

Precis of the Initial Design Phase
Designing Courses that Promote Significant Learning, *Fink, 2003*

*Endocrinology, Diane Biskobing, Course Director
Initial meeting 1-21-09*

Step 1. Give careful consideration to a variety of SITUATIONAL FACTORS

• What is the special instructional challenge of this particular course?

Large class, small faculty

Short course length

Material that does not lend itself to memorization and requires ability to think in systems; complex.

• What is expected of the course by students? By the department, the institution, the profession, society at large?

To pass the exam, to be prepared for the boards.

To appreciate the impact of endocrine disorders on society.

To understand endocrine disorders and begin to learn how to treat patients with endocrine disorders – many students know people with endocrine disorders as well.

In general, other audiences probably expect students to have a solid foundation of scientific knowledge and understanding of endocrine disorders as well as their impact on patients and their families, and a beginning to understanding treatment options (to be developed in later years).

• How does this course fit into the larger curricular context?

The timing of this course in the first half of the M2 year is fine. Hormonal issues and especially diabetes play a role in many other systems and this information should be useful in later courses.

Use the “BACKWARD DESIGN” Process

This process starts at the “end” of the learning process and works “back” toward the beginning. Use information about the Situational Factors (Step 1, above), as you make the following key decisions:

Step 2. Learning Goals What do you want students to learn by the end of the course, that will still be with them several years later?

- Think expansively, beyond “understand and remember” kinds of learning.

Suggestion: Use the taxonomy of “Significant Learning” (Table 1) as a framework.

Describe and be able to apply the concept of endocrine “feedback” in approaching clinical problems.

Be able to look at an endocrine problem and be able to identify the defect; know what questions to ask to do this successfully.

Understand an intellectual and emotional levels the impact of diabetes and obesity on the patient and society and why it is not always easy for patients to follow directions about diet and exercise.

Step 3. Feedback & Assessment Procedures What will the students have to do, to demonstrate that they have achieved the learning goals (as identified in Step “A” above)?

- Think about what you can do that will *help students learn*, as well as give you a basis for issuing a course grade. *Suggestion: Consider ideas of “Educative Assessment.”*

This course currently includes an exam, self-assessment quizzes, Team Based Learning (TBL) exercises, and small group sessions. Would have to think about what additional formats might be included, but given the current structure (length, space) it would be hard to introduce more TBLs or small groups (which support self- and peer-assessment) or quizzes or exams at this time.

Step 4. Teaching/Learning Activities What would have to happen *during* the course for students to do well on the Feedback & Assessment activities?

- Think creatively for ways of *involving students* that will support your more expansive learning goals. *Suggestion: Use “Active Learning” activities, especially those related to:*

- **“Rich Learning Experiences”** experiences in which students achieve several kinds of significant learning simultaneously

- **“In-depth Reflective Dialogue”** opportunities for students to think and reflect on *what* they are learning, *how* they are learning, and the *significance* of what they are learning.

- *Suggestion: Assemble these activities into an effective **instructional strategy**, i.e., an interdependent sequence of learning activities, and a **coherent course structure**.*

This course, as stated above, already includes some learning activities that have been shown to improve significant and active learning, including TBLs and small groups. Given the timeframe of the course and available space, it may be difficult to add more of these activities at this time.

Additionally, students are encouraged to see the connection between what they are learning in class and their experiences at their community preceptor offices. Students will see patients with endocrine disorders in any office setting, particularly diabetes, and often frame questions around particular patients they have seen. This experiential learning can help to anchor information and strengthen retention of the information they learn in class.

One aspect of this course that could be made more engaging for students while supporting significant learning would be to include patients or even students who have an endocrine disorder to report on the impact of this on their day-to-day life, including the condition itself as well as challenges related to management. The current presentation (2 hours) on diabetes is very good and includes use of the ARS but has not seemed to be as effective as it could be, and is mostly based on foundational knowledge with some application.

Another opportunity to make the students more involved in learning would be to convert the (2 hour) biochemistry review at the start of the course into a more active problem solving format, such as POGIL. Due to personnel changes, the current lecturer may not be available next year, so this would be a great time to try this out.

