The central goal of the CST Jumpstart and BarnRaising grants is to enhance the effectiveness of student learning through the use of technology. But technology cannot enhance learning in and of itself. Instead, it is merely a tool that serves the needs of an effective curricular design. As such, the following learning models may provide a framework for your curricular (re)design grant proposal.

How will the proposed courseware / lesson:

1. **Be presented in the context of real world problems?**

   *For example*: Does it show students the task they will be able to do or the problem they will be able to solve as a result of completing a module or course? Are students engaged at the problem or task level -- not just the operation or action levels? Does it involve a progression of problems rather than a single problem?

2. **Activate students’ relevant prior knowledge or experience?**

   *For example*: Does it direct students to recall, relate, describe, or apply knowledge from relevant past experience that can be used as a foundation for new knowledge? If students already know some of the content, are they given an opportunity to demonstrate their previously acquired knowledge or skill.

3. **Demonstrate (as opposed to simply tells about) what is to be learned?**

   *For example*: Are there examples and non-examples for concepts? Demonstrations for procedures? Visualizations for processes? Modeling for behavior? Are there multiple representations and comparison of demonstrations. Is media relevant to the content and may it be used to enhance learning?

4. **Provide students with an opportunity to practice and apply their newly acquired knowledge or skill?**

   *For example*: Are students encouraged or directed to practice / apply what they have learned? Is the student practice consistent with the central learning objectives? Do students receive evaluative feedback (no, that’s wrong) or corrective feedback (review section 2 and try again) when they practice? Is the feedback immediate or timely enough to assist the students with the practice? Are students directed or given access to context sensitive help or guidance when they are having difficulties with the practice materials? If so, does this guidance gradually diminish as a student progresses?

5. **Encourage or direct students to integrate (transfer) the new knowledge or skill into their everyday life?**

   *For example*: Does it encourage or direct students to publicly demonstrate their new knowledge or skill? Does it encourage or direct students to reflect-on, discuss, and defend their new knowledge or skill? Does it encourage or direct students to create, invent, or explore new and personal ways to use their new knowledge or skill?

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How will the proposed courseware / lesson:

6. Be structured around a single or set of central themes?
   
   For example: Is there a central theme that links all of the different concepts together? Is there a single process, metaphor or over-arching concept that relates each different concept to the others?

7. Provide multiple cases to promote generalization?
   
   For example: Are there many different problem sets or scenarios that introduce students to many different variations on a theme? Is there an identifiable set of standard or core competencies that must be learned and are all of these competencies represented in the set of different cases?

8. Provide students with early exposure to expert approaches?
   
   For example: Are there sufficient examples provided of how an expert would approach the problem or skill to be learned? Are these examples presented early in the learning experience? And are the exemplary approaches explained and justified?

9. Gradually increase the challenge of activity?
   
   For example: Are the exercises ordered in such a way that students will begin with a simple set of problems or activities? Do the problems and activities become more complex as a student progresses?

10. Encourage frequent self-assessment?
    
    For example: Are there frequent opportunities for students to assess their own work to determine if they are learning the correct material? Do students have a way to track their own assessments and reflect upon their own learning strategies? How will they know if they are approaching the problems or activities in a sufficient manner?
How will the proposed courseware / lesson:

11. Encourage Student-Faculty Contact.

Frequent student-faculty contact in and out of classes is the most important factor in student motivation and involvement. Faculty concern helps students get through rough times and keep on working. Knowing a few faculty members well enhances students' intellectual commitment and encourages them to think about their own values and future plans.

12. Encourage Cooperation Among Students.

Learning is enhanced when it is more like a team effort than a solo race. Good learning, like good work, is collaborative and social, not competitive and isolated. Working with others often increases involvement in learning. Sharing one's own ideas and responding to others' reactions improves thinking and deepens understanding.

13. Encourage Active Learning.

Learning is not a spectator sport. Students do not learn much just by sitting in classes listening to teachers, memorizing pre-packaged assignments, and spitting out answers. They must talk about what they are learning, write about it, relate it to past experiences, apply it to their daily lives. They must make what they learn part of themselves.


Knowing what you know and don't know focuses learning. Students need appropriate feedback on performance to benefit from courses. When getting started, students need help in assessing existing knowledge and competence. In classes, students need frequent opportunities to perform and receive suggestions for improvement. At various points during college, and at the end, students need chances to reflect on what they have learned, what they still need to know, and how to assess themselves.

15. Emphasize Time on Task.

Time plus energy equals learning. Efficient time-management skills are critical for students and professors alike. Allocating realistic amounts of time means effective learning for students and effective teaching for faculty. How an institution defines time expectations for students, faculty, administrators, and other professional staff can establish the basis for high performance for all.


Expect more and you will get more. High expectations are important for everyone--for the poorly prepared, for those unwilling to exert themselves, and for the bright and motivated. Expecting students to perform well becomes a self-fulfilling prophecy when teachers and institutions hold high expectations of themselves and make extra efforts.

17. Respect Diverse Talents and Ways of Learning.

There are many roads to learning. People bring different talents and styles of learning to college. Brilliant students in the seminar room may be all thumbs in the lab or art studio. Students rich in hands-on experience may not do well with theory. Students need the opportunity to show their talents and learn in ways that work for them. Then they can be pushed to learning in ways that do not come so easily.