

The Collablify Roadmap System: Moving from Textbooks to 1-to-1: Addressing Teachers' Pain

Free, Device-independent, Open & Tiny-Footprint Tools

Managing the Full Life-Cycle of OER-based Lessons from Curriculum-Scale OER Courses

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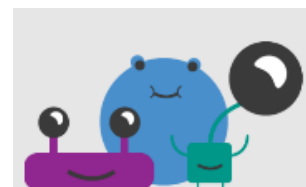
Figure 1: Three students using Android tablets & one student using a netbook while collaborating via a lesson Roadmap

See a [video](#) of 6th grade students using the Collablify productivity apps and lesson Roadmaps

The following trends in K-12 are driving dramatic changes and engendering new opportunities for teaching and learning – and creating genuine challenges for classroom teachers:

- **Textbooks - decreasing:** Paper-based books, the mainstay of K-12 of education, are going the way of the dodo bird. But textbooks, and their accompanying guides, have provided teachers with district/state vetted, scope-and-sequenced, and standards-aligned, curriculum. Curriculum is the heartbeat of the classroom; curriculum is more important than the classroom teacher; curriculum is like the tide – it raises all the boats, making struggling teachers effective and making master teachers that much more effective. So where is the curriculum to come from now that textbooks are fast disappearing?
- **Digital curriculum - increasing:** Videos, assessments, PDFs, simulations, practice tests, games – there are literally millions of OER – open education resources – freely available on a multitude of OER marketplaces (e.g., Curriki.org, CK12.org, Opened.com, Gooru.org, Edmodo.com). Surveys are finding that teachers are spending an inordinate amount of time searching amongst the millions of OER to find a few that meet their classrooms' needs. But turning that hard found content into

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curriculum is in fact an even greater challenge! Teachers are not equipped by training nor by temperament to stitch the OER pieces together to create coherent, standards-aligned curriculum. Now, on the OER-based curriculum front, there is some very good news: *organizations are creating “curriculum-scale OER” – semester/year-long courses comprised of OER.* However, while that course-level curriculum may be appropriate for paper-and-pencil classrooms, those courses are not deeply-digital courses – courses that take *full* advantage of the computing engine each student has in her/his hands in their 1-to-1 classrooms.

- **1-to-1 is on the way to becoming the New Normal** – More than half of America’s classrooms are 1-to-1 – every child in the classroom has an Internet-connected, computing device. And more than 50% of those classrooms have some sort of LMS (Learning Management System) – with the lion’s share (>50%) going to Google Classroom. While attention tends to focus on the 50+% of current 1-to-1 classrooms, there is a real opportunity to make an impact – and where there is both great need and, it is our sense, real receptiveness – on the almost 50% of classrooms currently still paper-and-pencil/textbook-based, but moving – maybe haltingly, but inexorably – to 1-to-1 over the next 5 years.

In what follows, then, **we discuss several specific “pains” that these three trends are causing classroom teachers – and then how the Collabrify Roadmap System addresses *and ameliorates* those pains.**

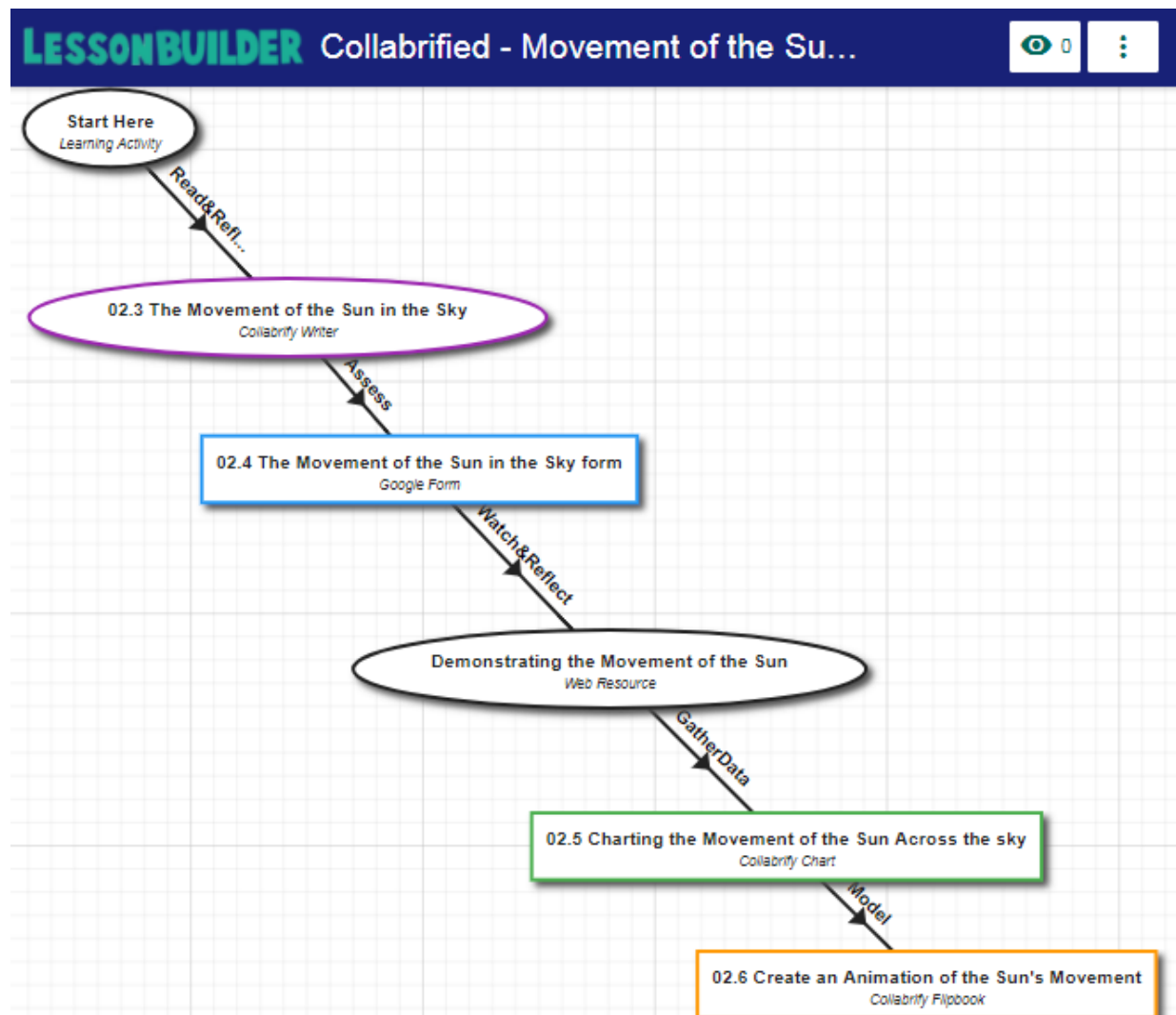
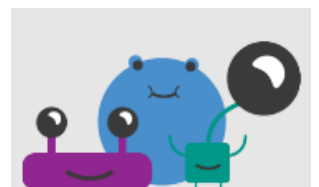
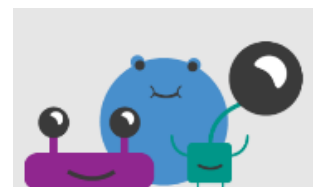


