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Learning Outcomes and Assessment Criteria

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Learning outcomes – what we understand with outcomes?

- What kind of images do you relate to "*learning outcomes*" ?
- In what ways do "*learning outcomes*" differ from "*learning objectives*"?
- Who defines the learning objectives?
 - Who commits to the learning objectives?
- Who defines the learning outcomes?
 - Who commits to the learning outcomes?

Outcomes-based education?

- Outcome-based education (OBE) version 1 in Australia as individualised programme for disadvantaged school children → "no more basics"
- OBE version 2 (USA) as learning "outcomes" assessed at an institutional level in order to meet employers' needs for accreditation of the best employees → enormous template with four dimensions and 12 sub-dimensions...

Outcomes-based education

- OBE version 3 – outcomes-based teaching and learning in which “outcomes” serve only teaching and learning purposes, and not political, economical or other purposes
- OBTL
 - We state what we intend the outcomes for a particular course/programme to be ...
 - Intended learning outcomes

Learning outcomes

- Learning outcomes are the specific intentions of a programme or module, written in specific terms and verbs.
- They describe what a student should know, understand, or be able to do at the end of that programme or module.

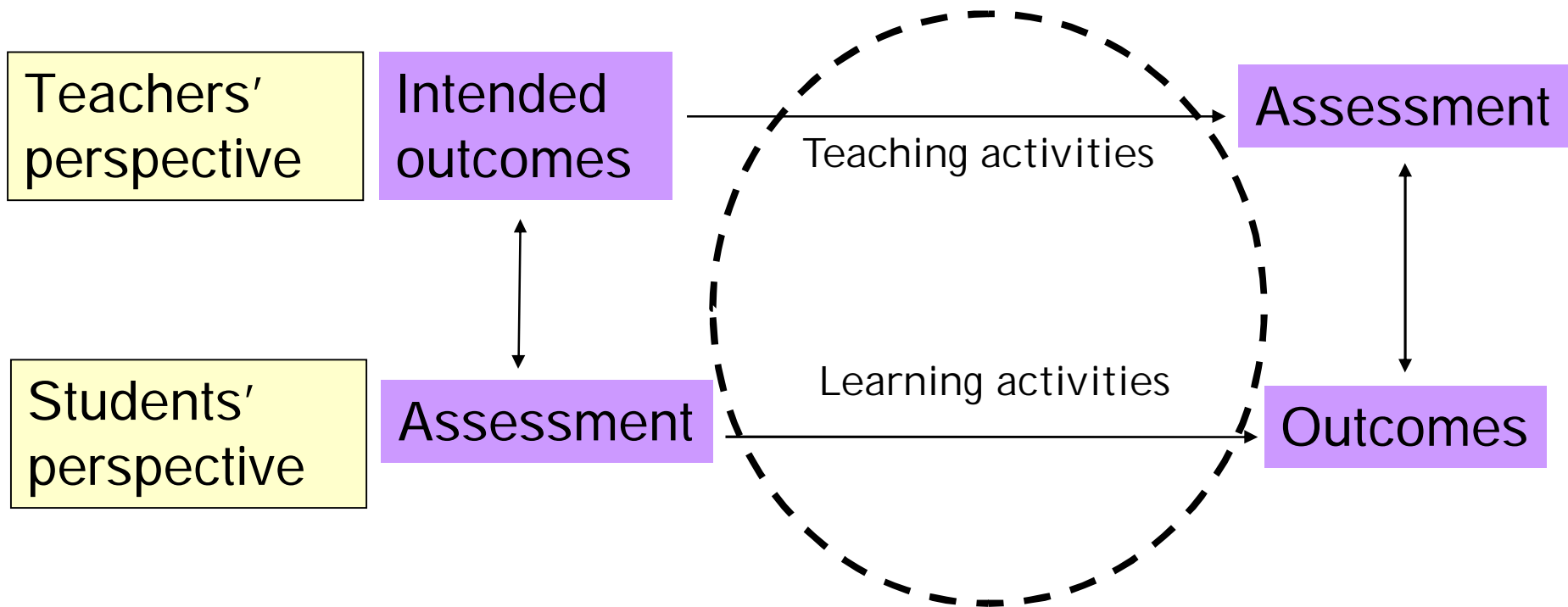
Viewpoints....

