying proficiencies. A teacher's job is to develop skills and make these instruments come to life as a coherent whole to make music.

6. GOOD TEACHING is about humor. This is very important. It's about being self-deprecating and not taking yourself too seriously. It's often about making innocuous jokes, mostly at your own expense, so that the ice breaks and students learn in a more relaxed atmosphere where you, like them, are human with your own share of faults and shortcomings.

7. GOOD TEACHING is about caring, nurturing, and developing minds and talents. It's about devoting time, often invisible, to every student. It's also about the thankless hours of grading, designing or redesigning courses, and preparing materials to further enhance instruction.

8. GOOD TEACHING is supported by strong and visionary leadership, and very tangible instructional support resources, personnel, and funds. Good teaching is continually reinforced by an overarching vision that transcends the entire organization from full professors to part-time instructors and is reflected in what is said, but more importantly by what is done.

9. GOOD TEACHING is about mentoring between senior and junior faculty, teamwork, and being recognized and promoted by one's peers. Effective teaching should also be rewarded, and poor teaching needs to be remediated through training and development programs.

10. AT THE END OF THE DAY, good teaching is about having fun, experiencing pleasure and intrinsic rewards…like locking eyes with a student in the back row and seeing the synapses and neurons connecting, thoughts being formed, the person becoming better, and a smile cracking across a face as learning all of a sudden happens. It's about the former student who says your course changed her life. It's about another telling you that your course was the best one he's ever taken. Good teachers practice their craft not for the money or because they have to, but because they truly enjoy it and because they want to. Good teachers couldn't imagine doing anything else.

Source april 2015: http://biz.colostate.edu/mti/tips/pages/GoodTeaching.aspx

Novice to Expert: the Dreyfus model of skill acquisition

Introduction

This document contains two versions of the Dreyfus 'novice to expert' model, one combining the main features of both versions of the model published in the early 1980s, and the other taken from the Institute of Conservation's professional standards.

The Dreyfus model is used fairly widely (a) to provide a means of assessing and supporting progress in the development of skills or competencies, and (b) to provide a definition of acceptable level for the assessment of competence or capability.

The 'expert' level does not signify that development stops, as expert practitioners need to evaluate their practice and keep up-to-date with new evidence.

Further reading

Dreyfus, H L and Dreyfus, S E (1986) *Mind over Machine: the power of human intuition and expertise in the age of the computer*, Oxford, Basil Blackwell

Benner, P (1984) *From novice to expert: excellence and power in clinical nursing practice*, Menlo Park CA, Addison-Wesley

Introduction and adaptations of the Dreyfus model by Stan Lester. If you wish to use extracts from this document, please reference the URL as well as including a reference to the original source materials.

s.lester<at>devmts.co.uk
tel +44 (0)1823 333091

Document located at
http://www.sld.demon.co.uk/dreyfus.pdf

Novice-to-Expert summary

Novice

Has an incomplete understanding, approaches tasks mechanistically and needs supervision to complete them.

Advanced Beginner

Has a working understanding, tends to see actions as a series of steps, can complete simpler tasks without supervision.

Competent

Has a good working and background understanding, sees actions at least partly in context, able to complete work independently to a standard that is acceptable though it may lack refinement.

Proficient

Has a deep understanding, sees actions holistically, can achieve a high standard routinely.

Expert

Has an authoritative or deep holistic understanding, deals with routine matters intuitively, able to go beyond existing interpretations, achieves excellence with ease.

Novice-to-Expert scale (1)

<table>
<tr><th>Level</th><th>Stage</th><th>Characteristics</th><th>How know-ledge etc is treated</th><th>Recognition of relevance</th><th>How context is assessed</th><th>Decision-making</th></tr>
<tr><td>1</td><td>Novice</td><td>Rigid adherence to taught rules or plans
Little situational perception
No discretionary judgement</td><td>Without reference to context</td><td rowspan="2">None</td><td rowspan="2">Analytically</td><td rowspan="3">Rational</td></tr>
<tr><td>2</td><td>Advanced beginner</td><td>Guidelines for action based on attributes or aspects (aspects are global characteristics of situations recognisable only after some prior experience)
Situational perception still limited
All attributes and aspects are treated separately and given equal importance</td><td rowspan="4">In context</td></tr>
<tr><td>3</td><td>Competent</td><td>Coping with crowdedness
Now sees actions at least partially in terms of longer-term goals
Conscious, deliberate planning
Standardised and routinised procedures</td><td rowspan="3">Present</td></tr>
<tr><td>4</td><td>Proficient</td><td>Sees situations holistically rather than in terms of aspects
Sees what is most important in a situation
Perceives deviations from the normal pattern
Decision-making less laboured
Uses maxims for guidance, whose meanings vary according to the situation</td><td rowspan="2">Holistically</td></tr>
<tr><td>5</td><td>Expert</td><td>No longer relies on rules, guidelines or maxims
Intuitive grasp of situations based on deep tacit understanding
Analytic approaches used only in novel situations or when problems occur
Vision of what is possible</td><td>Intuitive</td></tr>
</table>

Adapted from: Dreyfus, S E (1981) *Four models v human situational understanding: inherent limitations on the modelling of business expertise* USAF Office of Scientific Research, ref F49620-79-C-0063; Dreyfus, H L & Dreyfus, S E (1984) "Putting computers in their proper place: analysis versus intuition in the classroom," in D Sloan (ed) *The computer in education: a critical perspective* Columbia NY, Teachers' College Press.

Novice-to-Expert scale (2)

	Knowledge	Standard of work	Autonomy	Coping with complexity	Perception of context
1. Novice	Minimal, or 'textbook' knowledge without connecting it to practice	Unlikely to be satisfactory unless closely supervised	Needs close supervision or instruction	Little or no conception of dealing with complexity	Tends to see actions in isolation
2. Beginner	Working knowledge of key aspects of practice	Straightforward tasks likely to be completed to an acceptable standard	Able to achieve some steps using own judgement, but supervision needed for overall task	Appreciates complex situations but only able to achieve partial resolution	Sees actions as a series of steps
3. Competent	Good working and background knowledge of area of practice	Fit for purpose, though may lack refinement	Able to achieve most tasks using own judgement	Copes with complex situations through deliberate analysis and planning	Sees actions at least partly in terms of longer-term goals
4. Proficient	Depth of understanding of discipline and area of practice	Fully acceptable standard achieved routinely	Able to take full responsibility for own work (and that of others where applicable)	Deals with complex situations holistically, decision-making more confident	Sees overall 'picture' and how individual actions fit within it
5. Expert	Authoritative knowledge of discipline and deep tacit understanding across area of practice	Excellence achieved with relative ease	Able to take responsibility for going beyond existing standards and creating own interpretations	Holistic grasp of complex situations, moves between intuitive and analytical approaches with ease	Sees overall 'picture' and alternative approaches; vision of what may be possible

From the professional standards for conservation, Institute of Conservation (London) 2003 based on the Dreyfus model of skill acquisition.

Instructional Scaffolding to Improve Learning

niu.edu/spectrum/archives/scaffolding.shtml

Similar to the scaffolding used in construction to support workers as they work on a specific task, instructional scaffolds are temporary support structures faculty put in place to assist students in accomplishing new tasks and concepts they could not typically achieve on their own. “As students begin to demonstrate task mastery, the assistance or support is decreased gradually in order to shift the responsibility for learning from the [instructor] to the student” (San Jose Evergreen Community College District, 2003).

Why use Instructional Scaffolding?

One of the main benefits of scaffolded instruction is that it provides for a supportive learning environment. Instructors are caring and interested in helping students learn. Students are free to ask questions, provide feedback and support their peers in learning new material.

An instructor who uses instructional scaffolding becomes more of a mentor and facilitator of knowledge than the dominant content expert. This teaching style provides the incentive for students to take a more active role in their own learning.

Students share the responsibility of teaching and learning through scaffolds that require them to move beyond their current skill and knowledge levels. Through this interaction, students are able to take ownership of the learning event.

The need to implement a scaffold will occur when you realize a student is not progressing on some aspect of a task or unable to understand a particular concept. Although scaffolding is often carried out between the instructor and one student, scaffolds can successfully be used for an entire class. The four points below provide a simple structure of scaffolded instruction:

First, the instructor does it.
In other words, the instructor models how to perform a new or difficult task, such as how to use a graphic organizer. For example, the instructor may have a partially completed graphic organizer on an overhead transparency and "think aloud" as he or she describes how the graphic organizer illustrates the relationships among the information contained on it.

Second, the class does it.
The instructor and students work together to perform the task. For example, the students may suggest information to be added to the graphic organizer. As the instructor writes the suggestions on the white board, students fill in their own copies of the

organizer.

Third, the group does it.
Students work with a partner or a small cooperative group to complete a graphic organizer (i.e., either a partially completed or a blank one).

Fourth, the individual does it.
This is the independent practice stage where individual students can demonstrate their task mastery (e.g., successfully completing a graphic organizer to demonstrate appropriate relationships among information) and receive the necessary practice to help them to perform the task automatically and quickly" (Ellis and Larkin (1998), as cited in Larkin (2003)).

Types of Scaffolds

Alibali (2006) suggests that as students progress through a task, faculty use a variety of scaffolds to accommodate students' different levels of knowledge. More complex content might require a number of scaffolds given at different times to help students master the content. Table 1 presents scaffolds and ways they could be used in an instructional setting.

Table 1

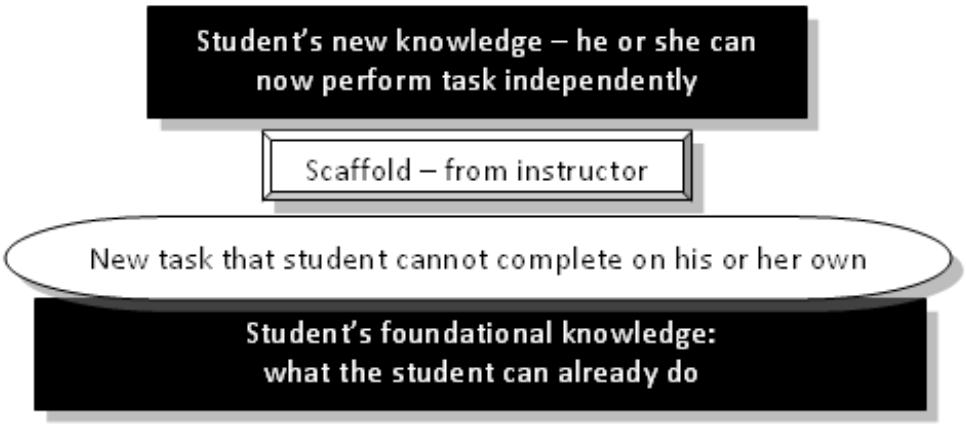
Scaffold	**Ways to use Scaffolds in an Instructional Setting**
Advance organizers	*Tools used to introduce new content and tasks to help students learn about the topic:* Venn diagrams to compare and contrast information; flow charts to illustrate processes; organizational charts to illustrate hierarchies; outlines that represent content; mnemonics to assist recall; statements to situate the task or content; rubrics that provide task expectations.
Cue Cards	*Prepared cards given to individual or groups of students to assist in their discussion about a particular topic or content area:* Vocabulary words to prepare for exams; content-specific stem sentences to complete; formulae to associate with a problem; concepts to define.
Concept and mind maps	*Maps that show relationships:* Prepare partially completed maps for students to complete or have students create their own maps based on their current knowledge of the task or concept.
Examples	*Samples, specimens, illustrations, problems:* Real objects; illustrative problems used to represent something.
Explanations	*More detailed information to move students along on a task or in their thinking of a concept:* Written instructions for a task; verbal explanation of how a process works.
Handouts	*Prepared handouts* that contain task- and content-related information, but with less detail and room for student note taking.

Hints	*Suggestions and clues to move students along:* "place your foot in front of the other," "use the escape key," "find the subject of the verb," "add the water first and then the acid."
Prompts	*A physical or verbal cue to remind—to aid in recall of prior or assumed knowledge.* Physical: Body movements such as pointing, nodding the head, eye blinking, foot tapping. Verbal: Words, statements and questions such as "Go," "Stop," "It's right there," "Tell me now," "What toolbar menu item would you press to insert an image?", " Tell me why the character acted that way."
Question Cards	*Prepared cards with content- and task-specific questions* given to individuals or groups of students to ask each other pertinent questions about a particular topic or content area.
Question Stems	*Incomplete sentences which students complete:* Encourages deep thinking by using higher order "What if" questions.
Stories	*Stories relate complex and abstract material to situations more familiar with students.* Recite stories to inspire and motivate learners.
Visual Scaffolds (Alibali, 2006)	Pointing (call attention to an object); representational gestures (holding curved hands apart to illustrate roundness; moving rigid hands diagonally upward to illustrate steps or process), diagrams such as charts and graphs; methods of highlighting visual information.

Preparing to Use Scaffolding

As with any teaching technique, scaffolds should complement instructional objectives. While we expect all of our students to grasp course content, each of them will not have the necessary knowledge or capability to initially perform as we have intended. Scaffolds can be used to support students when they begin to work on objectives that are more complex or difficult to complete. For example, the instructional objective is to have students complete a major paper. Instead of assuming all students know how to begin the process, break the task into smaller, more manageable parts: First, the instructor provides an outline of the components of the paper > then students would prepare their outline > the instructor then provides a rubric of how each paper criteria will be assessed > students would then work on those criteria and at the same time, self-evaluate their progress.The pattern would continue until the task is completed (although scaffolds might not be necessary in all parts of the task).

Knowing your subject well will also help you identify the need for scaffolding. Plan to use scaffolds on topics that former students had difficulty with or with material that is especially difficult or abstract. Hogan and Pressley, (2003) suggest that instructors practice scaffold topics and strategies they know well. In other words, begin by providing scaffolded instruction in small steps with content you are most comfortable teaching.



An illustrative model of scaffolding

Guidelines for Implementing Scaffolding

The following points can be used as guidelines when implementing instructional scaffolding (adapted from Hogan and Pressley, 2003).

- Select suitable tasks that match curriculum goals and students' needs.
- Allow students to help create instructional goals (this can increase students' motivation and their commitment to learning).
- Consider students' backgrounds and prior knowledge to assess their progress (material that is too easy will quickly bore students and reduce motivation. On the other hand, material that is too difficult can turn off students' interest levels).
- Use a variety of supports as students progress through a task (e.g., prompts, questions, hints, stories, models, visual scaffolding "including pointing, representational gestures, diagrams, and other methods of highlighting visual information" (Alibali, M, 2006).
- Provide encouragement and praise as well as ask questions and have students explain their progress to help them stay focused on the goal.
- Monitor student progress through feedback (in addition to instructor feedback, have students summarize what they have accomplished so they are aware of their progress and what they have yet to complete).
- Create a welcoming, safe, and supportive learning environment that encourages students to take risks and try alternatives (everyone should feel comfortable expressing their thoughts without fear of negative responses).
- Help students become less dependent on instructional supports as they work on tasks and encourage them to practice the task in different contexts.

Benefits of Instructional Scaffolding

- Challenges students through deep learning and discovery.
- Engages students in meaningful and dynamic discussions in small and large classes.
- Motivates learners to become better students (learning how to learn).
- Increases the likelihood for students to meet instructional objectives.

- Provides individualized instruction (especially in smaller classrooms).
- Affords the opportunity for peer-teaching and learning.
- Scaffolds can be “recycled” for other learning situations.
- Provides a welcoming and caring learning environment.

Challenges of Instructional Scaffolding

- Planning for and implementing scaffolds is time consuming and demanding.
- Selecting appropriate scaffolds that match the diverse learning and communication styles of students.
- Knowing when to remove the scaffold so the student does not rely on the support.
- Not knowing the students well enough (their cognitive and affective abilities) to provide appropriate scaffolds.

Summary

Instructional scaffolds promote learning through dialogue, feedback and shared responsibility. Through the supportive and challenging learning experiences gained from carefully planned scaffolded learning, instructors can help students become lifelong, independent learners.

References

Alibali, M (2006). Does visual scaffolding facilitate students’ mathematics learning? Evidence from early algebra. Retrieved September 12, 2008 from http://ies.ed.gov/funding/grantsearch/details.asp?ID=54

Dalton, J., and Smith, D. (1986). Extending children’s special abilities: Strategies for primary classrooms.

Dennen, V. P. (2004). Cognitive apprenticeship in educational practice: Research on scaffolding, modeling, mentoring, and coaching as instructional strategies. In D. H. Jonassen (Ed.), Handbook of Research on Educational Communications and Technology (2nd ed.), (p. 815). Mahwah, NJ: Lawrence Erlbaum Associates.

Hogan, K., and Pressley, M. (1997). Scaffolding student learning: Instructional approaches and issues. Cambridge, MA: Brookline Books.

Johnston, S., and Cooper, J. (1997). Cooperative Learning and College Teaching. Vol. 9, No. 3 Spring 1997.

Larkin, M. (2002). Using scaffolded instruction to optimize learning. Retrieved September12, 2008 from http://www.vtaide.com/png/ERIC/Scaffolding.htm

Piper, C. Teaching with Technology (2005). What is scaffolding? Retrieved September 12, 2008 from http://www1.chapman.edu/univcoll/faculty/piper/2042/graphorg.htm

San Jose Evergreen Community College District (2003). The Teaching and Learning Center, Faculty Handbook: Teaching and Learning Resources. Scaffolding.

Tomorrow's Professor Blog (2008). Supporting student success through scaffolding.

Spectrum is a newsletter for faculty published every fall and spring semester by Faculty Development and Instructional Design Center, Adams Hall 319, Northern Illinois University, DeKalb, Illinois 60115. Phone: (815) 753-0595, Email: facdev@niu.edu, Web site: www.facdev.niu.edu. For more information about featured articles or upcoming faculty development programs, please contact the Center at (815) 753-0595 or facdev@niu.edu

Last Updated: 10/01/2015

Learning approaches, principles and theories

	Teacher centred approaches				Student centred approaches		
	Objectivism	**Instructivism**	**Behaviourism**	**Cognitivism**	**Humanism**	**Constructivism (inc. social)**	**Connectivism**
Influential figures	EL Thorndike	Gagne, Briggs, Wager, Bruner,	Watson, Pavlov, Skinner, Thorndike, Tolman	Merrill, Reigeluth, Gagne, Briggs, Wager, Bandura, Ausubel	Abraham Maslow, Carl Rogers, Malcolm Knowles	Vygotsky, Piaget, Dewey, Vico, Rorty, Bruner, Jonassen	Siemens;
Brief description	'Objectivist conceptions of learning assume that knowledge can be transferred from teachers or transmitted by technologies and acquired by learners.' Jonassen (1999) Objectivists are 'primarily concerned with assuring that the content … they create and implement is comprehensive and accurate with respect to ultimate "truth" as they know it.' (Reeves, T (1994)	Instructivists stress the importance of goals and objectives that exist apart from the learner. Direct instruction demands that content be sharply defined and that instructional strategies focus as directly on prespecified content as possible.' (Reeves, T (1994)	"Behaviorism is a worldview that operates on a principle of "stimulus-response."' Source: http://www.learning-theories.com/behaviorism.html	'The cognitivist paradigm essentially argues that the "black box" of the mind should be opened and understood. The learner is viewed as an information processor (like a computer).' Source: http://www.learning-theories.com/cognitivism.html	'Humanism is a paradigm / philosophy / pedagogical approach that believes learning is viewed as a personal act to fulfil one's potential.' '…[it] emerged in the 1960s, focuses on the human freedom, dignity, and potential.' Source: http://www.learning-theories.com/humanism.html	'Constructivism as a paradigm … posits that learning is an active, constructive process. … [and that] people actively construct or create their own subjective representations of objective reality. New information is linked to prior knowledge, thus mental representations are subjective.' Source: http://www.learning-theories.com/constructivism.html	'Connectivism is the integration of principles explored by chaos, network, and complexity and self-organization theories. Learning is a process that occurs within nebulous environments of shifting core elements … Learning (defined as actionable knowledge) can reside outside of ourselves (within an organization or a database), is focused on connecting specialized information sets, and the connections that enable us to learn more are more important than our current state of knowing.' Siemens (2005)

Principal identifiers including beliefs about learning and knowledge	Objectivist epistemology (Thorndike, 1913) encompasses the following facets: • knowledge exists separate from knowing, • reality exists regardless of the existence of sentient beings, • humans acquire knowledge in an objective manner through the senses, • learning consists of acquiring truth, and • learning can be measured precisely with tests. (Reeves, T (1994)	• goals and objectives are sequenced into learning hierarchies, generally representing a progression from lower to higher order learning. • direct instruction is then designed to address each of the objectives in the hierarchy • learner usually viewed as a passive recipient of instruction. • generally treats learners as empty vessels to be filled with learning. Source: Reeves, T. (1994)	• 'assumes a learner is essentially passive, responding to environmental stimuli. • learner starts off as a clean slate • behaviour is shaped through positive …or negative • behaviour in the learner.' Source: http://www.learning-theories.com/	• 'focuses on the inner mental activities • Knowledge can be seen as schema or symbolic mental constructions. • Learning is defined as change in a learner's schemata. • people are rational beings that require active participation in order to learn, and whose actions are a consequence of thinking. • Cognitivism uses the metaphor of the mind as computer: information comes in, is being processed, and leads to certain outcomes. Source: http://www.learning-theories.com/cognitivism.html 'Learning, or encoding occurs when information is stored in long term memory.' Source: Schunk, 2012, p. 226	• 'A central assumption of humanism, according to Huitt (2001), is that people act with intentionality and values. • learning is student centered and personalized, and the educator's role is that of a facilitator. • Affective and cognitive needs are key, and the goal is to develop self-actualized people in a cooperative, supportive environment. • it is necessary to study the person as a whole, especially as an individual grows and develops over the lifespan. Source: http://www.learning-theories.com/humanism.html	'…instruction should consist of experiences that facilitate knowledge construction.' Jonassen (1999) • learning is an active, contextualized process of constructing knowledge rather than acquiring it. • Knowledge is constructed based on personal experiences and hypotheses … • Each person has a different interpretation and construction of knowledge process. • The learner is not a blank slate … but brings past experiences and cultural factors to a situation. Source: http://www.learning-theories.com/	• Learning and knowledge rests in diversity of opinions. • Learning is a process of connecting specialized nodes or information sources. • Learning may reside in non-human appliances. • Capacity to know more is more critical than what is currently known • Nurturing and maintaining connections is needed to facilitate continual learning. • Ability to see connections between fields, ideas, and concepts is a core skill. • Currency (accurate, up-to-date knowledge) is the intent of all connectivist learning activities. • Decision-making is itself a learning process. Choosing what to learn and the meaning of incoming information is seen through the lens of a shifting reality. While there is a right answer now, it may be wrong tomorrow due to alterations in the information climate affecting the decision. Siemens, G (2005)

Design principles	'Objectivist conceptions of instructional design include the Analysis, Representation, and Resequencing of content and tasks in order to make them more predictably and reliably transmissible.' Jonassen (1999)	The basic steps in the Dick and Carey instructional design model are as follows: 1. Determine instructional goal 2. Analyze the instructional goal 3. Analyze learners and contexts 4. Write performance objectives 5. Develop assessment instruments 6. Develop instructional strategy 7. Develop and select instructional materials 8. Design and conduct formative evaluation 9. Revise instruction 10. Summative evaluation Source: http://classweb.gmu.edu/ndabbagh/Resources/IDKB/implications.htm#dickandcareymodel	Instructional Event 1. Gaining attention 2. Informing learner of the objective(s) 3. Stimulating recall of prerequisite learning 4. Presenting the stimulus material 5. Providing learning guidance 6. Eliciting the performance 7. Providing feedback about performance 8. Assessing performance 9. Enhancing retention and transfer Gagne's (1965) model for design of instruction	Gagne's Phases of learning Preparation for learning: • Attending • Expectancy • Retrieval Acquisition and performance: • Selective perception • Semantic encoding • Retrieval and responding • Reinforcement Transfer of learning: • Cueing retrieval • Generalizability Gagne 1985 cited in Schunk 2012, p. 222	'Rogers feels that …the role of the teacher is to facilitate … learning. This includes: (1) setting a positive climate for learning, (2) clarifying the purposes of the learner(s), (3) organizing and making available learning resources, (4) balancing intellectual and emotional components of learning, and (5) sharing feelings and thoughts with learners but not dominating. …learning is facilitated when: (1) the student participates completely in the learning process and has control over its nature and direction, (2) it is primarily based upon direct confrontation with practical, social, personal or research problems, and (3) self-evaluation is the principal method of assessing progress or success. Rogers also emphasizes the importance of learning to learn and an openness to change.' http://tip.psychology.org/rogers.html	1. Create real world environments that employ the context in which learning is relevant; 2. Focus on realistic approaches to solving real-world problems; 3. The instructor is a coach and analyzer of the strategies used to solve these problems; 4. Stress conceptual interelatedness, providing multiple representations or perspectives on the content; 5. Instructional goals and objectives should be negotiated and not imposed; 6. Evaluation should serve as a self-analysis tool; 7. Provide tools and environments that help learners interpret the multiple perspectives of the world, and 8. Learning should be internally controlled and mediated by the learner (pp. 11-12). Jonassen (1998)	'teaching presence is created by the building of learning paths and by design and support of interactions, such that learners make connections with existing and new knowledge resources. … learners and teacher collaborate to create the content of study, and in the process re-create that content for future use by others. Assessment in connectivist pedagogy combines self-reflection with teacher assessment of the contributions to the current and future courses. … Teaching presence in connectivist learning environments also focuses on teaching by example. The teachers' construction of learning artifacts, critical contributions to class and external discussion, capacity to make connections across discipline and context boundaries, and the sum of their net presence serve to model connectivist presence and learning. (Anderson & Dron 201, pp. 88-89)

Resources and references		Dick, W. & Carey, L. (1990). *The systematic design of instruction*, NY: Harper Collins Publication Gagné, R. M., Wager, W. W. & Briggs, L. J. (1992). *Principles of instructional design* (4th ed.), New York: Holt, Rinehart and Winston. Reeves, T. C. (1994). Evaluating what really matters in computer-based education. In M. Wild, & D. Kirkpatrick, (Eds.), *Computer education: New Perspectives* (pp. 219-246). Perth, Australia: MASTEC. http://www.eduworks.com/Documents/Workshops/EdMedia1998/docs/reeves.html	http://www.learning-theories.com/	Gagne, RM. (1985). The conditions of learning. (4th edn.) NY Holt, Rhinehart & Winston. Schunk, D. 2012, learning theories: an educational perspective, 6th edn. Pearson, Sydney. http://www.learning-theories.com/cognitivism.html	DeCarvalho, R. (1991). The humanistic paradigm in education. *The Humanistic Psychologist, 19*(1), 88-104. Huitt, W. (2001). Humanism and open education. *Educational Psychology Interactive*. Valdosta, GA: Valdosta State University. Retrieved September 11, 2007, from the URL: http://chiron.valdosta.edu/whuitt/col/affsys/humed.html. Rogers, C., & Freiberg, H. J. (1994). *Freedom to learn* (3rd Ed.). New York: Macmillan. Rogers, C, 1983, Freedom to learn for the 80's Rev. ed. Columbus, Ohio : C.E. Merrill	Duffy, T. M. & Jonassen, D. H. (1992). *Constructivist and the technology of instruction: A conversation*, Hillsdale, NJ: Lawrence Erlbaum Associates.	Anderson, T & Dron, J. 2011, *Three Generations of Distance Education Pedagogy* International Review of Research in Open and Distance Learning Vol. 12.3. Siemens, G. (2005). Connectivism: A Learning Theory for the Digital Age, http://itdl.org/journal/jan_05/article01.htm

	Discovery / Inquiry learning	Experiential learning	Case based learning	Problem based learning	Scenario based learning	Situated learning	Authentic learning
Influential figures	Jerome Bruner	David Kolb		Medical school at McMaster University in Canada.	E Errington	John Seely Brown, Allan Collins, Paul Duguid Jean Lave Ettienne Wenger	Jan Herrington, Ron Oliver, Tom Reeves
Brief description	'Discovery Learning is a method of inquiry-based instruction, discovery learning believes that it is best for learners to discover facts and relationships for themselves.'	'A four-stage cyclical theory of learning, Kolb's experiential learning theory is a holistic perspective that combines experience, perception, cognition, and behavior.' Source: http://www.learning-theories.com/experiential-learning-kolb.html	'… case-based learning has developed a variety of interpretations and applications, the approach is most broadly defined as requiring "students to actively participate in real or hypothetical problem situations, reflecting the kind of experiences naturally encountered in the discipline under study" (Ertmer & Russell, 1995, p.24).	Problem-Based Learning (PBL) is an instructional method of hands-on, active learning centered on the investigation and resolution of messy, real-world problems.	Errington (2008) describes scenario-based learning as 'educational approaches that involve an intentional use of scenarios to bring about desired learning intentions.'	'Collins (1988) defined situated learning most simply as: "the notion of learning knowledge and skills in contexts that reflect the way the knowledge will be useful in real life" (p. 2).' (Herrington,Oliver & Reeves 2010, p. 14) 'The model of situated cognition is based upon the notion that knowledge is contextually situated and is fundamentally influenced by the activity, context, and culture in which it is used (Brown, Collins & Duguid, 1989) cited in McLellan, H (1996) p. 6)	'For authentic learning to occur, learners must be engaged in an inventive and realistic task that provides opportunities for complex collaborative activities.' (p. 1) 'Authentic learning has its foundations in the theory of *situated cognition* or *situated learnin*g, together with other pedagogical approaches developed over the last two decades, such as *anchored instruction.*' (Herrington,Oliver & Reeves 2010, p. 14)

Principal identifiers / themes	'inquiry-based, constructivist learning theory takes place in problem solving situations where the learner draws on his or her own past experience and existing knowledge to discover facts and relationships and new truths to be learned. … Models that are based upon discovery learning model include: guided discovery, problem-based learning, simulation-based learning, case-based learning, incidental learning, among others. Source: http://www.learning-theories.com/discovery-learning-bruner.html	'Kolb believes "learning is the process whereby knowledge is created through the transformation of experience" (1984, p. 38). The theory presents a cyclical model of learning, consisting of four stages shown below. One may begin at any stage, but must follow each other in the sequence: • concrete experience (or "DO") • reflective observation (or "OBSERVE") • abstract conceptualization (or "THINK") • active experimentation (or "PLAN")' Source: http://www.learning-theories.com/experiential-learning-kolb.html	Clyde Freeman Herreid provides eleven basic rules for case-based learning. 1. Tells a story. 2. Focuses on an interest-arousing issue. 3. Set in the past five years 4. Creates empathy with the central characters. 5. Includes quotations. There is no better way to understand a situation and to gain empathy for the characters 6. Relevant to the reader. 7. Must have pedagogic utility. 8. Conflict provoking. 9. Decision forcing. 10. Has generality. 11. Is short. Source: http://www.queensu.ca/ctl/goodpractice/case/index.html Sample learning design: http://needle.uow.edu.au/ldt/ld/wRZBXBXj	The following are some of the defining characteristics of PBL: • Learning is driven by challenging, open-ended problems with no one "right" answer • Problems/cases are context specific • Students work as self-directed, active investigators and problem-solvers in small collaborative groups (typically of about five students) • A key problem is identified and a solution is agreed upon and implemented • Teachers adopt the role as facilitators of learning, guiding the learning process and promoting an environment of inquiry Source: http://www.learning-theories.com/problem-based-learning-pbl.html	Errington (2004) lists seven reasons why some educators use Scenario-based Learning. 1. Scenarios help integrate subject theory with professional practice 2. Scenarios can be cognitively motivating 3. Scenarios can be socially motivating, making learning a team event 4. Scenarios provide a vehicle for deep-level learning tasks 5. Scenarios can facilitate reflective learning 6. Scenarios may encompass an emotional dimension to learning 7. Scenarios replicate professional workplaces and complex relationships Sample learning design: http://needle.uow.edu.au/ldt/ld/ILHgnUhp Can have goal based, interactive, reflective scenarios	Lave and Wenger (1991): '…learning is an integral and inseperable aspect of social practice.' (p. 31) '…there is no activity which is not situated.' (p. 33) 'Learning is not merely situated in practice – as if it were some independently reifiable process that just happened to be located somewhere; learning is an integral part of generative social practice in the lived-in world.' …' (p. 35) Key components: 1. Stories and narrative 2. Reflection 3. Cognitive apprenticeship 4. Collaboration 5. Coaching 6. Multiple [repeated] practice 7. Articulation of learning skills 8. Technology (McLellan (1996) pp. 7-12)	Authentic learning designs: 1 Provide authentic contexts that reflect the way the knowledge will be used in real life 2 Provide authentic tasks 3 Provide access to expert performances and the modelling of processes 4 Provide multiple roles and perspectives 5 Support collaborative construction of knowledge 6 Promote reflection to enable abstractions to be formed 7 Promote articulation to enable tacit knowledge to be made explicit 8 Provide coaching and scaffolding by the teacher at critical times 9 Provide for authentic assessment of learning within the tasks. (Herrington,Oliver & Reeves 2010, p. 18)

Resources	Bruner, J.S. (1967). On knowing: Essays for the left hand. Cambridge, Mass: Harvard University Press.	Kolb, David A. 1984. Experiential Learning: Experience as the Source of Learning and Development. Prentice-Hall, Inc., Englewood Cliffs, N.J.	http://www.queensu.ca/ctl/goodpractice/case/index.html Sample learning design: http://needle.uow.edu.au/ldt/ld/wRZBXBXj	Interdisciplinary Journal of Problem Based Learning Barrows, H. S. & Tamblyn, R. M. (1980). Problem-based learning: An approach to medical education. New York: Springer. Hmelo-Silver, C. E. (2004). Problem-based learning: What and how do students learn? Ed Psych Review, 16, 235-266. Hmelo-Silver, C. E. & Barrows, H. S. (2006). Goals and strategies of a problem-based learning facilitator. Interdisciplinary J of PBL, 1. 21-39. Savery, J. R., and Duffy, T. M. (1995). Problem based learning: An instructional model and its constructivist framework. Ed Tech, 35, 31-38. Hung, W. 2009, The 9-step problem design process for problem-based learning: Application of the 3C3R model. *Educational Research Review 4*. pp. 118–141.	Errington, E.P. 2008. Exploring real-world scenarios as vehicles for authentic learning. International Journal of Interdisciplinary Social Sciences 3, no. 5: 1–5.	Brown, J.S., Collins, A. & Duguid, S. (1989). Situated cognition and the culture of learning. Educational Researcher, 18(1), 32-42. Collins, A. (1988). *Cognitive apprenticeship and instructional technology*. , MA: Cambridge Lave, J. (1988). Cognition in Practice: Mind, mathematics, and culture in everyday life. Cambridge, UK: Cambridge University Press. Lave, J., & Wenger, E. (1990). Situated Learning: Legitimate Peripheral Participation. Cambridge, UK: Cambridge University Press. McLellan, H. (Ed.). (1996). Situated learning perspectives. Englewood Cliffs, NJ: Educational Technology Young, M. 2001. Instructional design for situated learning. ETR&D. 41(1). pp. 43-58.	Herrington, J. & Kervin, L. 2007. Authentic learning supported by technology: 10 suggestions and cases of integration in classrooms. *Educational Media International*, 44(3), 219-236 Herrington, J, Oliver, R, Reeves, T, 2010. A guide to authentic e-learning. New York: Routledge.

