UNIVERSITY of HAWAI'I® MĀNOA

Assessment Office

Assessment Office
Crawford Hall 230 & 231
2550 Campus Road, Honolulu, HI 96822
manoa.hawaii.edu/assessment
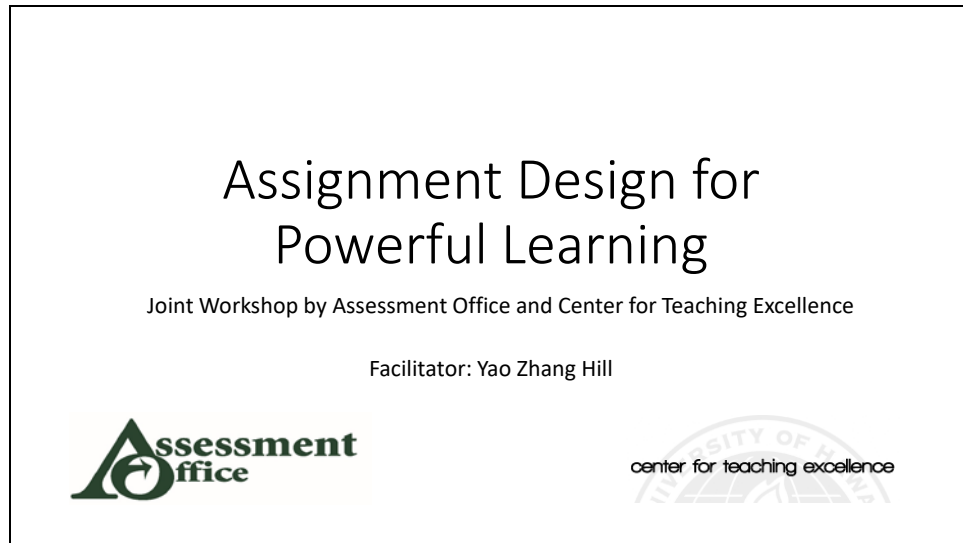
Assessment Design for Powerful Learning

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[Workshop PowerPoint slides and handouts]. Honolulu, HI: University of
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Assignment Design for Powerful Learning

Joint Workshop by Assessment Office and Center for Teaching Excellence

Facilitator: Yao Zhang Hill

Assignment Design for Powerful Learning: a workshop for CTAHR faculty

Tuesday, March 15, 2016 at 11:30 am - 2:30 pm
Kuykendall 106 Events Room
Please bring: 4 copies of an assignment you would like to share and enhance.

A collaborative event offered by the Assessment Office (AO) and the
Center for Teaching Excellent (CTE), and supported by the Office of the Dean of CTAHR

The workshop is designed for you to:
-        Apply excellent assignment design strategies to empower learning
-        Provide and receive constructive feedback on assignment design with peer colleagues
-        Use effective assignment to assess student learning meaningfully and efficiently
-        Explore scholarship and funding opportunities related to assessment for learning
improvement
-        Assess student learning better, not harder.

Workshop Agenda:
11:30-12:00   Lunch
12:00-12:30   Welcome from the Dean's Office and past participants sharing their experience
12:30-1:00   Yao Hill from AO introduces assignment design principles
1:00-1:10   Break
1:10-2:10   Group sharing
2:10-2:30   Share-out, scholarship and travel funds opportunities, and workshop evaluation

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Session Outcomes

- Apply assignment design strategies
- Provide and receive feedback with peers
- Explore scholarship opportunities
- Use effective assignment(s) for efficient assessment

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Outline

- Learning principles and implications for assignment design
- Summary of assessment tools for assignment design
- Opportunities for institutional and national contribution

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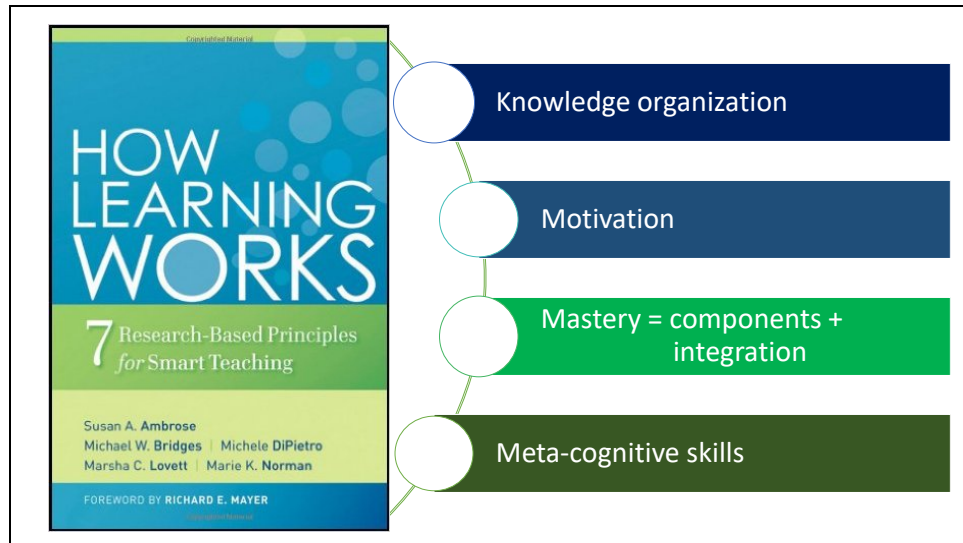
The strategies that I am going to cover today are guided by four learning principles in the book written by Ambrose et al (2010). The authors introduced 7 research-based principles about how people learn. I recommend this book to all of you because it offers many concrete pedagogical examples on how to operate these principles. I target these four principles that I think are very important in guiding assignment design.