- ...a teacher's viewpoint ?
 - What are the main contents, issues of the subject to be taught?
 - A teacher introduces, presents, helps the students to familiarize themselves ...hopes that the students will understand...
- ... a student's viewpoint?
 - What a student expects or believes s/he should learn?
 - A student labels, defines, compares, applies, designs, analyses, creates...

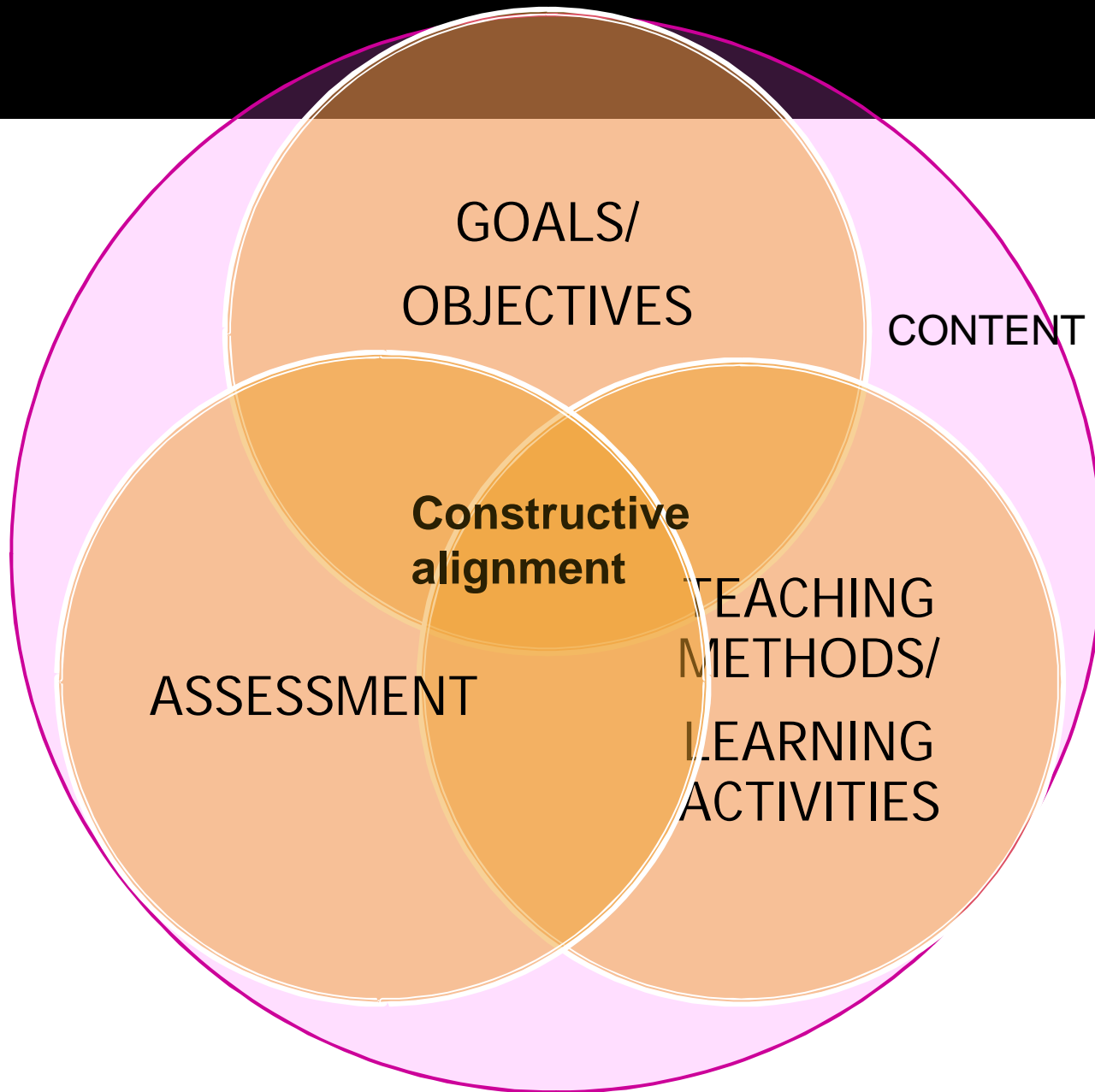
-> GOALS FOR TEACHING =
LEARNING OBJECTIVES