Definitions

Epistemology – 'study of the origin, nature, limits and methods of knowledge.' (Schunk, 2012, p. 5)

Learning theory – description of how learning occurs

Figure 5.7 illustrates the eight critical factors that must be aligned within a learning design for it to be effective. Alignment within a learning design cannot be over-emphasised. If an undergraduate course is designed based upon a constructivist learning theory (Fosnot, 1996), the remaining factors must be in alignment with the pedagogical design.

Figure 5.7

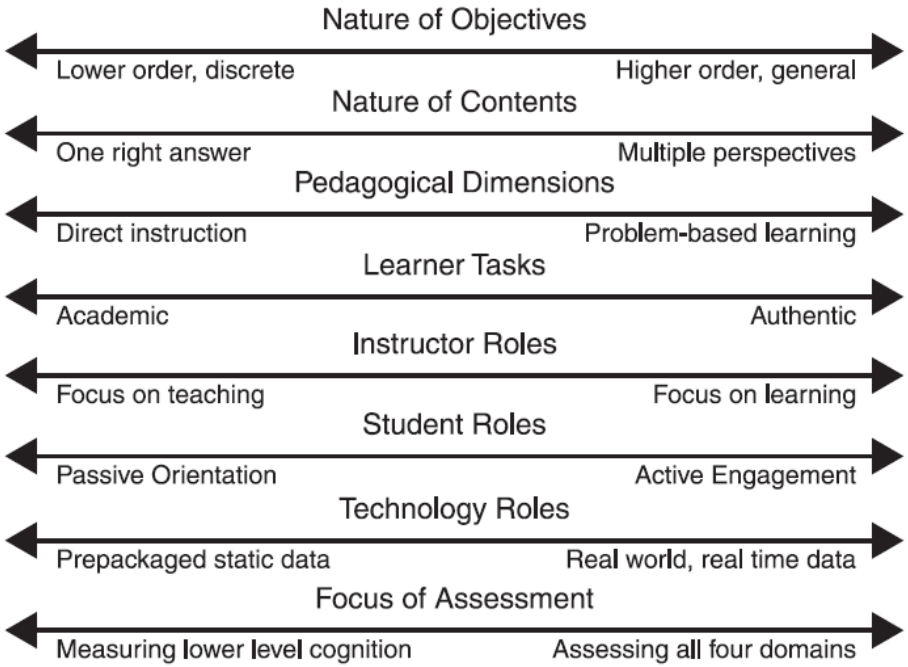


Figure 5.7 Critical factors in learning design alignment.

(Herrington,Oliver & Reeves 2010, p. 108)

What is Design Thinking and Why Is It So Popular?

interaction-design.org/literature/article/what-is-design-thinking-and-why-is-it-so-popular

retrieved 31.08.2910

by Rikke Dam and Teo Siang | 2 weeks ago | 13 min read

Design Thinking is not an exclusive property of designers—all great innovators in literature, art, music, science, engineering, and business have practiced it. So, why call it Design Thinking? What's special about Design Thinking is that designers' work processes can help us systematically extract, teach, learn and apply these human-centered techniques to solve problems in a creative and innovative way – in our designs, in our businesses, in our countries, in our lives.

Some of the world's leading brands, such as Apple, Google, Samsung and GE, have rapidly adopted the Design Thinking approach, and Design Thinking is being taught at leading universities around the world, including d.school, Stanford, Harvard and MIT. But do you know what Design Thinking is? And why it's so popular? Here, we'll cut to the chase and tell you what it is and why it's so in demand.

What is Design Thinking?

Design Thinking is an iterative process in which we seek to understand the user, challenge assumptions, and redefine problems in an attempt to identify alternative strategies and solutions that might not be instantly apparent with our initial level of understanding. At the same time, Design Thinking provides a solution-based approach to solving problems. It is a way of thinking and working as well as a collection of hands-on methods.

Design Thinking revolves around a deep interest in developing an understanding of the people for whom we're designing the products or services. It helps us observe and develop empathy with the target user. Design Thinking helps us in the process of questioning: questioning the problem, questioning the assumptions, and questioning the implications. Design Thinking is extremely useful in tackling problems that are ill-defined or unknown, by re-framing the problem in human-centric ways, creating many ideas in brainstorming sessions, and adopting a hands-on approach in prototyping and testing. Design Thinking also involves ongoing experimentation: sketching, prototyping, testing, and trying out concepts and ideas.

Design Thinking's Phases

There are many variants of the Design Thinking process in use today, and they have from three to seven phases, stages, or modes. However, all variants of Design Thinking are very similar. All variants of Design Thinking embody the same principles, which were first described by Nobel Prize laureate Herbert Simon in The Sciences of the Artificial in 1969. Here, we will focus on the five-phase model proposed by the Hasso-Plattner Institute of Design at Stanford, which is also known as d.school. We've chosen d.school's approach because they're at the forefront of applying and teaching Design Thinking. The five phases of Design Thinking, according to d.school, are as follows:

- Empathise – with your users
- Define – your users' needs, their problem, and your insights
- Ideate – by challenging assumptions and creating ideas for innovative solutions
- Prototype – to start creating solutions
- Test – solutions

It is important to note that the five phases, stages, or modes are not always sequential. They do not have to follow any specific order and can often occur in parallel and repeat iteratively. Given that, you should not understand the phases as a hierarchal or step-by-step process. Instead, you should look at it as an overview of the modes or phases that contribute to an innovative project, rather than sequential steps.

Author/Copyright holder: Pixabay. Copyright terms and licence: Free to Use

To help you understand Design Thinking, we have broken the process into five phases or modes, which are: 1. Empathise, 2. Define, 3. Ideate, 4. Prototype, and 5. Test. What's special about Design Thinking is that designers' work processes can help us systematically extract, teach, learn, and apply these human-centered techniques to solve problems in a creative and innovative way – in our designs, in our businesses, in our nations (and eventually, if things go really well, beyond), in our lives. Nevertheless, a great artist like Auguste Rodin, who created this famous sculpture called "The Thinker" and originally "Le Penseur", would most likely have used the very same innovative processes in his artwork. In the same way, all great innovators in literature, art, music, science, engineering and business have practiced it and still practice it.

The Problem with Ingrained Patterns of Thinking

Sometimes, the easiest way to understand something intangible, such as Design Thinking, is by understanding what it is *not*.

Humans naturally develop patterns of thinking modeled on repetitive activities and commonly accessed knowledge. These assist us in quickly applying the same actions and knowledge in similar or familiar situations, but they also have the potential to prevent us from quickly and easily accessing or developing new ways of seeing, understanding and solving problems. These patterns of thinking are often referred to as *schemas*, which are organized sets of information and relationships between things, actions and thoughts that are stimulated and initiated in the human mind when we encounter some environmental stimuli. A single schema can contain a vast amount of information. For example, we have a schema for dogs which encompasses the presence of four legs, fur, sharp teeth, a tail, paws, and a number of other perceptible characteristics. When the environmental stimuli match this schema — even when there is a tenuous link or only a few of the characteristics are present — the same pattern of thought is brought into the mind. As these schemas are stimulated automatically, this can obstruct a more fitting impression of the situation or prevent us from seeing a problem in a way that will enable a new problem-solving strategy. Innovative problem solving is also known as “thinking outside of the box”.

An Example of Problem solving: The Encumbered Vs. The Fresh Mind

Thinking outside of the box can provide an innovative solution to a sticky problem. However, thinking outside of the box can be a real challenge as we naturally develop patterns of thinking that are modeled on the repetitive activities and commonly accessed knowledge we surround ourselves with.

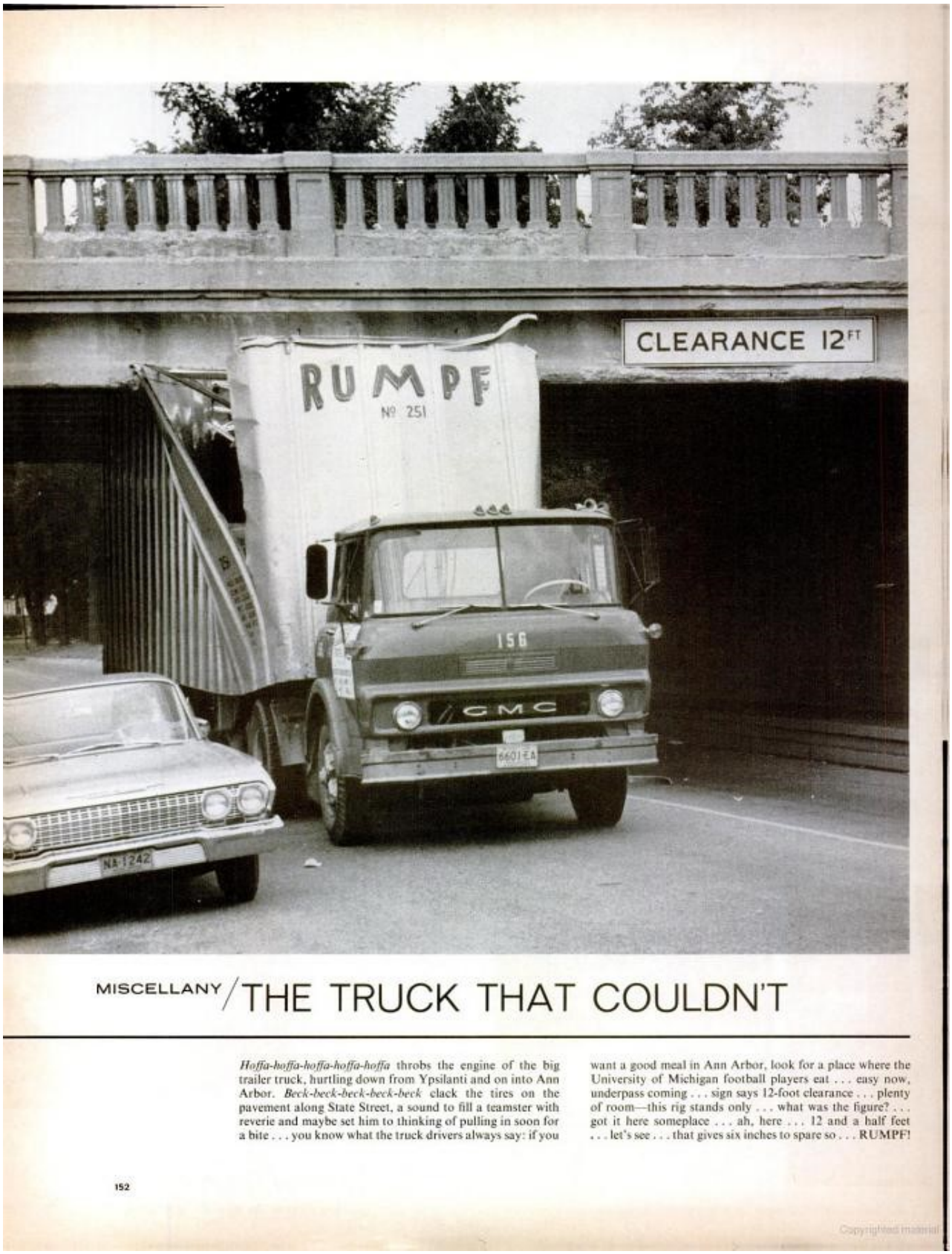
Some years ago, an incident occurred where a truck driver tried to pass under a low bridge. But he failed, and the truck was lodged firmly under the bridge. The driver was unable to continue driving through or reverse out.

The story goes that as the truck became stuck, it caused massive traffic problems, which resulted in emergency personnel, engineers, firefighters and truck drivers gathering to devise and negotiate various solutions for dislodging the trapped vehicle.

Emergency workers were debating whether to dismantle parts of the truck or chip away at parts of the bridge. Each spoke of a solution which fitted within his or her respective level of expertise.

A boy walking by and witnessing the intense debate looked at the truck, at the bridge, then looked at the road and said nonchalantly, "Why not just let the air out of the tires?" to the absolute amazement of all the specialists and experts trying to unpick the problem.

When the solution was tested, the truck was able to drive free with ease, having suffered only the damage caused by its initial attempt to pass underneath the bridge. The story symbolizes the struggles we face where oftentimes the most obvious solutions are the ones hardest to come by because of the self-imposed constraints we work within.



MISCELLANY / THE TRUCK THAT COULDN'T

Hoffa-hoffa-hoffa-hoffa-hoffa throbs the engine of the big trailer truck, hurtling down from Ypsilanti and on into Ann Arbor. *Beck-beck-beck-beck-beck* clack the tires on the pavement along State Street, a sound to fill a teamster with reverie and maybe set him to thinking of pulling in soon for a bite . . . you know what the truck drivers always say: if you want a good meal in Ann Arbor, look for a place where the University of Michigan football players eat . . . easy now, underpass coming . . . sign says 12-foot clearance . . . plenty of room—this rig stands only . . . what was the figure? . . . got it here someplace . . . ah, here . . . 12 and a half feet . . . let's see . . . that gives six inches to spare so . . . RUMPF!

152

Copyright holder: Wystan, Flickr. Copyright terms and license: CC BY 2.0

It's often difficult for us humans to challenge our assumptions and everyday knowledge, because we rely on building patterns of thinking in order to not have to learn everything from scratch every time. We rely on doing everyday processes more or less unconsciously — for example, when we get up in the morning, eat, walk, and read — but also when we assess challenges at work and in our private lives. In particular, experts and specialists rely on their solid thought patterns, and it can be very challenging and difficult for experts to start questioning their knowledge.

The Power of Storytelling

Why did we tell you this story? Telling stories can help us inspire opportunities, ideas and solutions. Stories are framed around real people and their lives. Stories are important because they are accounts of specific events, not general statements. They provide us with concrete details that help us imagine solutions to particular problems. While we're at it, please watch this 1-minute video to help you get started understanding what Design Thinking is about.

00:00
00:00

Design Thinking is often referred to as 'outside the box' thinking. This child shows us why it's important to challenge our assumptions and find new ways to solve our problems.

Design Thinking or 'Outside the Box' Thinking

Design Thinking is often referred to as 'outside the box' thinking, as designers are attempting to develop new ways of thinking that do not abide by the dominant or more common problem-solving methods.

At the heart of Design Thinking is the intention to improve products by analyzing and understanding how users interact with products and investigating the conditions in which they operate. At the heart of Design Thinking lies also the interest and ability to ask significant questions and challenging assumptions. One element of outside the box thinking is to falsify previous assumptions – i.e., to make it possible to prove whether they are valid or not. Once we have questioned and investigated the conditions of a problem, the solution-generation process will help us produce ideas that reflect the genuine constraints and facets of that particular problem. Design Thinking offers us a means of digging that bit deeper; it helps us to do the right kind of research and to prototype and test our products and services so as to uncover new ways of improving the product, service or design.

Grand Old Man of User Experience, Don Norman, who also coined the very term User Experience, explains what Design Thinking is and what's so special about it:

> *"...the more I pondered the nature of design and reflected on my recent encounters with engineers, business people and others who blindly solved the problems they thought they were facing without question or further study, I realized that these people could benefit from a good dose of design thinking. Designers have developed a number of techniques to avoid being captured by too facile a solution. They take the original problem as a suggestion, not as a final statement, then think broadly about what the real issues underlying this problem statement might really be (for example by using the "Five Whys" approach to get at root causes). Most important of all, is that the process is iterative and expansive. Designers resist the temptation to jump immediately to a solution to the stated problem. Instead, they first spend time determining what the basic, fundamental (root) issue is that needs to be addressed. They don't try to search for a solution until they have determined the real problem, and even then, instead of solving that problem, they stop to consider a wide range of potential solutions. Only then will they finally converge upon their proposal. This process is called "Design Thinking."*
>
> *– Don Norman, Rethinking Design Thinking*

Design Thinking is an Essential Tool – and A Third Way

The design process often involves a number of different groups of people in different departments; for this reason, developing, categorizing, and organizing ideas and problem solutions can be difficult. One way of keeping a design project on track and organizing the core ideas is using a Design Thinking approach.

Tim Brown, CEO of the celebrated innovation and design firm IDEO, shows in his successful book *Change by Design* that Design Thinking is firmly based on generating a holistic and empathic understanding of the problems that people face, and that it involves ambiguous or inherently subjective concepts such as emotions, needs, motivations, and drivers of behaviors. This contrasts with a solely scientific approach, where there's more of a distance in the process of understanding and testing the user's needs and emotions — e.g., via quantitative research. Tim Brown sums up that Design Thinking is a third way: Design Thinking is essentially a problem-solving approach, crystalized in the field of design, which combines a holistic user-centered perspective with rational and analytical research with the goal of creating innovative solutions.

> *"Design thinking taps into capacities we all have but that are overlooked by more conventional problem-solving practices. It is not only human-centered; it is deeply human in and of itself. Design thinking relies on our ability to be intuitive, to recognize patterns, to construct ideas that have emotional meaning as well as functionality, to express ourselves in media other than words or symbols. Nobody wants to run a business based on feeling, intuition, and inspiration, but an overreliance on the rational and the analytical can be just as dangerous. The integrated approach at the core of the design process suggests a 'third way.' "*
>
> *– Tim Brown, Change by Design, Introduction*

Science and Rationality in Design Thinking

Some of the scientific activities will include analyzing how users interact with products and investigating the conditions in which they operate: researching user needs, pooling experience from previous projects, considering present and future conditions specific to the product, testing the parameters of the problem, and testing the practical application of alternative problem solutions. Unlike a solely scientific approach, where the majority of known qualities, characteristics, etc. of the problem are tested so as to arrive at a problem solution, Design Thinking investigations include ambiguous elements of the problem to reveal previously unknown parameters and uncover alternative strategies.

After arriving at a number of potential problem solutions, the selection process is underpinned by rationality. Designers are encouraged to analyze and falsify these problem solutions so that they can arrive at the best available option for each problem or obstacle identified during each phase of the design process.

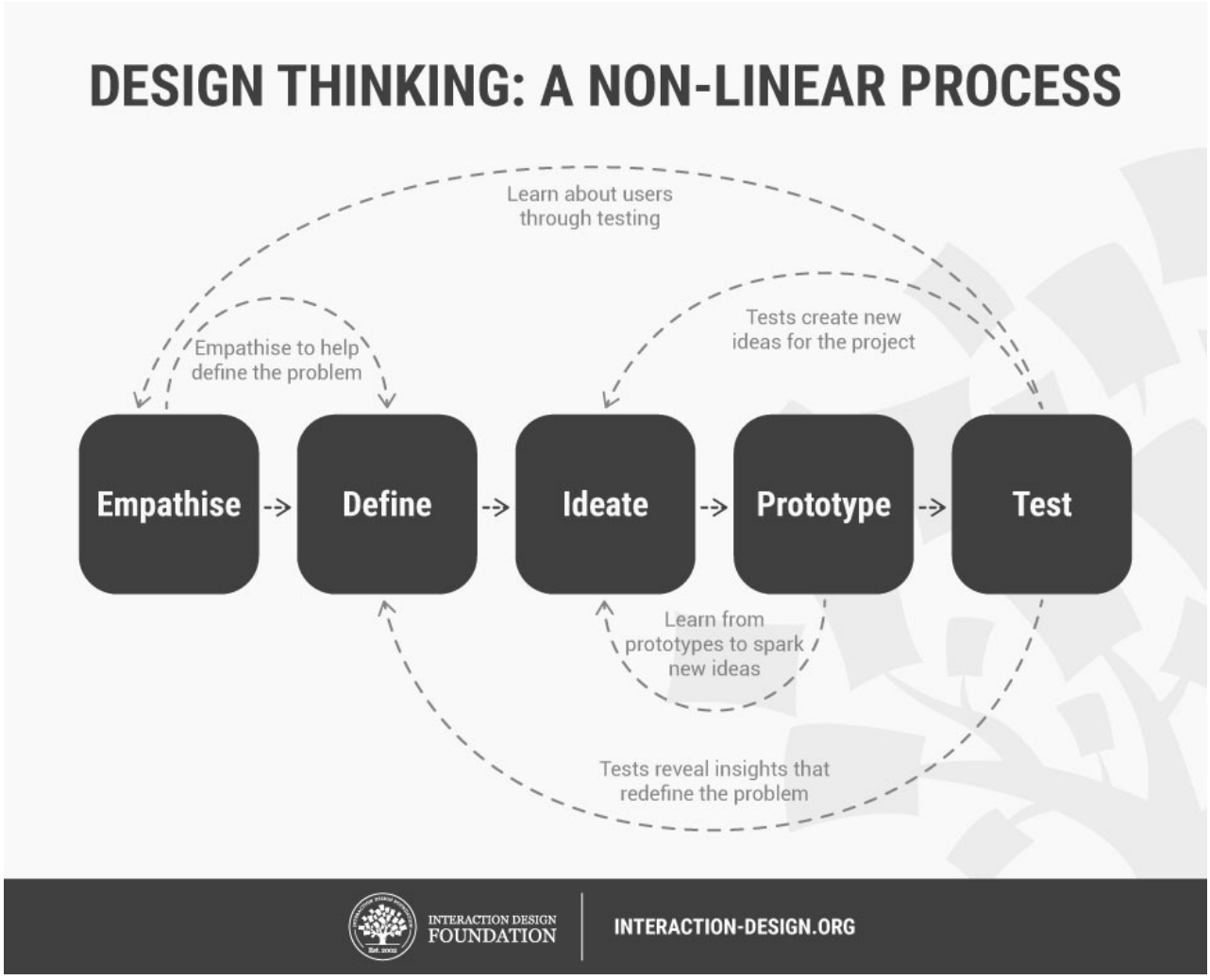
With this in mind, it may be more correct to say that Design Thinking is not about thinking outside of the box, but on its edge, its corner, its flap, and under its bar code, as Clint Runge put it.

Clint Runge is Founder and Managing Director of Archrival, a distinguished youth marketing agency, and adjunct Professor at the University of Nebraska-Lincoln.

Generating Creative Ideas and Solutions by Holistically Understanding Humans

With a solid foundation in science and rationality, Design Thinking seeks to generate a holistic and empathetic understanding of the problems that people face. Design thinking tries to empathize with human beings. That involves ambiguous or inherently subjective concepts such as emotions, needs, motivations, and drivers of behaviors. The nature of generating ideas and solutions in Design Thinking means this approach is typically more sensitive to and interested in the context in which users operate and the problems and obstacles they might face when interacting with a product. The creative element of Design Thinking is found in the methods used to generate problem solutions and insights into the practices, actions, and thoughts of real users.

Design Thinking is an Iterative and Non-linear Process



Design Thinking is an iterative and non-linear process. This simply means that the design team continuously use their results to review, question and improve their initial assumptions, understandings and results. Results from the final stage of the initial work process inform our understanding of the problem, help us determine the parameters of the problem, enable us to redefine the problem, and, perhaps most importantly, provide us with new insights so we can see any alternative solutions that might not have been available with our previous level of understanding.

Design Thinking is for Everybody

Tim Brown also emphasizes that Design Thinking techniques and strategies of design belong at every level of a business. Design thinking is not only for designers but also for creative employees, freelancers, and leaders who seek to infuse design thinking into every level of an organization, product or service in order to drive new alternatives for business and society.

> *"Design thinking begins with skills designers have learned over many decades in their quest to match human needs with available technical resources within the practical constraints of business. By integrating what is desirable from a human point of view*
>
> *with what is technologically feasible and economically viable, designers have been able to create the products we enjoy today. Design thinking takes the next step, which is to put these tools into the hands of people who may have never thought of themselves as designers and apply them to a vastly greater range of problems."*
>
> *– Tim Brown, Change by Design, Introduction*

Copyright holder: Daniel Lobo, Flickr. Copyright terms and license: CC BY 2.0

Design Thinking is essentially a problem-solving approach, crystalized in the field of design, which combines a user-centered perspective with rational and analytical research with the goal of creating innovative solutions.

The Take Away

Design Thinking is essentially a problem-solving approach specific to design, which involves assessing known aspects of a problem and identifying the more ambiguous or peripheral factors that contribute to the conditions of a problem. This contrasts with a more scientific approach where the concrete and known aspects are tested in order to arrive at a solution. Design Thinking is an iterative process in which knowledge is constantly being questioned and acquired so it can help us redefine a problem in an attempt to identify alternative strategies and solutions that might not be instantly apparent with our initial level of understanding. Design Thinking is often referred to as 'outside the box thinking', as designers are attempting to develop new ways of thinking that do not abide by the dominant or more common problem-solving methods – just like artists do. At the heart of Design Thinking is the intention to improve products by analyzing how users interact with them and investigating the conditions in which they operate. Design Thinking offers us a means of digging that bit deeper to uncover ways of improving user experiences.

> *“The ‘Design Thinking’ label is not a myth. It is a description of the application of well-tried design process to new challenges and opportunities, used by people from both design and non-design backgrounds. I welcome the recognition of the term and hope that its use continues to expand and be more universally understood, so that eventually every leader knows how to use design and design thinking for innovation and better results.”*
>
> *– Bill Moggridge, co-founder of IDEO, in Design Thinking: Dear Don*

Design Thinking vs. Agile: Combine Problem Finding & Problem Solving

mendix.com/blog/design-thinking-vs-agile-combine-problem-finding-problem-solving-better-outcomes

Edward Hadley / October 25, 2017

retreived 31.08.2019

"According to IDC, 30-35 percent of IT projects still fail. Other research puts the figure upwards of 50 percent"

According to IDC, 30-35 percent of IT projects still fail. Other research puts the figure upwards of 50 percent. Regardless of the study, the main reason consistently cited for the failure of software development projects to deliver their intended outcomes is misalignment with user and business needs.

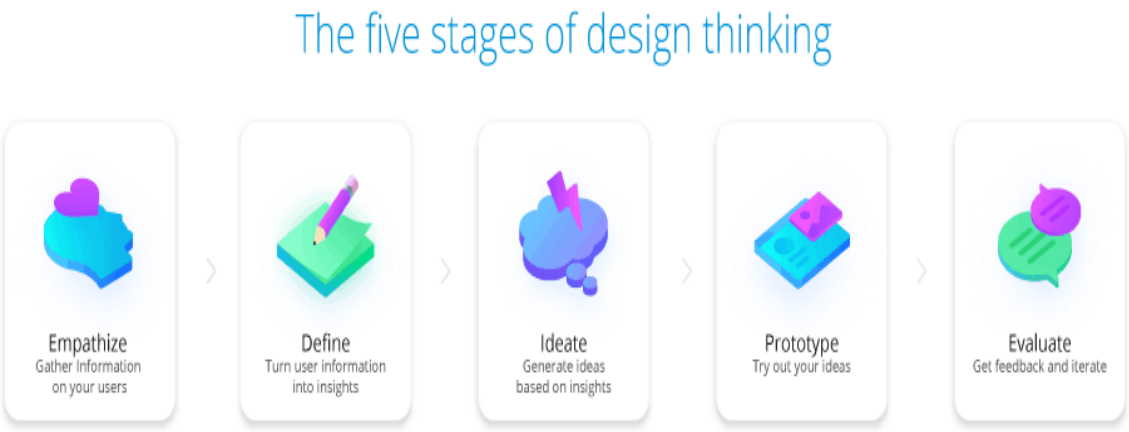
Many IT leaders believe that adopting agile methodologies like Scrum will fundamentally address this issue. After all, applied correctly, agile helps development teams iterate towards optimal outcomes by developing new solutions incrementally, with a focus on greater communication and collaboration. Indeed, research from the Standish Group shows that, particularly for medium and large projects, the failure rate for agile projects is half that of waterfall projects.

Despite these merits, agile alone is no guarantee that your teams will consistently deliver truly engaging, impactful solutions. While agile can provide a highly effective way of solving problems, it doesn't guarantee that you're solving the *right* problems in the first place. That's because humans have an innate tendency to accept suboptimal environments, and often can't see the possibilities for technology to create radically new or better outcomes. As such, asking end users what they need typically results in incremental improvements, not breakthrough solutions, greatly blunting the potential value.

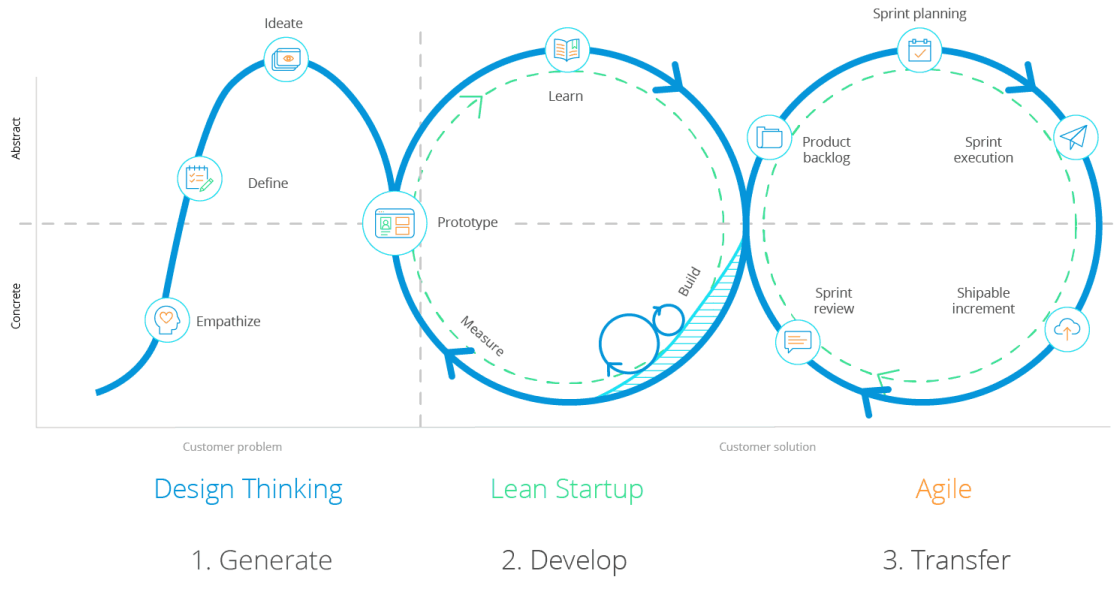
Use Design Thinking to Identify the Right Problems to Solve

For these reasons, a growing number of enterprise IT organizations have begun leveraging agile in conjunction with design thinking. Whereas agile is an approach to problem-solving, design thinking is an approach to problem finding. It calls for a high degree of empathy and understanding of end users, and an iterative process of developing new ideas, challenging assumptions, and redefining problems, with the goal of identifying alternative solutions that might not necessarily be apparent.

There are five stages of design thinking through which this is accomplished:



- **Empathize** – Understand people, their behaviors, and motivations. Because people often don't know, or can't articulate, these things explicitly, understanding emerges through viewing users and their behaviors in context to identify patterns, ask questions, and challenge assumptions.
- **Define** – Create an actionable problem statement to define the right challenge to address, as well as the set of needs that are important to fulfill, based on the organization, its goals, and the perspective of end users.
- **Ideate** – Leverage techniques such as brainstorming, mind mapping, sketching, or creating paper prototypes to step back, go wide, and come up with more innovative or impactful solutions that weren't originally envisioned.
- **Prototype** – Bring ideas to life by showing, not telling; quickly create working prototypes to put something into users' hands and begin to collect real-world feedback.
- **Test** – Learn from users' experience, iterate, and repeat the process as needed until reaching a Minimum Viable Product (MVP).