A (one hour) lecture on sexual differentiation might include more emphasis on the impact of this on the patient, family, and society (e.g., schools). There is a documentary that was shown on the Discovery Channel that told the story of David Reimer, a boy who was raised as a girl after a botched circumcision. This story is very moving and illustrates the difficulty for the person, family, and others and raises interesting ethical and practical issues. Perhaps this documentary could serve as a starting point for small group discussions around this topic; the documentary could potentially be required viewing outside of class to use class time for discussion.

Another possibility for change might be a (one hour) lecture on hypogonadism and endocrine disorders in geriatrics. While a well-done lecture, it might be more interactive. The hypogonadism material is currently reinforced in small group case discussions following the lecture.

Some schools have had students or residents/fellows live as a person with a disorder for a week or so; perhaps this could be done with a volunteer subgroup of students. For example, they could live as a diabetic for a week, monitoring blood sugar, modifying diet and exercise, etc.

Step 5. Make sure that the Key Components are all INTEGRATED

- Check to ensure that the key components (Steps 1-4) are all consistent with, and support each other.

NOTE: In addition to the above items, I asked course directors a) if they can identify a use for simulation in their course, and 2) how/if they cover epidemiology/population medicine in their course (incidence, demographics, public health impact/cost to society, etc.). Dr Biskobing said that the epidemiology/population medicine aspects of endocrine disorders are well covered in the course presentations and that she does not see a way to use simulation in this course.

M2 Endocrinology

Proposed change	Fink significant learning components addressed	SOM Curriculum Redesign Key Themes addressed	Resources needed for change	How might this change be evaluated?	Follow up/date
<p>Redesign 2-hour biochemistry review to be more problem-solving, active, and applied, perhaps using POGIL</p> <p>Include patients or students with endocrine disorders (esp. diabetes) to share their experiences and challenges</p> <p>Redesign presentation on sexual differentiation to include impact on person, family, society</p>	<p>Currently: FN</p> <p>After change: FN, AP, LHTL</p> <p>This would be a new activity.</p> <p>INT, HD, CARE,</p> <p>Currently: FN, APP some HD</p>	<p>1, 2, 3, 4, 5, 6 (knowledge and application), 7,</p> <p>1, 2, 3, 5, 7, 8</p> <p>1, 3, 7, 8</p>	<p>Faculty development in POGIL</p> <p>Case development for POGIL</p> <p>Patients or students willing to come to class to teach</p> <p>Sufficient time to share experiences in class</p> <p>DVD or other patient centered learning resource</p> <p>Potential need for small group space for discussion</p>		
<p>Make the lecture on hypogonadism more interactive</p>	<p>After change: FN, APP, INT, HD, CARE</p> <p>Currently: FN, APP</p> <p>After change (potentially) FN, APP, INT, LHTL</p>	<p>1, 3, 7</p>	<p>Faculty development (potentially)</p> <p>Materials to support instructional change (e.g. ARS)</p>		
<p>Have a group of students live as a diabetic for a week and report their experiences back to the class.</p>	<p>This would be a new activity.</p> <p>INT, HD, CARE, LHTL</p>	<p>1, 2, 3, 5, 7, 8</p>	<p>Student volunteers, supplies, time for them to share experiences in class.</p>		

VCU SOM Curriculum Redesign Key Themes

- 1) Ability to identify, analyze, synthesize, and assess credibility of relevant information
- 2) Be lifelong learners with intellectual curiosity
- 3) Ability to integrate scientific foundations of medicine
- 4) Ability to self-assess learning needs (reflective practice)
- 5) Ability to function in systems and to teach each other (teams)
- 6) Demonstrate competence (outcomes)
- 7) Be active learners
- 8) Emotional intelligence, able to deal with the whole patient, a love for the profession

Fink Significant Learning Components

Foundational Knowledge (FN)

Application (AP)

Integration (INT)

Human Dimension (HD)

Caring (CARE)

Learning How to Learn (LHTL)

POGIL is Process-Oriented Guided-Inquiry Learning, where students work in teams on specially-designed activities that promote mastery of discipline content and the development of skills in the process of learning, thinking, problem solving, communication, teamwork, management, and assessment. (David Hanson, 2006). The VCU SOM Office of Faculty Affairs and Curriculum Office sponsored a faculty development workshop in fall of 2008 on POGIL which was taught by two members of the VCU Chemistry faculty who are nationally recognized experts in this teaching method.