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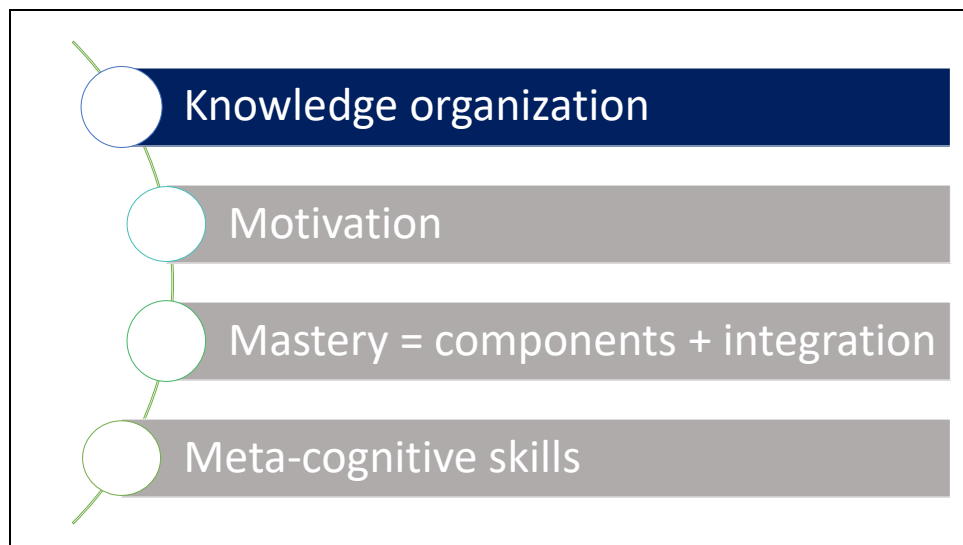
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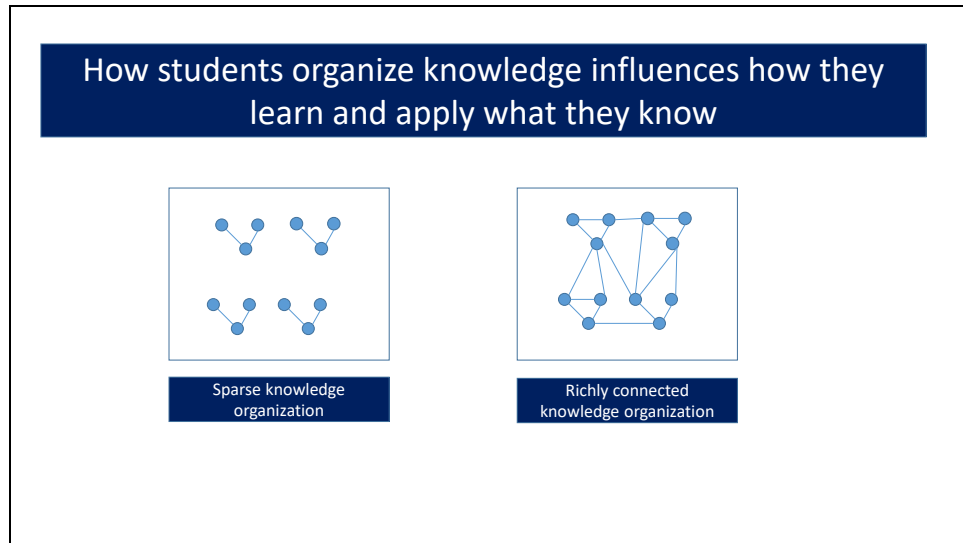
Knowledge organization refers to how pieces of knowledge are arranged and connected in an individual's mind.

"Students are often novice knowledge organizers, whose knowledge organizations have sparse knowledge connections and the connections are superficial. Whereas expert's knowledge is rich connected and the connections are deep. Effective instruction can help students develop more connected and meaningful knowledge organizations that better support students' learning and performance" (Ambrose et al, 2010, p. 46).

A task that asks students to memorize the facts is inferior than a task that asks students to sort, categorize, and apply in terms of organizing knowledge.