Use Agile to Iteratively Build Solutions that Solve Those Problems

Once you've stepped back and identified the true nature of the problem to be solved, your team can leverage agile to incrementally build out the solution, taking it from MVP to pilot to large-scale production. Moreover, agile becomes the mechanism to enhance the solution over time, making it a "living product" that evolves with user feedback and new business or market needs.

Like design thinking, a key tenet of effective agile is seeking frequent input from end users in order to iterate to the right outcomes. Early on, this includes establishing the project business goals, writing user stories, and creating backlogs. Throughout the development process, this input should manifest itself in other ways. For instance, the development team should ideally be physically collocated with the business to facilitate frequent meetings and interaction. Moreover, the team must share working demos at the end of each sprint to gather feedback and uncover unanticipated needs. Low-code development platforms are particularly helpful, as they create a common language for developers and users to discuss functionality and validate assumptions while enabling changes to be made and previewed right there on the spot.

This leads to another important similarity between design thinking and agile: frequent iteration. By creating regular interaction points through meetings and demos, the development team can continually gather new insights that help them adapt and better align the software being developed with both user and business goals. In addition, users should be able to submit issues, suggestions, and ideas through embedded feedback mechanisms within the apps, both during development and once in production. Ideally, there's a closed loop that brings feedback directly into the development environment enabling ongoing iteration.

Design Thinking and Agile: Better Together

While design thinking and agile can be applied alone, the two approaches are better together, creating a mutually reinforcing environment focused on user-centricity and rapid iteration as a means of reaching optimal outcomes. Design thinking brings a strong user focus while agile is an excellent way to incrementally deliver solutions, ensuring user needs are kept front and center throughout the entire design and development process.

For teams looking to leverage agile and design thinking for the first time, here are three recommendations to keep in mind:

- **Start small.** Focus on high-value, low-risk opportunities to gain experience using design thinking and agile together. Then, as your capability matures, take on more challenging initiatives.
- **Create cross-functional teams**. To facilitate the required creativity, create cross-

functional teams that work together to design and develop solutions. As mentioned above, the team should be physically collocated with end users to promote frequent collaboration.

- **Balance design and development.** Because agile teams are often inclined to “just start coding”, mixing agile and design thinking for the first time may create tension about how much time to spend on design thinking before beginning development. Make sure the team understands the value of the empathy, definition, and ideation phases, in particular, and that design thinking is not leveraged only at the front end of the process. In fact, the team should be prepared to jump to the beginning at any point to uncover new user insights and reframe the problem, and then continue development with a renewed sense of “why”.

Aligning Teaching with Intended Learning Outcomes

Introduction

With your intended learning outcomes at hand, you have to plan your teaching and learning strategies to support the attainment of these outcomes. This section will guide you to devise your plan for teaching and learning using an outcome-oriented approach, or in other words, to select teaching and learning methods which align with your intended learning outcomes. It starts with discussing some important questions that you need to take into consideration when selecting your teaching methods. It then takes you through a range of teaching and learning methods, showing typical scenarios of the methods and diagnosing the intended outcomes with which the methods could possibly be aligned.

Designing a Plan for Teaching and Learning – Some Important Considerations

You are recommended to make a plan to illustrate the teaching and learning methods clearly with some indications of when and in what kinds of subjects such methods are going to be employed.

Before we go into the specific teaching and learning methods, there are some important considerations when selecting teaching and learning methods. In light of this, three check questions are recommended for facilitating your plan.

Aligning Teaching and Learning Methods with Intended Learning Outcomes

When selecting any teaching and learning method it is obviously important to ensure that the method will enable the students to achieve what are intended as learning outcomes. There are different kinds of methods available. Some of them are more effective in building up subject knowledge while some make more contribution to developing generic skills. For more details on learning outcomes, please see the section Defining Intended Learning Outcomes.

Recommended check question: What outcomes does it promote?

Developing All-Round Students with Professional Competence

The institutional outcome for PolyU is all-round students with professional competence. As explained in the section Defining Intended Learning Outcomes, professional competence involves functioning abilities which are founded on a high level of understanding of academic knowledge and relevant procedural knowledge. Teaching and learning should be able to develop abilities to apply knowledge to solving real-life problems. It is crucial to encompass, in teaching and learning, elements of authenticity such as real-world examples, problems which resemble those in the professional world etc.

Recommended check question: How related is it to real life?

Key Features of the ‘Active Classroom’

Additionally, the idea of the ‘active classroom’, which the PolyU advocates, entails educational concepts and strategies that are relevant to the development of a high level of understanding of academic knowledge and functioning abilities.

The four key features of the ‘active classroom’ are (1) Thinking; (2) Task-Focused; (3) Teamwork; & (4) Transcendence (beyond the normal classroom).

Thinking

The methods are able to motivate students to think deeply with and about the important concepts and theories in their respective disciplines, and to apply the new understanding and skills in exploring and dealing with real-life problems in their future professions. We need to consider and whether they give students enough space to come up with their own ‘burning questions’ to which they want answers, and are interested and able to grapple with the questions put to them.

Task-Focused

The methods provide students with opportunities to engage themselves frequently in meaningful learning tasks where they are challenged to ask questions, think, discuss, apply and evaluate their new understanding and skills.

Teamwork

The methods require students to work with their peers in teams, both inside and outside the classroom. And the methods can encourage students to become active members of the wider learning community of the real world.

Transcendence (beyond the normal classroom)

The methods encourage students to learn not only through interacting with their teachers and peers in the scheduled face-to-face sessions, but also through interacting with other people in different kinds of out-of-class activities such as technology-enhanced discussions and forums, workplace and/or community-based experiences in workplace, partnership with professional, and international exchanges, etc. The teaching and learning methods should also encourage students to make connections with and appreciate a broader context of learning.

Recommended check question: How active is it?

Check Questions for Teaching and Learning Plan

To sum up, when selecting teaching and learning methods, keep asking yourself these 3 check questions:

- How active is it?
- How related is it to real life?
- What outcomes does it promote?

Teaching and Learning Methods

This section explores a total of 13 teaching and learning methods and uses the three check questions to discuss conditions justifying their use. Each method has three core elements: (1) A description of

what this method looks like in practice; (2) Examples of how this method can be used; and (3) Review alignment using the 3 recommended check questions. The 13 methods will be presented in this sequence:

- Interactive Lecture
- Case-Based Learning
- Problem-Based Learning
- Simulation
- Role Play and Fish-Bowl Observation
- Tutorial
- Self-Directed Learning
- Experiential Learning
- Laboratory Work
- Fieldwork
- Peer Tutoring
- PISER
- e-Learning

Interactive Lecture

Description	As the name suggests, the interactive lecture is characterised by interactions, both teacher with students and students with their peers. It breaks the information presentation into several sessions so that frequent learning activities can take place to foster deeper processing of content. The key is to activate thinking and encourage participation. A diverse range of activities, such as brainstorming, case study, open-ended discussion and teamwork exercises can be integrated into the lecture. It is suitable for both small and large classes – some teachers have used it successfully in tiered theatres with over 100 students.
Example 1	**Introduction**. Start the lecture by introducing some essential basics on the topic. **Individual Work.** Students individually study a real-life case and attempt to answer some questions about the case. **Group Activity.** Then students form into groups of three to four with those sitting next to each other. The groups share and discuss their answers. **Debriefing.** Invite answers from a few groups and conduct discussion around these answers to build up the major teaching points. Provide supplements for the points missed by the students. **Refocusing.** Bring them back to focus on the learning objectives, reiterate the central viewpoints and introduce alternative perspectives. **Making Connection.** Close the lecture by making a connection to the next session by giving students an outside class assignment.
Example 2	**Introduction.** Start the lecture by introducing some essential basics on the topic. **Individual Work.** Students practise solving numerical problems. **Explanation.** Invite a few students to present their solutions on the board, with the teacher eventually giving the model answer. **Diagnostic Activity.** Give a short quiz to summarise the key issues that have been covered.
How Active?	In an interactive lecture, learning activities are made possible at frequent intervals so that students are not passive information receivers. In both Examples 1 and 2, students engage themselves in ‘thinking’ and work on the ‘task’. However, limiting the activities to individual problem solving in Example 2 cuts short of the experience of interaction and learning in a ‘team’.
How Related to Real Life?	The activities in an interactive lecture, if well chosen, are good vehicles for introducing relevance. Example 1 is a good example as it engages students in applying theories to discuss and work on real-life phenomena. On the other hand, the numerical problems lack authenticity.
What Learning Outcomes?	Moving from passively receiving information to actively thinking enhances understanding to a high level. An interactive lecture with well-chosen activities is able to develop various characteristics of an active learner. These characteristics include being able to make inquiries, examine issues and solve problems.

Case-Based Learning

Description A case describes typical issues or problems. It gives students the opportunity to place themselves in the position of the decision maker in a specific simulated situation. The scenarios are usually taken from real life and presented from the standpoint of the decision maker. A successful case is one which offers debate on alternative courses of action, rather than offering a single settled outcome or solution.

Example A case scenario is presented to the whole class and some questions are provided for discussion.

-- Case Scenario --

E-commerce gives corporate gift company welcome boost

This case study describes how an advertising gift distributor is boosting sales through use of e-commerce.

Based in Windsor, Healey Williams is an advertising gift distributor. The company supplies a wide range of business and promotional gifts to corporate clients within the UK, but also reaches a worldwide audience through the internet.

Founded in 1987, Healey Williams started life in a small room with two partners, a desk, phone and typewriter. Today, it employs 10 people and is one of the first companies in the UK to offer a fully integrated online ordering service for business gifts. Their customers are mostly blue chip companies, especially within the IT and financial sectors.

Founding partner, Nigel Williams, explains: 'We believed that e-commerce would provide us with a competitive edge in an industry that has a reputation for being lethargic in adopting new technology. We also hoped that it could bring genuine benefits and additional services to our customers, something that has proved to be true. We experienced a rise in sales in excess of £200,000 as a direct result of our ability to offer online catalogues for new and existing customers.'

Through the use of e-commerce the business was able to introduce its own online catalogues for its range of business and promotional gifts. They have taken this …

(source: http://bcs.businesseurope.com/cmn/viewdoc.jsp?cat=ec&ct=cs&docid=BEL1_Casestudy_0000003655)

Questions for Discussion:

- Ask students to make an analysis on the present case scenario, e.g., What is the strategic goal this company is trying to achieve? Analyse how this company tried to achieve this goal.
- Ask students to design a new model based on the information in the case material, their creativity and their prior knowledge in relevant areas, e.g., If you're the Marketing Manager, what methods including online solutions would you use to expand your company's business plan?
- Ask students to evaluate each others' models and give comments.

How Active? Cases provoke action plans. In the example, students place themselves in the position of the Marketing Manager and seek solutions to expand the company's business plan. This method also offers debates amongst the

	students on alternative courses of action, and that demands high order thinking in evaluation, analysis, decision making and reasoning, etc. This method is therefore ideal for group work.
How Related to Real Life?	Case scenarios introduce into the classroom a simulated professional context in which students make hypotheses and negotiate for appropriate actions. For example, the context of 'e-commerce' is provided for students to discuss about strategic marketing and other related economic issues.
What Learning Outcomes?	Since the case scenarios are authentic, open-ended and the questions provide a large space for investigation, students are encouraged to critically analyse and interpret the issues raised in the case and later apply prior knowledge into the situation in order to formulate and solve the key problems. When analysing the issues, students bring in and reflect on their own experience. In other words, this method is effective in generating high levels of reasoning, involvement and group participation.

Problem-Based Learning

Description Problem-based learning (PBL) is characterised by the use of real-life and ill-structured scenarios, those that are complex and generally have multiple responses as starting materials instead of the teacher simply assigning readings, providing lectures or walking students through a solution. Students identify problems associated with the scenario and use these problems to drive their learning process. Their inquiry and exploration leads to learning key concepts, principles, content knowledge, and strategies necessary to solve the challenges presented by the problem. The teacher's main role is to support student inquiry.

Example 1 **Pure PBL**

- In the first session, present the problem case scenario to the students. Identify and clarify unfamiliar terms presented in the scenario.

The Problem

> A Memo from the Manager of Coronary Care Unit dated July 16, 2004:
>
> Recently our hospital admitted a 40-year-old Chinese female by the name of AhYan, who lost 50 lbs in 6 months. Her previous weight was 160 lbs. Her primary physician admitted her with the diagnosis of malnutrition. She thinks she looks wonderful and is happy that she can wear a size 5 dress. Her haemoglobin was 3.3 and hemocrit 17. Patient shows little concern with her diagnosis. She has visual signs and symptoms of someone malnourished. I am requesting a comprehensive evaluation of her condition and interventions to assist her with future diet and weight management. I would like to have the evaluation by July 31, 2004. Thanks again for any assistance you can offer.

- When encountering the authentic scenario, students have to define the problem(s) and identify the issues to be discussed. They formulate learning objectives and research consensus on appropriate and achievable learning objectives. After class, they conduct private study.
- In the following session, students bring in and share the results of their private study. They discuss to reach the best solutions, present them and justify them altogether. Then they keep revising hypotheses through the application of newly acquired knowledge. In the process, the tutor prompts them for more clarifications and explanations. At the end, the tutor lists the concepts missed and the pertinent data that contribute to finding the best solutions.

Example 2 **Hybrid PBL**

- In the first session, the teacher gives a mini lecture on the theories and principles.
- Then the teacher presents the problem case scenario which is written around the theories and principles covered in the mini lecture.
- When encountering the authentic scenario, students have to define the problem(s) and identify the issues to be discussed. They examine the details with reference to the theories and principles learned in the lecture.
- Students discuss to reach the best solutions, present them and justify them altogether. Then they keep revising their hypotheses through the application of newly acquired knowledge. In the process, the tutor prompts them for more clarifications and explanations. At the end, the tutor lists the concepts missed and the pertinent data that contribute to finding the best solutions.

How Active?	• Pure PBL is an excellent example of active learning that engages students vigorously in problem formulation, information seeking and actual problem solving. On the other hand, students in hybrid PBL approach the problem issues with basic knowledge given by the teacher in the mini lecture. • Both examples illustrated above are able to reinforce the inquiry process in which students think critically and deeply about the problem and issues and apply knowledge to situations. These inquisitive activities are effective in promoting student's deep thinking and convergent thinking. • The entire process of PBL is a big task in itself. The task is to solve the ill-defined problem through a range of different kinds of activities. • PBL develops students' collaboration and communication as they work together towards the best solutions. • PBL engages students in learning new knowledge through different types of activities that are similar to the ways in which they will be likely to recall and use it in future situations.
How Related to Real Life?	PBL is renowned for its potential to bring authentic problems to the classroom. The key objective of PBL is to find appropriate solutions to the real, ill-defined problems that are happening in the professional context. The situation that occurs in pure PBL is closer to the real-world situation in which people have to solve immediate problems with very little information at hand. For this reason, pure PBL is more suitable for experienced learners while hybrid PBL is better for inexperienced learners.
What Learning Outcomes?	PBL is recognised as highly appropriate for developing professional competence and a wide range of generic abilities. It develops deep understanding and the higher-order thinking skills of critical thinking, application and problem solving, etc. Students also learn to make use of different resources to solve real problems. It also provides conditions for the development and practice of self-directed learning while small groups provide conditions for the improvements in communication and teamwork skills.

Simulation

Description	Simulation provides experiences for students without the constraints of a real-life situation. With a simulation students can think through the scenarios and seek solutions to a hypothetical problem in order to experience what it moght be like in the actual situation.
Example 1	*PatientSim System (for Health Sciences)* A patient simulator is a fully computer-programmed robot, functioning as a real patient *who* reacts automatically to every single change (particularly the medicines injected into its body). This is widely used in health sciences education for students and trainees to carry out medical experiments (e.g., trying new drugs or therapy) which are not possible to do on real patients.
Example 2	*Merger Plan (for Business)* The Merger Plan Simulation is a computerised business simulation in which players are exposed to a number of issues addressing the challenges and trade-offs typically found in post-acquisition integration planning contexts and other major change management situations, including the consensus building process with a plurality of internal and external stakeholders. It can be run with 6 to 60 players. All data are processed in real time mode so that the information is ever changing, depending upon the actions taken by the players. (source: http://www.insead.edu/facultyresearch/teaching_tools/merger_plan_simulation.htm)
How Active?	Simulation is a powerful way to engage students in practical tasks as they are highly motivated to try different alternatives to solve problems. Students take action mainly in accordance with the reactions of the objects and environmental factors in the simulation. For instance, students can try different drugs on the patient simulator to lower the blood pressure caused by unknown reasons. In Example 2, players need to identify the determinants of each stakeholder's opinion of the merger scheme, and use the available actions to find a trade-off between the maximisation of theoretical value generation and of stakeholder support.
How Related to Real Life?	A simulation game mimics a complex real-life situation, where students hypothesise and modify their actions through trial and error. But still it is a simulation that does not entirely represent the complexity of the reality. The situation can be high-risk as in Example 1 or low-risk as in Example 2.
What Learning Outcomes?	Simulation provides a development scenario where students interact with different factors in the simulation package and/ or other players. They engage themselves in specific tasks, make assumptions and evaluate alternative methods upon the direct instant feedback as a result of the actions taken in the process. These repeated steps of decision making and interaction with the factors in the simulated environment helps them construct deep thinking and knowledge so that they know how to solve real-world problems.

Role Play and Fish-Bowl Observation

Description

In a **role play** the learner portrays a certain role as a way of experiencing that role. In **fish-bowl observation**, while students are portraying the assigned roles, other students observe and analyse the behaviours. These two activities can be separated and combined as shown in the example below.

Example

1. Students are divided into two groups. One group of students, as performers, plays different roles and another group, as observers, watches the role play.
2. Students are provided with a scenario that each of the performers has to describe and portray his/her role in a simulated setting.
3. Students as observers take note of the key findings regarding the behaviours of the performers.
4. At the end, form a discussion about the role play with focus on the behaviours observed and how the role play reflects the learning outcomes.

How Active?

Role play is effective in making the class more interactive as students are given chances to act out their roles, actively respond to each other, and perform a number of tasks which are designed based on human interactions. Therefore, it is widely used in the health sciences and social sciences disciplines.

How Related to Real Life?

Role play creates a particular situation where students experience different roles and view the situation from different perspectives. They can practise techniques required in the professional practice particularly for the clinical and social sciences disciplines. However, in role play, students are not interacting with real practitioners in the real situation.

What Learning Outcomes?

In role play and fish-bowl observation students act out the roles and view the situation from different perspectives so that they build up rapport and empathy for each other. This is important in improving interpersonal skills. They also become more critical when they evaluate the role players' behaviours.

Tutorial

Description The tutorial is a session that is additional or supplementary to the lecture. It is normally intended for further exploration of concepts, theories, principles and inquiries arising from the lectures so as to help students to develop deep understanding of the topics and skills and to apply of knowledge to solve problems. Tutorials can also be conducted differently by using various kinds of interactive activities mentioned earlier in this chapter.

The tutorial, used as a discussion platform, can be administered in many formats such as buzz groups, pyramids, debates, fishbowls, etc. In order to facilitate active discussion amongst the students, it is preferable for the teacher to use a series of pauses, prompts and probes to encourage students to think deeply so that they reach the interpretations, conclusions, and answers for themselves. The following examples delineate different approaches to managing the discussion process in a tutorial.

Example 1 Teacher recites the issues covered in the lecture, ask questions and invite volunteers for answers. The teacher gives answers if there is no volunteer. The teacher wraps up the tutorial by giving explanations and demonstrations.

Example 2 Students form groups of 4 to 5 and each group is given a question for discussion. A leader is chosen to record and report important ideas to the whole group. Students 'buzz' for about 5 minutes. Leaders take turns to report important points of their groups to the whole class. During reporting, teacher prompts students for explanations and suggestions. Students post up ideas and inquiry, if any. Lastly, the teacher gives feedback and invites the whole class for solutions.

How Active? Teacher dominance is obvious in the scenario depicted in Example 1 in which students are discouraged from thinking or speaking up in the class. In contrast, in Example 2, students are given a larger space to take active part in the learning tasks, discuss actively with their teacher and peers, and think deeply and apply what is learned to solve problems. Group discussions like 'buzz groups', as illustrated in Example 2, are effective to build up teams and enhance interpersonal communication.

How Related to Real Life? Whether the tutorial is conducive to authenticity or not really depends on the materials used for the discussion. Bringing more real examples into the explanation helps explain abstract concepts and principles. Likewise, bringing real cases into the discussion helps students to apply book knowledge into near real-life situations.

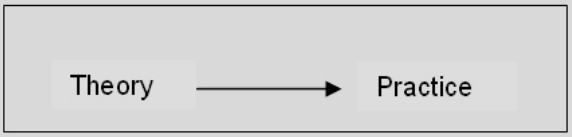
What Learning Outcomes? It is difficult to know what outcomes students can achieve in Example 1 as students are given very little chance to engage themselves in any activity. They might only be able to recite what is said in the textbook. However, in Example 2, students are able to explain, compare and contrast ideas and concepts with reference to the knowledge previously learned and, based on these negotiate for the answers, decisions or solutions later. They are also more active in criticising different information and making suggestions.

Self-Directed Learning

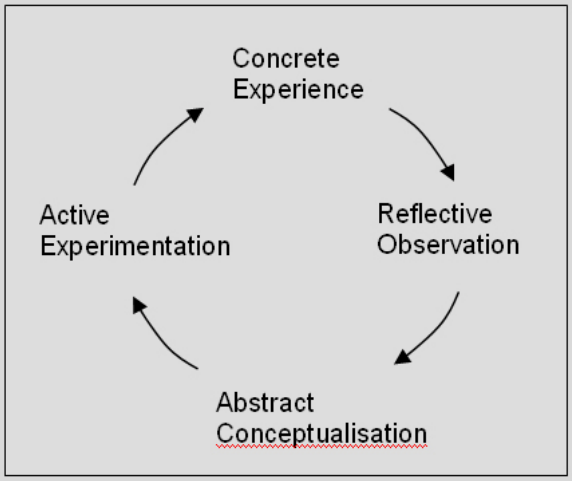
Description	Self-directed learning is a general term for an approach rather than a specific medium or method. The teacher encourages students to become actively involved in the activities which are structured by the students in their own way. In this kind of learning, the responsibility for learning is shifted from the teachers to the students.
Example	Many activities mentioned in this chapter such as project, problem-based learning and peer tutoring are good examples that capture the essence of self-directed learning. A learning contract is commonly used as a tool to assist students in planning for their learning goals and learning actions. *Learning Contract* Each student writes an agreement with the teacher or supervisor that details what is to be learned, the resources and strategies available to assist in learning it, what will be produced as evidence of the learning having occurred and how that product will be assessed. It also specifies a commencement and completion date for the activity. The contract provides a focus for learning activities that are largely self-directed.
How Active?	A self-directed learning approach shifts the responsibility for learning from the teachers to the students. In doing projects, solving problems in PBL, etc., students learn to work independently and devise their learning plans for themselves. Likewise, to complete a learning contract, students examine their expectations and capabilities, shape their own opinions and ideas, make their own decisions, choose their own activities, and generally take more responsibility for themselves. More than that, they actively find information themselves to construct the meanings.
How Related to Real Life?	All kinds of self-learning activities like the learning contract help students to set their goals based on their needs, interest and abilities, and that makes learning more relevant to themselves.
What Learning Outcomes?	Self-directed learning is effective in developing lifelong learning abilities as it allows students to explain and design their action plan, learn what and how to learn and lead themselves towards the goals. Students achieve the agreed learning outcomes through studying and thinking independently. At the same time, they learn to regulate their learning habits for higher achievements, and that develops them to be lifelong learners and self-evaluators.

Experiential Learning

Description Theory (the thinking) and practice (the doing) are commonly taught separately.



Experiential learning is a method to help students build up links between the thinking and the doing so that they learn to apply theories into practice with a deeper understanding of the concepts. It can be seen as a learning cycle of 4 distinct stages: Abstract Conceptualisation (e.g., students study the theories); Active Experimentation (e.g., students prepare an action plan to test out or apply the theory); Concrete Experience (e.g., students engage in carrying out the plan, i.e., practice); and Reflective Observation (e.g., students reflect on what is observed in the activity, relating it to the theory which are learnt).



The two links (Active Experimentation and Reflective Observation) are important in the experiential learning model as they allow students to make action plans for their learning based on the key points of the principles and later internalise the knowledge by reflecting upon their experience.

The two examples below are adapted from Gibbs (1988). Try to identify which one is experiential learning and which is not.

Example 1

1. Theory about welding is introduced in a lecture which is followed by a practical class in which the tutor demonstrates the welding technique.
2. Students attempt to practice the technique, under supervision.

Example 2

1. Theory about welding is introduced in a lecture which is followed by a practical class in which the tutor demonstrates the welding technique.
2. The students discuss and devise criteria for assessing the quality of a finalised weld with reference to the theory presented in class.
3. Students attempt to produce a weld and then to bend the weld and assess its quality using the criteria they devised in stage 2.
4. Based on the self assessment of the quality of the weld, students make a conclusion about how to avoid the weakness in their weld next time

	It is obvious that Example 1 is a typical approach to teach theory and practice separately. There is no feedback between the two phases of learning. Thereby students' conceptual understanding and practical skills cannot be enhanced in the process. On the other hand, in Example 2, which encompasses the essence of an experiential learning cycle, students are engaged in applying theory to evaluate their practice and, also, to make use of their practical experience to reinforce their understanding of the theory.
How Active?	The four stages of the experiential learning cycle definitely represent highly active learning opportunities for the students. Vigorous and high-level thinking is involved when planning out the action and when reflecting over the practice. The inclusion of an application action ensures that the approach is task-based.
How Related to Real Life?	By nature of an experiential approach, learning goes beyond understanding of the theory to planning for application which enhances the authenticity of the teaching and learning of the topic.
What Learning Outcomes?	With this approach, students learn to apply theories and principles to practice and they have a deeper understanding of the concepts upon experience and reflection. Apart from conceptual knowledge, this approach is effective in enhancing student's critical thinking ability.

Laboratory Work

Description	Laboratory work is commonly included to provide learning of the practical aspects of science and technology.
Example 1	*Cook-Book Laboratory Work* The conventional laboratory work is designed to be fully-structured, i.e., students follow instructions to collect data and analyse results to prove material previously discussed in the textbooks. Finally, they report their findings to the tutor.
Example 2	*Inquiry-Based Laboratory Work* On the other hand, laboratory work can be designed in a more open-ended approach. The practical session itself can include asking students to design the procedures themselves by referring to relevant theories and principles. Students will need to adjust the procedural design to solve any problems encountered in the experiment. Throughout the whole process, they keep examining the relationship between what is observed in the experiment and the theories and principles in the books, and they are prompted to explain any discrepancies that are found.
How Active?	Laboratory work by nature is task-based and engages students in a substantive learning task. However, the extent and depth of thinking that is required depend on the nature of the laboratory work. Obviously, open-ended experiments demand much more active and in-depth thinking than cook-book experiments.
How Related to Real Life?	A good scientific laboratory session should provide students with hands-on experience of handling practical work by using apparatus and machines used in their future profession.
What Learning Outcomes?	In both examples, students develop practical skills but there could be a big difference between the two examples in the level of understanding and professional competence. In Example 1, students mainly learn how to follow instructions, use specified items of apparatus and equipment, and process and present data. In Example 2, other than the mastery of the protocols and equipment, students also learn to actively apply theories into practice and the essential skills for a scientific investigation process such as making hypotheses, planning, designing and evaluating, etc.

Fieldwork

Description Fieldwork is simply 'learning by doing'. It comprises different extensive hands-on activities that provide students with lots of opportunities to learn in the field. In short, students do a real job on their own in the real world. The field may be a factory for engineering students or a clinic for health science students or a restaurant for catering students or a foreign country for language students.

Example 1 *Shipboard Field Experience*

Students are sent to the wharf and then a cargo ship to learn daily logistic operations. The officers working on the wharf and the crews of the ship give demonstrations with explanations while students mainly act as observers. Later, students are assigned to work in different parts of the wharf and the ship alongside the crews to operate the machines and carry out daily duties assigned by the field supervisors.

Throughout the whole programme, students need to take notes and write a diary to reflect upon their observations and experience. At the end, a debriefing session is conducted for students to share experience.

Example 2 *Fieldwork in Marine Studies*

Students, in groups, work on one 'real world' job: 'Power station outfall' in which they are asked to conduct surveys of the Tamar Estuary to assess the potential damage of the discharge of thermal effluent into the Tamar by a power station planned by a power company, for which background data are available. Students have to take a great deal of trouble to organise themselves for this a complex multifaceted task. (Gibbs, 1992)

How Active?

- In fieldwork, students keep thinking deeply about their actions and plan for the next actions. For example, students in a host family need to take cultural difference into account when they react and respond to the foreigners in the host family.
- Fieldwork is composed of different interactive tasks that interlock tightly with one another. These can be interactions with people such as communication, reflection or reporting; and interactions with the environment including site investigation and data collection and data analysis.
- Fieldwork brings students out of the classroom to apply textbook knowledge in the real situations. In Example 1, students gain experience through observing how real practitioners handle daily problems and later practise on their own. In Example 2, students have to devise their own action plan to solve real problems. Teamwork is also built up as they work together as a group.

How Related to Real Life? Fieldwork, by nature, puts students through experience of working in the real work place. However, the extent to which the experience resembles how a professional functions in the job depends on the design of the fieldwork task itself. Example 1 provides opportunities for skills development in the actual work place. It will benefit students by allowing them to experience the full range of technical realities which are difficult to replicate in laboratories on campus. However, the learning experience is limited to skills training. On the other hand, Example 2 puts students through problems that professionals

tackle in the real world. It provides students with opportunities to visualise the actual environment and to integrate and apply professional knowledge into this real and complex situation.

What Learning Outcomes?

- Different designs of fieldwork facilitate different levels of thinking and different kinds of cognitive skills. If it is designed to be 'working on-site under the supervision of real practitioners' as illustrated in Example 1, students learn the procedural skills required in the field and apply textbook knowledge into real practice. In Example 2, students devise a scheme to solve complex problems in the real world through the process of critical analysis and evaluation of the data collected by themselves in the field.
- Besides strengthening students' academic and procedural knowledge, fieldwork is also a good vehicle for developing a whole range of generic skills such as teamwork, communication, professional attitudes and ethics, etc., when they work alongside the real professionals in the field.

Peer Tutoring

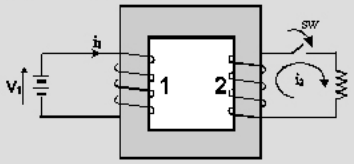
Description	Peer tutoring is cooperation between two or more students, where one individual as the tutor teaches to the other(s) as tutees. This can occur between students of the same year of study or between students of different years.
Example 1	*Reciprocal Peer Tutoring* Two students from the same subject of the same year form a dyad (pair). Both of them take turns at being the tutor while the other serves as the tutee. The instructor can have them switch roles for each skill, class, week, or unit.
Example 2	*Cross-Year Peer Tutoring* Cross-year peer tutoring occurs when the students are from different year-groups. In this type of peer tutoring, the 'older' students as tutors are usually more capable than the 'younger' students as tutees so that tutors can pass their study tips to the tutees.
How Active?	In peer tutoring, since the tutors and the tutees are about same age, it is easier for them to participate in the activity and to be motivated to learn. Before the tutors meet with their peers, they need to prepare the tutorial materials and to approach the teachers to sort out problems and remove misunderstandings.
How Related to Real Life?	The major benefit of peer tutoring is in engaging students in peer teaching and learning. Bringing in real life relevance is not the prime focus of this method.
What Learning Outcomes?	Peer tutoring helps students strengthen their own understanding of the subject matter. It develops generic skills such as communication and leadership skills. In Example 1, all students have the equal opportunity to be the tutors and experience the valuable leadership. However, in Example 2, only the 'older' students can have the leadership opportunity while the 'younger' students experience personalised instruction and feedback. Peer tutoring also develops character virtues and personal attitudes such as respect, responsibility, empathy, cooperation and persistence, and that is important in affective development.

PISER

Description PISER stands for Peer Instruction and Student Electronic Response. It is a specially designed classroom based activity which integrates two elements: Peer Instruction (PI) and Personal Response System (PRS). Peer Instruction is the central thrust of the activity while the Personal Response System is only a machine which collects responses from remote transmitters. The design of the PISER method makes use of the convenience of the PRS to enhance the effectiveness of peer instruction in class as illustrated in example 1 below. On the other hand, the PRS is sometimes used simply for displaying answers from students as in Example 2 which misses the essential spirit of the PISER method.

Example 1 A conceptual question like the one shown below is presented to the students.

Conceptual Question



Two mutually coupled windings are arranged on a ferromagnetic core as shown in the adjacent figure. Winding 1 is connected to a DC voltage source V_1 and winding 2 is connected through a switch to a resistor.

When the switch SW closes, the current induced in winding 2 will be:

a. clockwise
b. counter clockwise
c. zero
d. depends on when the switch closes
e. need to know number of turns

(Snider, 2001)

- Students tackle the question individually in the first place.
- They submit their answers by using the PRS, which displays the result pattern of the whole class on the screen immediately.
- Prompted by the results, students are given a few minutes to discuss their answers with their peers through the process of explaining and justifying their answers, listening to and challenging other peers' answers and critically examining other alternatives.
- Then, they answer a second time by using the PRS.
- This will be followed by a micro lecture dealing with the theories and principles behind the correct answer.

