Handout 2: Some Representative Research or Study Questions That Promote Department-, Program-, or Institution-level Identification of Related Research or Study Questions

I. Learner-focused questions

What….

- approaches to learning do students take as they shift from one disciplinary course to another or from introductory courses to higher level courses in their program of study
- gaps in skill level occur as students transition into subsequent courses or learning experiences
- kinds of erroneous ideas, concepts, or misunderstandings predictably interfere with students' abilities to learn new content.
- approaches do successful and unsuccessful learners take to solve representative disciplinary problems
- patterns of weakness continue to surface or persist in students' work, such as weak reading abilities, analytical abilities, or computational skills
- kinds of processes, problems, tasks typically stump students
- strategies do successful and unsuccessful students draw up to read and interpret different kinds of visual or written texts in different media
- kinds of overgeneralizations or over simplifications do learners carry with them as they move to higher-level courses
- kinds of misunderstandings, misinterpretations, missing steps, or under developed concepts manifest themselves in the work students' produce
- strategies do students use to restructure naïve or intuitive theories

- conceptual or computational obstacles inhibit students from shifting from one form of reasoning to another form, such as from arithmetic reasoning to algebraic reasoning.

- successful alternative ways of understanding do learners use or develop to learn a new concept, principle, complex content

- kinds of mental or visual models do successful learners develop to achieve enduring learning.

- kinds of changes in thinking are taking place when students reposition their understanding—belief revision, conceptual change, restructured knowledge.

- kinds of learning obstacles, such as lack of understanding of vocabulary or lack of appropriate reading strategies (for reading texts or visual material) prohibit students from interpreting, analyzing or summarizing written or visual texts?

How or How Well do…

- students represent new learning to themselves.

- students' representation or demonstration of learning in lower level, prerequisite , or general education courses prepare them to develop increasingly more complex conceptual understanding or cognitive development that is expected in consecutive or upper level courses

- skills-based courses prepare students for consecutive or higher level courses that require students to build on or integrate those skills

- students chronologically build layers of complexity across the curriculum and co-curriculum, such as cognitive complexity.

- students reposition, modify, or change altogether long-held misconceptions, misunderstanding, or beliefs

- students integrate new learning into previous learning, draw on previous learning in the progression of their studies, or apply previous learning to new contexts

- students' professional or disciplinary dispositions develop along the chronology of their studies.

- students' beliefs affect conceptual development.
- students' levels of cognition affect their conceptual development
- students transfer learning from their general education program of study into their major program of study.
- students transfer their general education or core curricular learning or major program learning into the life outside of the class such as in community service.
- students build their own knowledge based on the use of instructional multi-media designs.
- students initially construct meaning in a field or discipline that enables them to continue to succeed

II. Teaching-focused Questions

How do…

- time restrictions or demands for increased program "coverage" inhibit students' abilities to develop deep sustained learning.
- various kinds of pedagogy (problem-based, experiential, didactic, for example) promote complex problem solving
- various modes of instruction promote complex problem solving.
- experiential learning opportunities offered in the curriculum and co-curriculum promote or deepen learning.

What…

- kinds of representational models develop complex conceptual understanding
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- forms of animation or non-verbal communication enable students to overcome learning barriers
- kinds of visual representations are conducive to learning in a particular discipline.
- strategies enable students to transition from thinking arithmetically to thinking algebraically.

- kinds of out-of-course assistance, such as online tutorials or software, promote desired student outcomes

- kinds of approaches to teaching enable students to overcome typical learning barriers or obstacles

- kinds of abilities are students developing under current experiential learning opportunities

- kinds of contexts or content promote creativity

- kinds of mental images in disciplinary learning do students transfer?

- chronological educational practices promote the following abilities

    - recall and recognition
    - comprehension
    - application
    - synthesis
    - analysis
    - evaluation
    - habits of mind
    - ways of knowing
    - ways of seeing and interpreting
    - transfer
    - integration
    - creativity

How or how well do…

- stand-alone skills based courses, such as mathematics or writing courses, prepare students to integrate or apply those skills into disciplinary or professional courses.

- digital dialogue games or other forms interactive technology foster students' reasoning or conceptual abilities

- effective are hypermedia technologies in fostering complex problem solving

- online interactive discussions help students construct knowledge.

From Maki, P. (2010). *Assessing for Learning*: *Building a Sustainable Commitment Across the Institution.* Sterling, VA: Stylus Publishing