Which task helps student more in understanding the types of plants that would thrive in North Shore area of Oahu, reciting the spices or asking students to identify certain spices based on categorical features?
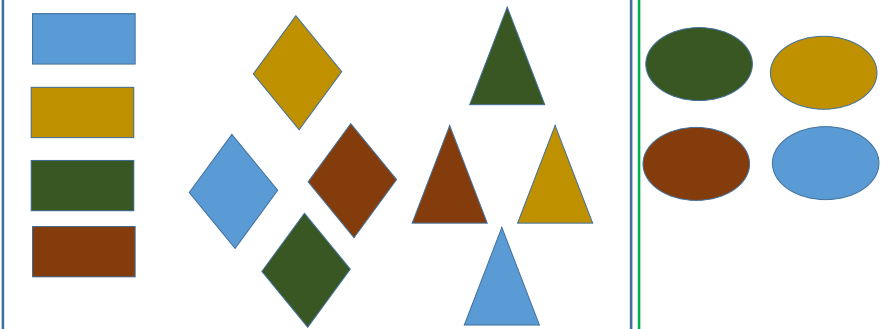
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Sorting, categorization, re-categorization based on different criteria, and application in different scenarios are the kinds of tasks that boost knowledge organization. Look at these shapes, how would you categorize them?

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You can categorize by shape type.

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By color.

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Or like my daughter, arrange them to represent different objects. Different ways of organization trigger different brain pathways that help with deep learning.

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Knowledge Organization –
Implications for Assignment Design

- Make the connections explicit to the students

You will need to apply X theory (Ch 2) and X method (Ch 10) to solve the problem in this assignment

The purpose of this assignment is to help you to achieve outcome [XXX]

Recall the X system/process/structure covered in the previous course, …

Our program expects our students to develop X skills, this assignment introduces/reinforces/allows you to demonstrate mastery in X skill

The second strategy to help students organize knowledge is to make the connections between your assignment and your expectations explicit and clear to students. Tell the students why you give out the assignment. In addition, activate students background knowledge. Help students to connect your assignment with something that they have previously learned.

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Knowledge organization

Motivation

Mastery = components + integration

Meta-cognitive skills

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Students' motivation generates, directs, and sustains what they do to learn
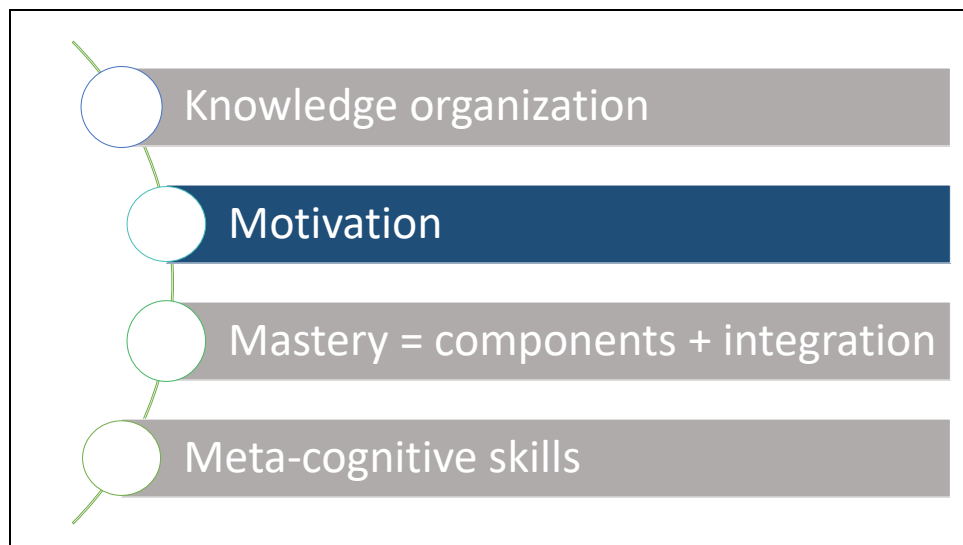
Motivation refers to the personal investment that an individual has in reaching a desired state or outcome (Maehr & Meyer, 1997)

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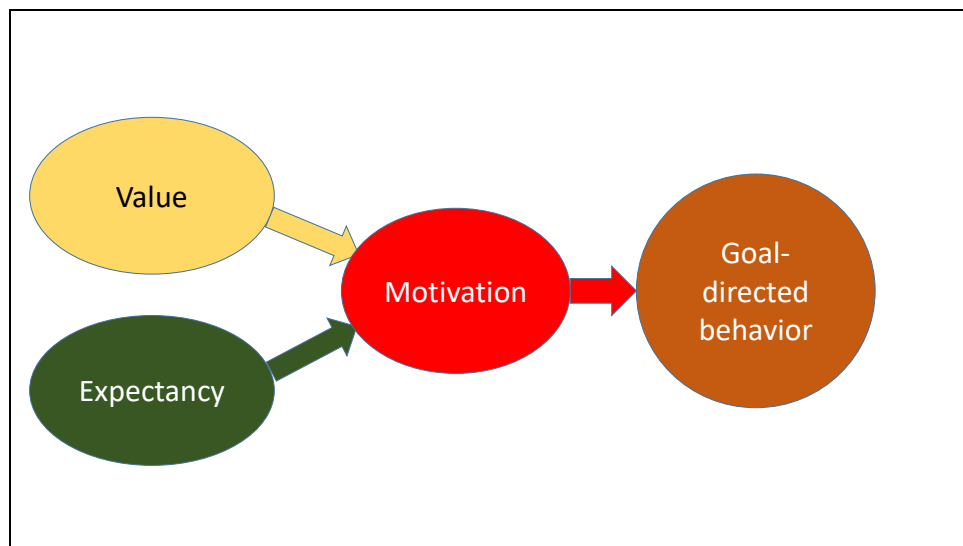
People are motivated in doing a task when they see the value and meaning in doing it. Motivation is sustained when they expect that they can complete the task—they know that they can do it and they know when they get there. Motivation leads to goal-directed behavior. Setting specific and achievable goals in turn fuels motivation.