-> LEARNING OUTCOMES

Teachers' and students' perspective on assessment



(Biggs 1999, 142, Biggs & Tang 2007, 169)



Core Curriculum

Resource: Karjalainen, A. 2003

	Essential Knowledge (must-know)	Complementary Knowledge (good-to-know)	Special Knowledge (nice-to-know)
Scholarly/ academic learning outcomes	Knowledge and skills which constitute the basics for theoretical understanding and life-long learning	Theories, concepts and models which provides the opportunity to deepen knowledge further	Specific knowledge of details, facts and terms. Additional to previous. Allows student to deepen understanding on a specific topic within the subject
Professional learning outcomes	Skills and knowledge which are essential for coping in the profession	Useful skills and knowledge which one may need in professional work	Special knowledge and skills which develop in profession

How to find out what is core in the subject?

- What kind of knowledge and skills are necessary and form a basic knowledge background for the subject
 - Basic concepts, theories and models of the discipline
 - Basic methodological skills and understanding for successful research
- What kind of knowledge and skills are fundamental in a profession
 - Basic skills and knowledge
- What kind of knowledge and skills are necessary for professional development

- Core knowledge of subject covers the knowledge and skills which are necessary for learning new knowledge and which creates a basic knowledge structure for the future courses. Core knowledge of a subject does not mean list of facts, instead, it means principles, theories, models which form a theoretical bases for understanding the subject. The studies in the courses should be focused on learning core knowledge of a subject. All the students should learn these.

Extra knowledge covers the details of theories, of principles, and of models, and it widens understanding of the subject. This may sometimes be necessary for the theoretical understanding or for the professional development. However, due to the time- and resource limits, these are not emphasised in teaching. The focus should be on learning the core

Special knowledge is knowledge of details, facts, interesting and additional aspects of the subject. This type of knowledge is based on the student's own interests and specialisation for some topics of the subject.

Fields of competence

	Scholarly	Professional	Social	Ethical
Knowledge	Theoretical understanding	Application of theories in profession	Understanding relationships in society	Moral understanding
Skills	Critical thinking	Problem solving skills	Skills in communication and co-operation	Skills to solve ethical problems in the field
Attitudes, values	Criticality, curiosity, interest	Life-long learning, will to develop in profession	Interest to participate in co-operation, teams	Respect for humanity and human values

Taxonomies for learning

Bloom's revised taxonomy

e.g. <http://www.coun.uvic.ca/learning/exams/blooms-taxonomy.html>

Competence	Skills demonstrated by verbs
Remembering	List, define, draw, tell, describe, identify, find, show, label, collect, examine, tabulate, quote, recall, recite, write
Understanding	Classify, compare, exemplify, conclude, demonstrate, discuss, explain, identify, illustrate, interpret, paraphrase, predict, report
Applying	Apply, change, calculate, complete, show, dramatize, solve, examine, modify, implement, prepare, role play experiment, discover
Analysing	Analyse, characterize, separate, order, explain, connect, classify, arrange, divide, compare, select, explain, infer, deduce, differentiate, distinguish, discriminate, outline
Evaluating	Appraise, argue, assess, choose, conclude, critique, decide, evaluate, judge, justify, predict, prioritize, prove, rank, rate, select, monitor
Creating	Construct, design, develop, generate, hypothesise, invent, plan, produce, compose, create, make, perform, plan

