

Challenges and Opportunities of Independent Learning

10-3-13

Robert Noiva & Douglas Gould

Oakland University William Beaumont School of Medicine

Rochester, Michigan



Healthcare education programs are challenged with developing mechanisms to address the ever-increasing volume of medical knowledge, the desire of students to take ownership of their learning process, and a mandate from accrediting agencies to develop independent learners with life-long learning skills. The success of the Khan Academy has created interest in adapting their system for use in healthcare education. Systems such as the Khan Academy and programmed instruction texts and web-based modules often focus on providing a defined curriculum, while encouraging students to progress at their own pace. Students enjoy having control of their learning, being able to set the pace and remediate any self-assessed deficiencies.

One of the largest challenges regarding **independent learning** is establishing a usable definition that all stakeholders agree upon.

- Autonomous
- Open
- Resource-based
- Individualized
- Self-Paced
- Modularized
- Self-directed
- Asynchronous
- Distance

All of the above have one commonality – they reflect a change to a student-centered approach from a teacher- (or institution-) centered approach.

Medical Education Evolution

- Didacticism
- Programmed-Learning
- Small group (PBL, TBL)
- Active learning
- Technology-enhanced

Re-arrived at an old concept: Autodidacticism =

Independent Learning

Accelerating Change in Medical Education \$11 million AMA Grant Program

Vision

Developing new methods for teaching and/or assessing key competencies for medical students and to foster methods to create more flexible, individualized learning plans

“In medical schools the overall structure of education is being re-examined to assure that requisite learning is occurring in an efficient, learner-centered and cost-effective manner. Medical schools are developing and piloting asynchronous, competency-based strategies, as opposed to the more traditional, time-based strategies of current and past medical education. New models incorporate blended learning (e-learning and high-fidelity simulation with small group or classroom learning), potentially decreasing the length of medical school. Within this structure, students have flexibility to develop essential competencies such as critical thinking, self-assessment and clinical decision-making at their own pace while programs maintain rigorous standards for demonstrating achievement of milestones.”



A free world-class education for anyone anywhere.

Khan Academy is an organization on a mission. We're a not-for-profit with the goal of changing education for the better by providing a free world-class education for anyone anywhere.

All of the site's resources are available to anyone. It doesn't matter if you are a student, teacher, home-schooler, principal, adult returning to the classroom after 20 years, or a friendly alien just trying to get a leg up in earthly biology. Khan Academy's materials and resources are available to you completely free of charge.



Medical education programs have well-defined criteria, objectives and expectations that are externally mandated.

Students cannot independently pursue educational outcomes – they are prescribed.

We build framework and expected endpoints/outcomes for them to move about in.

Challenges inherent in all education programs:

- Time, money and training to setup
- Curricular modifications
- Establishing expected outcomes
- Low faculty support for a changed or perceived decreased role
- Admissions and recruitment – success takes an intrinsically motivated, self-directed, independent, well-organized learner.

Benefits common to all educational programs:

- Students develop life-long learning skills, technology skills, time management and traits of independent discovery
- Curricula are flexible, not rigid and pre-defined – appealing to a wide-variety of learners and learning styles
- Integration and coordination of multiple disciplines occurs organically – it is not planned, forced or induced by stapler
- Students learn how to learn out of necessity
- Skills in teamwork, authentic communication and collaborative thinking are strengthened through a carefully planned framework

Learning Pathways - “what route should student learning take?”

Should curriculum reflect:

- a self-paced unidirectional curriculum
- multiple pathways designed to meet discrete sets of learner types or backgrounds
- branched learning opportunities that come together strategically at assessment activities
- open-ended resources to meet student-determined needs with the only constraint being meeting benchmarked levels on assessment activities

Independent Programmed study model

- Content and learning direction is very linear and well-defined
- Student does not have a responsibility for setting objectives or determining content
- Content available as course packs, narrated PowerPoints, Podcasts or similar formats
- Student sets pace and learning times
- Faculty support by webchat access, group help sessions, or individual access

Historic clerkship model

- Precepted bedside training drives independent study
- Need and assessment are strong motivators
- Minimal didactic content – could be offered self-paced
- Student is motivated to acquire knowledge from a variety of available resources, choosing those that best suit their learning style
- Good independent learning resources are available
- Learning is non-linear and different for every student
- Mentoring from residents, fellows and attendings
- Peer support
- Daily formative assessment is available, feedback is robust
- Summative assessment tools are well-defined

Scholarly Concentration model

- Project-driven independent study
- Similar to graduate degree thesis programs
- Student determines learning objectives and content for a scholarly project
- Strong mentoring of individual project
- Group mentoring of the scholarly concentration
- Peer support from students with similar interests
- Some content in the concentration may be offered in regular group sessions or journal clubs

Drive vertical and horizontal integration of curriculum

- Use unifying concepts and organ systems to encourage students to cross disciplines
- Foster interdisciplinary problem solving and diagnostic reasoning by incorporating patient cases into exercises
- Use interdisciplinary teams to create learning and assessment tools

Key strategies can guide student learning while allowing studies to move at their own pace and ability level

- Provide a diverse menu of learning resources
- Create benchmark assessment events to drive learning and synchronize content acquisition
- Create application exercises that require students to develop higher order skills acquisition

Monitor student progress and provide support

- Devise mechanisms to keep students “on track” even though “track” may not be well-defined
- Develop a system to monitor student accomplishment
- Anticipate issues and proactively provides resources
- Support system must be robust, easy to use, and responsive, yet not be intrusive
- Formative assessment activities will provide mechanisms for assessment, feedback support and reflection

Develop Support Systems for Independent Learning

- Faculty Mentors
- Content Consultants (availability and expertise)
- Administrative oversight and clerical support
- Technology and resource support
- Opportunities for “student sharing”

Assessment helps to drive student achievement

- Formative assessment activities are key
- Must have periodic summative assessment of competency.
 - Helps to synchronize student learning and brings students together that have used different strategies for learning the same objectives
- Must include assessment of noncognitive skills and attitudes and higher ordered thinking skills.
 - OSCE – style activities
 - Problem solving / diagnostic reasoning

Use application exercises to assess higher order cognitive skills acquisition

- MCQs and web-based activities may not adequately assess student competency
- Need for assessment tools to evaluate a student's ability to accomplish higher order skills such as synthesis and analysis
- Assessment/Feedback/Reflection and Remediation
- Application tasks should reflect career-related activities
 - Patient cases
 - OSCE – style activities
 - Problem solving
 - Diagnostic reasoning

- Independent learning is a spectrum of strategies that encompasses a variety of levels of student vs. faculty vs. institution direction. It is essential to identify which strategy is appropriate to meet your goals and objectives.
- Interdisciplinary team planning of the independent learning curriculum is essential to providing an appropriately integrated experience for the student.
- The independent learning process requires careful mentoring and should provide opportunities for student-to-student sharing.
- Thoughtful planning of assessment activities will stimulate student achievement