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Consider integrating pieces of authentic tasks and real audience in your assignment design.

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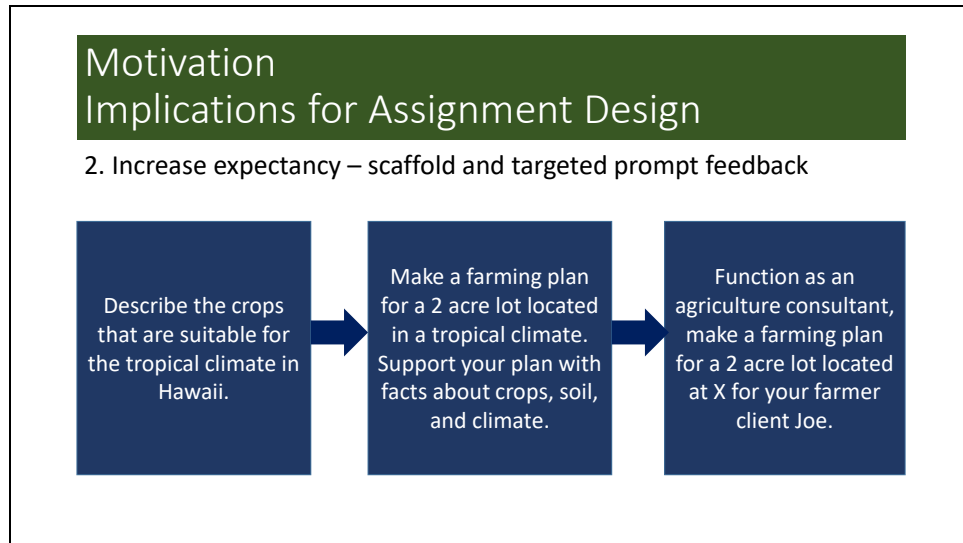
Authentic tasks are often more complex and cognitive challenging. To increase students' expectancy in successful completion of the task, it is important to scaffold the assignment. Consider using smaller tasks that build on each other. Give prompt and specific feedback on the area of instructional focus. Avoid giving feedback on everything. Make your feedback targeted.

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Motivation
Implications for Assignment Design

3. Increase expectancy – clear alignment between task, SLO, and criteria

Example of Poor alignment:

Assignment Task		Rubric
Describe the crops that are suitable for the tropical climate in Hawaii.	≠	1. Low = described the crops 2. Acceptable = compared and contrasted features of the crops 3. Exemplary = compared and contrasted features of the crops and the micro-climates that they are most suited for **(SLO)**

Another way to increase expectancy is to align your task with the evaluation criteria and align the evaluation criteria with your student learning outcomes (or SLOs). For example, if your SLO is that students are able to compare and contrast features of the crops and the micro-climates that they are most suited for, your task that just asking students to describe will not likely get students to the exemplary level of the performance.

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Motivation
Implications for Assignment Design

3. Increase expectancy by giving clear instructions and performance criteria

Evaluation Criteria	Score and comments
The plan is written clearly, logically, and easy to follow for the client and includes appropriate visual aids…	Score: Comments
Crop selection/rotation is appropriate and sustainable, supported by analysis … Appropriately apply calculations…	Score: Comments
The plan provides alternatives and resources to deal with common natural disasters (flood, draught, pest infestation)	Score: Comments

Inform the students what you expect to see included in their assignment. Give students specific instructions and give them your evaluation criteria. For example, in this rubric, Criterion 2 asks students to also apply calculations. Students may not include that in their assignment if it is not specified in the evaluation criteria.

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Knowledge organization

Motivation

Mastery = components + integration

Meta-cognitive skills

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To develop mastery, students must acquire component skills, practice integrating them, and know when to apply what they have learned.