Example 2

- Students tackle a question individually.
- They submit their answers by using the PRS.
- Students tackle another question and submit their answers again by using the PRS and so on.
- All responses are transmitted to the machine and scores are calculated.

How Active?

- Example 1 shows clearly that the PISER method allows students to make their first attempts at the question and then engages them in critically evaluating their answers and discussing with their peers to rectify errors and refine their answers. The spontaneous display of the answer statistics serves as a quick and helpful feedback to the students, which motivates them to debate and clarify their answers.

	• While Example 2 also provides opportunities for working on problems in class, it misses the most important point of peer learning.
How Related to Real Life?	The PISER has been used successfully to bring in authentic and conceptually difficult problems and real-life issues for discussion in the classroom and even in the mass lecture.
What Learning Outcomes?	PISER is an effective method for increasing interactions amongst students. However, if used in a wrong way as depicted in Example 2, the concept of Peer Instruction can be overlooked. In this example, PISER is employed solely as a tool in a quiz where students are encouraged to memorise information in order to get the marks. In contrast, in Example 1, students do not only learn to solve conceptual problems but also to become more critical and analytical when they justify their choices and challenge the others. When discussing with their peers, they also learn to communicate effectively.

e-Learning

Description	The use of technology provides a range of possible learning experience which is difficult to achieve in the face-to-face classroom. There is a wide range of activities of different levels of sophistication, ranging from as simple as email question and answers, or online forums to highly sophisticated simulations. The following are just a few common ones.
Example 1	*Online Module* A common but NOT recommended use of the technology is to post the course materials to an online platform for students to download.
Example 2	*Online Peer Critique* Students upload their assignments to the website so that everyone in the class can view and evaluate the assignments. Students are asked to write comments on two pieces of assignment work done by other classmates and then post them up to the website to facilitate ideas exchange.
Example 3	*Virtual Laboratory* This is a highly interactive 3-D environment generated by computer programming. It provides for virtual visits and free exploration of different equipment and machines in the laboratory. Some buttons are usually created to allow 360-degree rotation and close-up examination of selected items.
How Active?	• Online discussion and sharing makes interactive learning more convenient for students. They can form virtual communities to discuss and work together actively regardless of space and time, and that gives the best solution to the busy students who have the difficulty of finding time to fulfil any teamwork activities. • With the advance of technology it is possible to extend the learning far beyond the campus-bound classroom. Students can always get in touch with the most updated information and exchange ideas with overseas students via more advanced audio-visual facilities as used in video-conferencing.
How Related to Real Life?	The accessibility to the outside world opens up rich sources for information about the real world. The use of programming techniques also allows real life scenarios which are normally difficult or impossible to be brought to the experience of the students
What Learning Outcomes?	While the intellectual outcomes depend on the design of the learning tasks, the active use of the technology for learning in itself is important for enhancing students' IT skills which are so essential in this modern world.

Assessment as Learning

etec.ctlt.ubc.ca/510wiki/Assessment_as_Learning Retrieved 01.09.2019

This page originally authored by Jessica Rowe (March 2012)

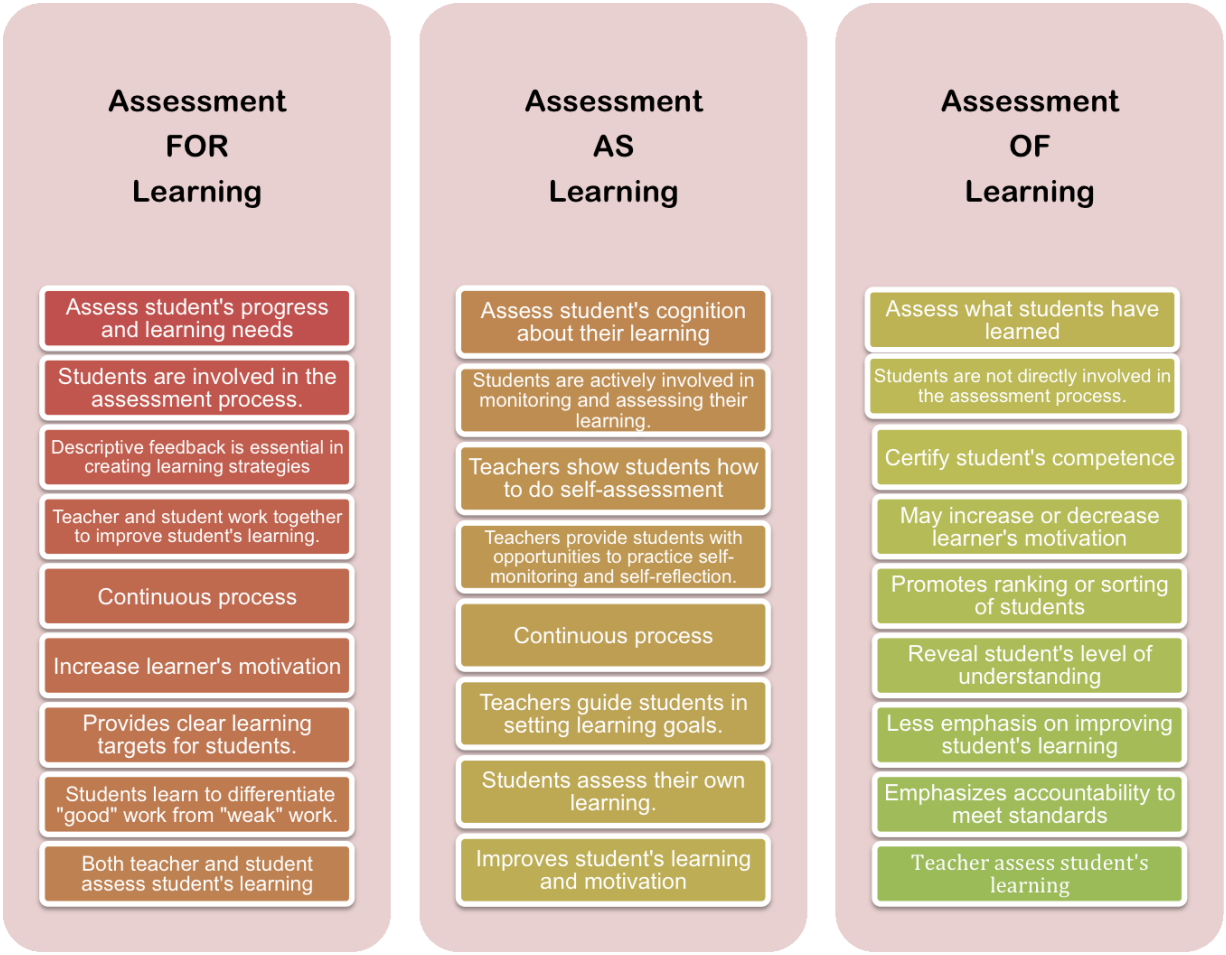


Image retrieved separate 01.09.2019 from https://annemichellemlee88.files.wordpress.com/2013/02/final-picture.png

Introduction

Assessment *as* Learning is the use of ongoing self-assessment by students in order to monitor their own learning, which is "characterized by students reflecting on their own learning and making adjustments so that they achieve deeper understanding." (Western and Northern Canadian Protocol for Collaboration in Education [WNCP], 2006, p.41) The table above provides a summary of Assessment *as* Learning as a part of a three-part assessment pyramid (taken from WNCP, 2006, 85).

An understanding of Assessment *as* Learning is essential in a digital age where information is readily accessible and teachers move from being the "knowledge-bearers" to knowledge-guides. Just as teachers guide students through the acquisition of knowledge, they must guide students through the process of understanding their own cognitive processes so that students learn to monitor their own learning and make adjustments.

Metacognition

Metacognition according to Schraw (1998) is the, "thinking about one's own mental processes" or the "regulation of cognition." Thus if cognition is defined as the knowledge or act of knowing then metacognition is understanding one's own knowledge. For students, this means that they understand what they do and do not know. With teacher guidance, they can learn to monitor this; they also learn to seek out the knowledge or develop their skills with this new sense of self-awareness.

Assessment Pyramid

Assessment *as* Learning is a part of a three-part assessment model recommended for use in classrooms by the Western and Northern Canadian Protocol for Collaboration in Education (2006). Earl (2003) argues that the traditional assessment model utilizing predominantly Assessment *of* Learning to report progress and compare students should be replaced by a balanced model including all three of the types of assessments. Figures 3.1 and 3.2 below demonstrate Earl's suggested balance for the three types of assessment: Assessment *as* Learning, Assessment *of* Learning and Assessment for Learning.

Figure 3.1 Traditional Assessment Pyramid

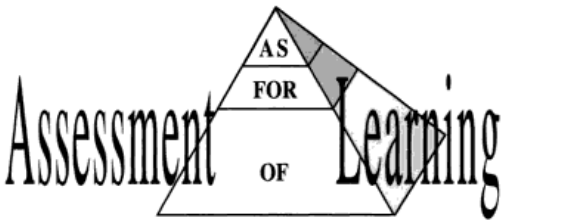
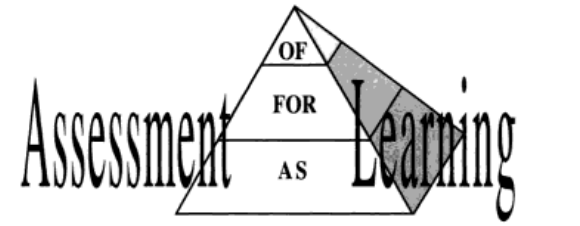


Figure 3.2 Reconfigured Assessment Pyramid



Assessment *for* learning

Assessment for Learning [1], a type of formative assessment, is utilized by teachers in order to gain an understanding of their students' knowledge and skills in order to guide instruction.

Assessment *as* learning

Assessment *as* learning, as previously mentioned, is also a formative assessment which focuses on teaching students' the metacognitive processes to evaluate their own learning and make adjustments.

Assessment *of* learning

Assessment *of* Learning is a summative assessment used primarily to compare students and report progress according to Earl (2003). Unit tests are a commonly used form of Assessment *of* Learning.

Roles

This assessment model supports the view of today's learners as actively involved in the learning process. Students are educated on the purpose of assignments and the outcomes they are trying to achieve. Black and William argue that student self-assessment is often accurate and honest; however, it is problematic when students do not have a "sufficiently clear picture of the targets that their learning is meant to attain." (Black and William, 2001, p. 6-7). Hence the teacher and the student both have critical roles in understanding learning outcomes and modifying learning in Assessment *as* Learning.

Teacher

Ensuring assessment methods are appropriate and the purpose is clear to students ensures quality and fair assessment practices as per the Principles for Fair Student Assessment in Canada (1993). Beyond choosing the learning outcomes to be covered, the activities to follow and the assessment methods, in Assessment *as* Learning, the teacher engages the students in this process.

In Assessment *as* Learning, the teacher is a guide, "Giving them [students] the tools to undertake their own learning wisely and well." (WNCP, p. 42) Students learn to monitor their own learning and make adaptations as required. In addition to monitoring learning and guiding instruction through assessment *for* learning, the teacher is assessing the students' ability to assess themselves as they learn how to assess their own learning.

Teachers can follow the following model in order to practise Assessment *as* Learning in their classroom: (adapted from WNCP, p. 42-43)

1. Discuss the learning outcomes with the students
2. Create criteria with the students for the various tasks that need to be completed and/or skills that need to be learned or mastered
3. Provide feedback to students as they learn and ask them guiding questions to help them monitor their own learning
4. Help them set goals to extend or support their learning as needed in order to meet or fully meet the expectations
5. Provide reference points and examples for the learning outcomes

Teachers are also responsible for ensuring that students have a learning environment in which they feel comfortable and safe to learn as well as have ample time to practise what is being taught.

Student

Beyond completing the tasks assigned to them by their teacher, students move from the passive learner to an active owner of their own learning. Initially, with teacher guidance and tools, students learn to monitor if they have understood the learning outcome being explored and the metacognitive process. Once the metacognitive skills have been acquired, students can independently adjust their learning accordingly and demonstrate the “self-reflection, self-monitoring and self-adjustment.” (WNCP, 2006, p.85) Extensive and relevant modeling in the questions below can help students reach this point:

Monitoring Metacognition (Protocol adaptation of Shraw, “Promoting General Metacognitive Awareness” in WNCP)

1. What is the purpose of learning these concepts and skills?
2. What do I know about this topic?
3. What strategies do I know that will help me learn this?
4. Am I understanding these concepts?
5. What are the criteria for improving my work?
6. Have I accomplished the goals I set for myself?

Classroom Examples

Literacy Mentoring Among Students

Deborah Koehn and her fellow teachers at Glenview Elementary School in Prince George used Assessment *as* Learning as a tool to review reading strategies and metacognitive skills in reading for grade 4/5 students and to have them in turn, mentor grade 1 students. Through the process, "Both sets of students learned to clarify their thinking, and were using similar language to describe their learning processes." (Koehn, 2008, p. 3) The grade 4/5 students became adept at using both teacher-created criteria and their own criteria and were able to mentor grade 1 students through the process. Koehn observed that, "They [grade 4/5 students] naturally began each lesson with a stated learning intention." (2008, p. 4)

Attendance Procedures

The ESL Network suggests having students record their own attendance as late or absent on a class posted list. The teacher would have continued discussions around class expectations for attendance and the impact of tardiness or being absent on learning. Students will then have continual opportunities to reflect upon and make changes to their attendance and punctuality.

WORK HABITS SELF EVALUATION RUBRIC				
Criteria	**Emerging**	**Developing**	**Acquired**	**Accomplished**
Personal	-Rarely has runners: does not take responsibility. -Negative; difficult to motivate. -Needs frequent reminders to stay on task. -Misuses equipment; may be unsafe.	-Sometimes forgets runners; does not take responsibility. -Sometimes difficult to motivate. -Needs occasional redirection to stay on task. -Requires occasional reminders to treat equipment with respect.	-Has runners; may have forgotten a few times. -Maintains a consistently positive attitude and participation in activities. -Regularly follows instructions -Uses equipment safely.	-Always has runners and P.E. strip and takes responsibility. -Always participates in a positive manner. -Immediately responds to instructions. -Always demonstrates care for equipment.
Social	-Unkind or rude to peers; often causes or enters into conflict. -Needs frequent teacher intervention to resolve conflicts. -Needs reminders to respect others' space	-Usually kind, sometimes requires reminders to respect others' feelings -Sometimes in conflict with others; not often the cause. -Needs occasional reminders to respect others' personal space.	-Kind, considerate and well-liked by peers. -Respects others' personal space and feelings.	-Always kind and considerate, well-liked by peers. -Beyond being respectful for others' personal space and feelings, makes an effort to encourage others to do the same.
Leadership	-Never encourages others; may put down others. -Attempts to sabotage planned activities.	-Uses positive/encouraging language with teacher prompting. -Volunteers when asked.	-Occasionally uses words of encouragement to motivate teamates. -Demonstrates positive behaviours. -Volunteers willingly to help teacher when asked.	-Consistently motivates others and encourages them to demonstrate positive behaviours. -Willingly volunteers without being asked.

Physical Education Work Habits

Art Uhl's rubrics concerning work habits in Physical Education (2009) can help clarify teacher expectations and increase students' abilities to self-monitor thus developing their metacognitive skills. This also serves the dual purpose of making a class that is sometimes stressful and unmanageable more ordered and manageable.

Introducing Work Habits Rubric

The following is based on the WNCP's suggested methodology for Assessment *as* Learning:

1. Introduce related learning outcomes
2. Introduce rubric and modify criteria with students to fit curriculum expectations
3. Have students self-assess and peer-assess at intervals throughout a unit
4. Guide students through setting goals to improve
5. Provide feedback throughout the unit and ask guiding questions
6. Highlight examples throughout the unit of positive P.E. work habits as defined by the rubric
7. Finish unit with Assessment *of* Learning by teacher completion of the rubric

E-Portfolios

An Electric Portfolio encourages "self-guided learning" according to Tuttle (2007). Students start with an understanding of the outcomes to be met throughout the year or term and then gather evidence of learning throughout the term to complete a finalized

digital project. This ability to select the assignments that best demonstrate their abilities in a given area demonstrate the metacognition necessary for Assessment *as* Learning. Tuttle reinforces this argument by stating, "Self-assessment becomes a regular part of learning as students frequently select or re-evaluate which of their work is the best evidence of their skills and strive to create even better evidence in future assignments." (2007, P 4)

Stop Motion Video

A short stop motion video describing Assessment AS learning
https://www.youtube.com/watch?v=vPVrLBeXGko&feature=youtu.be

References

1. Black, P., & Wiliam, D. (2001). Inside the black box: Raising standards through classroom assessment. Retrieved March 1, 2012 from Website: http://weaeducation.typepad.co.uk/files/blackbox-1.pdf
2. British Columbia Ministry of Education. (2004). Principles for Fair Student Assessment Practices. Retrieved March 1, 2012 from Website: http://www.bced.gov.bc.ca/classroom_assessment/fairstudent.pdf
3. Britzman, D. (2003). "Practice Makes Practice: A Critical Study of Learning to Teach. *Albany, N.Y.: State University of New York.*
4. Cognition. (n.d.). The American Heritage® Science Dictionary. Retrieved March 04, 2012, from Dictionary.com website: http://dictionary.reference.com/browse/cognition
5. Earl, Lorna Maxine. (2003). *Assessment as Learning: using classroom assessment to maximize student learning.* Thousand Oaks, Ca: Corwin Press.
6. ESL Literacy Network. (2011). Assessment As Learning Samples. Retrieved March 1, 2012 from Website: http://www.esl-literacy.com/sites/default/files/Assessment%20as%20Learning%20Samples.pdf
7. Koehn. (2008). Together is better. *BCTF Teacher Inquirer*. Retrieved March 1, 2012 from Website: http://bctf.ca/uploadedFiles/Public/Publications/TeacherInquirer/archive/2008-10/Koehn.pdf
8. Schraw, G. (1998). Promoting General Metacognitive Awareness. *Instructional Science*. 26. 113-125.
9. Tuttle, H.G. (2007) E-portfolios are the wave of the future. *Digital-Age Assessment.* Retrieved March 3, 2012 from http://www.techlearning.com/article/44127
10. Uhl, A. (2009, March). Assessment in Physical Education. Lecture conducted from Simon Fraser University, Burnaby, B.C.
11. Western and Northern Canadian Protocol (WNCP). (2006). Rethinking Classroom Assessment: Assessment for Learning, Assessment as Learning, Assessment of Learning. Retrieved # March 1, 2012 from: http://www.edu.gov.mb.ca/k12/assess/wncp/rethinking_assess_mb.pdf

Aligning Assessment with Intended Learning Outcomes

Introduction

Given that all-roundedness and professional competence are intended outcomes for all programmes:

- How do we assess professional competence?
- How do we assess the outcomes for all-roundedness set forth in the *Strategic Objective 1*?

This section attempts to guide you to:

- Appreciate how assessment design relates to curriculum design, as well as teaching and learning design in an outcome-oriented educational framework.
- Recognise a broad range of assessment options open to your selection.
- Make informed selection of assessment methods appropriate for your programme.
- Convincingly justify your assessment design to programme reviewers inside and outside PolyU.
- Formulate meaningful criteria to assess learning outcomes in various domains – professional knowledge, generic skills, and attitudes, etc.
- Design rubrics to provide feedback to students and to enhance the teaching and learning process.

Designing your Assessment Plan

Effective assessment is inseparable from good teaching and learning. Just as a good teacher would use more than one method of teaching, a programme or a subject would normally employ more than one method of assessment. Furthermore, assessment activities, like teaching, are also carried out at different times throughout the semester so we can know how students are learning. An assessment plan lays out a well thought out selection of assessment methods that are aligned to the objectives and outcomes of the subject or programme. To help you evaluate your assessment plan, we suggest using the three check questions for exemplary assessment design.

Selecting Appropriate Assessment Methods for Intended Learning Outcomes

Not every assessment method is universally valid for every type of learning outcome. For example, if an intended outcome for a Computer Programming course is to ‘be able to design and develop web-enabled software components using Java,’ you cannot measure this outcome by asking the student to write an essay. Similarly most generic outcomes, with the exception of language competencies, cannot be assessed by objective tests.

In order to align assessment with a particular type of learning outcome, you need to select an appropriate method of assessment. In the following we shall introduce a range of different assessment methods and discuss their appropriateness for different types of outcome.

A university education goes beyond mastering factual knowledge into higher order thinking skills and real world competencies. We want to develop a student’s ability to think critically and creatively and to solve problems. Thus, assessment methods which focus on lower-cognitive skills like memory are far less justifiable here. Instead, we need to design tests, exams, or assignments that can engage our students in thinking and doing things that will be valuable beyond their academic lives.

Recommended check question: What outcomes (in terms of level of understanding) are assessed?

Assessing Professional Competence with Authentic Assessment

In other sections, it is clearly explained that professional competence involves functioning abilities which are founded on a high level of understanding of academic knowledge and relevant procedural knowledge. Therefore, when selecting the assessment methods, we have to ensure they are able to assess the functioning abilities so as to develop students with competence in the professional context.

The real professional context, which is highly performance-based, is a complicated mixture of ill-defined problems, uncertainties and unexpected outcomes that demand teamwork efforts, leadership and diverse solutions, etc. It is difficult to create a real professional context in the classroom. Yet, teachers can bring in authentic assessments to ask students to demonstrate functioning knowledge and skills by performing real-world or near real-world tasks, using real-world tools, in a real-world context, and judged by real-world standards. This may sound rather unrealistic. However, when we design our assessment plan, we should keep these in mind to make our assessment as authentic as possible. When students are doing the authentic assessment tasks, such as projects and placement, students virtually gain real-world experience through the integration of different kinds of classroom knowledge to solve the real problems in the near real-world situation.

Recommended check question: How authentic is the task?

Using Assessment for Both Grading and Support Learning

Take a minute to consider: 'What is the function of assessment?' Many colleagues may immediately respond that it is for giving grades to students. Indeed, this is an important function of assessment and educators call this 'summative' assessment. Summative assessment is usually carried out at the end of a subject or after the conclusion of a major topic. Therefore both the final examination and quizzes given during the term are summative assessments – as long as they are administered mainly for grading purposes.

Besides its grading function, assessment is a powerful instrument for learning. Recent research in education focuses a lot on using assessment creatively to enhance learning (Gibbs, 1995). The design of the questions asked in the assessment will send messages to the students about what kinds of learning are encouraged. For example, open-ended questions encourage students to move beyond book knowledge into the broader subject context. On the other hand, an over-dependence on objective tests promotes a culture of rote learning and memorisation.

Hence when designing your overall assessment plan, you should view it not only as building in check points to give grades to students, but to consider it integrally as part of the learning process for the students. It is important to see the assessment as an instrument for promoting desirable learning.

Recommended check question: What kind of learning is promoted?

Continuous Assessment or Terminal examination?

A common concern among colleagues when making decisions about the assessment plan is the percentage weightings to be assigned to continuous assessment (also called coursework) and to the final examination. The choice between continuous assessment or terminal examination should therefore be considered in the light of whether they are appropriate for the intended learning outcomes, whether they are appropriately scheduled for providing feedback etc.

Three Assessment Check Questions

In summary, keep asking the following questions about your assessment plan:

- What outcomes (level of understanding/ performance) are assessed?
- How authentic is the task?
- What kind of learning is promoted?

Assessment Methods

This section explores different methods of assessment and uses the check questions to discuss conditions justifying their use. Each assessment method has three elements: (1) A description of what this method looks like in practice and its major variations; (2) Examples of how this method can be used; and (3) Review alignment using the 3 check questions. The assessment methods will be presented in this sequence:

- Objective Tests
- Case Studies
- Essay Questions
- Projects
- End-of-Chapter Type Problems
- Reflective Journals and Critical Incidents
- Seminar Presentation
- Practicum and Clinical
- Portfolio
- Examinations
- Peer and Self-Assessment

Objective Tests

Description Objective tests measure the learners' ability to remember facts and figures as well as their comprehension of course materials. Common variations include *multiple-choice* (MCQ), *true-false*, and *matching items*. A typical MCQ test (Example 1) measures only the acquisition of factual or declarative knowledge. It is possible, but very difficult, to write objective questions (example 2) to measure higher order thinking.

Example 1 *Typical MCQ*

Which e-Business model best describes an online auction company like eBay?

(A) B2B (B) B2C (C) C2C (D) Portal (E) Infrastructure

Example 2 *High Order Thinking MCQ*

After installing Windows 2000 Server on a new computer, you try to boot the computer but it fails. You receive an error message stating that the Boot.ini file is missing. The computer's system partition has been formatted with NTFS.

Which of the following describes the simplest solution to the problem in this scenario? You should

(A) Use the latest System State backup to restore the missing file.

(B) Boot the computer using Safe mode and then copy the missing file from a Windows 2000 CD.

(C) Use the ERD to boot the computer and then restore the missing file to the Windows 2000 Server computer.

(D) Use the Recovery Console to copy the missing file from the Windows 2000 CD.

(Source: http://www.microsoft-cisco-certification.com)

What Outcomes are Assessed?

- Example 1 type questions can be used to assess students' ability to recall, relate, or explain some factual knowledge which, as explained in Chapter 2, are lower-level learning outcomes.
- Example 2 type questions can be used to assess simple *knowledge application*, which means being able to use factual knowledge and information to *interpret data*, *diagnose* and *solve* well-defined problems. Only lower end problem-solving skills can be assessed by MCQs. Real world problems are often too complex to describe in a MCQ. Often, they have no one right answer, whereas the fundamental design of MCQs aims at soliciting a definite right answer.

How Authentic is the Task?

- Although some professionals are required to recall facts and data, MCQs cannot simulate this kind of recall situation adequately. For example, an operating theatre nurse will have to memorise the names of hundreds of surgical instruments and to be able to retrieve the correct item in a split-second with dead accuracy. However, the response is not prompted by a question of choice. The nurse has to observe the operation, anticipate what is needed, and respond to the

surgeon's command instantly. Furthermore, getting the right instrument into the surgeon's hand involves correct eye-hand-brain coordination. A MCQ assesses only the correct recall of terms.

- Example 2 is obviously more authentic than Example 1. Customer support engineers, and even computer users, face this kind of question on a regular basis. However, constructing this kind of MCQ requires an in-depth understanding of performance measurement theories – something best left to professional test makers.

What Kind of Learning is Promoted?

- When we over-use MCQs in quizzes and examinations for grading purposes, we send a message to students that learning is always about getting the right answers, rather than raising the right questions. Hence, we inadvertently perpetuate a culture of memorisation and rote learning.
- Typical MCQs assess knowledge bit by bit, item by item, with little or no reference to any real world application. Such knowledge is quickly and easily forgotten after the exam.
- External licensing and certification exams often involve a high proportion of objective questions. If one of your intended outcomes is successful professional entry, students will need drills in writing this type of exam. However, you cannot let these exams dictate or control your curriculum. In other words, your curriculum is concerned with something much more than performing well in any MCQs, it is about becoming an excellent person on the job and in life. Hence, academics should influence the professional bodies to change their assessment practices instead.
- Even when MCQs are written to assess higher order learning, as in Example 2, they still encourage rote learning. Since these questions are very expensive to create, they are banked and re-used many times in professional exams. The constant leakage reduces their overall reliability. The typical preparation for this type of exam is memorising answers from hundreds upon hundreds of past exam questions.
- Objective questions, like those in the examples, are best used as a tool to diagnose learning problems rather than a grading instrument. You can store banks of objective questions on the computer where students can check their mastery of basic subject knowledge on a regular basis. Good courseware can pinpoint concepts that a student has difficulty grasping and can provide remedial instruction on the spot. For example, an online diagnostic quiz after a lecture on 'Internet Security' may reveal that a number of students are still confusing the use of 'Public Key' with 'Private Key' in data encryption. Base on this information, the courseware can launch an e-learning module on 'Public Key Infrastructure' as many times as it takes for the student to grasp the basics. On the other hand, the instructor can take this information and revise his or her lesson plan for the next class.

Case Studies

Description	Students are given a factual description of a problem or situation. They are asked to *analyse* some information, *diagnose* the problem and *prescribe* a solution.
Example	This is an example of a case study question used in a timed, opened-book examination (summative) mode. You are an analyst for the Old World Bond Fund (see Fund Overview). You just received the attached set of economic forecast data from the European Central Bank. Formulate 3 actionable options for the portfolio manager, supporting your recommendation with sound analysis. You have 90 minutes to write this email of no more than 500 words.
What Outcomes are Assessed?	This case assesses students' ability to *analyse* economic data, and apply and *synthesise* economic and finance knowledge in order to explain and *hypothesise* causes, as well as to *prescribe* solutions. The given example can also assess generic skills such as communication, global outlook, critical thinking, and so on.
How Authentic is the Task?	• The type of task given in this example is performed by professionals on a regular basis. In the real world, analysts are given only minutes after the release of interest rate, GDP, or employment news to formulate detailed and sensible recommendations to clients. • Case studies can often be unauthentic when they are simply taken from a repository of cases without due consideration of the cultural and professional context as well as the relevancy to the outcomes of the subject or programme.
What Kind of Learning is Promoted?	• Case study questions are generally open-ended. There is no one right answer but several options; this type of question encourages active and deep learning. To do well in the example case, a student needs to be an avid consumer of financial and investment information from the real world. S/he needs to reflect on the information consumed and, probably, to discuss the information with others who share the same interest. • Case studies, in general, encourage students to explore knowledge and to focus on applying the knowledge to solve the problem at hand.

Essay Questions

Description

This is the most commonly-used assessment method in universities. There are two main varieties:

1. Unstructured questions, also known as free-response questions. Students have maximum freedom for discussion.
2. **Structured** or **restricted-response** questions. The student is given far less freedom to determine the nature and scope of the response. Often, the questions guide both the structure and the content of the expected response.

Example 1

Unstructured Essay Question

Discuss the suitability of deploying a distributed high-volume financial transaction system on Microsoft's. Net architecture in under 500 words.

Example 2

Structured Essay Question

Read the information about Smith College. Describe a) how work is organised amongst the different departments b) how these departments are coordinated c) the advantages and disadvantages of the functional structure d) what kinds of problems this type of organisation solves/ creates? e) Is this the most effective kind of organisation for Smith College?

What Outcomes are Assessed?

- Unstructured questions (Example 1) are excellent measures for assessing a student's broad *grasp* of a topic, *knowledge* of related areas, powers of *synthesis*, *analysis* and *evaluation*, written *communication skills*, etc. They also give students the opportunity to *organise their ideas* and demonstrate their power in *creative* and *divergent thinking*.
- Structured questions (Example 2) have to be used with more discretion. Quite often they work the same way as MCQs do – assessing knowledge of textbook information, rather than critical thinking. For example, questions 2a, 2b, 2c, and 2d are basically assessing a very low-level comprehension of textbook information.

How Authentic is the Task?

By their very nature, essay questions are not meant to be a direct representation of real-life knowledge application. They are useful, however, to stimulate critical thinking and reflection on authentic situations.

What Kind of Learning is Promoted?

Well-designed unstructured questions foster *breadth* in learning. Students can move beyond the topics in a textbook or a syllabus and branch out to discover related knowledge. For instance, the answer to the first example cannot be found in any one textbook. Students will have to research multiple cases and different ROI models to support their views. Breadth can be further enhanced particularly when peer feedback is incorporated into the process.

Projects

Description	Projects are popular methods of assessment in PolyU today. Projects can be based on literature and/or empirical research on a relevant problem. They can also be applied projects – solving real-life or simulated problems, producing technical prototypes, or preparing a business plan.
Example 1	*Engineering Background Research Paper* Working in teams of 4, perform an engineering background research study for the proposed T8 Highway project. What are the important issues in terms of the goals of the project and the effects on the community? Consider users, cost, safety, environment, technology, legal issues, design methods, functionality, alternatives, etc. Submit the final project as a website.
Example 2	*Multimedia Programming Project* Working in pairs, make a 5-minute interactive instructional video demonstrating one business application of Radio Frequency ID (RFID) technology. Your video must include at least an opening splash page, a menu page, and a credit information page. It must employ the following multimedia functions – transitions and fades, animation, sound control, hand-coded rollovers, and custom handlers. Submit the project as a streaming video website.
What Outcomes are Assessed?	Both examples can assess higher-order learning outcomes. Example 1 provides more opportunities to *analyse*, *synthesise*, *theorise*, *generalise*, and *evaluate* Engineering knowledge in an academic context. The programming project, on the other hand, promotes the *application* of theoretical IT knowledge, problem *solving*, *synthesis* of *aesthetics* (web design), *technical skills* (web deployment) with business knowledge, and so on.
How Authentic is the Task?	Example 1 uses a local (Hong Kong) civil engineering project as the theme for investigation. This level of real-world problem study makes the assignment very authentic. Another measure of authenticity is in the usefulness of the project, not to the teacher, but to the learners themselves. Example 2 demonstrates the creation of a very useful and assessable piece of learning object. The instructional videos created by the class will be useful for learning about the different application possibilities of RFID technology. These videos can also be used by subsequent classes as learning tools.
What Kind of Learning is Promoted?	• Both methods encourage active learning where students are not mere receivers of knowledge. Instead, they are involved in the construction of knowledge. In the Multimedia project (Example 2) students contextualise what might be just book knowledge, and make it into something useful and functional. The artefact constructed (the video) becomes a tool for lifelong learning. • Example 1 is the kind of *ill-defined* problem that drives *problem-based* learning. This kind of research trains students not to find answers, but to raise deeper questions about issues – issues of safety, of the environment, of goals and objectives, and so on. • Group projects develop teamwork and leadership abilities. The

	power of *collaborative learning* is magnified by the power of the web. The projects not only give students opportunity to learn to work as a team; but, given the ubiquitous reach of the Internet, such knowledge can be shared widely beyond the walls of the classroom.

