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Evaluation Mapping

A Tool for Curriculum Alignment Within Your Course

Learning Outcomes: Evolution of Assessment Conference
October 2016

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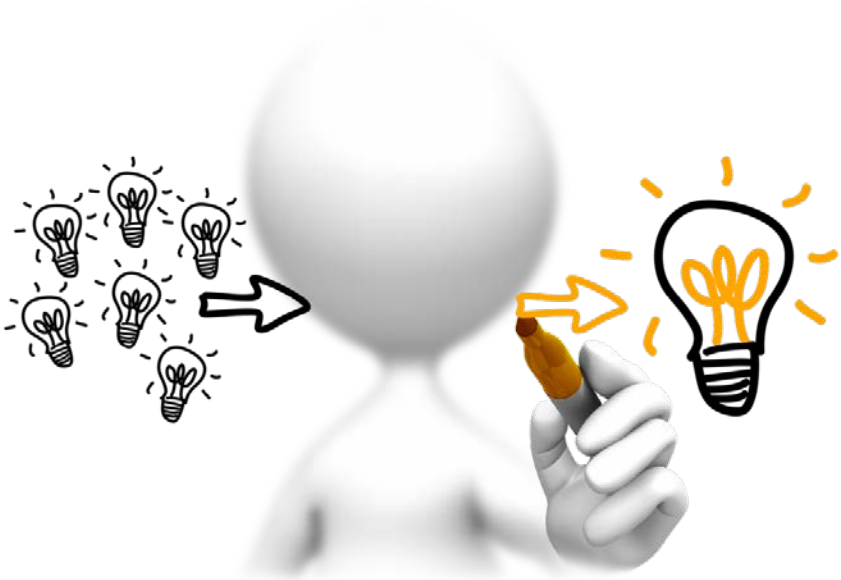
Agenda

1. Background details – how this was developed
2. Purpose of the Evaluation Mapping **Tool**.
3. A quick overview & survey results
4. Mock Course Outline - Application
5. Comments/suggestions

Background Details

- An idea – thanks to Sheridan
- Draft 2012 – develop matrix
  And conduct mock trials