Component Skill

Component Skill

Component Skill
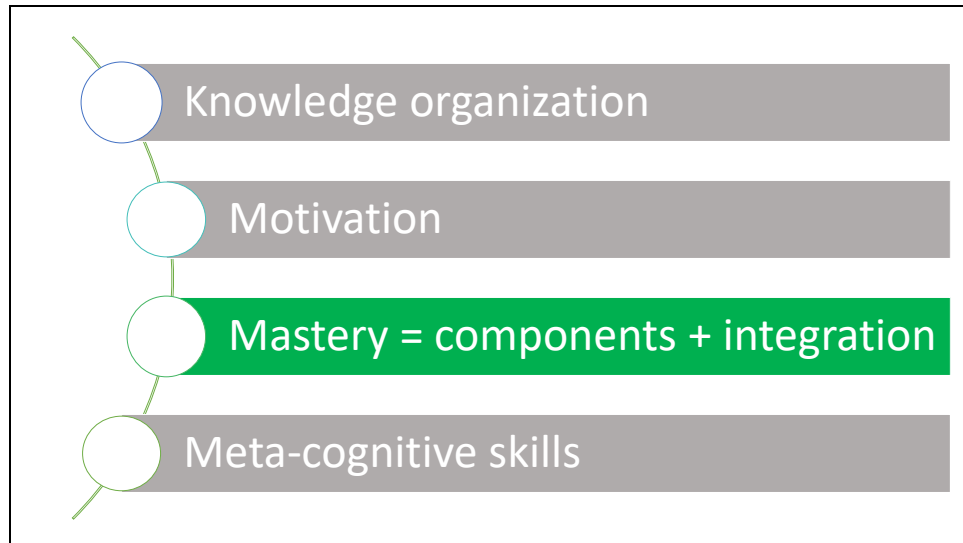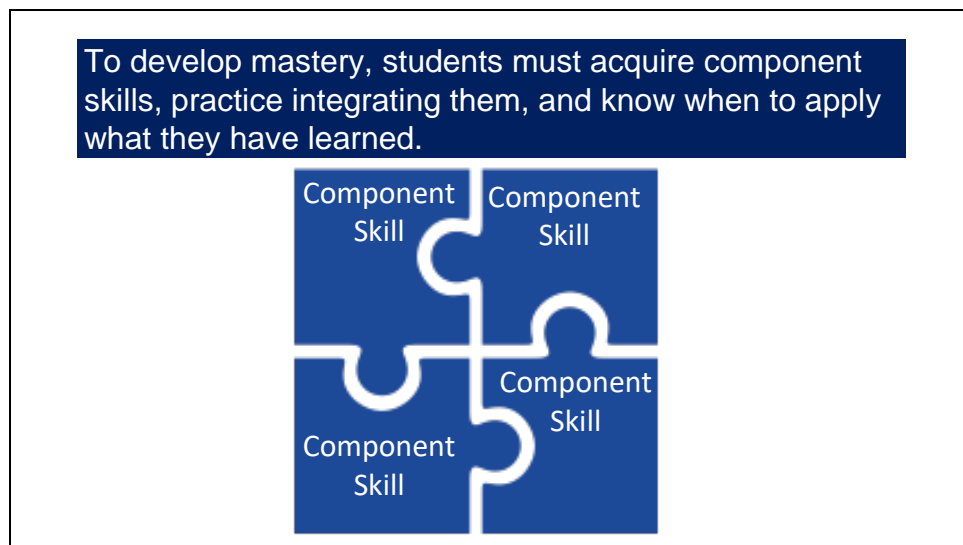
Component Skill

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To develop mastery, students must acquire component skills, practice integrating them, and know when to apply what they have learned.

Example of identifying critical component skills

Analyze case study
• identify the central question or dilemma
• articulate the perspectives of key actors
• enumerate constraints
• delineate possible courses of action
• recommend and justify a solution

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Master = Component + Integration
Implication for assignment design

1. Decompose/Unpack the skills + Scaffolding with focused practice and targeted feedback
   • Use operational verbs (handout)
   • Ask for feedback from colleagues

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Master = Component + Integration
Implication for assignment design

2. Assign complex and challenging tasks to integrate component skills

Research Project

Generate hypothesis

Design and apply methods

Lit Review: Locate, evaluate,
& synthesize sources

Report effectively

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Knowledge organization

Motivation

Mastery = components + integration

Meta-cognitive skills
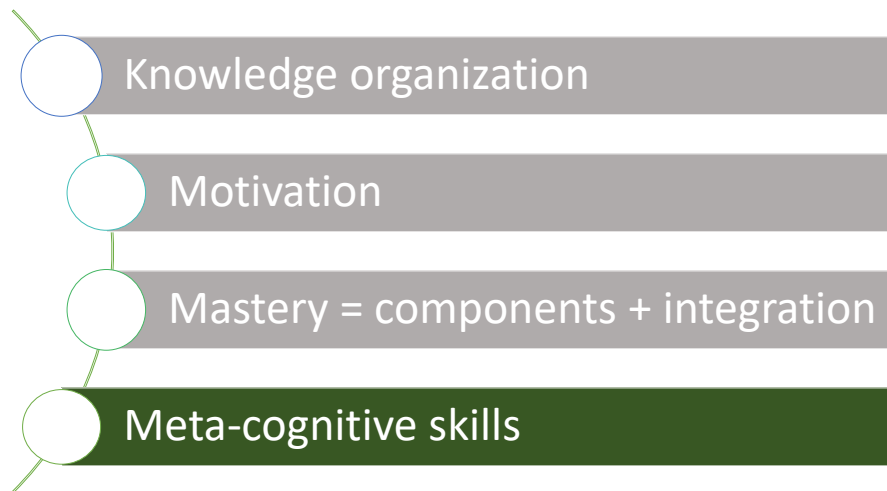
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Meta-cognition:

the process of reflecting on and directing one's own thinking
(National Research Council, 2001, p. 78)

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To become self-directed learners, students must **learn to** assess the demand of task, evaluate their own knowledge and skills, plan their approach, monitor their progress, and adjust their strategies as needed.