End-of-Chapter Type Problems

Description

End-of-chapter problems are used to reinforce and apply some concepts and skills learned in the classroom. As in Example 1, when a mathematical procedure is presented in the classroom, students are given numerical practice problems to solve, in order, after class. These numerical problems are usually over-simplified real-life problems calling for direct substitution of values into formulae.

Example 1

Nursing Math

Complete the 10 problems at the end of the Critical Care Math chapter.

Problem 1 – Your patient is ordered Dobutamine at 10mcg/kg/min. The drug is supplied as 500mg in 1000ml. Your patient weighs 180 pounds. How many cc/hr should the patient receive?

Example 2

Prepare a nursing care plan for a specific patient in your care, using as your guide one of the models discussed in class. The care plan should include the following elements…

What Outcomes are Assessed?

- Example 1 is an objective word problem. It assesses the student's ability to perform IV (intravenous) calculation and metric conversions based on known algorithms. Since all the information needed to solve the problem is given in three lines, and there is only one correct answer, it is a well-defined problem. This task assesses only *computational competency*. It does not assess problem-solving or critical thinking skills; neither does it assess functional IV-administration skill.
- Example 2, on the other hand, can assess higher-order thinking skills. To begin with, the problem is always unique since no two patients are exactly alike. The student will have to *differentiate* between various nursing models to choose the one most suitable for this situation. S/he will have to *analyse* patient data, *interpret* subjective messages from the patient, and *diagnose* the problem. Then s/he will have to *design* a care plan that includes setting goals and *prescribing* nursing interventions that are backed by *scientific reasoning*.

How Authentic is the Task?

- The nature of the problem in Example 1 is authentic. However, in practice, the nurse will have to make calculations under multiple constraints. In the workplace, this kind of task certainly won't be something you can take home to work on at your own pace.
- Example 2 deals with an actual nursing problem and is very authentic in that respect. It is also an appropriate take-home task as the time it takes to prepare a care plan varies from patient to patient, and from hospital to hospital. However, some nursing schools require students to present nursing care plans in an academic format (e.g., APA), rather than in a professional format. This practice would compromise the authenticity of the task and make it unnecessarily burdensome for students.

What Kind of Learning is Promoted?

- Example 1 type assessment questions are commonly found in nursing professional exams and, hence, nursing students must be able to answer this type of questions. Whether this type of assessment task

promotes rote learning or not depends a lot on whether students learn the computational skill out of the context of practice. If this knowledge is learned out of context, it will be forgotten soon after the test.

- Example 2 type assessment promotes an *integrative* approach to learning that is *active*, *investigative*, and *problem-based*. The student will have to integrate learning from different subjects such as anatomy, physiology, and psychology with nursing knowledge. This type of task will promote *problem-solving* as well as *critical-thinking* skills.

Reflective Journals and Critical Incidents

Description **Reflective journal** is a piece of writing which allows students to record thoughts and insights about their own learning experience. This can be writing about what and how they have learned and understood a topic. It can also be a review of their learning process, self-evaluation of their performance and planning for future learning based on past learning experience, etc. (PolyU Learning-to-Learn Project).

Critical Incidents Students report on critical incidents that seem, to them, powerful examples of the topic studied, or move them to think deeply about the topic. By explaining what make these incidences critical and how they relate to concepts learned in the classroom, we can gain insight about how students (1) interpret what they have been taught, and (b) make use of the information (Biggs, 1999).

Example 1 *Reflective Journals in Earth System Science*

a. **Post Your Questions**. As a rule of thumb, plan to post your initial thoughts, theories, or questions; enter information and insights as you locate them; and then reflect on how far you've come. This process will not only capture the story of your knowledge building, but it will also clearly show your growth over the time of the course. For example, your initial thoughts could be 'I have a theory about how the hydrosphere is affected by a volcano….' and what you want to know, 'How is the fallout affected by the heat released in a volcano?' Write about the reasons for your questions and theories, as well as how strongly you feel about them.

b. **Post What You Know**. In the beginning of each week your entries will focus on what you know, 'I know that the atmosphere is affected by a volcano….' And what you want to know: 'How is the fallout affected by the heat released in a volcano?' At the end of each week, your entries might read, 'What I didn't realise….' And 'I figured out….when James made that entry about the remote sensing data that…'

(Adapted from NASA Classroom of the Future, Center for Educational Technologies. To learn more about this assignment please see http://www2.cet.edu/ete/5-8/cintro/journal.html)

Example 2 *Critical Incidents in Communication*

a. Provide a 1-page account of an occasion when you are not sure how to respond. Perhaps, you feel that if you speak your mind you will hurt someone's feelings, or drive them away, or get them angry, etc. On the other hand, you may want to inform them of how you feel. What do you do in such a situation?

b. I will select particular challenging and relevant critical incidents from the ones you all hand in and I will distribute selected ones for you to work with. You will work as a group to discuss your analysis of these critical incidents (Group Exercises), to discuss the communication issues you see in the incidents, and to discuss how communication theory relates to these incidents. Then you will be asked to write your own, individual analysis of the incident to be handed in a week later (Analysis of the Critical Incident). The ultimate goal of this exercise is to apply theory to the critical incidents – just what are the

	communication issues that the incident highlights? What are the central concepts that attach to the incident? How does theory apply, what analysis of the event can we draw out with the help of the theory? (To learn more about this assignment visit: http://www.usm.maine.edu/~com/critical.htm)
What Outcomes are Assessed?	Both types of journaling are appropriate assessment for deep learning, in which, the learner needs to reflect in order to *relate* theory with experience; to *synthesise* knowledge from multiple domains; to *critique* knowledge encountered; and to *evaluate* the effectiveness of the learning processes itself. Besides forcing students to think about the relevancy of the class topic, these writings will give instructors clue as to how students (a) have *interpreted* what they have been taught, and (b) can make *use* of the information.
How Authentic is the Task?	Critical incidents (Example 2) are drawn from multiple authentic experiences of the class members themselves. Furthermore, it is learning by examining 'What didn't work for me?' rather than 'What does the book say?' From there, one is led to examine theories to see how they could, or could not, address real-world problems.
What Kind of Learning is Promoted?	• Journaling is not only for assessment; it is intrinsically valuable for deep learning. It captures the students' judgment on the relevance of the content taught, and their ability to reflect upon experience using that knowledge. • In fact, journaling is an excellent means to attain and to assess Strategic Objective 1 attributes. What about keeping a Leadership Critical Incidents journal? Or a Learning Journal in Cultural Appreciation? Or maintain an online journal on Significant World Events? • Journaling develops lifelong learning skill. Many successful people maintain a learning journal or diary throughout their lives. Others share their journals within a community of practice by leveraging the power of the Internet. • When journals are shared and critiqued amongst peers, as in both examples above, they promote collaborative learning. Students learn from other people's encounters with knowledge and experience through active discussion and feedback. • Students can gain valuable insight about their learning progress and strengths and weaknesses as learners, as well as the effectiveness of their own learning strategies. As a result, they will become more capable in planning for overcoming learning difficulties.

Seminar Presentation

Description

Students work individually, or in teams, to investigate a topic relevant to the course and present their findings in the form of a seminar. There are other variations of the seminar presentation. Although seminars are very similar in format, there can be many alternatives in grading methods. For instance,

- Who grades - Teacher only? Peer? External assessor involved? Self?
- Performance aspects – Content only? Generic skills like communication, teamwork, artwork, etc.?
- What kind of grade – Team only? Team plus individual?

Example 1

Oral Presentation Grading Criteria

Present a 45-minute oral seminar on a subject pertaining to this course. You will be assessed on the following criteria – organisation, style, use of communication aids, depth of content, accuracy of content, use of language (grammar, word choice, freedom from biases, etc.), personal appearance, and responsiveness to audience.

Example 2

Poster Presentation Grading Criteria

Present your research on a 6’ x 3’ poster board. You will be graded on the following criteria – overall appearance, white space, text/ graphics balance, text size, organisation and flow, author identification, research objective, main points, and summary.

What Outcomes are Assessed?

- Broaden the scope of your assessment in terms of intended learning outcomes. Typically, we assess only declarative knowledge construction in seminars and presentations; however, presentation is also an excellent method to assess other generic skills like communication, language skills, teamwork, functioning knowledge (how-to), and so on. For instance, the assessment criteria of Example 1 encompass many generic skills, including language skills, interpersonal communication, as well as quality of visual aids and handouts.
- The assessment criteria of Example 2 focus on communicating research findings and effective poster design techniques.

How Authentic is the Task?

- The topic of the study may or may not be authentic.
- Presentations are often used in the professional context. Business people make customer presentations, management presentations and training presentations on a regular basis.

What Kind of Learning is Promoted?

- Presentations foster deep thinking. When one has to communicate a complex idea to others with limited time and space, there is always a challenge to present the idea in a lucid and succinct way.
- Most presentation assignments are team-based and promote collaborative learning.

Practicum and Clinical

Description In professional skill courses involving lab or clinical work, use and control of equipment, or the development of physical dexterity and psychomotor skills, it is obviously necessary to assess this work through practical tests of some sort. There are two general approaches to assessing practical skills:

1. **Ongoing observation** is best for courses with practical or psychomotor skills making up most of the intended learning outcomes, e.g., Culinary Arts, Performing Arts, Studio Arts, Clinical Skills courses, and so on. By assessing each performance or product, you can get a better overall view of the student's performance and ability. Furthermore, timely feedback can be given on the spot for improvement purposes. Whenever possible, this type of continuous formative-to-summative assessment is the best for practical skills courses.
2. **Summative demonstration** is a demonstration of practical skills to an examiner. In many ways this is similar to the closed-book written exam, except for the fact that it is of a practical nature. This form of assessment can be unfair to students who may have a 'bad day', or to those who react badly to exam pressures but are otherwise competent performers. However, many vocational qualifications require this type of competency testing and students will need to be prepared.

Example 1 *Clinical Procedures Demonstration*

To complete your clinical requirements you will demonstrate at least 3 successful experiences in a hospital setting with 5 procedures: (1) venipuncture; (2) arterial puncture; (3) bladder cath of male and female; (4) suturing/ wound care; and (5) intravenous lines. Submit completed log forms with signature and comments of the supervising nurse or doctor.

Example 2 *Physical Assessment Demonstration*

Your final practical exam is a 30-minute physical assessment demonstration. Bring your own patient for this demonstration and arrive 10 minutes before your scheduled exam time. You will be required to perform abdominal, thorax/lung, and cardiovascular exam. In addition you will perform a fourth exam chosen randomly by the examiner. Possible choices include musculoskeletal exam, neurological exam, eye exam, or head/ ear/ nose/ throat/ neck exam. The criteria for performance are attached. Please use them to study and practice before the exam. You are not permitted to refer to them during the exam.

Example 3 *Clinical Skills Demonstration with Explanation* (this is a variation of Examples 1 and 2.)

Perform the Clinical Procedure/Physical Assessment Demonstration. As you are performing each step in the procedure, explain to the supervisor/ examiner (1) what you are about to do (2) why you are doing what you will be doing (3) answer any question from your supervisor/ examiner.

What Outcomes

- Both Examples 1 and 2 are designed to measure mostly *procedural*

are Assessed?	knowledge – it is primarily a matter of getting the sequences and actions right based on the given criteria. The assessments themselves do not measure *functioning* knowledge of patient care, which is primarily *performance with understanding*. • Example 3 includes an explanation component to the demonstration. This 'running commentary' will expose the thinking behind the action and will allow the examiner to assess the *reasoning* ability of the student
How Authentic is the Task?	• Obviously, Example 1 is far more authentic than Example 2. The student works on real patients in an actual hospital or clinic. S/he is assessed by a practising professional. • Example 2, on the other hand, takes place in a simulated situation which does not take into consideration all the complexities of a real patient in a real clinic. However, sometimes it is justifiable to assess under this condition because of the sheer logistical problems with a more authentic approach.
What Kind of Learning is Promoted?	• Practicum and clinical assessments encourage the development of practical hands-on skills. • However, when the learning of declarative knowledge is separated from the learning of procedural knowledge, there is a danger of doing things 'mindlessly.' In such cases, the person functions like a technician rather than a professional. Thus, the use of demonstration with explanation should be encouraged whenever feasible.

Portfolio

Description A portfolio is a collection of course-related work performed by the student. Written reflections in which students evaluate their own learning are central components when portfolios are used to assess course outcomes. Traditionally, portfolios are used to assess learning in the arts and humanities. However, they can be equally useful in just about any discipline. Broadly speaking, there are two types of portfolios – the all inclusive portfolio and the selection portfolio. When portfolios are stored and presented electronically they are called 'e-portfolios'.

1. The **all-inclusive portfolio** is a complete record of all the work a student has produced in a course or programme. It can include various assignments like papers, projects, homework, VCDs of presentations or performances, etc. Students should include a written explanation of the significance of each entry in the portfolio. Doing so will help them think about and critique their own work, leading to deep learning.
2. The **selection portfolio** is purpose-specific. When the purpose of a portfolio is to evaluate the achievement of intended learning outcomes, only the best work exemplifying outcomes will be selected for inclusion. If the purpose is to demonstrate all-roundedness, then work representing a broad range of accomplishments will be included. If the purpose is to illustrate the process associated with attaining a learning outcome, then multiple drafts or versions that represent a chronology of progress will be selected. Again, some form of written reflection is essential for the development of higher order learning. There should be a limit to the number of items in the portfolio, otherwise it may go overboard and become a marking nightmare.

Example *English Writing Selection Portfolio*

The Writing Portfolio is a well organised, neatly bound collection of written work that both you and I can use to gauge your performance and effort in this course, and to gauge the progress you have made as a writer.

Assembling this Writing Portfolio will give you the chance to re-examine some of the assignments you did in this course, and to reflect on what you learned from them. Your in-depth, reflective comments, placed in the transmittal and in section introductions throughout your portfolio, will help me to understand precisely what you feel you have learned. Revisions of assignments will offer proof.

The portfolio is accompanied by a 2-3 page memo where you (1) reflect in detail on what you have learned about writing and about yourself as a writer during this semester. (2) Identify the pieces you have chosen to include in the portfolio and describe why you chose them: explain in detail how they represent your progress as a writer and your best work as a writer. (3) Explain your arrangement of writing assignments: how they are arranged, why they are arranged in this way and not another, and what effect on the evaluation process you hope the arrangement will achieve.

(Adapted from Kline, W.D. (1998). Portfolio assessment. Retrieved from: http://www.umsl.edu/~klein/PortfolioAssn.html)

What Outcomes Portfolios can be designed to assess almost any intended learning

are Assessed?	outcomes. Because reflection is always built into the framework, they allow assessment of students' skills in critical thinking, judging, learning, interpreting and analysing information as well as their attitudes and value systems.
How Authentic is the Task?	• Portfolios are frequently kept and displayed by professionals in the art and design field. In fact, they are useful evidence of attainment for any discipline. • By building a professional portfolio during university years, a student has a ready and powerful employment search tool upon graduation.
What Kind of Learning is Promoted?	• More than anything else, portfolios help students to take individual responsibility for, and ownership of, their own learning. • It is also one of the best methods in developing lifelong learning skills (Strategic Objective 1). Lifelong learning is at its best when a professional can habitually reflect on his or her work performance in order to make continuous improvement.

Examinations

Description

Examination is not an assessment method, but denotes an assessment *purpose*. Exams are used primarily for grading or selection purpose. We call this activity, in educational terms, *summative* assessment. It can use many of the methods we discussed above. Since examinations can take on many variations, it is important to understand the range of possibilities in order to design examinations that are compatible both with outcome-based and student-centred education. Which form should your exam take – open-book, closed-book, or take-home? When should exams take place – end of term only, or throughout the term? These are primary questions, that we shall consider here.

Examples

Terminal Exams

- **Terminal exams** happen at the end of a subject or programme. Some courses have one major terminal exam that contributes most of the grade for the course. The outcome of terminal exams usually determines whether the student can proceed to the next stage of learning, entrance to profession, or the degree classification, etc.
- **Continuous assessment** is an alternative to terminal exams. In continuous assessment student grades are determined by aggregating the performance on exams, tests, and other assessment activities undertaken throughout the semester or programme.

Open-Book, Closed-Book, Take-Home Exams

In planning exams, you often have to make a choice of how much time and reference material should be made available to students.

- **Closed-book exam** is the traditional mode of assessment. Students are not allowed to bring any reference material into the exam. They usually have a choice of exam questions and rely on their memory to answer them within a time limit. External professional and selection exams are usually closed-book and of an objective nature (MCQs and short answers).
- **Open-book exam** is becoming increasingly popular at the tertiary level. Memory plays a less prominent role in this form of assessment as students can bring a choice of reference material into the exam. However, students are still required to work within a time limit.
- **Take-home exam** substantially reduces both the memory and time factors in assessment. Students have access to references, but not assistance from others. They are expected to complete the exam within a given time limit (usually overnight or a weekend). The nature of questions in a take-home exam should not be of a factual recall nature (e.g. MCQ), since you will only encourage copying.

What Outcomes are Assessed?

- Terminal exams, because of their one-time nature, only take a 'snapshot' of student achievement at a particular moment. If, for any reason, the student is not performing optimally during those particular hours on that particular day, the measurement will not be an accurate reflection of his/her learning.
- Closed-book exams of an objective nature (e.g., MCQ) primarily measure factual recall and low-level comprehension of facts an

	procedures. Open-ended questions, however, can assess students' application and interpretation of knowledge as well as their analytical and evaluative skills.
How Authentic is the Task?	Exams, by their artificial nature, are not authentic assessment activities.
What Kind of Learning is Promoted?	• It is undeniable that the exam carries a very negative connotation, especially in Hong Kong. With this baggage, even the best designed exam will invoke undesirable behaviour on the part of some learners. Because of the inevitability of exams in the current assessment environment, it is important to take all of these into consideration when planning assessment. • An exam also promotes an unhealthy power relationship between teacher and students. Instead of perceiving teachers as guides and coaches into a life of learning, a teacher can be perceived as someone who holds the power of one's academic 'life and death'.

Peer and Self-Assessments

Description

In designing your assessment plan, you can also choose *who* should be doing the assessing. Thus far, we have assumed that the teacher is the person responsible for assessment. However, for all the assessment methods we discussed above, you also have the options of peer assessment and self-assessment.

- **Peer assessment** is assessment of students by other students. As more and more teamwork or group work is used in universities, peer assessment is becoming increasingly popular. Peer assessment can be formative or summative.

  Formative peer assessment involves students giving feedback to each other to improve learning. Provision is made in class or online for students to give feedback on each other's performance based on a given set of criteria.

  Summative peer assessment involves students grading each other's work. There are many ways to do this. In a written assignment each student can grade another student's paper based on a scoring rubric you provide for the class. In a presentation you can use a peer assessment scoring form. In a team project, you can ask the students within a team to negotiate and distribute a number of marks amongst themselves based on contribution to the team. Peer assessment grades usually complement the instructor's grades in summative assessment.

- **Self-assessment** is the assessment of learners by themselves. In order to perform meaningful self-assessment, you need to give students clear criteria by which they can assess themselves. This could be in the form of a scoring rubric. Once the students possess clear and written performance criteria, they can continuously assess their own performance and make improvement. Almost all self-assessment is formative in purpose.

What Outcomes are Assessed?

Peer and self-assessment can be built into any of assessment methods described earlier. Again, the emphasis is on making explicit the outcomes assessed and their performance criteria by using a scoring rubric.

How Authentic is the Task?

Peer and self-assessments are very much a part of modern human resource management practice. Students entering the work world will have to get used to assessing others and being assessed by others.

What Kind of Learning is Promoted?

- Self-assessment encourages learners to take ownership of and responsibility for their own learning – qualities of a lifelong learner.
- Peer assessment encourages collaborative learning. Educational psychology tells us that knowledge is first *socialised* before it is *internalised*. Peer assessment activities help bind learners together into a learning community. Through these formal and informal communities that generate knowledge, students will grow into lifelong learners.

Reference

Gibbs, G. (1995). *Assessing Student-Centred Courses*. Oxford: Oxford Centre for Staff Development.

Huba, M.E., & Freed, J.E. (2000). *Learner-Centred Assessment on College Campuses: Shifting the Focus from Teaching to Learning*. Boston: Allyn & Bacon.

Template Study Guide Module

This template is constructed based on the template used in the Faculty Management & Organisation of Leiden University of Applied Science.

General Introduction

1.1 Introduction of the period / semester / course / module

< Explanation of the theme, relevance for the profession, continuity and the connection with the other teaching and learning activities in this period, this semester and this year >

Teacher manual
Add tips for the teacher how to explain this to the students>

1.2 Schedule of this year

< A scheme of this year's program. The actual period is marked >

Period+ theme⇒ Course⇓	1 title	2 title	3 title	4 title
				-

2. Module < + code + title >

2.1 Introduction

< Short prescription of this course >

Teacher Manual < Add the information needed to get a good overview of the course >

2.2 Intended learning outcomes

< Short prescription in terms student will understand >

Teacher Manual < Explain and underpin your choices, make use of the overall goals of the curriculum >

2.3 Assessment and grading

< Detailed prescription of the (formative and summative) assessment, criteria, grading >

Teacher Manual < Explain the teachers role, logistics and organization to be certain the teacher is able to guide the students in the assessment(s) >

2.4.1 Schedule of Teaching and Learning Activities per week

< This is an example, you can apply it to your own situation >

What → Week↓	PBL	Skills training	Assignments	Reading
1	Problem definition	Communication skills 1		Pp 23-50 Reader
2	Group work	Communication skills 1	Presntation of proposal	
3		Communication skills 1		
etc.		Formative assessment		

2.5 Support and Organization

< Support: Describe the roles of the actors involved: teacher, students, peers, supervisor etc.
Organization: describe the teaching and learning activities, add cases, problems etc.
What can students expect and what are your expectations of the student >

Teacher Manual
< Support: Explain the way the teacher should facilitate, guide, coach student's learning, i.e. adjust a lesson plan
Organization: Explain the teacher's role during the teaching and learning activities;
Expectations: do's and don'ts >

2.6 Literature, media, resources

< Describe the obligatory and recommended literature, media and other resources

Teacher Manual
< describe how the teacher could cope with the hereabove mentioned literature, media and resources >

2.7 Attachments

< A list of attachments i.e. templates, documents …

e-Journal of Business Education & Scholarship of Teaching
Vol. 9, No. 2, 2015, pp: 56-71.
"http://www.ejbest.org"

Incorporating Emotional Intelligence in Legal Education: A Theoretical Perspective

Susan Douglas
School of Business
Faculty of Arts & Business
University of the Sunshine Coast
Email: sdouglas@usc.edu.au

ABSTRACT

'Thinking like a lawyer' is traditionally associated with rational-analytical problem solving and an adversarial approach to conflict. These features have been correlated with problems of psychological, or emotional, distress amongst lawyers and law students. These problems provide a strong argument for incorporating a consideration of emotion into legal education. How to achieve this is a challenge for legal educators. Addressing that challenge, it is argued that emotional intelligence (EI) provides an existing and useful conceptual framework for acknowledging and incorporating emotion into legal education and practice. Advantages in adopting EI are argued. Goleman's model of EI is identified as the most readily accessible model for EI in law. Goleman's model is adapted and applied to clinical legal education as an optimal site for introducing law students to EI.

Keywords: emotional intelligence, legal education, wellbeing, reflective practice.

JEL Classification: K49
PsycINFO Classification: 3410; 3530
FoR Code: 1302; 1801
ERA Journal ID#: 35696

Introduction

Emotional intelligence (EI) is about understanding the emotions we experience as individuals, and those of the people we relate to in such a way as to positively guide thinking and behaviour. Incorporating EI into legal curricula extends traditional legal education beyond its two dominant features, namely, an emphasis on rational-analytic problem solving and an adversarial approach to conflict. These features are integral to the traditional notion of 'thinking like a lawyer' (Sullivan et al, 2007; Mertz, 2007). The dominance of these features in law has been correlated with problems of psychological distress in law students and practitioners. These apparent threats to wellbeing draw critical attention to the need for legal educators to better equip students to meet the challenges that emotions play in professional practice. How to approach incorporating emotion into a legal curriculum becomes the challenge for legal educators. This article seeks to address that challenge by advancing emotional intelligence as an existing conceptual framework for emotion, drawn from positive psychology, which can be applied to legal practice and education. Specifically Goleman's (2004, 1995, 1998) model of EI is proposed as a suitable model and applied to clinical legal education.

Discussion is divided into three parts. In the first part, research that investigates the prevalence of psychological distress amongst lawyers and law students is reviewed. The extent to which this research establishes that 'thinking like a lawyer' causes emotional distress is then examined. Evidence of the negative impact of neglecting emotion in the law is argued as an impetus for incorporating EI in legal education. In the second part, the nature of emotional intelligence is examined and justified as a conceptual framework for incorporating emotion into legal education. Three advantages of using emotional intelligence as a conceptual framework for law are argued. In the final section Goleman's model of EI is applied to reflective practice in clinical legal education.

Thinking like a lawyer: a threat to wellbeing?

The Council of Australian Law Dean's (CALD) standards for law schools provide that law schools are committed to and promote the well-being of staff (2009, cl 4.3.4) and that a:

> "law school's commitment to sound educational methods and outcomes includes a commitment to, and the adoption of practical measures to promote student well-being, with particular reference to mental health and awareness of mental health issues." (2009, cl 2.9.1)

Wellbeing is generally equated with psychological wellbeing and a lack of wellbeing with psychological distress, exhibited by depression, anxiety and or stress. Wellbeing involves positive emotional states such as happiness, excitement and satisfaction.

Concern for the wellbeing of law students, legal academics and legal practitioners gained momentum in Australia following publication in 2009 of *Courting the Blues: Attitudes towards depression in Australian law students and lawyers,* by the Brain and Mind Research Institute (BMRI) of the University of Sydney (Kelk et al, 2009). This BMRI study was conducted in conjunction with the Tristan Jepson Memorial Foundation, which was established by the parents of Tristan Jepson, a young lawyer who look his own life having suffered depression. The researchers, Kelk and his colleagues, examined depression literacy and psychological distress amongst law students and legal practitioners. The sample consisted of 741 law students from 13 universities, 924 solicitors and 756 barristers. The study found that 35.2% of law students experienced high levels of distress compared with 17.8% of medical students

and 13.3% of the general population over 17 years of age. Of the sample of practicing lawyers, the study found that 31% of solicitors and 16.7% of barristers experienced high levels of distress compared with 13% of the general population over the age of 17 years. Prior to the BMRI study, a survey of Australian professionals conducted by Beaton Consulting (2007) revealed that when compared to the general population, professionals reported higher than average levels of depressive symptoms; and that lawyers reported higher rates of depression when compared with other professionals.

The Beaton and BMRI studies naturally generated real concern amongst the legal profession and academia in Australia. A number of studies of law students' experience followed the Beaton and BMRI studies in Australia in attempts to further investigate both the prevalence and possible causes of psychological distress. A study by Leahy and associates (2010), for example, found that indicators of distress were higher for law students than medical and psychology students though not significantly different than those for mechanical engineering students. In 2012 Larcombe and colleagues published a study of law students at Melbourne University. The sample consisted of 327 students across undergraduate and postgraduate law programs. The results showed that 27% of law students were experiencing depressive symptoms in the moderate to extreme range and 30% were experiencing moderate to extreme anxiety. According to the researchers, at "these levels, students' daily functioning - for example, their ability to concentrate, and to remember and process information - is likely to be adversely affected (Larcombe et al, 2012: 415). In a very recent study by Skead and Rogers (2015) in Western Australia, law students were found to score higher on measures of depression and anxiety than psychology students.

The significant and comparatively high levels of distress found amongst law students has led researchers to probe the attitudes of those students and the effects of the law school experience on wellbeing. A study conducted by Tani and Vines (2009) across all faculties of the University of New South Wales revealed significant attitudinal differences of law students compared to others. Law students were found to exhibit comparatively low levels of autonomy, being concerned more about their marks as a determinant of graduate employment than any intrinsic interest in learning or the nature of their studies; and comparatively high levels of competitiveness, disliking group work, seeing friendships in terms of networks to advance later careers and a greater likelihood to value the reputation of their university. The researchers conclude that such "differences suggest that inherent or learned personal characteristics may indeed have a significant impact on law students' likelihood of developing depression" (Tani and Vines, 2009: 25). The study did not probe these causes, however, and its results are equally suggestive of a competitive legal culture negatively impacting student wellbeing.

Two longitudinal studies of the impact of first year on law student wellbeing suggest that the experience of law school itself contributes to psychological distress. In a study of Monash Law School students, Lester and his colleagues (2011) found a statistically significant increase in indicators of depression experienced by students from the beginning to the end of the first year of study. Symptoms included "persistent lowered moods over a week, diminished energy, loss of pleasure and interest in activities, feelings of worthlessness, irritability and hopelessness" (Lester et al, 2011: 48). Similar results were found in a study conducted at the Australian National University (ANU) by O'Brien, Tang and Hall (2011) of law students. In that study students entering a law program demonstrated similar levels of depression and stress and somewhat higher levels of anxiety than community samples of comparable age. However students surveyed at the end of the first year showed marked increases in levels of depression and stress with similar levels of anxiety (2011: 55). These studies suggest that there may be something in the way law is taught with a view to how it is practiced that contributes to psychological distress.

The ANU study included an investigation of changes to law students' thinking styles in an attempt to correlate such changes with changes in measures of psychological distress. The investigators found that along with increased levels of stress and depression, students showed increased evidence of analytical thinking. Specifically the investigators plotted changes by measuring rational as distinct from experiential thinking styles. These changes were measured on the assumption that "emphasizing the rational mode while neglecting the experiential mode of thinking is consonant with the approach to law that teachers often refer to as *thinking like a lawyer*" (p. 55 emphasis in original) The rational scale used measured an individual's ability and tendency to think logically and analytically. The experiential scale measured a student's ability and preference to incorporate intuitive impressions and feelings into their thinking. In the end of first year sample, scores for rationality were significantly higher while scores for experiential thinking were significantly lower. The results suggest an inverse relationship between increased analytical (at the expense of experiential) thinking, and wellbeing. O'Brien and colleagues go further and suggest that traditional legal education, which emphasizes legal doctrine derived from appellate decisions determined in an adversarial context, poses a threat to wellbeing by divorcing students from access to experiential, intuitive and emotional, processing. The researchers assert that:

> "*thinking like a lawyer* requires not only dispassionate analysis, but also pessimism and risk aversion… [Students] are not invited to empathize with the litigants, but to treat them as instruments of principle and precedent… law students learn to put hope, optimism, and trust aside" (2011: 57, emphasis in original).

The results of studies in Australia reflect much earlier findings in the United States (see Dammeyer and Nunez, 1999; Daicoff, 1997). A series of studies by Benjamin and colleagues (Benjamin, Kaszniak, Sales, and Shanfield, 1986; Benjamin, Darling and Sales, 1990; Beck, Sales and Benjamin, 1995) document the prevalence of psychological distress amongst lawyers and law students. As early as 1986, Benjamin surveyed a sample of 706 law students and graduates at the University of Arizona Law School. The researchers found that 17-20 per cent suffered from depression compared with 3-9% of the general population of industrial nations at the time. The authors point to the singular emphasis in legal education on the development of analytical skills, and suggest that the "unbalanced development of student intellectual skills at the expense of interpersonal skills appeared to impair psychological well-being" (p.11). Mertz (2007) investigated first year contract law classes across eight law schools in America. She found that despite differences in teaching styles, students were commonly taught to 'think like a lawyer' by adopting strictly analytical and strategic approaches, ignoring their own values and divorcing themselves from any feelings of empathy and compassion. According to Mertz, students were taught a 'combative dialogue' that provided no space for issues of morality and fairness, or sensitivity to human suffering.

Mertz's findings are consistent with the work of positive psychologist, Martin Seligman, and colleagues (2004, 2001), who argue that there three reasons for lawyers' unhappiness. The first is that lawyers are selected for their pessimism and this generalizes to the rest of their lives. Pessimism is associated with a lawyer's need to consider all the risks associated with any course of action and to communicate those risks to their clients. The second is that early career lawyers are faced with high stress and low decision latitude in hierarchically structured and demanding law firms. The third is the adversarial nature of legal practice that requires a winner and a loser – a zero-sum game – and promotes the negative emotions of anger, anxiety and sadness.

Parker (2014) questions the empirical basis of assertions of a crisis of wellbeing in the law. She reviews the Australian research and argues that it is not conclusive in

establishing that lawyers and law students suffer psychological distress at significantly higher rates than other groups of professionals, students and the general population. She argues that the research is also not conclusive in establishing that legal work and education are the causes of distress. Parker points to methodological limitations of existing studies raising questions as to the validity and reliability of results. She argues that the survey instruments used (DASS and K-10) are designed to measure symptoms common to the population at large for which heightened measures represent the *risk* of illness, such as clinical depression and anxiety, but which are not conclusive of the existence of clinical distress. She also details the use of non-representative convenience sampling across studies, as distinct from probability sampling, revealing limitations as to the generalisability of results. Parker concludes that while research does show that law students and practitioners suffer 'worrying' symptoms of psychological distress, the comparative prevalence of that distress and its causes are unclear.