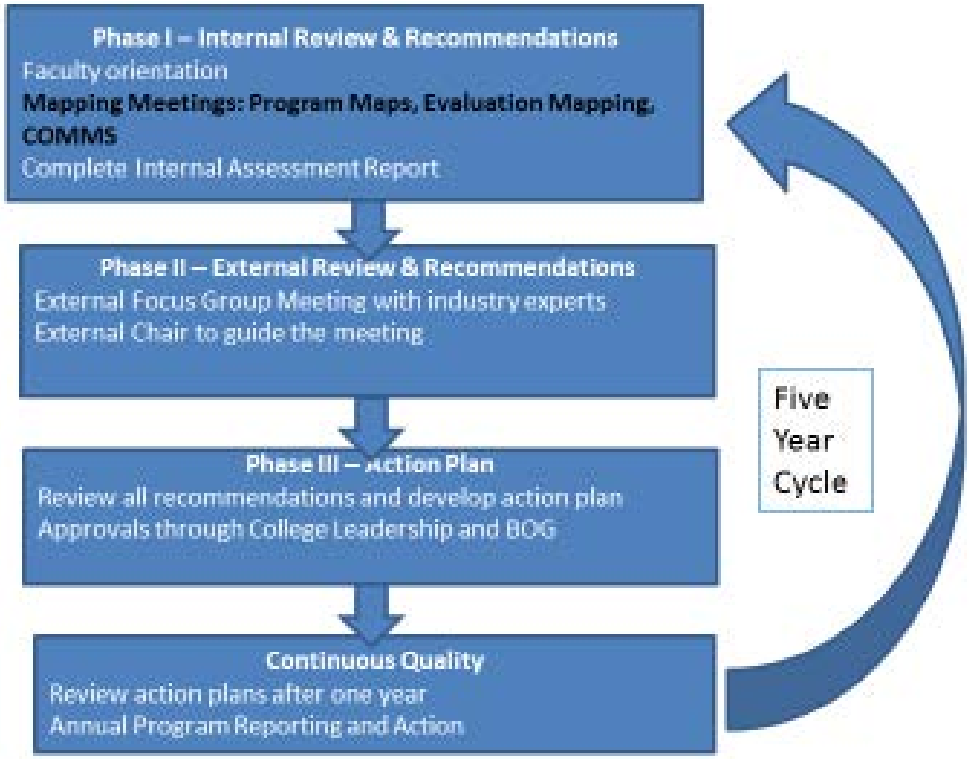


Why Map Our **Courses?**

- ✓ Demonstrate quality and program integrity – new quality standards specify that "*evaluation methods are aligned with course outcomes"*
- ✓ Assess strengths and areas to enhance
- ✓ Establish alignments between VLO's, CLO's, EESO's, weighting, content and evaluation methods
- ✓ Enhance excellence in teaching and learning
- ✓ Prevent curriculum drift within course and program
- ✓ Prevent an appeal

Roll Out – Program Reviews

When is it used?



Pilot Study

- Spring 2015
- Survey of participating faculty
- Focus group with Curriculum Consultants
  - ✓Establish what works for faculty
    - ➢Usefulness, ease of use
    - ➢Training – who, when
    - ➢Enhancements for the tool

- The story that unfolded…

The Story – What did we learn?

- ✓*Continue to use the form*
- ✓*Considerations for Part-Time & Partial Load*
- ✓*Time Commitment to Learn & Complete the Survey*
- ✓*Adjustments to the Form – visual, flexibility*
- ✓*Useful to enhance consistency across different delivery options and campuses*

- *Use in course development*

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Limitations of Note

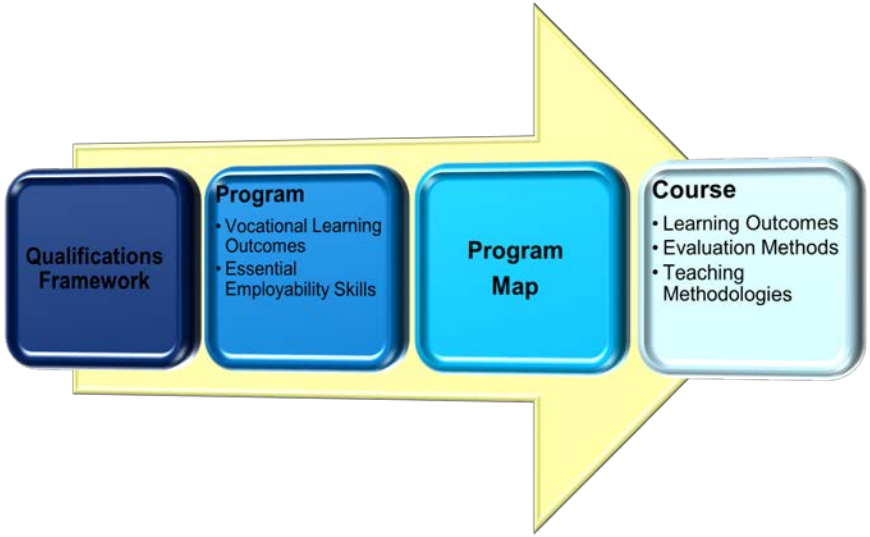
- ✓Timing – class schedules, vacations, “busyness” of working in a college environment
- ✓Faculty Employment Status – part-time, partial load, full-time
- ✓COMMS Study – pursued concurrent to this one
- ✓Survey Response Rate – low at 31% = 18 respondents

Constructive Alignment

- Purpose of evaluation mapping tool is to show alignment (or identify where re-alignment is needed)

Learning Outcomes

"Reliably demonstrate…"