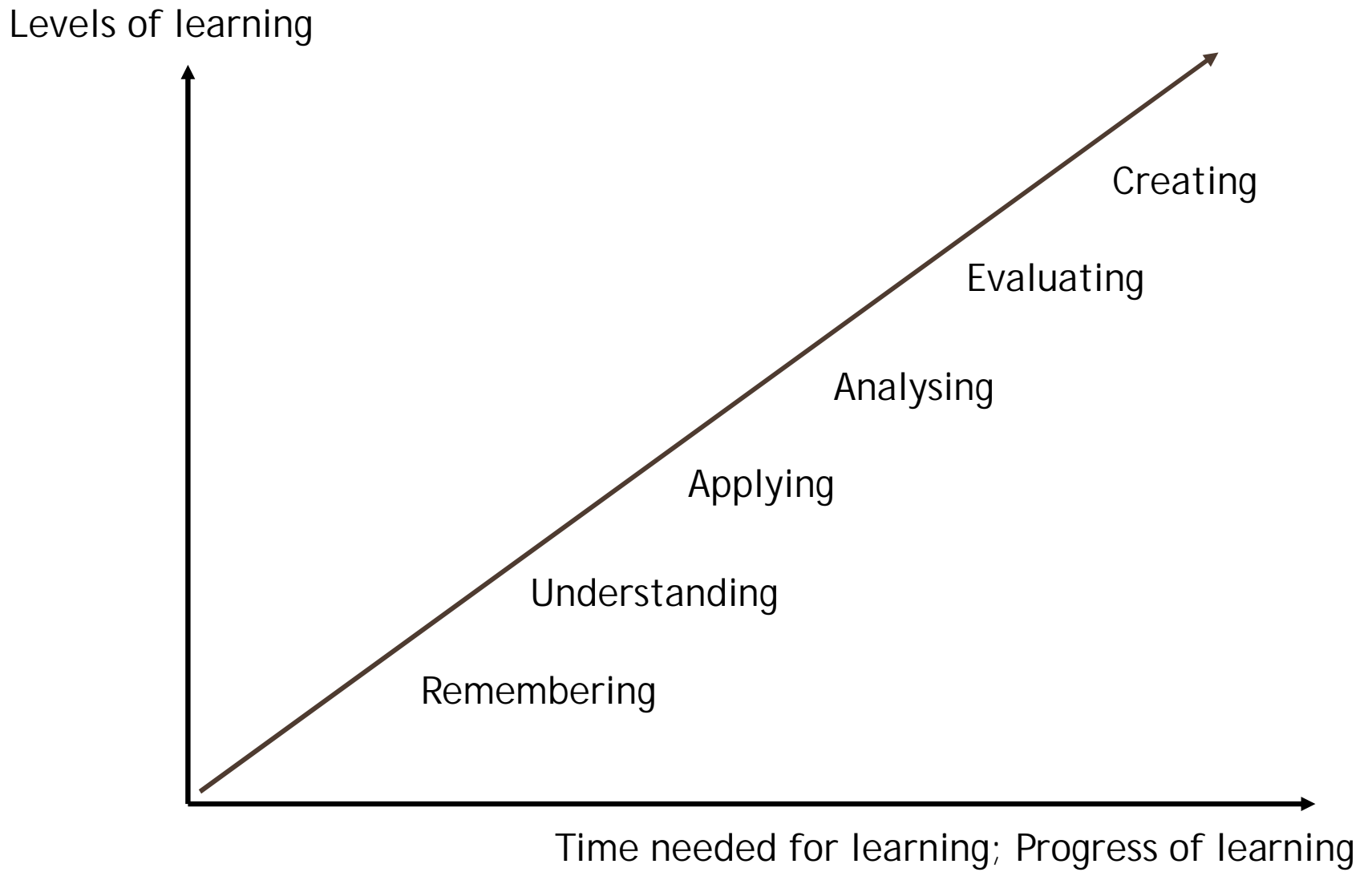


Figure 1. Revised Bloom's taxonomy

Examples of Action Words for learning objectives

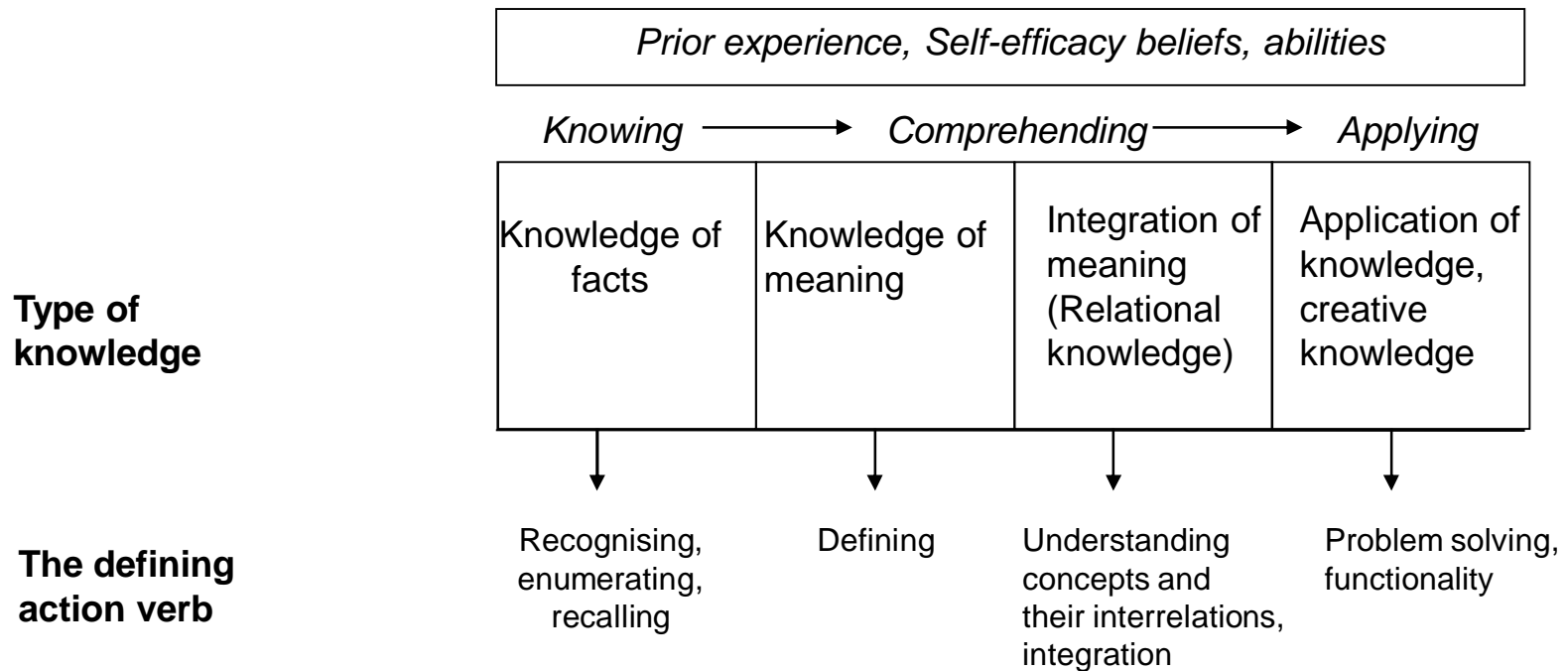
Acquiring knowledge	Enhancing cognitive skills	Developing psychomotor skills	Strengthening problem-finding and solving skills	Examining attitudes, values, beliefs
To identify	To reflect	To demonstrate	To propose	To challenge
To list	To compare	To assemble	To practice	To defend
To define	To contrast	To install	To enhance	To judge
To describe	To classify	To adjust	To recognize	To question
To state	To examine	To apply	To clarify	To justify
To name	To evaluate	To operate	To determine	To resolve
To prepare	To forecast	To arrange	To decompose	To dispute
To recall	To study	To isolate	To deconstruct	To value
To express	To research	To perform	To discover	To reflect
To categorise	To analyze	To draw	To evaluate	To express
To explain	To compute	To employ	To analyze	To endorse
To outline	To devise	To design	To construct	To care
To memorize	To review	To practice	To examine	To cooperate