A very recent study of wellbeing compares the wellbeing of law students with students of diverse programs at both undergraduate and graduate levels at the University of Melbourne (Larcombe, Finch and Sore, 2015). The study surveyed 4,700 students across six faculties/ schools. The results support research indicating that law students experience high levels of psychological distress. However the results show no significant differences in measures of distress experienced by non-law students, challenging the proposition that 'thinking like a lawyer' produces psychological distress. The study does not however specifically probe the causes of distress. The investigators are careful to note that while 'thinking like a lawyer' may be too narrow a focus to attribute to students' experience of distress they "are not saying that discipline-specific sources of stress are not impacting law students – including high competition for certain learning and employment opportunities as well as the technical, adversarial mode of thinking privileged in legal analysis" (Larcombe et al, 2015: 266).

Another recent study of organizational factors affecting the wellbeing of professionals by Michalak (2015) found that lawyers suffer significantly lower levels of wellbeing than non-lawyers. Results revealed that lawyers were more likely than other professionals to be exposed to risk factors including incivility, verbal abuse, emotional neglect, mistreatment overall, bullying and harassment as part of legal work place culture. These results reflect an earlier study by James (2008). James surveyed graduates of the University of Newcastle Law School and found that they experienced high levels of stress on entering the profession. According to his analysis threats to wellbeing were attributable more to conditions of employment than the nature of legal work itself.

Without further empirical research it is not possible to conclusively assert that lawyers and law students suffer higher rates and degrees of psychological distress than other professionals and student cohorts. Nor it is possible to conclusively attribute legal reasoning and the adversarial nature of our legal system to that experience of distress. Nonetheless the existing research has been sufficient to raise real concern within the profession and the academy demonstrated by establishment of the 'Wellness in Law Network'[1] and inclusion of wellbeing in the CALD standards referred to above.

The fact that lawyers and law students experience significant psychological distress points to the neglect of emotion in the law. The trend to date has been to address this neglect by introducing students to strategies of self-care, either as embedded in curriculum design (Huggins et al, 2011) or as aspects of pastoral care (Lester et al,

[1]

2011). As Parker (2014) has argued, this approach places responsibility for wellbeing on the individual. It does so by framing the issue as a question of 'resilience', or an individual's capacity to cope with the demands of education and practice. Parker cautions that attention should be given to the collective, social, economic and political forces that shape our justice system and lawyers' roles within it, in order to avoid

> "creating a regime that treats, manages and palliates lawyers and law students in distress so that they can cope with getting back to work in a system that is itself broken." (2014, 1136).

Parker (2014) contends that questions of psychological wellbeing in the law need to be evaluated and debated within a 'sociological imagination' incorporating a discourse in legal ethics. Wellbeing and the erosion of students' existing ethics and idealism, due to conventional approaches to legal education and an increasingly competitive job market, have been a central concern of humanizing projects in legal education evident in the United States (Krieger, 2008; Glesner-Fines, 2008; Winick, 2010-2011). Emotion, or the emotional dimension of human experience, is likewise an important consideration for legal education and practice. Its importance is not limited to issues of individual wellbeing. It extends to newer approaches to legal practice, expanded constructions of justice and wider views of the lawyer-client relationship (discussed below). Emotional intelligence offers an existing conceptual framework, derived from positive psychology, through which to incorporate emotion into legal practice and education. The nature of EI and advantages in adopting it as a framework for emotion in the law are examined below.

Thinking like an emotionally intelligent lawyer

What is emotional intelligence? Emotional intelligence is a construct developed within the discipline of positive psychology as a subset of social intelligence, defined as "the ability to understand and manage people" (Salovey and Mayer, 1989-90:187 citing Thorndike and Stein, 1937, 275). As a type of social intelligence, emotional intelligence is partly about the emotions we experience in relationship with others. At the same time it is a characteristic similar to other individualised constructs such as reasoning, thinking and conscientiousness, and shows differentiation between individuals. Salovey and Mayer (1989-1990, 189) define emotional intelligence as the "*ability to monitor one's own and others' feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions*." (emphasis in original).

Models of emotional intelligence derive from research on the role of non-cognitive factors in helping people to succeed in life generally and in the workplace in particular. Spielberger (2004) identifies three categories of models of EI from the literature: the ability model, the trait model and mixed models. According to the ability model, advanced by Salovey and Mayer (1997, 1990), emotional intelligence consists of set of four distinct yet related abilities: perceiving emotions, using emotions, understanding emotions and managing emotions. The trait model proposed by Petrides and associates (2007) defines emotional intelligence as "a constellation of emotion-related self-perceptions located at the lower end of personality" (p. 16). This model identifies fifteen facets of emotional intelligence, including the perception, expression, management and regulation of emotion.

Mixed models include those proposed by Bar-On (1997) and Goleman (1995, 1998), who introduced emotional intelligence to popular culture. The Bar-On model (Bar-On, 1997) identifies five dimensions of emotional intelligence, namely, intrapersonal, interpersonal, stress management, adaptability, and general mood. These dimensions further encompass a range of mental abilities and a wide range of personal qualities,

such as optimism, independence and happiness. Goleman's model (1998) identifies emotional intelligence as a range of competencies and skills that drive performance. Goleman isolates five dimensions of emotional intelligence categorised into two areas, namely, personal competence, which encompasses self-awareness, self-regulation and motivation, and social competence, which includes empathy and social skills (see Table 1 below). Goleman's model offers the most accessible conceptual framework for the purposes of legal education. It is readily adaptable for those purposes because it identifies components of EI as competencies that can be learned and demonstrated.

Table1:
Components of Emotional Intelligence

	COMPONENTS OF EI	
		Definition
Intrapersonal dimensions	Self awareness	The ability to recognize our moods, emotions and drives and their effect on others.
	Self regulation	The ability to control or redirect disruptive impulses and moods The propensity to suspend judgment – to think before acting
	Motivation	A passion to work for reasons that go beyond money and status A propensity to pursue goals with energy and persistence
Interpersonal dimensions	Empathy	The ability to understand the emotional make up of other people Skill in treating people according to their emotional reactions
	Social skills	Proficiency in managing relationships and building networks An ability to find common ground and build rapport

Source: Adapted from Goleman (2004:3)

Whichever model is ascribed to, emotional intelligence is foremost about feelings. To be emotionally intelligent signals an ability to monitor feelings, our own and those of others, and to use this information to respond in appropriate and effective ways. For educators it is important to recognise that measures of emotional intelligence are not fixed. EI is recognised as a set of learned skills (Salovey and Mayer, 1989-1990; Weisenger, 1998; Goleman, 2004; Montgomery, 2008) that can be incorporated into educational programs, including legal education.

Emotional intelligence has been positively correlated with academic and professional success. Leading researchers have concluded that EI may be a better predictor of success than IQ. Research connects emotional intelligence to achievement, career success, wellbeing and leadership (Salovey & Mayer, 1997; Goleman 1995, 1997; Weisenger, 1998). A professional legal career requires more than simply 'thinking like a lawyer.' Lawyers need to be able to build and maintain working relationships with their clients, legal colleagues and other professionals. They need to develop suitable communication skills that foster these relationships. Such skills extend beyond pure legal reasoning and an adversarial approach to conflict (Hyams, 2011). Emotion is one dimension of any human relationship. It has traditionally been avoided in legal professional relationships as messy, unpredictable and an intrusion into the rational and orderly processes of legal advice and advocacy. Yet, according to Silver,

> "Legal education should prepare students for the emotional dimensions of lawyering. We fail our students if we fail to prepare them for the impact of their

> emotional lives, as well as those of their clients, on the practice of law. Legal education should cultivate emotional intelligence" (1999: 1174)

There are at least three advantages to including EI in legal education and practice. First and foremost, EI centralises emotion. It recognizes the emotional dimension of human experience and endeavour and as such confirms its relevance to the business of legal practice. This recognition reflects a growing awareness of the role of emotion in client satisfaction and its incorporation as an important element in expanding approaches to practice. In the negotiation literature, for example, Shapiro (2006) argues that negotiators need to demonstrate emotional intelligence in order to satisfy the goals of parties, which are both affective and instrumental. Negotiation is an essential skill for lawyers but is not taught as a core, compulsory component of a law degree in Australia. Emotion is well recognized as a consideration in Alternative (or Appropriate) Dispute Resolution (ADR) processes (Douglas and Batagol, 2010). Mayer (2000), a leading practitioner and writer in the field, identifies three dimensions of conflict and conflict resolution, namely, cognitive (perception), emotional (feeling), and behavioural (action) dimensions. ADR is increasingly relied upon in our justice system and as a result there are calls for its inclusion as a mandatory component of study (Duffy and Field, 2014). Emotional intelligence has been identified as an important competency in the most often used form of ADR, namely, mediation (Duffy, 2010).

Non-adversarial justice (King at al, 2009) and the comprehensive law movement (Daicoff, 2004; Lam, 2011) incorporate an appreciation of the role of emotion in defining legal problems, engaging processes of resolution and achieving legal outcomes (King 2008). These newer approaches, which include ADR, problem-solving courts, indigenous sentencing courts, diversion programs, holistic law, preventive law, procedural justice, creative problem solving, restorative justice and therapeutic jurisprudence have expanded and refocused traditional views of our justice system and consequently challenged conventional understanding of 'thinking like a lawyer'. Restorative justice, for example, is premised on an understanding that a legal wrong may cause emotional as well as physical and or material harm that needs to be addressed if problems are to be resolved (King, 2008). Therapeutic jurisprudence "examines the law's effect on the wellbeing – including the emotional wellbeing – of its subjects" (King 2008, 1097-98). A key tool in these non-traditional approaches has been identified as emotional intelligence (King, 2008).

A second advantage of EI is that it conceptualises intrapersonal and interpersonal dimensions of emotional experience. The intrapersonal dimension of EI points to the wellbeing of individuals in terms of their private, personal experiences. Goleman identifies three personal competencies associated with this dimension – self-awareness, self-regulation and motivation. Considerable attention has been given to fostering wellbeing in law at this intrapersonal level. Examples include exploring resilience, mindfulness, self determination theory, hope theory and strengths theory (Martin, 2014; James, 2011; Huggins et al, 2011). Fostering EI has also been argued as one strategy to promote individual wellbeing in law (Martin, 2014; James, 2008).

The interpersonal dimension of EI points to an individual's emotional experiences in interaction with others. Here, as well as the relevance of emotion to newer approaches in law, emotion's relevance to conventional legal practice is evident. Emotional intelligence is a framework that focuses attention on the lawyer-client relationship and the relevance of emotion in that relationship. The lawyer-client relationship is a pivotal context for legal practice and hence a critical focus for legal education. Within the context of that relationship, the legal practitioner gathers the relevant facts, determines a relevant legal cause of action and pursues a likely legal remedy. The stories, or narratives, presented by clients will inevitably have an emotional dimension (Hyams, 2011). Often that dimension will be a response to conflict with another party

or involve attempts to avoid conflict in the future. Where there is conflict a range of difficult and perhaps strong emotions may be felt and expressed including, anger, frustration, confusion and sadness. A practitioner needs to be able to work with such feelings. A lawyer's interaction with the client is purposive and importantly his/her task is to filter the client's story for 'material' facts relevant to legal advice and representation. At the same time the lawyer's role is above all client centred. It is about taking instructions from a client about how to proceed. In achieving this end a practitioner needs to assist a client to explore the implications of pursuing any available remedy, including the emotional impact. In Goleman's model, this interpersonal dimension of EI is translated to social competence, which includes empathy and social skills.

A third advantage of adopting EI as a framework for emotion in the practice of law is that it exemplifies reflective practice, which is increasingly recognized as integral to effective legal practice and education (Christenson and Kift, 2000; Burton and McNamara, 2009; Field, 2007). EI is centrally about a capacity to reflect upon one's own and another's emotions in order to guide behavior. Reflective practice is a process of continuous improvement that, as originally conceived by Schon (1983), encompasses reflection-in-action and reflection-on-action. In Schon's seminal work he argues that professional knowledge is more than technical rationality or the rational application of theory (in a legal context, of legal principles) to practice. Professional knowledge, according to Schon (1983, 1987), develops as a result of reflection in and on practice. Reflection furthers the development of practice wisdom in which tacit knowledge, or intuition, and artistry play a part and which sit beyond mere rational analysis.

Schon's thesis can be extrapolated to a consideration of emotion and its value in legal practice. Emphasis on rational-analytical problem solving reflects a perceived dichotomy between reason and emotion in which "getting emotional is often viewed as an impediment, an obstacle to the ostensible superiority of rational thinking" (Shapiro, 2002: 67-68). Emotion is often associated with human weakness, loss of control, impulsiveness and short sightedness (Shapiro, 2002). However, studies in leadership assert that emotion is an integral component of cognitive processes. Relying on developments in neuroscience, such studies suggest that feelings are necessary to make good decisions (George 2000; Goleman 1995). Furthermore, an emotional dimension to learning is now recognized. For example, according to the theory of learning advanced by Illeris (2003),

> "all learning includes three dimensions, namely, the cognitive dimension of knowledge and skills, the emotional dimension of feelings and motivation, and the social dimension of communication and cooperation - all of which are embedded in a societally situated context." (p. 396)

Professional legal practice necessitates a commitment to continued professional development, or life long learning. Reflective practice is one component of that ongoing development (Burton and McNamara, 2009). The reflective perspective integral to developing and sustaining emotional intelligence can be readily incorporated into a reflective practice that is consistent with continuing professional development.

Emotional intelligence in clinical legal education

Understanding and developing emotional intelligence is ideally suited to an experiential learning environment (Cain, 2004). For an optimal learning experience, emotions need to be experienced, observed in others to be appreciated for their relationship context and reflected upon to be assessed for their impact. Clinical legal education offers an optimal site for learning about and developing emotional

intelligence. Central to clinical experience is a student's direct contact with clients and the establishment of a (student) lawyer-client relationship. Whether that relationship spans a telephone call, one face-to-face interview or ongoing contact, it represents a central focus of legal practice. Within that relationship emotions are experienced and impact upon the dynamic of practice and its outcomes.

Learning about EI in a clinical program can be coupled with learning about reflective practice. The use of reflective journals, portfolios, diaries, reflective reports and notebooks are commonly used in clinical legal education programs to assist students to gain insights into their practice experiences (Burton and McNamara, 2007; Hyams, 2010). From a review of the literature, Burton and McNamara (2009) conclude that:

> "reflection requires purposeful thinking and contextualising of what is already known, relating learning to existing knowledge, values and beliefs, considering a range of solutions or options and developing one's previous knowledge, values and beliefs" (175).

For the development of emotional intelligence, reflection requires a student to think about their personal experience and communication of emotion, a client's experience and expression of emotion and the relevance of those experiences to issues of practice. Questions about and insights into relevant knowledge, values and beliefs will be accompanied by emotional responses within the dynamics of practice. The aim of reflection is to filter emotional responses in such a way as to positively direct thinking and behaviour. Reflective written exercises enable students to record their experiences, gain insight from them and use that insight to guide future action.

Bourner (2003) proposes a series of twelve questions for use as a reflective exercise with application to varying practice contexts. The questions canvass, inter alia, knowledge, values and beliefs, self assessment of strengths and weakness and includes one question about feelings, namely:

> How do you feel about that experience now compared with how you felt about it at the time? (Bourner, 2003: 271)

A reflective exercise for the purposes of EI would enable a wider and more in depth review of feelings experienced during practice. Bourne's approach provides a useful starting point. In the table below a series of questions relevant to each of the components of emotional intelligence identified by Goleman (2004, 1998, 1995) are identified. The central column identifies practice issues relevant to each component of EI, which inform the questions posed. The issues and questions raised in the table are not exhaustive. They are merely illustrate links between questions about emotion and issues of practice and could be expanded by instructor and students alike.

Table 2:
A Reflective Practice Design for Emotional Intelligence

COMPONENTS OF EI	ISSUES IN PRACTICE	QUESTIONS
Self awareness	Bias	What feelings were you aware of during your interaction with this client? What values, beliefs, assumptions and or personal experiences may have prompted those feelings?
Self regulation	Client service	Were you able to acknowledge yet put aside or redirect any extraneous feelings? What helped you to do so?
Motivation	Legal ethics and law reform	What issues of legal ethics and or law reform were raised by your work with this client?
Empathy	Relationship building	What emotions were expressed by this client? How did you respond to those emotions? Were you able to 'stand in the shoes of your client'?
Social skills	Communication	Did you feel a sense of rapport with this client? What indicated that to you? What verbal and nonverbal cues did you use to foster active listening?

By way of example, links between components of EI, issues of practice and questions about emotional experience, illustrated in the table, are examined below:

Self awareness
An important issue for practice is to avoid conflicts of interest. Conflict checks are routinely made to ensure that the same practitioner or firm does not represent both parties in a matter. Representing a client where personal gain may be a by-product is to be avoided. Emotional responses can also introduce bias. Negative reactions can taint the quality if not the substance of advice given. Negative emotions may be generated by past experience, cultural or situated bias or by assumptions about what is or ought to be. A practitioner and student's task is to develop awareness of any such biases, to question the basis of them and avoid any negative impact upon their clients. The questions above prompt investigation of possible bias. Consistent with issues of bias in this broader sense, the Queensland Law Society's (QLS) 'Guide to Client Care' (2014) suggests that practitioners: "Identify and address any assumptions – both the client's and your own – that could lead to later misunderstandings or tensions" (p.3)

Self regulation
An important focus for the lawyer-client relationship is not merely the substance and procedure of the law, but client service. The QLS Guide to Client Care (2014) emphasizes client service and communication. A practitioner might find him/herself frustrated, irritated or even angry with a client due to their own biases or the attitude and or conduct of a client. The primacy of serving the interests of the client demands that the practitioner subjugates their emotional experience for the client's benefit. Mindfulness is a technique useful for facilitating emotional awareness and detachment (Martin, 2014). Skill in acknowledging a client's emotional experience and responding positively and productively can be learned with guidance, and from experience. A client's expression of negative emotion may be useful feedback. As noted by the QLS Guide (2014): "Client feedback and complaints information, as well as your own observations, should give you the information to identify strengths and weaknesses in your service, and to continuously improve" (p.3).

Motivation
Goleman's (2004) description of motivation as a component of EI favours motivation that exists apart from money and status. Legal professional identity, ethics and the pursuit of a just society are factors that motivate legal practitioners. A client's apparent experience of injustice can trigger strong emotional reactions in the client and their lawyer. These reactions can act as positive motivating factors for action on behalf of a client and for input into law reform.

Empathy
Empathy is the capacity to 'stand in the shoes of another'. It is an emotional connection that communicates understanding without over-identification. Empathy is synomomous with compassion and it is an essential ingredient in relationships of trust (Egan, 2002). Expression of empathy is important in building rapport with a client. According to the QLS Guide (2014), clients "do not just need technical skills, they also need the good feelings, positive experiences and confidence that go with it" (p. 3).

Social Skills
Client-centred practice requires actively listening to a client's narrative. Active listening is a concentrated skill encompassing verbal and nonverbal communication skills (Egan, 2002). According to Strasser and Randolph (2004: 42) clients want to be "*truly* heard, *and* understood, *and* accepted" (emphasis in original). Lawyers need to demonstrate effective communication skills in order to understand both the factual and affective dimensions of their client's experience. As noted in the QLS Guide (2014): "Whatever the progress of the matter, if you cause the client stress or frustration by poor communication or administration, you are not providing a good service" (p.1).

Conclusion

Threats to wellbeing provide an important and critical justification for including emotion in legal curricula. Existing empirical research suggests that legal practice and education pose threats to wellbeing due to an emphasis on the traditional mode of 'thinking like a lawyer'. Critique of Australian empirical studies suggests significant methodological limitations for those studies. These limitations cast doubt on assertions that lawyers and legal students suffer greater emotional distress than other professional groups and student cohorts in Australia. Existing studies have not sufficiently probed the causes of psychological distress to demonstrate that legal reasoning and an adversarial culture are direct causes of psychological distress amongst lawyers and law students. Nonetheless, there is a consensus amongst the legal academy and practitioners that levels of distress are critically concerning and that there exists a real possibility that distress is due in part to the conventional approach to 'thinking like a lawyer'.

The neglect of emotional wellbeing in the culture of legal education and practice is pointedly suggested by empirical studies since the mid-80's in the United States and in the last decade in Australia. The existence of measurable distress, whatever the precise cause, provides justification for considering the emotional dimension of experience as a component of legal education.

Emotional intelligence provides a conceptual framework from which to give space to the reality of human emotional experience. It is a framework that is developed, relevant and practice-oriented. There are at least three identifiable advantages for using EI as a framework for emotion in legal education and practice.

The first advantage is that EI deals centrally and explicitly with emotion. EI is therefore consistent with newer approaches to law and legal practice, such as non-adversarial justice and the comprehensive law movement, which offer perspectives that incorporate emotions as central considerations. These perspectives evidence shifts away from the traditional view of 'thinking like a lawyer' and provide further justification for explicit inclusion of emotion in legal education. A further advantage is that emotional intelligence is constructed as integral to intra and interpersonal experience. Issues of the wellbeing of individual legal practitioners and law students can be located within the realm of intrapersonal experience. Within this realm development of EI is one strategy that can foster wellbeing. Wellbeing is also relevant to the lawyer-client relationship. EI provides a framework within which to acquaint students with the need to address the emotional impact of legal problems and remedies in the context of actual practice. Finally EI is integrally about reflection on emotions, our own and those of others, in order to guide our behaviour. As such, EI is readily incorporated into a reflective legal practice. Reflective practice is a standard long evident in the law and more recently given explicit recognition in legal education. Incorporating refection on the emotions of practitioner and client extends legal practice beyond traditional boundaries to 'thinking like an emotionally intelligent lawyer.'

Clinical legal education programs provide optimal sites for learning about and developing emotional intelligence. EI can be incorporated into exercises designed to foster reflective practice. Components of EI can be related to issues arising in client care and communication, ethics and law reform. A series of reflective prompt questions has been suggested above, which are aimed to facilitate reflection on the emotional responses of clients and practitioners and the impact of those emotions on legal practice.

References

Bar-On, R. and Parker, J. D.A. 2000. *The Handbook of Emotional Intelligence*. New York: Jossey-Bass.

Beaton Consulting. 2004. 'Annual Professions Survey' (Research Summary, beyondblue,) http://www.beatonglobal.com/pdfs/Depression_in_the_professions_survey.pdf

Beck, C. Sales, B. and Benjamin, G. 1995. 'Lawyer Distress: Alcohol Related Concerns Among a Sample of Practicing Lawyers', *Journal of Law and Health*, 10: 1-25.

Benjamin, G., Kaszniak, A., Sales, B. and Shanfield, S. 1986. 'The Role of Legal Education in Producing Psychological Distress Among Law Students and Lawyers' *American Bar Foundation Research Journal* 225-232.

Benjamin, G., Darling, E. and Sales, B. 1990 'The Prevalence of Depression, Alcohol Abuse, and Cocaine Abuse among United States Lawyers', *International Journal of Law and Psychiatry*, 13: 233-245..

Bourner, T. 2003. 'Assessing Reflective Learning' 45 *Education and Training Journal*, 45: 267-278.

Burton, K and McNamara, J. 2009. 'Assessing Reflection Skills in Law using Criterion-Referenced Assessment', *Legal Education Review*, 19: 171- 188.

Cain, P. 2003-2004. 'A First Step Toward Introducing Emotional Intelligence into the Law School Curriculum: The "Emotional Intelligence and the Clinic Student" Class', *Legal Education Review*, 14: 1-17.

Christensen, S. and Kift, S. 2000. 'Graduate Attributes and Legal Skills: Integration or Disintegration?' *Legal Education Review*, 11(2): 207-221.

Council of Australian Law Dean's (CALD). 2009. *Standards for Law Schools*, http://www.cald.asn.au/assets/lists/ALSSC%20Resources/CALD%20Standards%20As%20adopted%2017%20November%202009%20and%20Amended%20to%20March%202013.pdf

Daicoff, S. 1997. 'Lawyer, Know Thyself: A Review of Empirical Research on Attorney Attributes Bearing on Professionalism', *American University Law Review*, 46: 1337-1426.

Dammeyer, M. and Nunez, N. 1999. 'Anxiety and Depression among Law Students: Current Knowledge and Future Directions', *Law and Human Behaviour*, 23(1): 55-73.

Douglas, K., and Batagol, B. 2010. **'**ADR and Non-adversarial Justice as Sites for Understanding Emotion in Dispute Resolution', *Journal of Judicial Administration*, *Journal of Judicial Administration*, 20:106-123.

Duffy, J. and Field, R. 2014. 'Why ADR must be a mandatory subject in the law degree: a cheat sheet for the willing and a primer for the non-believer', *Australasian Dispute Resolution Journal*, 25(1): 9-19.

Egan, G. 2002. *The Skilled Helper* (7th ed, Brooks/Cole)

George, J. 2000. 'Emotions and Leadership: The Role of Emotional Intelligence, *Human Relations*, 53(8): 1027-1055.

Glesner-Fines B. 2008. "Fundamental Principles and Challenges of Humanizing Legal Education", *Washburn Law Journal*, 47: 313-340.

Goleman, D. 2004. 'What Makes a Leader?' *Harvard Business Review*, January: 1-11.

Goleman, D. 1998. *Working with Emotional Intelligence*. New York: Bantam.

Goleman, D. 1995. *Emotional Intelligence*. New York: Bantam.

Huggins, A., Kift, S. and Field, R., 2011. 'Implementing the Self-Management Threshold Learning Outcome for Law: Some Intentional Design Strategies From the Current Curriculum Toolbox', *Legal Education Review*, 21: 183-216.

Hyams, R. 2011. 'Nurturing multiple intelligences through clinical legal education', *University of Western Sydney Law Review*', 15: 80-93.

Hyams, R. 2010. 'Assessing Insight: Grading Reflective Journals in Clinical Legal Education', *James Cook University Law Review,* 17: 25-45.

Illeris, K. 2003. 'Towards a Contemporary and Comprehensive Theory of Learning', International Journal of Lifelong Education, 22(4): 396-406.

James, C. 2011. 'Law Student Wellbeing: Benefits of Promoting Psychological Literacy and Self-Awareness using Mindfulness, Strengths Theory and Emotional Intelligence', 21: *Legal Education Review* 217-233.

James, C. 2008. 'Lawyer Dissatisfaction, Emotional Intelligence and Clinical Legal Education', *Legal Education Review*, 18: 123-137.

Kelk, N., Luscombe, G., Medlow, S. and Hickie, I**.** 2009. *Courting the Blues: Attitudes towards depression in Australian law students and lawyers,* Brain and Mind Research Institute (BMRI), University of Sydney.

Kift, S., Israel, M. and Field, R. 2010. *Learning and Teaching Academic Standards Project: Bachelor of Laws Learning and Teaching Academic Standards Statement.*

King, M. 2008. 'Restorative Justice, Therapeutic Jurisprudence and the Rise of Emotionally Intelligent Justice', Melbourne University Law Review, 32: 1096-1126.

King, M. Frieberg, A., Batagol, B., and Hyams, R. 2009. *Non-Adversarial Justice*, Sydney: Federation Press.

Krieger, L.S. 2008. "Human Nature as a New Guiding Philosophy for Legal Education and the Profession" *Washburn Law Journal*, 47: 247-266.

Lam, M. 2011. 'A New Lease on Life and Career', *Law Society Journal*, 24-25.

Larcombe, W., Finch, S., and Sore, R. 2015. **'**Who's Distressed? Not Only Law Students: Psychological Distress Levels in University Students Across Diverse Fields of Study', *Sydney Law Review*: 37: 243-273.

Larcombe, W., Tumbaga, L., Ian Malkin, I., Pip Nicholson, P. and Tokatlidis, O. 2012. 'Does an Improved Experience of Law School Protect Students against Depression, Anxiety and Stress? An Empirical Study of Wellbeing and the Law School Experience of LLB and JD Students', *Sydney Law Review*, 35: 407-432.

Leahy, C et al, 2010. 'Distress Levels and Self-Reported Treatment Rates for Medicine, Law, Psychology and Mechanical Engineering Tertiary Students: Cross-Sectional Study', *Australian and New Zealand Journal of Psychiatry* 44: 608-627.

Lester A., England L. and Antolak-Saper, N. 2011. 'Health and Wellbeing in the First Year: the Law School Experience', *Alternative Law Journal,* 36: 47-49.

Martin, N. 2014. 'Think Like A (Mindful) Lawyer: Incorporating Mindfulness, Professional Identity, and Emotional Intelligence into the First Year Law Curriculum', *U. Ark. Little Rock L. Rev*., 36: 415-430.

Mayer, B. 2000. *The Dynamics of Conflict Resolution*, Jossey-Bass: San Francisco.

Mertz, E. 2007. *The Language of Law School: Learning to Think Like a Lawyer*

Michalak, T. 2015. **'**Causes and Consequences of Work-Related Psychosocial Risk Exposure: A Comparative Investigation of Organisational Context, Employee Attitudes, Job Performance and Wellbeing in Lawyers and Non-Lawyer Professionals', PsychSafe Pty Ltd Australia.

Montgomery, J. E. 2008. 'Incorporating Emotional Intelligence Concepts into Legal Education: Strengthening the Professionalism of Law Students', *University of Toledo Law Review*, 39 (2): 323-335..

Parker, C. 2014. 'The Moral Panic over Wellbeing in the Legal Profession: A Personal or Political Ethical Response?', *UNSW Law Journal*, 37(3): 1103-1141.

Queensland Law Society, 2004. *Guide to Client Care: Communication and Service,* http://www.qls.com.au/

Salovey, P. and Mayer, J. 1989-1990. 'Emotional Intelligence', *Imagination, Cognition and Personality*, 9(3): 185-208.

Schon, D. 1987. *Educating the Reflective Practitioner*. San Francisco: Jossey-Bass.

Schon, D. 1983. *The Reflective Practitioner: How Professionals Think in Action*: Basic Books.

Seligman, M., Verkuil, P. and Terry Kang, T. 2005. 'Why Lawyers Are Unhappy', *Deakin Law Review*, 1: 50-66.

Seligman, M., Verkuil, P. and Kang, T. 2001. 'Why Lawyers Are Unhappy', *Cardozo Law Review*, 23: 33-49.

Shanfield, S. and Benjamin, G. 1985. 'Psychiatric Distress in Law Students', Jo*urnal of Legal Education*, 35: 65-85.

Shapiro, D. "Negotiating Emotions." *Conflict Resolution Quarterly*, 20 (1): 67-82.

Silver, M. 1999. 'Emotional Intelligence and Legal Education', *Psychology, Public Policy, and Law*, 5(4): 1173-1203.

Skead, N and Rogers, S. 2015. 'Stress, Anxiety and Depression in Law Students: How Student Behaviours Affect Student Wellbeing', *Monash University Law Review* 40 (2): 564-587.

Strasser, F. and Randolf, P. 2004. *Mediation: A Psychological Insight into Conflict Resolution* (London, Continuum).

Sullivan, M., Colby, A., Wegner, J., Bond, L., and Schulman, L. 2007. *Educating Lawyers: Preparation for the Profession of Law,*(The Carnegie Foundation for the Advancement of Teaching).

Tani, M. and Vines, P. 2009. 'Law Students' Attitudes to Education: Pointers to Depression in the Legal Academy and the Profession?' *Legal Education Review,* 19: 3-39.

Townes O'Brien, M., Tang, S. and Hall, K. 2011. 'No time to lose: Negative impact on law student wellbeing may begin in year one', *The International Journal of the First Year in Higher Education*, 2(2): 49-60.

Watson, P. and Field, R. 2011. 'Promoting Student Wellbeing and Resilience at Law School' in Sally Kift et al (eds), *Excellence and Innovation in Legal Education*: LexisNexis.

Weisenger, H. 1998. *Emotional Intelligence at Work: The Untapped Edge for Success*: San Francisco, Jossey-Bass.

Winick, B. 2010-2011."Foreword: What does Balance in Legal Education Mean?' *Journal of Legal Education*, 60: 107-109.

EMOTIONAL INTELLIGENCE QUESTIONNAIRE
self assessment

A. PERSONAL COMPETENCE

SELF-AWARENESS

scale:
1 - underdeveloped 2- needs improvement 3 - adequate 4 - good 5- excellent

Emotional Awareness: Recognizing one's emotions and their effects.						
1	I always know which emotions I am feeling and why	1	2	3	4	5
2	I realize the links between my feelings and what I think, do, and say	1	2	3	4	5
3	I recognize how my feelings affect my performance	1	2	3	4	5
4	I have a guiding awareness of my values and goals	1	2	3	4	5

Accurate Self-Assessment: Knowing one's strengths and limits.						
1	I am aware of my strengths and weaknesses	1	2	3	4	5
2	I am reflective and try to learn from experience	1	2	3	4	5
3	I am open to candid feedback, new perspectives, continuous learning, and self-development	1	2	3	4	5
4	I am able to show a sense of humour and perspective about myself	1	2	3	4	5

Self-Confidence: Sureness about one's self-worth and capabilities.						
1	I present myself with self-assurance; I have "presence"	1	2	3	4	5
2	I can voice views that are unpopular and go out on a limb for what is right	1	2	3	4	5
3	I am decisive, and able to make sound decisions despite uncertainties and pressures	1	2	3	4	5

EMOTIONAL INTELLIGENCE QUESTIONNAIRE
self assessment

SELF-REGULATION

Self-Control: Managing disruptive emotions and impulses.						
1	I manage my impulsive feelings and distressing emotions well	1	2	3	4	5
2	I stay composed, positive, and unflappable even in trying moments	1	2	3	4	5
3	I think clearly and stay focused under pressure	1	2	3	4	5

Trustworthiness: Maintaining standards of honesty and integrity.