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Cultivate meta-cognition skills
Implications for assignment design

1. Ask students to assess the task (demand, connection, plan)
2. Train students to self-assess and peer assess
3. Provide performance criteria in a rubric
4. Provide annotated assignment using rubric language

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Equipped with an effective assignment, you can:
Assess students better,
Not harder

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Assessment tools for assignment design

• Student learning outcomes
• Rubrics
• Analysis for outcome achievement

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With clearly defined student learning outcomes, you can:

1. Help students organize knowledge
2. Make your expectations clear to motivate students
3. Scaffold complex skills from component skills
4. Help students self-assess

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Components of a SLO

Students will be able to	Operational verb	Learning domain
	List	➤ knowledge
	Describe	➤ skills
	Analyze	➤ value
	Compare	
	Hypothesize	
	Synthesize	
	Propose	
	Integrate	
	Research	
	…	
	(See handout for more)	

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Student learning outcomes best practices

1. Align with program and institutional student outcomes

Institutional
SLO

Program
SLO

Course
SLO
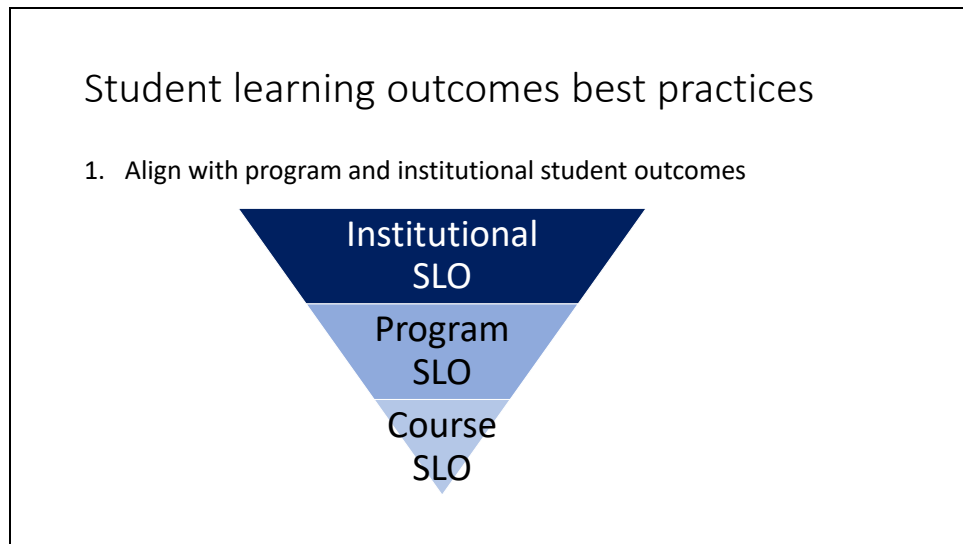
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Institutional learning objectives

1. Know – Breadth and depth of knowledge
2. Do – Intellectual and practical skills
   2a. Think crucially and creatively
   2b. Conduct research
   2c. Communicate and report
3. Value – Personal and social responsibility
   3a. Continuous learning and personal growth
   3b. Respect for people and cultures
   3c. Stewardship of the natural environment
   3d. Civic participation in their communities

Among the list of the Institutional Learning Objectives for Undergraduate Students, the last two "Stewardship of the natural environment and civic participation in communities" are the ones that are very pertinent to the College of Tropical Agriculture and Human Resources.

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	Exemplary	Acceptable	Approaching
Dimension 1			
Dimension 2			
Dimension 3			

Rubrics

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Clearly defined performance criteria help:

- Motivation/Expectancy
- Elicit demonstrable component skills
- Knowledge organization
- Meta-cognition through self- and peer assessment

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Rubric development best practice

- Start with criteria important to you. Watch out! They can hide!
- Use actual student performances/work that are different in quality
  - Ingenious/Exceeding expectations
  - Good/Meeting expectations
  - Almost there but not quite/Approaching expectations
- Adapt existing language
  - UH Manoa Assessment Office Rubric Bank
  - AAC&U Valid Assessment of Learning in Undergraduate Education (VALUE) rubrics

Rubric development best practice

- Co-construct with students
- Pilot the rubrics
- Seek student feedback
- Ask students to self-assess

Most importantly: align, align, align

SLO > Rubric > Task

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Analysis

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Analysis to promote use of results

Student	Writing	Content	Research	Grade
Mary	80%	100%	80%	85% (B+)
Joe	74%	100%	90%	88% (B+)
Candy	85%	96%	95%	92% (A)
Steven	70%	98%	84%	84% (B)
	Writing	Content	Research	
	77%	99%	87%	

