Active Independent Learning: A Primer and Framework

Context

Student Perception of Curriculum Workload are both Subjectively and Objectively Determined.
When events require in-person attendance, students have less control over their time. This is akin to faculty, staff, and administration when others schedule 4 or 5 meetings throughout the day; while we technically still have "half a day" of unscheduled time, the one-hour blocks of time do not allow us to work on complex tasks and the back-to-back meetings do not provide any downtime to recharge the batteries.

This is compounded further when those events do not make optimal use of face-to-face modalities (i.e., passive, didactic, one-way activities that do not allow for or require meaningful participation). Students then feel not only less control over their time, but that they have given up that control for no benefit.

IL can create more positive views of scheduling and workload while ALSO improving learning.
Providing more asynchronous learning activities (independent learning, or IL), even without changing the actual amount of content or learning that must be accomplished, can thus potentially increase the perception of workload. Students can time-shift, thus choosing a block of time that is most convenient or when they have the most interest and energy. This is not just about preference, however; autonomy over study time and scheduling also allows for better learning and is in fact a necessary tool for master adaptive learners.

This is because students can also choose a time and place for learning the associated material when they have the necessary cognitive resources available. A student who is "a morning person" can then choose to study the material at an optimal time for them. A student who knows that they find biochemistry more challenging than anatomy can schedule their "one-hour" biochemistry lecture during a two-hour block of time, so they have time to pause and employ different study and metacognitive strategies.

However, these reasons by themselves are insufficient rationale for seeking to increase independent learning. There are other, more compelling reasons to seek this outcome as well.

Independent Learning Can Be a Powerful Learning Modality if Designed Well
Some learning outcomes cannot be addressed sufficiently by IL modalities. Conducting a physical, dissecting a cadaver, demonstrating use of an ultrasound, or communicating in a patient-centered manner all require at least some degree of guidance, modeling, and hands-on instruction which in turn require real-time, face-to-face interactions. In addition, some outcomes or content are too difficult for every student to master independently. Finally, simply "transferring" passive, one-way didactic learning experiences from live to asynchronous (e.g., a recorded lecture) ignores the role that good teaching (active learning) can have in shortening learning time, decreasing cognitive load, and improving retention and application (transfer) of learning.

However, independent learning can take many different forms, from recorded lectures with no option for student action or feedback, to video-demonstrations of physical exam skills with text-based overlays, to interactive lecture recordings with built-in quizzes, to interactive video-based cases that adopt a "choose-your-own adventure" style of interactivity, feedback, and assessment. Which formats we choose and for what purposes and outcomes is determined by the situation, but just as we advocate for face-to-face learning events to leverage the power of active learning (e.g., question asking, small group discussion, pre-post 5 question quizzes), we should similarly advocate for active learning as part of any IL curriculum.

There are good opportunities to increase IL in the curriculum.
Lectures that make good use of active learning strategies by definition are making good use of the face-to-face time required and should continue to meet face-to-face unless IL can be shown to be a better modality. Events where learning outcomes *require* face-to-face modalities are also not good candidates for IL. Finally, events that are already naturally part of active learning such as problem-based learning, team-based learning,

discussion groups, journal clubs, simulations, etc. are powerful modalities that leverage active learning, and are thus not good candidates for IL.

What remains are passive learning modalities that could be shifted to IL *as long as basic principles of active learning can also be employed to support them*. Meeting these opportunities can be accomplished through a mix of faculty development, tools and resources, and curriculum support that are available through Education Resources.

For example, quizzes that can be built in the learning management system (e.g., Blackboard, AllofE/eMedley, Leo) to extend the power of a recorded lecture by including pre- and posttests. Qualtrics and polling also provide opportunities for quizzing based on recorded lectures. The new Media Recording Studio currently has a high-quality set of equipment and software for recording lectures, including a plug and play video recording studio (lights, cameras, microphones) for recording physical exam or skill demonstration videos and an editing station for editing videos (overlays, graphics, transitions, elimination of "ums" and "uhs") easy-to-embed quizzes to add to a video recording of a lecture, a 360-degree camera, and software for creation and editing of a variety of video, image, and audio assets for education purposes. The SMHS has also invested in a simple interactive "choose-your-own-adventure" software platform called *SimTutor* that has been used by the Sim Center and is currently in use by the MLS program to build active independent learning modules for their students. Education Resources has 10 faculty licenses for SimTutor for the coming year that are available for faculty who want to build AIL learning modules.

Levels of IL Framework
TLAS proposes the following framework for 5 IL Levels:[1]
1. Level 1 IL (10% of opportunities)
   a. Lectures that can be prerecorded and integrated with minimal active learning strategies (clear objectives up front; pre-briefing questions to organize thinking throughout the recording; clinical capsules; take-away questions for future study).
2. Level 2 IL (10-15% of opportunities)
   a. Lectures that have been prerecorded and that include active learning modalities such as embedded quizzes and/or external pre-post quizzes.
3. Level 3 IL (40-50% of opportunities)
   a. Video-based micro-lectures and stand-alone instructional "nuggets" that extend learning or provide student feedback (e.g., areas or topics that students struggled with on recent exams or projects).
4. Level 4 IL (20-25% of opportunities)
   a. Video-based learning such as skills demonstrations, interviews and panel discussions, physical exams.
5. Level 5 IL (5-10% of opportunities)
   a. SimTutor interactive "choose-your-own-adventure" modules with built-in quizzing, feedback, replayability, and assessment.

Contact TLAS to further discuss Active Independent Learning and how portions of your content may be developed as IL to meet one of the levels described above.

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[1] Many other variations and hybrids are possible!