1	I consistently act ethically and am considered to be above reproach	1	2	3	4	5
2	I build trust by being reliable and authentic	1	2	3	4	5
3	I admit my own mistakes and confront unethical actions in others	1	2	3	4	5
4	I take tough, principled stands even if they are unpopular	1	2	3	4	5

Conscientiousness: Taking responsibility for personal performance.						
1	I meet commitments and keep promises	1	2	3	4	5
2	I hold myself accountable for meeting my objectives	1	2	3	4	5
3	I am organized and careful in my work	1	2	3	4	5

Adaptability: Flexibility in handling change.						
1	I smoothly handle multiple demands, shifting priorities, and rapid change	1	2	3	4	5
2	I adapt my responses and tactics to fit fluid circumstances	1	2	3	4	5
3	I am flexible in how I see events	1	2	3	4	5

Innovativeness: Being comfortable with and open to novel ideas and new information.						
1	I seek out fresh ideas from a wide variety of sources	1	2	3	4	5
2	I entertain original solutions to problems	1	2	3	4	5
3	I generate new ideas	1	2	3	4	5
4	I take fresh perspectives and risks in my thinking	1	2	3	4	5

EMOTIONAL INTELLIGENCE QUESTIONNAIRE
self assessment

SELF-MOTIVATION

Achievement Drive: Striving to improve or meet a standard of excellence.

1	I am results-oriented, with a high drive to meet objectives and standards	1	2	3	4	5
2	I set challenging goals and take calculated risks	1	2	3	4	5
3	I pursue information to reduce uncertainty and find ways to do better	1	2	3	4	5
4	I continuously learn in order to improve my performance	1	2	3	4	5

Commitment: Aligning with the goals of the group or organization.						
1	I am willing to make personal or group sacrifices to meet a larger organizational goal	1	2	3	4	5
2	The larger mission gives me a sense of purpose	1	2	3	4	5
3	I use the group's core values in making decisions and clarifying choices	1	2	3	4	5
4	I actively seek out opportunities to fulfil the group's mission	1	2	3	4	5

Initiative: Readiness to act on opportunities.						
1	I am always ready to seize opportunities	1	2	3	4	5
2	I pursue goals beyond what's required or expected of me	1	2	3	4	5
3	I cut through red tape and bend the rules when necessary to get the job done	1	2	3	4	5
4	I mobilize others through unusual, enterprising efforts	1	2	3	4	5

Optimism: Persistence in pursuing goals despite obstacles and setbacks.						
1	I am persistent in seeking goals despite obstacles and setbacks	1	2	3	4	5
2	I operate from hope of success rather than fear of failure	1	2	3	4	5
3	I see setbacks as due to manageable circumstance rather than a personal flaw	1	2	3	4	5

EMOTIONAL INTELLIGENCE QUESTIONNAIRE
self assessment

B.SOCIAL COMPETENCE

SOCIAL AWARENESS

Empathy: Sensing others' feelings and perspective, and taking an active interest in their concerns.						
1	I am attentive to emotional cues and am a good listener	1	2	3	4	5
2	I show sensitivity and understand others' perspectives	1	2	3	4	5
3	I help out based on understanding other people's needs and feelings	1	2	3	4	5

Service Orientation: Anticipating, recognizing, and meeting customers' needs.						
1	I understand customers' needs and match them to services or products	1	2	3	4	5
2	I seek ways to increase customers' satisfaction and loyalty	1	2	3	4	5
3	I gladly offer appropriate assistance	1	2	3	4	5
4	I grasp a customer's perspective, acting as a trusted advisor	1	2	3	4	5

Developing Others: Sensing what others need in order to develop, and bolstering their abilities.						
1	I acknowledge and reward people's strengths, accomplishments, and development	1	2	3	4	5
2	I offer useful feedback and identify people's needs for development	1	2	3	4	5
3	I mentor, give timely coaching, and offer assignments that challenge and grow a person's skill	1	2	3	4	5

Leveraging Diversity: Cultivating opportunities through diverse people.						
1	I respect and relate well to people from varied backgrounds	1	2	3	4	5
2	I try to understand diverse worldviews and be sensitive to group differences	1	2	3	4	5
3	I see diversity as opportunity, creating an environment where diverse people can thrive	1	2	3	4	5
4	I consistently challenge bias and intolerance	1	2	3	4	5

Political Awareness: Reading a group's emotional currents and power relationships.						
1	I am good at accurately read key power relationships	1	2	3	4	5
2	I can usually detect crucial social networks	1	2	3	4	5
3	I have a good understanding of the forces that shape the views and actions of clients, customers, or competitors	1	2	3	4	5
4	I usually accurately read situations and organizational and external realities	1	2	3	4	5

EMOTIONAL INTELLIGENCE QUESTIONNAIRE
self assessment

SOCIAL SKILLS

Influence: Wielding effective tactics for persuasion.						
1	I am skilled at the art of persuasion	1	2	3	4	5
2	I make sure I fine-tune presentations to appeal to the listener	1	2	3	4	5
3	I am able to use complex strategies like indirect influence to build consensus and support	1	2	3	4	5
4	I can orchestrate dramatic events to effectively make a point	1	2	3	4	5

Communication: Sending clear and convincing messages.						
1	I am good at give-and-take, and am able to attune my message according to the emotional cues I pick up	1	2	3	4	5
2	I deal with difficult issues straightforwardly	1	2	3	4	5
3	I listen well, seek mutual understanding, and fully welcome sharing of information	1	2	3	4	5
4	I foster open communication and stay receptive to bad news as well as good	1	2	3	4	5

Leadership: Inspiring and guiding groups and people.						
1	I am articulate and able to arouse enthusiasm for a shared vision and mission	1	2	3	4	5
2	I step forward to lead as needed, regardless of position	1	2	3	4	5
3	I guide the performance of others while holding them accountable	1	2	3	4	5
4	I lead by example	1	2	3	4	5

Change Catalyst: Initiating or managing change.						
1	I recognize the need for change and remove barriers to it	1	2	3	4	5
2	I acknowledge the need for change and challenge the status quo	1	2	3	4	5
3	I champion the change and enlist others in its pursuit	1	2	3	4	5
4	I model the change expected of others	1	2	3	4	5

EMOTIONAL INTELLIGENCE QUESTIONNAIRE
self assessment

Conflict Management: Negotiating and resolving disagreements.						
1	I handle difficult people and tense situations with diplomacy and tact	1	2	3	4	5
2	I spot potential conflict, bring disagreements into the open, and help deescalate the conflict	1	2	3	4	5
3	I encourage debate and open discussion	1	2	3	4	5
4	I orchestrate win-win solutions	1	2	3	4	5

Building Bonds: Nurturing instrumental relationships.						
1	I cultivate and maintain extensive informal networks	1	2	3	4	5
2	I seek out relationships that are mutually beneficial	1	2	3	4	5
3	I build rapport and keep others in the loop	1	2	3	4	5
4	I make and maintain personal friendships among work associates	1	2	3	4	5

Collaboration and Cooperation: Working with others toward shared goals.						
1	I balance a focus on task with attention to relationships	1	2	3	4	5
2	I collaborate, sharing plans, information, and resources	1	2	3	4	5
3	I promote a friendly, cooperative climate	1	2	3	4	5
4	I spot and nurture opportunities for collaboration	1	2	3	4	5

Team Capabilities: Creating group synergy in pursuing collective goals.						
1	I model team qualities like respect, helpfulness, and cooperation	1	2	3	4	5
2	I draw all members into active and enthusiastic participation	1	2	3	4	5
3	I build team identity, esprit de corps, and commitment	1	2	3	4	5
4	I protect the group and its reputation, and share credit with the group	1	2	3	4	5

PLEASE NOTE:

This assessment tool was created for the purpose of benchmarking and using between coach and client.
It is NOT a validated assessment tool.
The Framework used for this assessment is based on Daniel Goleman's Emotional Intelligence Framework, prepared and adapted by The Consortium for Research on Emotional Intelligence; adapted into a questionnaire by Belinda Davies.

EL Takeaways

7 Things to Remember About Feedback

1 Feedback is not advice, praise, or evaluation. Feedback is information about how we are doing in our efforts to reach a goal.
Grant Wiggins, p. 10

2 If students know the classroom is a safe place to make mistakes, they are more likely to use feedback for learning.
Dylan Wiliam, p. 30

3 The feedback students give teachers can be more powerful than the feedback teachers give students.
Cris Tovani, p. 48

4 When we give a grade as part of our feedback, students routinely read only as far as the grade.
Peter Johnston, p. 64

5 Effective feedback occurs during the learning, while there is still time to act on it. *Jan Chappuis, p. 36*

6 Most of the feedback that students receive about their classroom work is from other students—and much of that feedback is wrong. *John Hattie, p. 18*

7 Students need to know their learning target—the specific skill they're supposed to learn— or else "feedback" is just someone telling them what to do.
Susan Brookhart, p. 24

Source: The collective wisdom of authors published in the September 2012 issue of *Educational Leadership*: "Feedback for Learning." (Volume 70, Issue 1).

Chapter 5: Microteaching

http://www.bhmed-emanual.org/book/export/html/36

Tanja Gavrilović, Maja Ostojić, Dario Sambunjak, Michael Kirschfink, Thorsten Steiner, Veronika Strittmatter

1. Introduction

Why microteaching?

Medical teachers most often do not receive a special training in pedagogic techniques, as it is usually not considered necessary for their recruitment or for an efficient continued performance. Their ability to teach therefore largely depends on self training, either by trial and error while teaching or by observation of colleagues, who may or may not be helpful examples.
Getting in front of students is a trying experience for a budding teacher. One may earnestly try to prepare him or herself: read books about teaching methods, attend lectures and take courses on didactics. Yet, in theory everything seems much simpler than in practice. The complexity of a teaching situation can be overwhelming. To deal effectively with it, teachers must not only have a good knowledge of the subject in hand, but also some communication skills such as ability to observe, supervise, lead a discussion and pose questions. Furthermore, a teacher should be aware of how students perceive him or her. This perception is sometimes quite different from the teacher's self-image. It is difficult to self assess one's own abilities and we benefit from colleagues' feed back to recognize our strength and identify areas for possible improvement.
Evaluation of teaching by students is becoming a common practice, and a constructive feedback could be an effective way to improve one's rating as a teacher. Even the experienced educators may sometimes reflect about strengths and weaknesses of their teaching style.

What is microteaching?

Microteaching is an excellent way to build up skills and confidence, to experience a range of lecturing/tutoring styles and to learn and practice giving constructive feedback. Microteaching gives instructors an opportunity to safely put themselves "under the microscope" of a small group audience, but also to observe and comment on other people's performances. As a tool for teacher preparation, microteaching trains teaching behaviors and skills in small group settings aided by video-recordings. In a protected environment of friends and colleagues, teachers can try out a short piece of what they usually do with their students, and receive a well-intended collegial feedback. A microteaching session is a chance to adopt new teaching and learning strategies and, through assuming the student role, to get an insight into students' needs and expectations. It is a good time to learn from others and enrich one's own repertoire of teaching methods.
A microteaching session is much more comfortable than real classroom situations, because it eliminates pressure resulting from the length of the lecture, the scope and content of the matter to be conveyed, and the need to face large numbers of students, some of whom may be inattentive or even hostile. Another advantage of microteaching is that it provides skilled supervisors who can give support, lead the session in a proper direction and share some insights from the pedagogic sciences.

Historic context

The history of microteaching goes back to the early and mid 1960's, when Dwight Allen and his colleagues from the Stanford University developed a training program aimed to improve verbal and nonverbal aspects of teacher's speech and general performance. The Stanford model consisted of a three-step (teach, review and reflect, re-teach) approach using actual students as an authentic audience. The model was first applied to teaching science, but later it was introduced to language teaching. A very similar model called Instructional Skills Workshop (ISW) was developed in Canada during the early 1970's as a training support program for college and institute faculty. Both models were designed to enhance teaching and promote open collegial discussion about teaching performance.

In the last few years, microteaching as a professional development tool is increasingly spreading in the field of medical education.

2. Planning a Microteaching Session

The duration of a Microteaching session depends on the number of participants. Microteaching should take place in two separate classrooms where the second room is required for videotape viewing. It is helpful to organize professional videotaping, although this can also be done (taken over) by the participants upon instruction.

Equipment for Microteaching session:

- TV/Computer set
- video recorder/camcorder
- camera
- tapes for camera
- black- or whiteboard, flipchart, pin board, markers with different colors

One-day plan for Microteaching (an example):

- 09:00-09:30 Introduction to microteaching given by a professional supervisor
- 09:30-10:00 Preparation of the micro lessons
- 10:00-... Microteaching session (each segment about 20-30 min)

3. Steps in Microteaching and Rotating Peer Supervision

I. Preparation

Each participant of the session prepares a teaching segment. The presenter gives a brief statement of the general objectives of his/her presentation to be addressed. The group may be asked to focus their attention to particular elements of the lesson or of the teaching style. This may include pace, clarity of explanation, use of media, voice and body language, level of group interaction.

II. Presentation and Observation

Each participant presents his/her 10-minute teaching segment. He/she is allowed to use the media available. During the presentation, other participants serve as members of a supervisory team and take notes for the group feedback. Special assessment forms (Tables 1 and 2) may be helpful in standardizing the observation and feedback process. Each lesson is videotaped. Although the lesson is short, objective and procedures should be clear to generate useful discussions.

III. Videotape Viewing

The presenter watches the tape of his/her presentation and decides whether or not the objectives were accomplished. He/she also makes a list of strengths and suggestions for personal improvement. Then he/she again joins the supervisory team. In the meantime the supervisory team discussed and made conclusions about the teacher's lecturing.

IV. Discussion and Analysis

While the presenter goes to another room to view the videotape, the supervisory team discusses and analyses the presentation. Patterns of teaching with evidence to support them are presented. The discussion should focus on the identification of recurrent behaviors of the presenter in the act of teaching. A few patterns are chosen for further discussions with the presenter. Only those patterns are selected which seem possible to alter and those which through emphasis or omission would greatly improve the teacher's presentation. Objectives of the lesson plan are also examined to determine if they were met. It is understood that flexible teaching sometimes includes the modification and omission of objectives. Suggestions for improvement and alternative methods for presenting the lesson are formulated. Finally, a member of the supervisory team volunteers to be the speaker in giving the collected group feedback.

V. Giving and receiving feedback

Under the guidance of the professional supervisor, the presenter is first asked to present a self feed back of his mini lesson. With this new information taken into account, the supervisory team member who volunteered to be the speaker summarizes the comments generated during the analysis session. This part of the session is intended to provide positive reinforcement and constructive criticism. The presenter is encouraged to interact freely with the team so that all comments are clarified to his/her satisfaction.

The way in which feedback is given and received contributes to the learning process. Feedback should be honest and direct, constructive, focusing on the ways the presenter can improve, and containing personal observations.
The following is a series of suggestions on how to give and receive feedback in a microteaching workshop.

3.1. Giving feedback

When you are giving feedback, try to:

- *Be specific rather than general*. For example: rather than saying "You weren't clear in your explanations", tell the presenter where he/she was vague, and describe why you

had trouble understanding him/her. Similarly, instead of saying: "I thought you did an excellent job!", list the specific things that he/she did well.

- *Be descriptive and specific, rather than evaluative*. For example: you would avoid starting the sentences with "you", it is better to start with "I", so you can say: "I understood the model, after you showed us the diagram".
- *Describe something the person can act upon*. Making a comment on the vocal quality of someone whose voice is naturally high-pitched is only likely to discourage him/her. However, if the person's voice had a squeaky quality because he/she was nervous, you might say: "You might want to breath more deeply, to relax yourself, and that will help to lower the pitch of your voice as well".
- *Choose one or two things the person can concentrate on*. If the people are overwhelmed with too many suggestions, they are likely to become frustrated. When giving feedback, call attention to those areas that need the most improvement.
- *Avoid conclusions about motives or feelings*. For example: rather than saying: "You don't seem very enthusiastic about the lesson", you can say "Varying your rate and volume of speaking would give you a more animated style".
- *Begin and end with strengths of the presentation*. If you start off with negative criticism, the person receiving the feedback might not even hear the positive part, which will come later.

3.2. Receiving feedback

When you are receiving feedback, try:

- *Not to respond to each point, rather listen quietly*, hearing what other's experiences were during their review, asking only for clarification. The only time to interfere with what is being said is if you need to state that you are overloaded with too much feedback.
- *Be open to what you are hearing*. Being told that you need to improve yourself is not always easy, but as we have pointed out, it is an important part of the learning process. Although, you might feel hurt in response to criticism, try not to let those feelings dissuade you from using the feedback to your best advantage.
- *Take notes, if possible*. If you can, take notes as you are hearing the other people's comment. Than you will have a record to refer to, and you might discover that the comments that seemed to be the harshest were actually the most useful.
- *Ask for specific examples if you need to*. If the critique you are receiving is vague or unfocused, ask the person to give you several specific examples of the point he/she is trying to make
- *Judge the feedback by the person, who is giving it*. You do not have to agree with every comment. Ask other people if they agree with the person's critique.

In total, be practical, tactful, constructive critical, open toward other's ideas and opinions in the microteaching workshop and in your classes as well.

4. Appendices

Characteristic	Aim	Observed
Duration of presentation	Approx. 10 minutes	Start time.....

		Finish time..... Total duration.....minutes
Comprehensibility	The presentation should be given in comprehensible language.	The presentation is sufficiently comprehensible. Comprehensibility should be improved.
Visualization	The presentation should be accompanied by selected elements of visualization.	The following forms of visualization have been used: • slides • handouts for the participants • pin board • flipchart • white/black board The visual elements assist the understanding. The visual elements should be improved.
Density of information	Density of information should be high. However, it must not overtax the learner.	The density of information seems to demand too much of the learner. Density of information is rather high. Density of information is rather low. The density of information seems to demand too little of the learner.
Further observations	-	-

Table 2. Characteristics of a good quality presentation. (Tick Yes or No when assessing)

Is the presentation comprehensible?	- speaks freely	yes	no
	- short sentences	yes	no
	- terminology is comprehensible	yes	no
	- presentation is well-structured	yes	no
	- conciseness	yes	no
	- use of examples	yes	no
Is the presentation stimulating?	- eye contact	yes	no
	- speaker varies his position	yes	no
	- participants are encouraged to contribute	yes	no

	- use of humor to create a relaxed atmosphere	yes	no
	- presented with commitment	yes	no
	- friendly/respectful behavior	yes	no
Is the visualization helpful?	- visualization is clear and well-structured	yes	no
	- includes graphic elements and optical stimuli	yes	no
	- easily legible writing	yes	no
	- colors help to focus on the important aspects	yes	no
	- comprehensible visualization	yes	no
	- affectionate layout	yes	no

5. Literature

Books:

- Allen, DW, Ryan KA. Microteaching. Massachusetts: Addision-Wesley Publishing Company; 1969.
- Brown G. Microteaching - a programme of teaching skills. Philadelphia: Harper & Row Publishers Inc; 1975.
- Brusling C. Microteaching: a concept in development. Stockholm: Almqvist & Wiksell; 1974.
- Döring, KW. Lehren in der Weiterbildung. Weinheim; 1988.
- Gregory TB. Encounters with teaching; a microteaching manual. Englewood Cliffs, New Jersey: Prentice Hall; 1972.
- Hargie O, Maidment P. Microteaching in perspective. Dundonald: Blackstaff Press; Newtownabbey: Ulster Polytechnic; 1979.
- McGarvey G, Swallow D. Microteaching in teacher education and training. London: Croom Helm; 1986.
- McIntyre D, MacLeod G, Griffiths R, editors. Investigations of microteaching. London: Croom Helm; 1977.
- Perrott E. Changes in teaching behaviour after participating in a self-instructional microteaching course. Educational Medica International 1976;1:16-25.
- Perrott E. Microteaching in higher education : research, development, and practice. Guildford (Eng.): Society for Research into Higher Education at the University of Surrey; 1977.
- Turney C, Clift JC, Dunkin MJ, Traill RD. Microteaching: Research, theory and practice. Sydney: University of Sydney. Wagner, AC; 1973.

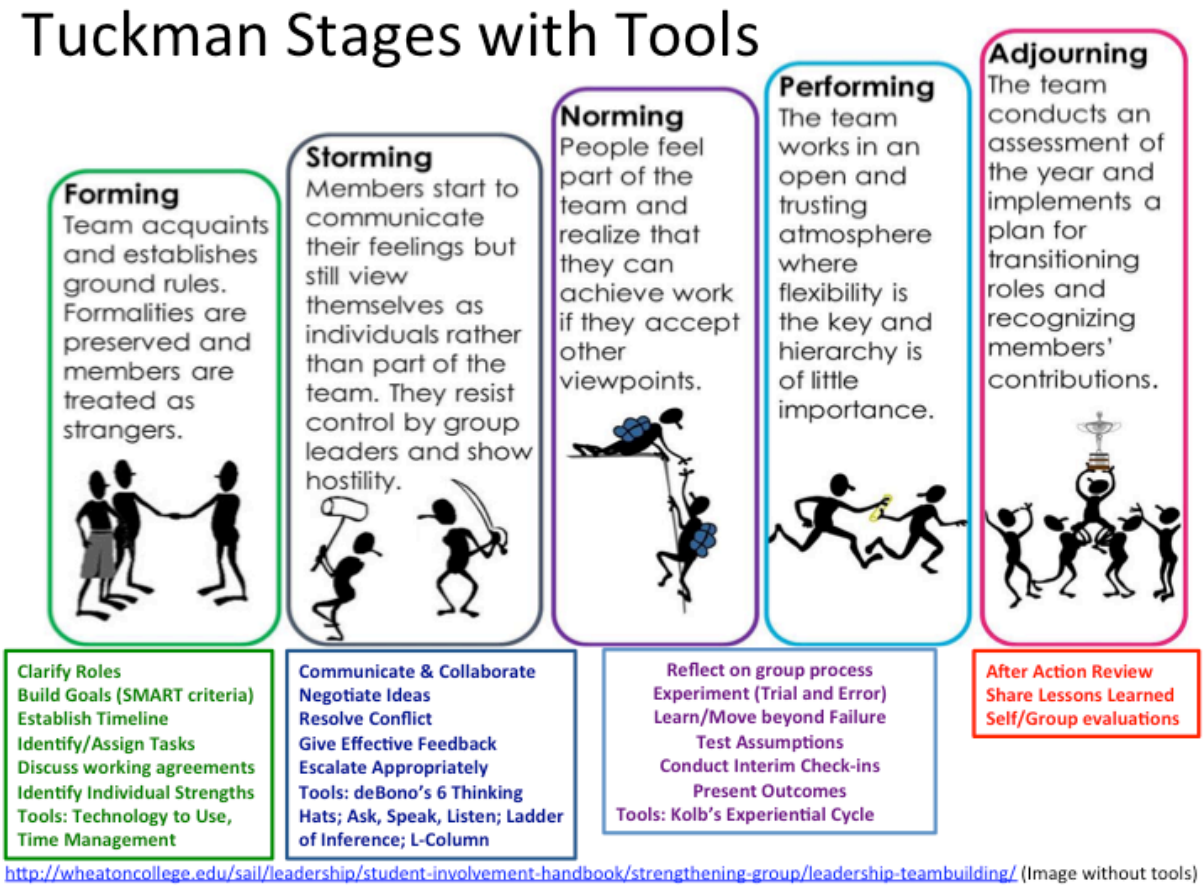
Articles:

- Ananthakrishnan N. Microteaching as a vehicle of teacher training--its advantages and disadvantages. J Postgrad Med. 1993;39:142-3.
- Brown GA. Introducing and organizing microteaching. Educational Media International 1976;2:21-29.
- Macleod G. Microteaching: End of a research era? International Journal of Educational Research. 1987;2:531-542.
- McAleese WR. Microteaching: A new tool in the training of teachers. Educational Review. 1973;25:131-142.
- Perrott E. Changes in teaching behaviour after participating in a self-instructional microteaching course. Educational Medica International 1976;1:16-25.
- Van Ort S, Woodtli A, Hazzard ME. Microteaching: developing tomorrow's teachers. Nurse Educ. 1991;16:30-3.

Group Forming Stages

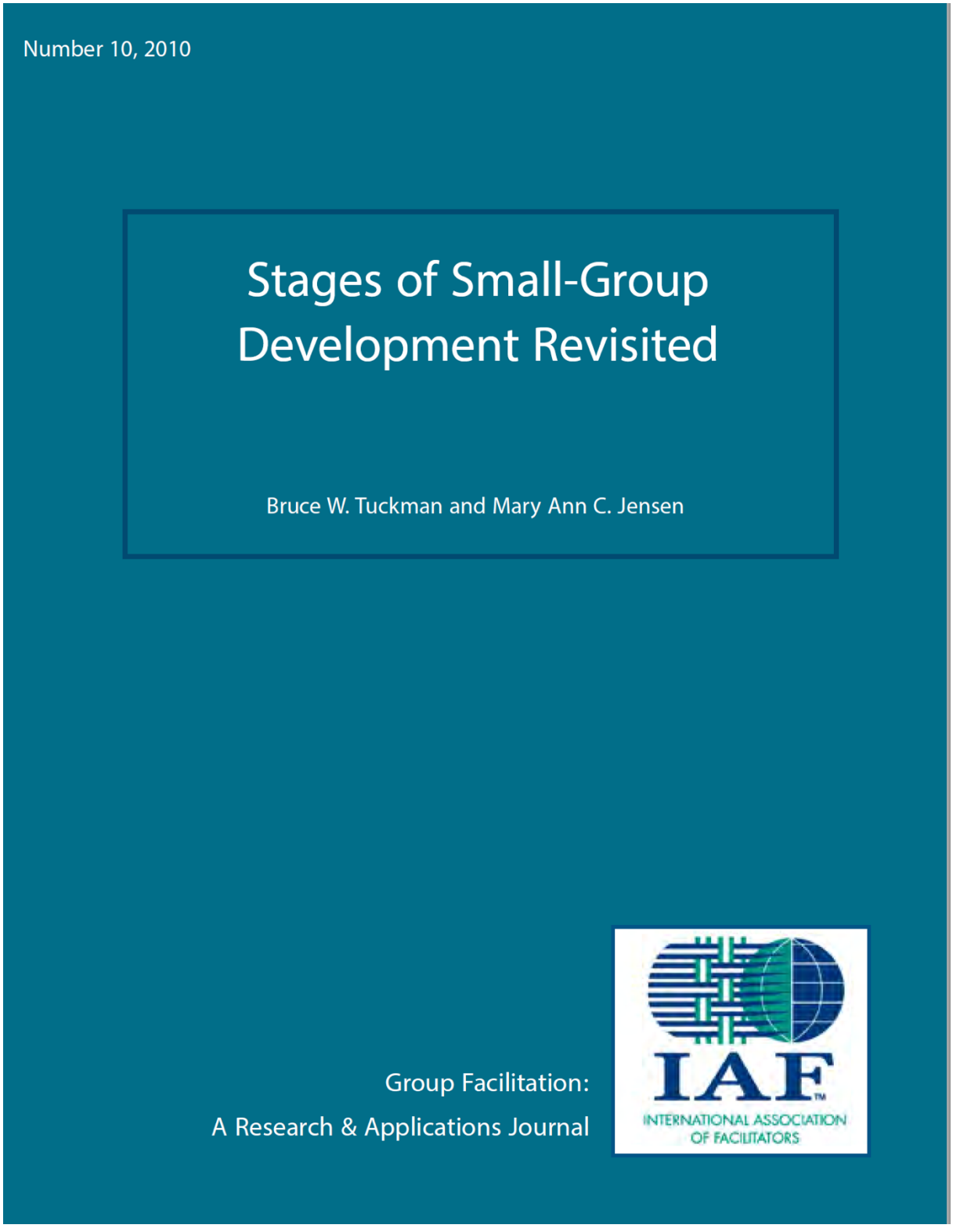
In 1965 Bruce W. Tuckman published his theory on group forming. He identified 4 stages: Forming, Storming, Norming and Performing. In 1977 he and Mary Ann C. Jensen conducted a follow-up review to discover what empirical testing of the model others had conducted. Their conclusion was that there needed to be another fifth stage of group forming: Adjourning.

The following image shows the five stages and some practical tools to manage these stages. Retrieved from https://wit.edu/lit/engage/empower-groups



http://wheatoncollege.edu/sail/leadership/student-involvement-handbook/strengthening-group/leadership-teambuilding/ (Image without tools)

On the following pages you will find the article by Tuckman and Jensen.



Group & Organization Studies, December 1977, 2(4),419-427

The mission of the International Association of Facilitators (IAF) is to promote, support and advance the art and practice of professional group facilitation through methods exchange, professional growth, practical research, collegial networking and support services.

Group Facilitation: A Research & Applications Journal is published annually by the:

International Association of Facilitators

14985 Glazier Ave., Suite 550
St. Paul, MN 55124
Tel: 952-891-3541
Fax: 952-891-1800
office@iaf-world.org
www.iaf-world.org

Group Facilitation:

A Research & Applications Journal

Number 10, 2010 © International Association of Facilitators ISSN 1534-5653

Stages of Small-Group Development Revisited

Bruce W. Tuckman Mary Ann C. Jensen

The purpose of this review was to examine published research on small-group development done in the last ten years that would constitute an empirical test of Tuckman's (1965) hypothesis that groups go through these stages of "forming," "storming," "norming," and "performing." Of the twenty-two studies reviewed, only one set out to directly test this hypothesis, although many of the others could be related to it. Following a review of these studies, a fifth stage, "adjourning." was added to the hypothesis, and more empirical work was recommended.

Tuckman (1965) reviewed fifty-five articles dealing with stages of small-group development in an attempt to isolate those concepts common to the various studies and produce a generalizable model of changes in group life over time. He examined studies of (1) therapy groups, (2) human relations training or T-groups, and (3) natural and laboratory-task groups in terms of two-realms – task and interpersonal. The way members acted and related to one another was considered group structure or the interpersonal realm; the content of the interactions as related to the task was referred to as the task-activity realm. Both realms represented simultaneous aspects of group functioning because members completed tasks while relating to one another.

The Model

As a result of the literature reviewed, Tuckman proposed a model of developmental stages for various group settings over time, labeled (1) testing and dependence, (2) intragroup conflict, (3) development of group cohesion, and (4) functional role relatedness. The stages of task activity were labeled (1) orientation to task, (2) emotional response to task demands, (3) open exchange of relevant interpretations, and (4) emergence of solutions. An essential correspondence between the group structure realm and the task- activity realm over time caused Tuckman to summarize the group stages as "forming," "storming," "norming," and "performing." He acknowledged, however, that this was "a conceptual statement suggested by the state presented and subject to further test" (p.5).

Tuckman cited several limitations of the literature, e.g., that the literature could not be considered truly representative of small-group developmental processes because there was an overrepresentation of therapy and T-group settings and an under representation of natural or laboratory-group settings, making generalizing difficult. He suggested the need for further research on natural and laboratory groups, indicated the need for more rigorous methodological considerations in studying group process, and criticized the use of a single group for observation because it made control and systematic manipulation of independent variables impossible.

Tuckman provided a developmental model of group process by organizing and conceptualizing existing research data and theoretical precepts rather than by presenting original empirical data to support a particular model. He stated, however, that his model was in need of further testing.

Purpose of Methodology of This Review

The purpose of this follow-up study is to discover whether anyone has empirically tested the model of group development proposed by Tuckman in 1965, to investigate any new models in light of Tuckman's hypothesis, and to determine whether any alternative models have been conceived.

To locate any studies referencing the 1965 Tuckman article, the *Science Citation Index* from 1965 and the *Social Science Citation Index* from 1970 were consulted and a list of fifty-seven articles was compiled.

Of these, only those studies concerned primarily with empirical research (approximately twenty-two) were reviewed.

Review of the "New" Literature

Only one study could be found that set out to test Tuckman's hypothesis. Runkel et al. (1971) studied three groups of fifteen to twenty college students in a classroom setting. The task of each group was to decide on a project, collect and interpret data, and write a final report. During meetings of the work group, sixteen observers,

armed with descriptions of the Tuckman model of stage development, observed the group "until something happened that fitted a behavior described by Tuckman as belonging to one of the four stages of group structure or task activity" (p.186). The observers rotated among groups in an effort to reduce observer bias. Ratings from observers supported Tuckman's theory of group development.

Although this empirical test of Tuckman's hypothesis supported his suggested developmental sequence, observers were given only descriptions of Tuckman's four stages and asked to "fit" their observations to that model. A methodology less prone to observer bias would have been to have observers record particular behaviors apparent in the group; at a later time, these could have been reviewed in light of particular models. Runkel et al. did, however, provide an empirical base for further testing of the Tuckman model.