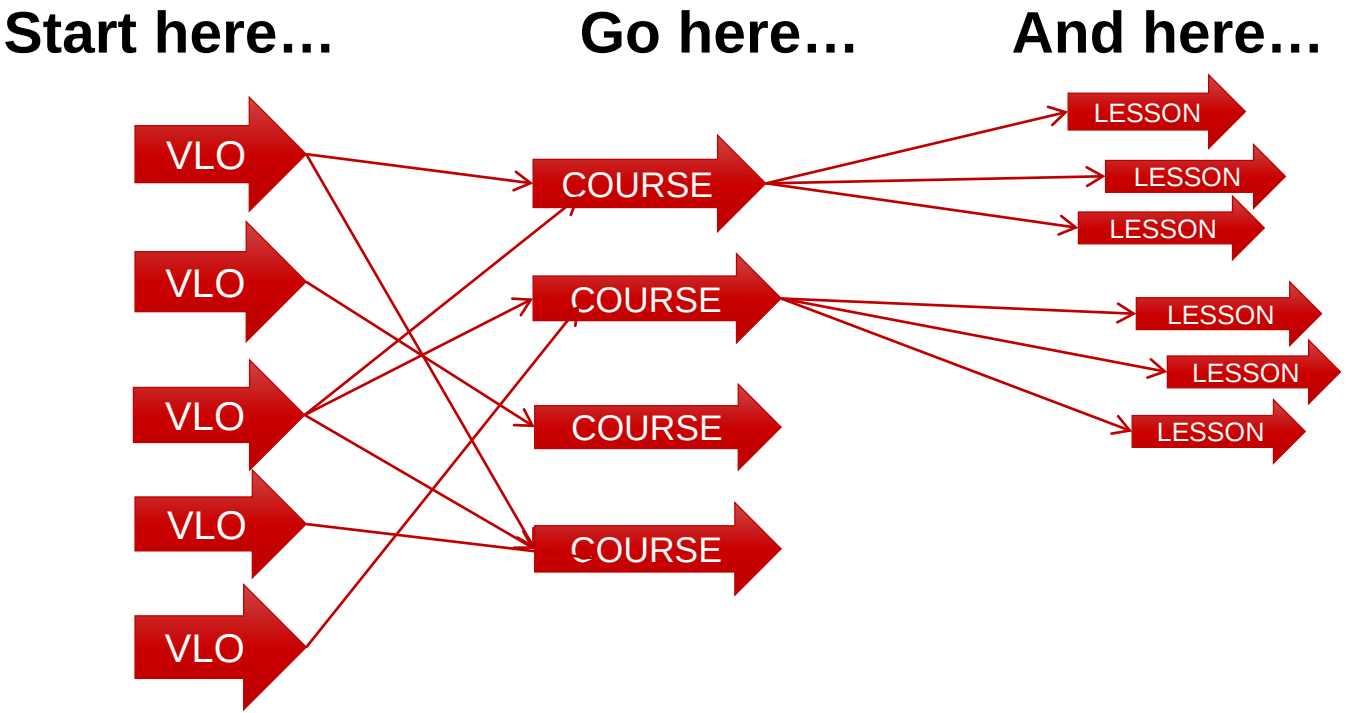
- Vocational Learning Outcomes (VLOs)
  - Requirements for graduate or entry-level practitioner
    - Knowledge
    - Skills
    - Attitudes
- Essential Employability Skills (EESs)
  - Critical for success in any workplace, day-to-day living, and life-long learning
    - Communication
    - Numeracy
    - Critical thinking and problem solving
    - Information management
    - Interpersonal
    - Personal

Mapping Matrices

Each Course is Part of a Path or Puzzle "Curriculum"

PROGRAM MAPPING (Bachelor of Applied Technology - Biotechnology)												
	LEVEL ONE						LEVEL TWO					
PROGRAM VOCATIONAL LEARNING OUTCOMES 1 - Introductory 2 - Intermediate 3 - Advanced The graduate has reliably demonstrated the ability to: (Source: MTCU Code: 81304)	CHEM-7002 Chemistry 1	COMM-7001 Introductory Communications	ENVR-7004 Environmental & World Issues	BIOL-7002 Molecular Biology	MATH-7002 Mathematics 1	INDV-XXXX General Education Elective	CHEM-7003 Chemistry 2	PHYS-7001 Physics 1	HIST-7003 History & Philosophy of Science	BIOL-7003 Plant & Animal Anatomy & Physiology	INDV-XXXX General Education Elective	# OF COURSES EVALUATING THE OUTCOME
1. Perform all laboratory tasks according to accepted laboratory practices.	1			1			2	1		2		5
2. Demonstrate theoretical and practical skills in molecular biology.				1						2		2
3. Assist in the design of good experimental and laboratory management practices and procedures.	1	1		1			2	1		2		6
4. Obtain a sound practical background in the interdisciplinary subjects that are the basis of Biotechnology.	1				3		2	1	1			5
5. Perform all duties in a manner that adheres to the principles of good data management.		1			3							2
6. Conduct all functions with a full understanding of and in adherence to relevant regulatory and ethical issues and requirements.									1			1