The SOLO taxonomy

Based on research on students' learning

- Prestructural – misses point
- Unistructural – identify, do simple procedures
- Multistructural – enumerate, describe, list, combine, do algorithms, follow a procedure
- Relational – compare, contrast, explain causes, analyse, relate, apply
- Extended abstract – theorize, generalize, hypothesize, reflect

Prior Knowledge Model



Learning Outcomes of a Social Policy Course

By the end of the course students should be able to:

1. understand the system of income acquisition and income distribution in NZ and the part played by government in influencing this system;
 2. understand the patterns of participation in paid and unpaid work and how these relate to social and economic trends, and to social policy;
- In addition students will be expected to:
- 3 a) apply their understanding of 1 and 2 in the preparation of an individual research paper;
 - 3b) demonstrate the findings of their research paper in a short presentation to the class.

Learning Outcomes for a Mathematics Course

By the end of the course students should be able to:

- demonstrate understanding of the mathematical concepts and theories involved in the course
- relate appropriate mathematical techniques to applications
- use MAPLE symbolic algebra package to solve mathematical problems
- write a mathematical report
- constructively read mathematical articles and papers
- appreciate uses of mathematics in understanding the environment

Learning Outcomes for a Research Methods Course

By the end of the course students should be able to:

-
- explain the relative strengths and limitations of different research paradigms
- critically evaluate the quality of a given research study
- construct questionnaires, scales and other survey instruments
- conduct an interview
- analyse data using both quantitative and qualitative methods
- design a research study on a topic of their own choice.

Writing objectives and outcomes



<p>Show students how to construct different kinds of graphs</p>	<p>Construct different kinds of graphs</p>
<p>An analysis of two erosional landforms</p>	<p>Analyse two erosional landforms</p>
<p>Read chapter 3</p>	<p>Explain the terminology related to mathematical proof</p>
<p>During the course students will be introduced to theory and research on information processing: what is memory; perception and encoding; short-term memory; and long-term memory</p>	<p>During the course students learn to explain the mechanisms for information processing, including perception, sensory perceptions, sensory store and encoding</p>
<p>As an outcome, students will learn to explain random sampling and apply it to the design of an experiment</p>	<p>As an outcome, students will learn to explain random sampling. They also practice application of random sampling to the design of an experiment</p>

Learning and doing

- Define learning outcomes for the sample course (provided to you)
- Use Bloom's taxonomy or the SOLO taxonomy as a tool in defining the learning outcomes
- Then choose how you would assess that these learning outcomes have been reached. What kind of criteria could you use?

YP 1.2 DESIGN, IMPLEMENTATION AND ASSESSMENT OF TEACHING (5 ECTS)

Objectives

“Participants familiarise themselves with curriculum design, the assessment of teaching and the foundations of constructive alignment in teaching. They will also become familiar with the use of ICT applications in teaching and will apply what they have learned to their own curriculum design.”

Learning outcomes: Examples from group work

- Learner designs own curriculum according to the principles and foundations of CA
- ...explains the implementation of CA in the curriculum
- .. Explain the relevance of ICT usage in *own* curriculum

Two forms of assessment

- Norm referenced assessment
 - Comparing students with each other

- Criterion based assessment
 - Comparing student's performance to a set of pre defined criteria

Resources

- Anderson, L.W. (Ed.), Krathwohl, D. R. (Ed.), Airasian, P.W., Cruikshank, K.A., Mayer, R.E., Pintrich, P.R., Raths, J., & Wittrock, M.C. (2001), A taxonomy for learning, teaching, and assessing: A revision of Bloom's Taxonomy of Educational Objectives. Boston: Allyn & Bacon.
- Biggs, J., & Tang, C. (2007). Teaching for Quality Learning at University. 3rd ed. Cambridge: SRHE & Open University Press.
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- Löfström, E., Kanerva, K., Tuuttila, L., Lehtinen, A. & Nevgi, A. (2006). *Quality Teaching in Web-based Environments – Handbook for University Teachers*. University of Helsinki, Academic Affairs, Reports 34.
http://www.helsinki.fi/julkaisut/aineisto/hallinnon_julkaisuja_34_2006.pdf