Several articles from the literature contained elements of the Tuckman model. Zurcher (1969) offered some explanation of the developmental sequence in natural groups, an area Tuckman described as underrepresented in the literature. Data were obtained from 174 meetings of twelve poverty program neighborhood action committees in Topeka, Kansas, over a nineteen-month period. Results from a team of participant-observers indicated that the stages of development for these neighborhood committees included (1) orientation, (2) catharsis, (3) focus, (4) action, (5) limbo, (6) testing, and (7) purposive. Zurcher stated that these seven stages "could parsimoniously have been reduced to four stages suggested by Tuckman" (p.245) as shown below.

Orientation Forming Catharsis Storming

Focus, Action, Limbo, Testing Norming

Purposive Performing

Although Zurcher's results would serve to support the Tuckman model, he did not specifically set out to test any particular model of group development and did not present any statistical treatment of his data.

Smith (1966) observed, over a period of approximately four months, a group of seven men stationed in Antarctica and collected data on technical-task activities as well as on behavioral dimensions of informal structure. He reported only two developmental stages rather than the four listed by Tuckman. However, Smith's two developmental stages appear to be task-activity behavior and interpersonal behavior, both of which were identified by Tuckman as the realms of group behavior. Smith's results serve to reinforce the hypothesis that task and interpersonal dimensions play a substantial role in the way groups develop.

Smith also concluded that the order of development would be different for various groups. Although the interpersonal "stage" seemed most important for therapy or training groups, task activity was stressed by the men in Antarctica. That the content or task activity appeared prior to development of a group structure might be due to the specific nature of the group assignment and to the well-defined roles of the participants, which suggest that those aspects related to the primary purpose of the group develop first. Due to the uniqueness of his group in terms of task and setting, Smith's results might not be applicable to other types of groups.

Shambaugh and Kanter (1969) described the evolution of a therapy group for spouses of patients on hemodialysis machines. A group of six spouses met weekly for a period of eight months. As observed by the group leader/psychiatrist, the stages of group development included (1) initial experience, (1) formation of the group, (3) optimism and partial separation, and (4) final stage.

The authors believed that this group was a "paradigm of the unconscious forces inherent in group structure and process" and that "the overall developmental sequence was that of the usual small group" (p.936). They did not attempt to "test" any particular model of group development; however, their observations appeared to fit the behaviors characterizing Tuckman's stages of "forming," "storming," "norming," and "performing" (i.e, dependence on leader, criticism among members, optimism, and cohesiveness). Shambaugh and Kanter did not describe behaviors characteristic of each stage clearly, which made it difficult to differentiate among them. The authors did observe, however, that their observations supported Tuckman's four-stage theory.

A second problem with this study was the introduction of new members into the group prior to the final stage, which made identification of the four stages and the characteristic behaviors pertinent to each difficult.

Lacoursiere (1974) observed stage development while using a group method to facilitate learning for student nurses involved in a psychiatric setting. The student nurses, in their twenties, single, and female (except for one male student in each of the three groups observed), worked in a state mental hospital and met as a group for one and one-half hours each week to discuss their concerns. Over a ten-week period, Lacoursiere observed four stages of group development:

1. Orientation, characterized by fears and anxieties and fairly strong positive expectations;
2. Dissatisfaction, characterized by an increasing sense of frustration, along with depression and anger;
3. Production, demonstrated by a more realistic appraisal of what could be accomplished; and
4. Termination, concerned with sadness and some self-evaluation.

Lacoursiere's four stages differed from Tuckman's in three respects. First, in stage 2, dissatisfaction, there was a lack of intragroup conflict among the student nurses. Any anger and hostility present was directed toward the hospital, the staff, and psychiatry in general rather than toward group members. Second, Lacoursiere combined "norming" and "performing" into stage 3, production, at which time students' expectations became more realistic and they desired "to learn what can be learned and to do what they can reasonably do as student nurses" (p. 348). Third, and the major difference between models, was the addition of the termination stage.

Another article dealing with the training of nursing students was one by Spitz and Sadock (1973), who observed twenty-one second-year nursing students, all white females from twenty to forty years old, using techniques such as role playing, video taping, and analysis of dreams. Spitz and Sadock categorized group life into three phases:

1. Stage One, characterized by anxiety, guardedness, dependency, and a mixture of curiosity and confusion;
2. Stage Two, the period of beginning trust, cohesiveness, interdependence, and group interaction;
3. Stage Three, the final phase of disengagement, anxiety about separation and termination, and positive feelings toward the leader.

Stages one and two contain elements of Tuckman's "forming" and "norming" stages, respectively. Tuckman's second stage, "storming," has for the most part been eliminated. Although Lacoursiere's group demonstrated anger and hostility toward an outside force, Spitz and Sadock's group appeared only to touch on themes of anger and discontent in their group discussions. It is of significance that neither student-nurse group demonstrated noticeable characteristics of intragroup conflict. Possibly, the close association experienced by student nurses unites them in a cohesive, personal group. Also, the group's composition – overwhelmingly female – might be a factor, as women have traditionally been socialized to be more passive and trusting. Spitz and Sadock also observed third-year medical students and found them to be more guarded and more "overtly hostile." Group composition. therefore, may be one of the variables that influence appearance of stages in the development process.

A second variation in Spitz and Sadock's model, which also was found in the Lacoursiere model, was the addition of a stage concerned with termination and separation, a significant departure from the Tuckman model.

Braaten (1975) compiled an interesting review of fourteen models of the developmental stages of groups. Several of the more recent models not reviewed in the 1965 Tuckman article demonstrated a resemblance to his four-stage model. For example, Yalom(1970) presented a four-stage model, including an initial phase of orientation and hesitant participation; a second phase of conflict, dominance, and rebellion; a third phase of intimacy, closeness, and cohesiveness; and a final phase of termination (differing from Tuckman).

Braaten presented a composite model of fhe fourteen theories and also set forth his own model. His composite model outlined the three stages identified by Tuckman as "forming, " "storming," and "performing" (which incorporated "norming") and added a final stage of termination. Braaten's own model followed the composite model fairly closely:

1. Initial phase lacking in structure;
2. An early phase characterized by hostility and conflicts between subgroups;
3. The mature work phase in which norms are resolved and interdependency and trust formation are apparent;
4. Termination, concerned with disengagement and ending.

Braaten concluded, as did Tuckman, that there appeared to be substantial agreement among authors on the aspects of a developmental phase model, but that systematic research was needed to verify the theoretical concepts. Braaten's review of the literature suggests that empirical research in stages of small group development is sparse and inconclusive.

Only two of the journal articles reviewed substantially deviated from the four-stage Tuckman model. Dunphy (1968) conducted an empirical study of the developmental process in self-analytic groups (therapy and T-groups). He observed two sections of a Harvard Social Relations 120 course for a period of nine months. Through the use of a computer system of content analysis, Dunphy identified six development phases for the group:

1. Maintenance of external normative standards;
2. Individual rivalry;
3. Aggression;
4. Negativism;
5. Emotional concerns;
6. High affection

Individual rivalry, aggression, and negativism parallel Tuckman's second stage, "storming." Emotional concerns and high affection might be viewed in terms of the "norming" stage. However, Dunphy's model does not include any stage resembling "performing." Dunphy acknowledged that his results might not be generalizable to all self-analytic groups and that further testing was needed to establish the extent of their validity.

A study by Heckel, Holmes, and Salzberg (1967) examined whether distinct verbal behavioral phases occur in group psychotherapy. Seventeen neuropsychiatric male and female patients were observed over eighteen sessions of group therapy. Verbal responses of participants were recorded and grouped according to type of response and specific category (i.e., therapist-directed response, etc.). Results revealed a significant change between the seventh and eighth and twelfth and thirteenth sessions. Therapist-directed responses were most noticeably affected, going from fifty-nine to twenty-three; group-directed response went from twenty-one to thirty-nine. On the basis of these results, Heckel et al. believed their findings were "somewhat supportive" of a two-stage hypothesis of group development. The authors did not describe characteristics of the two stages, however, nor did they attempt to propose their own theoretical model for further testing.

A second study by Heckel, Holmes, and Rosecrans (1971) employed a factor-analytic approach for analyzing verbal responses of group-therapy members. Utilizing the theory of two-stage development derived from the 1967 study, the authors rated responses from approximately thirty male neuropsychiatry patients during their second and third sessions and from seventeen of these patients during the twelfth and thirteenth sessions. The authors reported that combined results from sessions two and three indicated low group cohesiveness, high defensiveness and superficial verbal interactions and a pattern of personal and group-building responses. An obvious change had occurred by the twelfth and thirteenth sessions, but the loss of almost half the members of the group by this time also may have had an impact on changes in their

verbal response. Without observing interactions over the life of the group, the suggestion that these four sessions represent the only changes taking place seems premature.

Mann (1967) offered a third variation to the four-stage model. Through the use of factor analysis, he categorized five stages of group development: (1) initial complaining, (2) premature enactment, (3) confrontation, (4) internalization, (5) separation and terminal review. This model appears to incorporate characteristics of Tuckman's "forming," "storming," "norming," and "performing" stages with the addition of stage 5 – termination.

Braaten (1975) included an updated version of Mann's (1971) developmental model:

1. Dependency upon trainer;
2. Initial anxiety and/or resistance;
3. Mounting frustration, hostility;
4. Work phase, intimacy, integration, mutual synthesis;
5. Separation.

Discussion

This review of articles was undertaken to discover whether the Tuckman (1965) model of group development had been empirically tested. Only Runkel et al. (1971) set out to test this model. Their conclusions were supportive of Tuckman's four-stage model, but their results may not be reliable because of the researchers' methodology.

The bulk of the literature from 1965 to the present has been theoretical in nature; those articles describing empirical research were not primarily concerned with testing already existing models. Many of the authors described a group's behavior and offered their own models of group development, however, similar to models already described in the literature.[1] Two studies and a review did identify termination as an important final stage overlooked by Tuckman. Braaten's (1975) review of fourteen models led to a composite model incorporating "forming," "storming," and "performing" stages and including a termination stage.

Gibbard and Hartman (1973) introduced the concept of a "life cycle" model as developed by Mills (1964). Proponents of a life cycle approach recognize the importance of separation concerns as an issue in group development. Although Tuckman saw performing as the final stage of group evolution, those who agree with a life cycle model view separation as an important issue throughout the life of the group and as a separate and distinct final stage. With a substantial amount of activity taking place in training and therapy groups in which presumably strong interpersonal feelings are developed, the "death of the group" becomes an extremely important issue to many of the group members. As a reflection of the recent appearance of studies postulating a life cycle approach (Mann, 1971; Gibbard & Hartman, 1973; Spitz & Sadock, 1973; Lacoursiere, 1974; Braaten, 1975), the Tuckman model is hereby amended to include a fifth stage: adjourning.

Conclusion

It is noteworthy that since 1965 there have been few studies that report empirical data concerning the stages of group development. It is also of interest that most authors, although writing form a theoretical framework, call for further research to verify their hypotheses. A virtually untapped field is the empirical testing of existing models of group-stage development. There is a need to supply statistical evidence as to the usefulness and applicability of the various models suggested in the literature.

A major outcome of this review has been the discovery that recent research posits the existence of a final discernible and significant stage of group development-termination. Because the 1965 model was a conceptual statement determined by the literature, it is reasonable, therefore, to modify the model to reflect recent literature. The model now stands: forming, storming, norming, performing, and adjourning.

[1] Other studies examined but not cited because of their limited relevance to the discussion are Lundgren (1971), Liebowitz (1972), Tucker (1973), and Adelson (1975).

REFERENCES

Adelson, J. Feedback and group development. *Small Group Behavior*, 1975 *6*(4),389-401.
Braaten, L. J. Developmental phases of encounter groups and related intensive groups: A critical review of

models and a new proposal. *Interpersonal Development*, 1974-75, *5*, 112-129.
Dunphy, D. Phases, roles and myths in self-analytic groups. *Journal of Applied Behavioral Science*, 1968,

4(2), 195-225.
Gibbard, G., & Hartman, J. The oedipal paradigm in group development: A clinical and empirical study.

Small Group Behavior, 1973, *4*(3), 305-349.
Heckel, R., Holmes, G., & Salzberg, H. Emergence of distinct verbal phases in group therapy.

Psychological Reports, 1967, *21*, 630-632.
Heckel, R. V., Holmes, G. R., & Rosecrans, C. J. A factor analytic study of process variables in group

therapy. *Journal of Clinical Psy chology*. 1971, *27*(1), 146-150.
Lacoursiere, R. A group method to facilitate learning during the stages of a psychiatric affiliation.

International Journal of Group Psychotherapy, 1974, *24*, 342-351.
Liebowitz, B. A method for the analysis of the thematic structure of T-groups. *The Journal of Applied*

Behavioral Science, 1972, *8*(2), 149-173.
Lundgren, D. C. Trainer style and patterns of group development. *The Journal of Applied Behavioral*

Science, 1971, *7*(6), 689-709.
Lundgren, D. C. Attitudinal and behavioral correlates of emergent status in training groups. *The Journal*

of Social Psychology, 1973, *90*, 141-153.
Mann, R. D. The development of the member-trainer relationship in self-analytic groups. In C. L. Cooper

& I. L. Mangham (Eds.), *T-groups: A survey of research*. London: Wiley-Interscience, 1971.
Mann, R. D. *Interpersonal styles and group development*. New York: John Wiley, 1967.
Mills, T. M. *Group transformation*. Englewood Cliffs, N.J.:Prentice-Hall, 1964.
Runkel, P. J., Lawrence, M., Oldfield, S., Rider, M., Clark, C. Stages of group development: An empirical

test of Tuckman's hypothesis. *The Journal of Applied Behavioral Science*, 1971, *7*(2), 180-193. Shambaugh, P., & Kanter, S. Spouses under stress: Group meetings with spouses of patients on

hemodialysis. *American Journal of Psychiatry*, 1969, *125*, 928-936.
Smith, W. M. Observations over the lifetime of a small isolated group; structure, danger, boredom, and

vision. *Psy chological Reports*, 1966, *19*, 475-514.
Spitz, H., & Sadock, B. Psychiatric training of graduate nursing students. *N. Y. State Journal of Medicine*,

June 1, 1973, pp. 1334-1338.
Tucker, D. M. Some relationships between individual and group development. *Human Development*, 1973,

16, 249-272.
Tuckman, B. W. Development sequence in small groups. *Psychological Bulletin*, 1965, *63*(6), 384-399. Yalom, I. *The theory and practice of group psychotherapy*. New York: Basic Books, 1970.
Zurcher, L. A., Jr. Stages of development in poverty program neighborhood action committees. *The*

Journal of Applied Behavioral Science, 1969, *5*(2), 223-258.

Retrieved may 2015 from: http://www.speak-first.com/news/ten-golden-rules-for-presenting-in-public.aspx

The 10 Golden Rules for Successful Presentations

Ten golden rules for presenting in public

"The human brain starts working the moment you are born and never stops until you stand up to speak n public."
When r George Jessel uttered these words, he touched not only on a great truth, but on why so many of us fear presentations. The ability to present and speak in public s not always nherent but presentation skills can be learnt.

Below are ten useful pointers to put into practice to ensure you speak with confidence, clarity and impact the next me you present.

1. Dealing with erves

Nerves are good. Without nerves, you have no chance of performing o your potential. Yet as we all know, uncontrolled nerves can make the difference between polished uency and scratchy inadequacy.
The key lies in control. Nerves need to be replaced by confidence s his can mean visualising your goal. Motivate yourself with the image of a confident and competent performer. "Its all n the mind" is truer than we imagine. Persuade yourself that you are a good speaker and your presentation skills will mprove.

2. Put yourself n the audience's shoes

It's important to resist the temptation to convey all you know about a subject. Enhance your presentation skills by approaching your subject from your audience's point of view and what they want to hear.
Refer to their concerns and give examples pertinent to their lives. Don't run through a series of features s xplain the benefits which they can derive from a course of action. Talk in he audience's language, avoiding the barriers created by jargon.

3. Keep it simple

The purpose of a presentation is to put across key messages, convince your audience of your competence and generate enthusiasm to take the next step. Garnish your presentation with examples, anecdotes, repetition and references to the audience's own experiences so that facts have sufficient me and supporting evidence to be remembered.

4. Signposts

You know where you are in your presentation. But unless you clarify your position and progress to your audience, they will have no idea. You will lose them.

Competent presenters will always explain what they are going to cover --- and how. Then they cover it, reminding you regularly of where they are in the narrative. If you lose the thread, they weave you back into the story at regular points. And finally, they reiterate what has been said, so that key messages reverberate as you leave.

5. Words that win support

Persuasion s he object of every presentation. Your choice of words is crucial in achieving this. One of the most powerful words at your disposal s 'you'. It's astonishing the difference that arises between a passive statement of fact and its active personalisation. Peppering your presentation with 'you' and 'we' is inclusive and empathetic.

6. Visual aids that add value

Visual ds should do just that: help the audience sually. They are there to reinforce your message, provide cues for your presentation and in some instances make points th greater impact that words could achieve. What they must not do is take over.

7. Visual Impact

You can enhance your presentation skills by improving some of the fundamentals of presenting s good eye contact, natural hand gestures, a relaxed stance and an open manner. By doing this you will stand a much better chance of impressing and grabbing the attention of your audience.

8. Vocal Impression

Making the best use of your voice is as important as visual mpact. In a good speaker you will hear modulation and control. They use pauses effectively as a means to bring the audience's attention level back. The voice is a flexible and powerful tool. Try to vary your tone as often as possible to add emphasis to what you say.

9. How to answer questions

Perhaps second only to the fear of drying up in a presentation is the fear of questions. Yet there are no impossible questions. If you know your subject, you will be able to respond to all sensible queries. If you don't know the answer, admit it candidly and calmly. ever guess, never waffle.

10. Practise s en practise more

The more time you spend on preparation, practice and developing your presentation skills, the more likely you are to give visual impact and vocal impression their due. You can never prepare too much and the effects of doing too little will ways be evident to your audience. The more effort you put into the preparation stage the more confident you will be in the delivery.

The Best Elevator Pitch Examples, Templates, and Tactics

strategypeak.com/elevator-pitch-examples

About Kurian Tharakan Kurian Mathew Tharakan is the founder of sales and marketing strategy firm StrategyPeak Sales & Marketing Advisors, and a 27 year veteran of the sales and marketing industry. He has consulted for companies in numerous sectors, including Manufacturing, High Technology, Software, Non-Profit, and the Life Sciences. In addition to his consulting practice, he is also an Executive in Residence at two business accelerators, NABI and TEC Edmonton, where he assists clients with their go to market strategies. Prior to StrategyPeak, Mr. Tharakan was vice-president sales & marketing for an enterprise class software firm where his team achieved notable wins with several members of the US Fortune 500. Previous to his software experience, Mr. Tharakan directed the sales and marketing programs for the Alberta practice of an international professional services firm.

January 22, 2017

A Guide to Writing an Unforgettable Elevator Speech

by Kurian M. Tharakan

Author's Note: ***I am astounded that this page receives thousands of readers each month****. That number tells me that there are a lot of people looking for solid advice on how to craft a simple, compelling, and persuasive pitch. Most of the pitches I have seen have not been very good. It wasn't because the product or the team were poor, but rather the pitch structure and*

story weren't very well thought out. But with just a little planning and strategy, this could be corrected. If you are looking for the best ways to structure, present, and amplify your elevator speech, this article is for you. I wrote this based on my experiences in coaching hundreds of companies to present, with the highlight being to prep four companies to star in a ***Dragon's Den pitch*** *(the American equivalent is* ***Shark Tank****).*

By definition, an elevator pitch is a quick persuasive speech that is used to create interest in a project, a concept, or people. It distills your ideas into the simplest, clearest points of value, what makes you different, and instills enough curiosity to make the prospect want to hear more. Theoretically, it should be no longer than the time it takes to ride an elevator to the top floor in a building. (e.g. between 30 seconds to 2 minutes.)

> … luck happens when opportunity meets with preparedness …

As is often the case, most opportunities to meet with influential people happen spontaneously and unpredictably: the rising screenwriter who collides with a Hollywood producer while waiting in line for a taxi, or the hopeful new employee who finds himself in the elevator with the company CEO. The adage luck happens when opportunity meets with preparedness is very true.

There are many different types of pitches, which serve different purposes. While elevator pitches are meant to instill enough intrigue to get the prospect to ask you to tell them more, they do not have the persuasive horsepower of a full-fledged sales or investor pitch. Because these purposes are different, they require different lengths of time and stages of delivery.

Pitching is a skill, and just like all skills, there are ways to perfect it. Once you understand the principles of a pitch structure, your elevator pitch, sales pitch, boardroom presentation, or investor pitch will improve dramatically.

I recently partnered with the NABI business accelerator's Managing Director, Dar Schwanbeck, to run one of their clients through a crash course for a pitch on the nationally televised show Dragon's Den (the American equivalent is Shark Tank.) In fact, this was the 4th client that I have worked with to make an investment pitch in the den, and I have compiled the following takeaways on the structure and psychology of enticing the Dragons to invest. *(Not pitching an investor anytime soon? Not to worry! These techniques will also help you get what you want from bosses, spouses, customers, and small children.)*

Elevator Pitch Basics

Let's start with two elevator speech templates, an all-purpose generic template, and a sales pitch template. For these examples, we will use the fictional company Hydrolyzier, a manufacturer of commercial grade water purification systems.

Generic Elevator Pitch Example

The following is a standard pitch format that can be applied to almost any situation.

My name is <<NAME>>, the CEO of <<COMPANY>>. Our company manufactures <<PRODUCT>> for <<TARGET CUSTOMER>> that allows them to <<YOUR VALUE PROPOSITION>>.
Unlike <<OUR COMPETITION>>, we <<PRIMARY COMPETITIVE POINTS OF DIFFERENCE>>.
<<CALL to ACTION>>

Using this format, here is a Hydrolyzier elevator pitch example:

Hi, my name is Bob Smith, and I am the CEO of Hydrolyzier Water Company. We manufacture the Hydrolyzier MaxLite, a commercial grade water purification system that uses a tri-plane osmotic process that dramatically reduces the content of impurities in drinking water. Unlike competing systems, our patented osmotic process uses one-third the power of a traditional water purifier while reducing the installation space to half. Our modular construction takes less than 36 hours to install, and best of all its price is less than 60% of similar systems. If you go to our YouTube channel, you can watch a video showing the Hydrolyzier in operation in a remote village in Ghana, West Africa

A Sales Pitch Example

If you are pitching in a sales situation, here is a format you could use:

Have you ever <<THE SITUATION THAT THE PROSPECT FACES>>?
<<COMPANY NAME>> manufactures <<PRODUCT LINE>> for <<TARGET MARKET>> so that you can <<PRIMARY VALUE PROPOSITION / BENEFIT>>.
Unlike <<TRADITIONAL ALTERNATIVES/COMPETITIVE OFFERINGS>>, <<OUR PRODUCT>> is <<COMPETITIVE POINT OF DIFFERENCE>>.
<<CALL TO ACTION>>.

Using this format, here is Hydrolyzier's elevator pitch:

Have you ever had a situation which required a low power, small footprint, water purification system for a remote settlement? Hydrolyzier Water Company manufactures the Hydrolyzier MaxLite, a commercial grade water purification system that uses a tri-plane osmotic process that dramatically reduces the content of impurities in drinking water. Unlike competing systems, our patented osmotic process uses one-third the power of a traditional water purifier while reducing the installation space to half. Our modular construction takes less than 36 hours to install, and best of all its price is less than 60% of similar systems. We have successfully installed the system in many remote

communities. They have found it to be easy to install, reliable, and inexpensive to operate. Our most recent installation is in a remote village in Ghana, West Africa which we have documented in a 5 minute YouTube video. May I send you the link?

Six More Elevator Pitch Types

Beyond these standard elevator pitches, Daniel Pink, in his book To Sell is Human: The Surprising Truth About Moving Others gives us six other types of pitches.

The One-Word Pitch

Can you distill your entire presentation into a single word?

- For an Alfred Hitchcock horror movie, it might be "scream."
- The word "inbound" belongs to Hubspot.
- While "invent" is closely associated with Thomas Edison.

For Hydrolyzier it is "purified water."

(Okay, you caught me. That's two words, … but that's okay.)

The Question Pitch

> Ask yourself, 'Are you better off now than you were four years ago?

If your presentation's central idea is already understood by your audience, a question pitch may be ideal. In the 1980 US presidential election campaign between Ronald Reagan and Jimmy Carter, Reagan asked a simple question, "Ask yourself, 'Are you better off now than you were four years ago?'" Most people immediately understood the question and its context. Reagan became the 40th President of the United States.

For Hydrolyzier it might be, "How can you supply a rural village in Ghana, West Africa with clean drinking water in under 36 hours, and at less than 60% of the cost of other water purification systems?"

The Rhyming Pitch

> It takes a licking and keeps on ticking.

Rhymes are easy to mentally process and remember. Also, some scientific studies have found that rhymes are perceived to be more accurate and believable than non-rhymes when pitching the same concept.

- Teeth whitening toothpaste Pepsodent used the following rhyme in its 1960's and 70's commercials, "You'll wonder where the yellow went when you brush your teeth

with Pepsodent!"
- To emphasize its timepieces' durability, watch manufacturer Timex said, "It takes a licking and keeps on ticking."

For Hydrolyzier it might be,

- "Get wet." or
- A Pure, Clean, Water Stream

(This was hard. How did I do?)

The Subject Line Pitch

Every email subject line that you write is a pitch inviting the recipient to open it. Daniel Pink advises that your subject line pitch should offer utility value, curiosity, and specificity. However, he cautions that while specificity should be in all subject lines, you should choose to use either utility value or curiosity for any single subject line

Here are some examples:

- Drugstore: "Your prescription is expiring."
- Mortgage Broker: "How Much House Can You Afford?"
- Credit Card Company: "You're missing out on reward points."

For Hydrolyzier it might be, "How Remote Communities Can Install On-Site Purified Drinking Water Systems in Under 36 hours."

Can you get your pitch down to 140 characters? Or less? Here are a couple of funny ones for Twitter itself:

- "Twitter. The only place you get excited when a stranger follows you." or
- "Twitter. Get the news before it happens."

For Hydrolyzier it might be, "Clean Drinking Water for 300 African Villagers in Under 36 hours."

The Pixar Pitch

Animation studio Pixar has produced a string of hits, including Wal-E, Finding Nemo, Toy Story, Incredibles, and many, many others. The standard plot structure for each of these stories fall into the following format:

Once upon a time <<INTRODUCE CHARACTER AND CONTEXT>>
Every day, <<ESTABLISH THE WAY THINGS WERE>>.
One day <<INTRODUCE PROBLEM/INCITING INCIDENT>>.
Because of that <<CHALLENGE>>.

Because of that <<SEARCH FOR SOLUTION>>
Until finally <<FINDS SOLUTION>>
Now, <<ESTABLISH THE WAY THINGS ARE BETTER NOW>>

For Hydrolyzier it might be:

In Africa, village water wells are vital to the sustainability of the rural population. In one community, we counted over 300 people who relied on a single well as their only source of daily drinking water, often walking from miles around to obtain it. Last year, the well was found to be contaminated by waterborne parasites. Hydrolyzier was one of three companies contacted by the regional government to remedy the situation. We were selected to install our new water purification system, the Hydrolyzier MaxLite, primarily due to the speed which we could deploy it (in less than 36 hours), and its cost (less than 60% of its competitors). Today, the people of this village can safely drink from their well again.

Amplifiers for Your Pitch

If you are in a full-fledged pitch like those on Dragon's Den or Shark Tank, these pitch amplifiers will come in very handy. Beyond profiling a great product or service, your pitch should also contain the following:

Shock, Fascination, or Intrigue – The Dragons' minds are wandering during your entrance. Their brains are actively searching for WHY they should care. Give them a simple statement that startles them into rapt attention. Here's an example if you are pitching a water purifying device. In the introduction, you can either say:

> *"Our device is called the Hydrolyzier, and it uses a tri-plane osmotic process that dramatically reduces the content of impurities in drinking water."*

– or –

> *"Water is life, yet 768 million people do not have access to safe, clean drinking water, and 2.5 billion people live without proper sanitation. When water is unsafe and sanitation non-existent, water can kill." (Unicef Clean Water Campaign)*

The 2nd statement allows a fluid transition into a description of your product WITH the Dragons' full attention.

> … a "space western".

Metaphor – Because people absorb new information by relating it to an existing reference point they understand, you should create a metaphor that allows them to associate, compare, and draw relations easily. When Gene Roddenberry was pitching the original Star Trek series to NBC in 1964, the concept of a racially mixed crew with women and aliens on the bridge travelling to distant planets was so foreign that it was initially

dismissed because NBC brass didn't think anyone would watch. To sell the idea, Roddenberry used the metaphor of a "space western." Because western movies and TV shows were something everyone was familiar with, this bought him the time and funding to develop not just one, but two pilots for the popular series.

Hydrolyzier's primary differentiating value propositions are its low cost, small size, and rapid deployment capability. We could use the following metaphor to convey these central ideas:

"Hydrolyzier: We are the IKEA of Commercial Water Plants."

Clarity – As a minimum, the elevator pitch has to have clarity on the attributes of:

- The primary problem the product solves
- The way it solves it
- Alternatives to the product, but emphasizing how you are better
- How big the market is
- The cost of the solution
- The price you can charge
- How much investment capital you need and for what purpose
- What the Dragons will receive for their money

Emotional Appeal – To get people moving fast and with purpose, you must infuse your pitch with emotion. Confidence, fear, anger, amazement, joy, indignation, love, disgust, envy, or dozens of other emotions can energize your pitch. Choose the ones most relevant to the story you are telling.

Tangible Demonstration – Nothing shows people what your product can do better than a physical demonstration. Imagination and understanding are stoked further when something is taken in hand. Get the audience involved in a demo.

Risk Reduction – Every new investment involves risk. Show the Dragons you understand what the risks are, and how you will quell them. By the way, nothing makes investment risk in a startup go away faster than showing you have sales. Show the Dragons your sales pipeline to get a deal done fast.

Authority – Authority commands attention, respect, and intrigue. Show the Dragons you are an authority on the market, its pain, your solution, and the competitive alternatives. Authority can come in many forms but always includes the primary elements of knowledge, experience, credentials, and public recognition. Demonstrate all four in the pitch.

Scarcity – If it's valuable, it's probably scarce. Show the Dragons that the opportunity to invest is (truthfully) fleeting. Some common reasons why include:

- Sales are coming in so fast you will soon be able to self-fund out of cash-flow
- Because sales are increasing, the valuation they can invest at will continue to rise

the longer they wait
- You have another strategic partner that has indicated they want to invest in you

Repetition – Repetition drives the message deeper. What is the central unifying message of your elevator speech? Repeat it three times in the presentation. For the UNICEF Clean Water Campaign, it might be *"Water is life."*

Contrast – Something is "hot" only in relation to something that is "cold." The Dragons' brains are actively looking for a contrast to help them analyze and categorize the data for a decision. In the Hydrolyzier example, the easiest way to employ contrast is to show a before and after comparison of the water. Dirty, polluted water before filtration, clean, clear water after.

Story – Now, wrap it all up in a story. Humans have been gathering in groups to tell stories for millennia. Stories have the ability to draw and keep attention, fascinate, intrigue, and engage all our mental and emotional energies. Great brands are about great stories. Create a powerful narrative to tell.

Time – Finally, keep the pitch short, just long enough to get all of the above out, but no longer.

By using these structures, and embedding these psychological persuasion tactics in your pitch, you will have a dramatically improved chance of making a memorable impact!

Kirkpatrick's Evaluation Model

Donald Kirkpatrick's 1975 book *Evaluating Training Programs* defined his originally published ideas of 1959, thereby further increasing awareness of them, so that his theory has now become arguably the most widely used and popular model for the evaluation of training and learning.

Kirkpatrick's four-level model is now considered an industry standard across the HR and training communities. The four levels of training evaluation model were later redefined and updated in Kirkpatrick's 1998 book, *Evaluating Training Programs: The Four Levels*.

The four levels of Kirkpatrick's evaluation model essentially measure:

- reaction of student - what they thought and felt about the training
- learning - the resulting increase in knowledge or capability
- behaviour - extent of behaviour and capability improvement and implementation/application
- results - the effects on the business or environment resulting from the trainee's performance

All these measures are recommended for full and **meaningful** evaluation of learning in organizations, although their application broadly increases in complexity, and usually cost, through the levels from level 1-4.

level	evaluation type (what is measured)	evaluation description and characteristics	examples of evaluation tools and methods	relevance and practicability
1	**reaction**	• **reaction evaluation** is **how the delegates felt** about **the training or learning experience**	• eg., 'happy sheets', feedback forms • also verbal reaction, post-training surveys or questionnaires	• quick and very easy to obtain • not expensive to gather or to analyse
2	**learning**	• **learning evaluation** is the measurement of the **increase in knowledge** - before and after	• typically assessments or tests before and after the training • interview or observation can also be used	• relatively simple to set up; clear-cut for quantifiable skills • less easy for complex learning
3	**behaviour**	• **behaviour evaluation** is the extent of **applied learning** back on the job - implementation	• observation and interview over time are required to assess change, relevance of change, and sustainability of change	• measurement of behaviour change typically requires cooperation and skill of line-managers
4	**results**	• **results evaluation** is the **effect on the business or environment** by the trainee	• measures are already in place via normal management systems and reporting - the challenge is to relate to the trainee	• individually not difficult; unlike whole organisation • process must attribute clear accountabilities

The Kirkpatrick/Phillips Model for Evaluating Human Resource Development and Training