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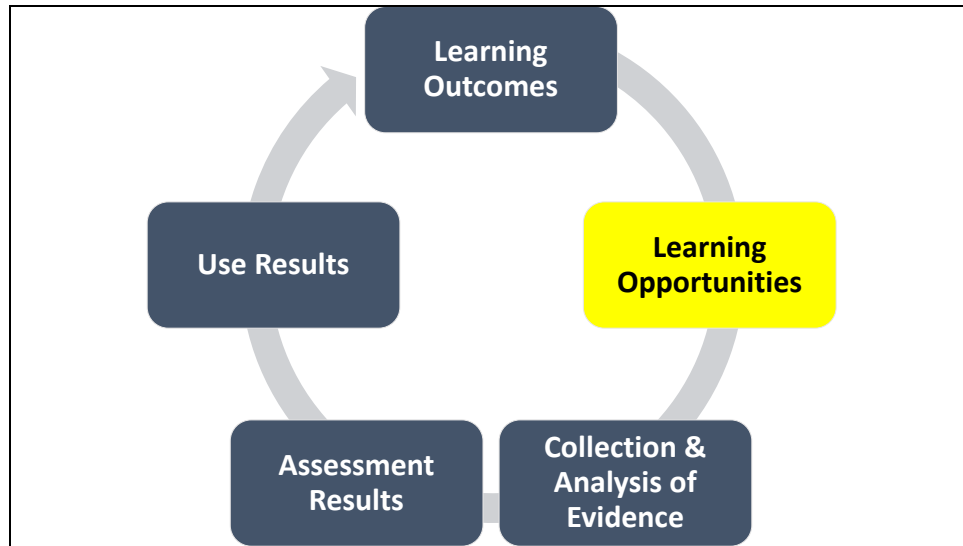
This figure represents a typical assessment cycle. Assignments significantly contribute to learning opportunities in this cycle. Not only a well-developed assignment contribute to student learning, it is also a form of scholarship.

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DQP Assignment Library

Key submission information required:
- Background and context
- Alignment and scaffolding
- Reflections

You can submit your assignment to the Degree Qualification Profile Assignment Library. This allows you to receive feedback from peers nation-wide. After your assignment is approved and published, it is part of your intellectual work. When people use it and refers to it, they will need to cite your work.

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SHEEO Multi-State Collaborative

Faculty from 12 states and over 70 colleges and universities trained to evaluate student work in:

- Written communication
- Critical thinking
- Quantitative reasoning

Contribute by submitting completed student assignments

You can contribute to the Institutional assessment activities by submitting completed student assignments as evidence of learning. UH Mānoa participate in SHEEO Multi-State Collaborative and our office collect student work to be rated by nationally trained raters. You can request your course results after we receive them.

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Signature Assignment Templates

- Basic Format: "Compare the substance of [argument X] with [argument Y] by means of an essay [of Z length] that contains at least three examples of important ways in which these arguments differ

- Should address no more than two or three outcomes/competencies

- For assessment purposes, should combine general (e.g. "degree-level") outcomes with subject-specific competencies tied to course content

Consider work with your colleagues

Assignment Sharing Task

[See handout]

Image Sources used

- [running motivation] https://pixabay.com/en/men-trail-running-trail-run-1245982/
- [cogs in brain] https://pixabay.com/en/brain-business-credit-intelligence-1294854/
- [news] https://pixabay.com/en/news-globe-earth-world-65343/
- [faceless audience] https://pixabay.com/en/business-people-team-group-1180883/
- [koko crater mountain ridge] https://www.flickr.com/photos/erictessmer/20174116178

Assignment Design for Powerful Learning Workshop

Learning principles and implications

1. Knowledge organization: How students organize knowledge influences how they learn and apply what they know
   ➢ Implication 1: Assign tasks that ask students to sort, categorize, re-categorize, and apply
   ➢ Implication 2: Make it explicit how the assignment is connected to:
      a) prior knowledge
      b) previous course
      c) course student learning outcomes (SLO)
      d) program SLOs
2. Motivation: Students' motivation generates, directs, and sustains what they do to learn. Perceived value in the task and the expectancy to achieve the task motivates students toward goal-directed behavior.
   ➢ Implication 1: Use relevant authentic real life tasks to increase perceived value in the task
      a) Use real-life genre (e.g., editorial, whitepaper, blog, policy analysis, business proposal)
      b) Use real-life audience
   ➢ Implication 2: Provide scaffolding tasks and targeted prompt feedback to increase expectancy of success
   ➢ Implication 3: Clearly align SLOs, task, and evaluation criteria
   ➢ Implication 4: Give clear instructions and performance criteria (rubric) to increase expectancy of success
3. Mastery = components + integration: To develop mastery, students must acquire component skills, practice integrating them, and know when to apply what they have learned.
   ➢ Implication 1: Decompose/Unpack complex skills into component skills + scaffolding with focused practice and targeted feedback
      a) Use the operational verbs
      b) Ask colleague/students for feedback
   ➢ Implication 2: Assign complex and challenging tasks to integrate the component skills
4. Meta-cognitive skills: To become self-directed learners, students must learn to assess the demand of task, evaluate their own knowledge and skills, plan their approach, monitor their progress, and adjust their strategies as needed.
   ➢ Implication: cultivate meta-cognitive skills
      a) Ask students to assess the task (demand and connection)
      b) Train students to self-assess and peer assess
      c) Provide performance criteria in a rubric
      d) Provide annotated assignments using rubric language

Operational Verbs (Adelman, 2015)

A) Verbs describing student acquisition and preparation of tools, materials, and texts of various types (including digital and archival):

      access, acquire, collect, accumulate, extract, gather, locate, obtain, retrieve

B) Verbs indicating what students do to certify information, materials, texts, etc.

      cite, document, record, reference, source (v)

C) Verbs indicating the modes of student characterization of the objects of knowledge or materials of production, performance, exhibit

      categorize, classify, define, describe, determine, frame, identify, prioritize, specify