Developing Course Learning Outcomes



Developing Course Learning Outcomes

- Reflect the intended knowledge, skills, and/or attitudes taught and evaluated in a course
- Focus on the terminal performance
  - "Upon successful completion of the course, students will be able to…"
- Are measurable
- Reflect the **learning domain** and **level of learning**
  - Begin with a verb

The Evaluation Mapping Template

LEGEND:

DOMAIN: Cognitive (C), Psychomotor (P), Affective (A)
LEVEL OF LEARNING: Introductory (1), Building (2), Culminating (3)
T, P, or T/P: T = theory; P = practical; T/P = both theory and practical (circle what applies)

	COURSE LEARNING OUTCOMES *By the end of this course, the student has reliably demonstrated the ability to:*	Linked to **VLO(s) #**	Associated **DOMAIN C, P, A**	Level of **LEARNING 1, 2 OR 3**	(circle) **T P T/P**	*Example* **Test #1**						Total % of final grade that measures the outcome	Estimated (%) of time spent teaching the outcome.	Is there an alignment between A & B? **Y or N**
1					5%									
2														
3					5%									
4														
5														
6					15%									
7														
8														
9														
10														
	Percentage (%) of the evaluation towards final grad				**25%**	%	%	%	%	%	%	%	%	
	Identify the Essential Employability Skills (EES) associated with each evaluatio				**#1, 5, 8**									

1. **Course Learning Outcomes (note link to Program VLOs) and ESSs**
2. **Evaluations**
3. **Map CLOs and Evaluations**
4. **Check Alignment**

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Step 1a – Align CLOs and Program VLOs

LEGEND:

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	Identify the Essential Employability Skills (EES) associated with each evaluation				#1, 5, 8									

1. **Course Learning Outcomes (note link to Program VLOs) and ESSs**

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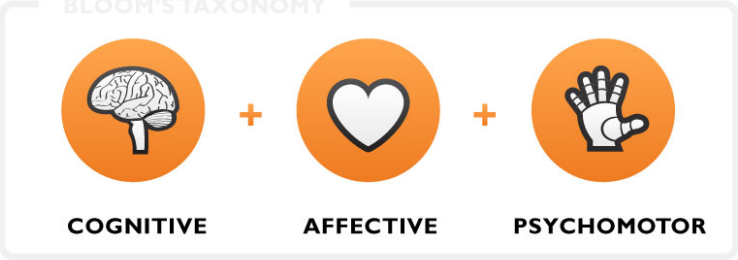
Step 1b – Identify Learning Domains



Learning Domains

Cognitive = knowledge

Affective = attitudes, values

Psychomotor = physical skills or tasks

Step 1c – Identify Level of Learning

- **Introductory** – foundational, taught for the first time, or basic information
- **Intermediate/Building** – builds on something taught previously, or slightly more involved than basic information
- **Advanced/Culminating** – builds on previously taught information, highest stage of learning <u>appropriate to the credential</u>

1. Introductory
Introductory

2. Intermediate
Building

3. Advanced
Culminating

Steps 2 & 3 – Evaluations & Map

LEGEND: **DOMAIN**: Cognitive (C), Psychomotor (P), Affective (A) **LEVEL OF LEARNING**: Introductory (1), Building (2), Culminating (3) **T, P, or T/P**: T = theory; P = practical; T/P = both theory and practical (circle what applies)					*Example* **Test #1**							Total % of final grade that measures the outcome	Estimated (%) of time spent teaching the outcome.	Is there an alignment between A & B? **Y or N**
	COURSE LEARNING OUTCOMES *By the end of this course, the student has reliably demonstrated the ability to:*	Linked to **PVLO(s) #**	Associated **DOMAIN C, P, A**	Level of **LEARNING 1, 2 OR 3**	(circle) **T P T/P**	**T P T/P**	**T P T/P**	**T P T/P**	**T P T/P**	**T P T/P**	**T P T/P**			
1					5%									
2														

- Identify and record evaluation method (e.g., test, case study, project)
- Indicate evaluation method focus: theory-based **(T),** practical **(P),** or a combination of both **(T/P)**
- Approximate % of each evaluation method that addresses each <u>course outcome</u>
- Add up row to determine total % of final grade for each course outcome

Steps 4 – Check Alignment

LEGEND: **DOMAIN**: Cognitive (C), Psychomotor (P), Affective (A) **LEVEL OF LEARNING**: Introductory (1), Building (2), Culminating (3) **T, P, or T/P**: T = theory; P = practical; T/P = both theory and practical (circle what applies)					*Example* **Test #1**									
COURSE LEARNING OUTCOMES *By the end of this course, the student has reliably demonstrated the ability to:*		Linked to **PVLO(s) #**	Associated **DOMAIN C, P, A**	Level of **LEARNING 1, 2 OR 3**	(circle) **T P T/P**	**T P T/P**	**T P T/P**	**T P T/P**	**T P T/P**	**T P T/P**	**T P T/P**	Total % of final grade that measures the outcome	Estimated (%) of time spent teaching the outcome.	Is there an alignment between A & B? **Y or N**
1					5%									
2														

- Estimate % of time spent teaching each course outcome
  - Example: 1 course = 45 hours If you spend 1.5 weeks (approximately 4.5 hours) on an outcome, you have spent 10% of the course on that outcome.
- Is there alignment?
  - Time spent teaching an outcome vs. weight of evaluation
  - Learning domain vs. evaluation type
  - Distribution of evaluations vs. outcome (Any CLOs or EESs missed?)

Evaluation Mapping

Surprises?
Questions?
Suggestions?

LEGEND: **DOMAIN**: Cognitive (C), Psychomotor (P), Affective (A) **LEVEL OF LEARNING**: Introductory (1), Building (2), Culminating (3) **T, P, or T/P**: T = theory; P = practical; T/P = both theory and practical (circle what applies)					*Example* **Test #1**									
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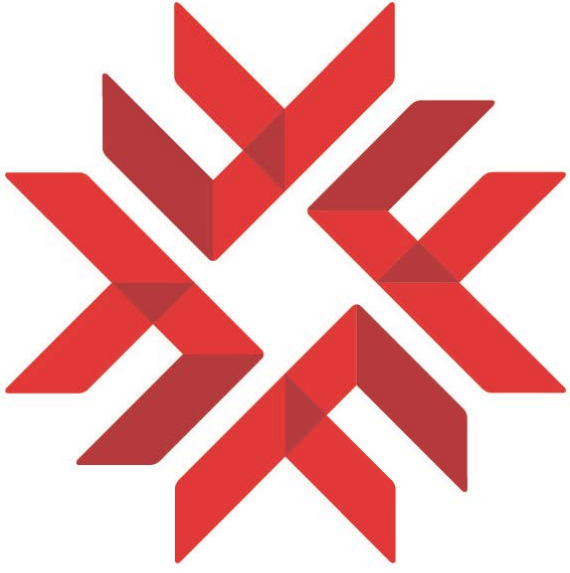
Percentage (%) of the evaluation towards final grade					**25%**	**%**	**%**	**%**	**%**	**%**	**%**	**%**	**%**	
Identify the Essential Employability Skills (EES) associated with each evaluation					**#1, 5, 8**									

Application in Course Development

How can you see evaluation mapping contributing to the process of **course development**?



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Thank You !