D) Verbs describing what students do in processing data and allied information

      calculate, determine, estimate, manipulate, measure, solve, test

D1) Verbs further describing the ways in which students format data, information, materials

      arrange, assemble, collate, organize, sort

E) Verbs describing what students do in explaining a position, creation, set of observations, or a text

      articulate, clarify, explicate, illustrate, interpret, outline, translate, elaborate, elucidate

F) Verbs falling under the cognitive activities we group under "analyze"

      compare, contrast, differentiate, distinguish, formulate, map, match, equate

G) Verbs describing what students do when they "inquire"

      examine, experiment, explore, hypothesize, investigate, research, test

H) Verbs describing what students do when they combine ideas, materials, observations

      assimilate, consolidate, merge, connect, integrate, link, synthesize, summarize

I) Verbs that describe what students do in various forms of "making"

      build, compose, construct, craft, create, design, develop, generate, model, shape, simulate

J) Verbs that describe the various ways in which students utilize the materials of learning

      apply, carry out, conduct, demonstrate, employ, implement, perform, produce, use

K) Verbs that describe various executive functions students perform

      operate, administer, control, coordinate, engage, lead, maintain, manage, navigate, optimize, plan

L) Verbs that describe forms of deliberative activity in which students engage

      argue, challenge, debate, defend, justify, resolve, dispute, advocate, persuade

M) Verbs that indicate how students valuate objects, experiences, texts, productions, etc.

      audit, appraise, assess, evaluate, judge, rank

N) Verbs that reference the types of communication in which we ask students to engage

      report, edit, encode/decode, pantomime (v), map, display, draw/diagram

O) Verbs, related to modes of communication, that indicate what students do in groups

      collaborate, contribute, negotiate, feed back

P) Verbs that describe what students do in rethinking or reconstructing

      accommodate, adapt, adjust, improve, modify, refine, reflect, review

Adelman, C. (2015). *To imagine a verb: The language and syntax of learning outcomes statements.* (Occasional Paper No. 24). Urbana, IL: University of Illinois and Indiana University, National Institute for Learning Outcomes Assessment. Retrieved from http://www.learningoutcomesassessment.org/documents/Occasional_Paper_24.pdf

Adapted Rubric for Papers from Eberly Center for Teaching Excellence, Carnegie Mellon University

	Excellent	*Competent*	*Approaching Competency*	*Really needs work*
Creativity and Originality	You exceed the parameters of the assignment, with original insights or a particularly engaging style	You meet all the parameters of the assignment	You meet most of the parameters of the assignment	You do not meet the parameters of the assignment
Argument	Your central argument is clear, interesting, and demonstrable (i.e., based on evidence, not opinion). The claims made in the body of your paper clearly and obviously support your central argument. Your arguments and claims reflect a robust and nuanced understanding of key ideas from this course.	Your central argument is clear and demonstrable. The claims made in the body of your paper support your central argument. Your arguments and claims reflect a solid understanding of key ideas from this course	Your central argument is demonstrable but not entirely clear. A few of the claims made in the body of your paper do not clearly support your central argument. Your arguments and claims reflect some understanding of key ideas from this course.	Your central argument is unclear or it is not demonstrable. The claims made in the body of your paper do not support your central argument. Your arguments and claims reflect little understanding of key ideas from this course.
Evidence	The evidence you use is specific, rich, varied, and unambiguously supports your claims. Quotations and illustrations are framed effectively and explicated appropriately in the text.	The evidence you use supports your claims. Quotations and illustrations are framed reasonably effectively and explicated appropriately in the text.	Some of the evidence you use does not support your claims. Some of the quotations and illustrations are not framed effectively or explicated appropriately in the text.	Little of the evidence you use supports your claims. Few of the quotations and illustrations are framed effectively or explicated appropriately in the text.
Structure	Your ideas are presented in a logical and coherent manner throughout the paper, with strong topic sentences to guide the reader. The reader can effortlessly follow the structure of your argument.	The reader can follow the structure of your argument with very little effort.	The reader cannot always follow the structure of your argument	The reader cannot follow the structure of your argument.
Clarity	Your sentences are concise and well crafted, and the vocabulary is precise; the reader can effortlessly discern your meaning.	The reader can discern your meaning with very little effort.	The reader cannot always discern your meaning.	The reader cannot discern your meaning.
Mechanics	There are no distracting spelling, punctuation, or grammatical errors, and quotations are all properly cited.	There are few distracting spelling, punctuation, and/or grammatical errors, and quotations are all properly cited.	There are some distracting spelling, punctuation, and/or grammatical errors, an/or some of the quotations are not properly cited.	There are significant and distracting spelling, punctuation, or grammatical errors, and/or the quotations are improperly cited.

Assignment-Design Feedback Sheet:

Assignment: _____

Comments From: _____

1. What outcomes do you think students will be able to demonstrate with this assignment?

2. What are the main strengths of this assignment for assessing the identified outcomes?

3. Thinking about the assignment from the point of view of students, what questions or suggestions do you have?

4. Other suggestions and possibilities – especially in response to the author's questions about improving the assignment?

Adapted from the National Institute for Learning Outcomes Assessment Assignment Design Charrete