(Bloom, et al, 1956)

Some possible verbs for stating cognitive outcomes

KNOWLEDGE	COMPREHENSION	APPLICATION	ANALYSIS	SYNTHESIS	EVALUATION
. Remembering previously learned information	. Understanding the meaning of information	. Using learned information in relevant situations (putting knowledge & comprehension to work)	. Breaking down information into its separate components so that its structure can be understood	. Putting components together to create a pattern or structure which could be new or different	. Judging the value of information or material based on personal or given criteria
define	discuss	apply	analyse	arrange	appraise
identify	describe	change	appraise	assemble	assess
label	explain	demonstrate	break down	collect	choose
list	express	discover	calculate	combine	compare
name	give examples	dramatize	categorize	compose	contrast
outline	identify	employ	classify	construct	draw conclusions
recall	locate	illustrate	compare	create	estimate
record	paraphrase	interpret	contrast	design	evaluate
relate	recognize	manipulate	criticize	develop	judge
repeat	report	modify	debate	devise	justify
underline	restate	operate	diagram	formulate	measure
	review	practice	differentiate	manage	rate
	tell	predict	distinguish	organize	revise
	translate	schedule	examine	plan	score
		shop	experiment	prepare	select
		show	inspect	propose	value
		sketch	inventory	rearrange	
		use	question	set up	
			relate	show relationship	
			solve	synthesize	
			sub-divide		
			test		
EXAMPLES					
Recite a policy. Quote prices from memory. Know the safety rules.	Explain in own words the steps for performing a complex task. Translate an equation into a spreadsheet.	Use a manual to calculate employee's vacation time. Apply laws of statistics to evaluate the reliability of a test.	Troubleshoot a piece of equipment by using logical deduction. Gather information from a department and select the required tasks for training.	Write a company operations or process manual for a machine to perform a specific task. Integrate training from several sources to solve a problem.	Select the most effective solution. Hire the most qualified candidate. Explain and justify a new budget.
INTRODUCTORY		**INTERMEDIATE**		**ADVANCED**	

Adapted from: *Making the Grade: Evaluating Student Progress* Scarborough, Ontario Prentice Hall Canada Inc. 1987. and http://www.nwlink.com/~donclark/index.html

(Bloom, et al, 1956)

Some possible verbs for stating psychomotor outcomes

	PERCEPTION	SET	GUIDED RESPONSE	MECHANISM	COMPLEX OVERT RESPONSE	ADAPTATION	ORIGINATION
	.The ability to use sensory cues to guide motor activity. This ranges from sensory stimulation, through cue selection, to translation.	. Readiness to act. It includes mental, physical, and emotional sets. Thses three sets are dispositions that predetermine a person's response to different situations (sometimes called mindsets).	. The early stages in learning a complex skill that includes imitation and trial and error. Adequacy of performance is achieved by practicing.	.This is the intermediate stage in learning a complex skill. Learned responses have become habitual and the movements can be performed with some confidence and proficiency.	The skillful perfomance of motor acts that involve complex movement patterns. Proficiency is indicated by a quick, accurate, and highly coordinated performance, requiring a minimum of energy. This category includes performing without hesitation, and automatic performance.	.Skills are well developed and the individual can modify movement patterns to fit special requirements.	.Creating new movement patterns to fit a particular situation or specific problem. Learning outcomes emphasize creativity based on highly developed skills.
	chooses	begins	copies	assembles	assembles	adapts	arranges
	describes	displays	traces	calibrates	calibrates	alters	builds
	detects	explains	follows	constructs	constructs	changes	combines
	differentiates	moves	react	dismantles	dismantles	rearranges	composes
	distinguishes	proceeds	reproduce	displays	displays	reorganizes	constructs
	identifies	reacts	responds	fastens	fastens	revises	creates
	isolates	shows		fixes	fixes	varies	designs
	relates	states		grinds	grinds		initiate
	selects	volunteers		heats	heats		makes
				manipulates	manipulates		originates
				measures	measures		
				mends	mends		
				mixes	mixes		
				organizes	organizes		
				sketches	sketches		
					NOTE: The possible verbs are the same as mechanism, but will have adverbs or adjectives that indicate that the performance is quicker, better, more accurate, etc.		
EXAMPLES							
	Detects non-verbal communication cues. Estimate where a ball will land after it is thrown and then moving to the correct location to catch the ball. Adjusts heat of stove to correct temperature by smell and taste of food. Adjusts the height of the forks on a forklift by comparing where the forks are in relation to the pallet.	Knows and acts upon a sequence of steps in a manufacturing process. Recognize one's abilities and limitations. Shows desire to learn a new process (motivation).	Performs a mathematical equation as demonstrated. Folllows instructions to build a model. Responds hand-signals of instructor while learning to operate a forklift.	Use a personal computer. Repair a leaking faucet. Drive a car.	Maneuvers a car into a tight parallel parking spot. Operates a computer quickly and accurately. Displays competence while playing the piano.	Responds effectively to unexpected experiences. Modifies instructions to meet the needs of the learners. Perform a task with a machine that it was not originally intended to do (machine is not damaged and there is no danger in performing the new task).	Constructs a new theory. Develops a new and comprehensive training programming. Creates a new gymnastic routine.
	INTRODUCTORY			**INTERMEDIATE**		**ADVANCED**	

Adapted from: http://www.nwlink.com/~donclark/index.html

(Bloom, et al, 1956)

Some possible verbs for stating affective outcomes

	RECEIVING PHENOMENA	RESPONDING TO PHENOMENA	VALUING	ORGANIZATION	INTERNALIZING VALUES
			.The worth or value a person attaches	.Organizes values into priorities by	.(characterization): Has a
			to a particular object, phenomenon, or	contrasting different values, resolving	value system that controls
		RESPONDING TO PHENOMENA	behaviour. This ranges from simple	conflicts between them, and creating	their behaviour. The behaviour
	RECEIVING PHENOMENA	. Active participation on the part of	acceptance to the more complex	an unique value system. The emphasis	is pervasive, consistent,
	. Awareness, willingness to	the learners. Attends and reacts to	state of commitment. Valuing is	is on comparing, relating, and	predictable, and most
	hear, selected attention.	a particular phenomenon. Learning	based on the internalization	synthesizing values.	importantly, characteristic of
		outcomes may emphasize	of a set of specified values,		the learner. Instructional
		compliance in responding,	while clues to these values		objectives are concerned with
		willingness to respond, or	are expressed in the learner's		the student's general patterns
		satisfaction in responding	overt behaviour and are often		of adjustment (personal,
		(motivation).	identifiable.		social, emotional).
					acts
				adheres	discriminates
			completes	alters	displays
		answers	displays	arranges	influences
	asks	assists	differentiates	combines	listens
	chooses	aids	explains	compares	modifies
	describes	complies	follows	completes	performs
	follows	conforms	forms	defends	practices
	gives	discusses	initiates	explains	proposes
	holds	greets	invites	formulates	qualifies
	identifies	helps	joins	generalizes	questions
	locates	labels	justifies	identifies	revises
	names	performs	proposes	integrates	serves
	points to	practices	reads	modifies	solves
	selects	presents	reports	orders	verifies
	sits	reads	selects	organizees	
	erects	recites	shares	prepares	
	replies	reports	studies	relates	
	uses	selects	works	synthesizes	
		tells			
		writes			
EXAMPLES					
	Listen to others with respect. Listen for and remember the name of newly introduced people.	Participates in class discussions. Gives a presentation. Questions new ideals, concepts, models, etc. in order to fully understand them. Know the safety rules and practices them.	Displays a belief in the democratic process. Is sensitive towards individual and cultural differences (value diversity). Shows the ability to solve problems. Proposes a plan to social improvement and follows through with the commitment. Informs management on matters that one feels strongly about.	Recognizes the need for balance between freedom and responsible behaviour. Accepts responsibility for one's behaviour. Explains the role of systematic planning in solving problems. Accepts professional ethical standards. Creates a life plan in harmony with abilities, interests, and beliefs. Prioritizes time effectively to meet the needs of the organization, family, and self.	Shows self-reliance when working independently. Cooperates in group activities (displays teamwork). Uses an objective approach in problem solving. Displays a professional commitment to ethical practice on a daily basis. Revisees judgments and changes behaviour in light of new evidence. Values people for what they are, not how they look.
	INTRODUCTORY		INTERMEDIATE	ADVANCED	

Adapted from: http://www.nwlink.com/~donclark/index.html

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