Figure 1: Roadmap for 3rd Grade Science: Movement of the Sun in the Sky



How does the Collabrify Roadmap System address the pain teachers are feeling in moving from textbooks to 1-to-1?

- **Pain:** So, how do I make “mine” the OER-based lessons that are part of a curriculum-scale OER course?
 - **Context:** In the textbook world, teachers were provided with lessons. Some teachers would use the lessons as they were written, and some would modify the lessons to better address the needs of their classroom. In the world of digital curriculum, lessons are provided by organizations that are creating curriculum-scale OER courses. The Roadmap in Figure 1 is a “baseline” lesson from a curriculum-level OER course for 3rd grade science developed by Dan McGuire for the MPCC – Minnesota Partnership for Collaborative Curriculum. “Baseline” lessons can absolutely be used as is, but a teacher might well want to differentiate, localize, or contextualize a baseline lesson to make it more appropriate for her/his classroom.
 - **Solution:** Using Roadmap Builder, an app in the CRS, teachers easily *manage the content* in the lessons that make up curriculum-scale OER, e.g., a teacher can, with only a few clicks delete the current video of a river shed in the lesson and replace it with a video of a river shed that is geographically more appropriate, or add a collaborative concept mapping activity to build on the collaboration and concept mapping skills of the students, or create several, differentiated, lessons in order to better support the struggling learners as well as accelerate learners.
- **Pain:** So, how do I tell my students what learning activities to do?
 - **Solution:** Using Roadmap Dashboard, an app in the CRS, teachers easily *manage the distribution* of lessons; a teacher can simply send the same lesson to each of the students in the class or the teacher can just as easily send out a differentiated lesson – one version going to the struggling learners, another going to the accelerated learners, and a third version to all the others in the class; or a teacher can create collaborative groups before class – or a teacher can recall a lesson that was mistakenly sent out.
- **Pain:** So, how do I know what the students are doing on their 1-to-1 computers during class?
 - **Solution:** Using Roadmap Dashboard, an app in the CRS, teachers easily *monitor, in real-time, the enactment* of a lesson, e.g., at a glance, see what learning activity each student is engaged in, or join a student (or a group of students) inside a concept mapping app, and then provide feedback on the student’s (or group’s) concept map, or display a student’s (or group’s) concept map on the classroom presentation system, thereby facilitating whole-class discussion.
- **Pain:** So, where are the student’s artifacts, how do I access them, how do I record a grade and how do I send feedback to the students?
 - **Solution:** Using Roadmap Dashboard, an app in the CRS, teachers easily access student-produced artifacts, review the artifacts, assign a grade (that is then posted to the teacher’s electronic gradebook), and create comments (verbally or written) that are routed to the students
- **Pain:** So, what are learning analytics and how do they help me?
 - **Solution:** Integrated in the CRS functions are relevant, teacher-selectable, quantitative items (i.e., learning-analytics) about student performance that are displayed in digestible
- **Pain:** So, how do I collaborate with fellow teachers and share Roadmaps with them?
 - **Solution:** All the apps in the CRS are “collabrified” – they enable teachers to work together synchronously – while co-located or not co-located. Teachers can post their Roadmaps at OpenEd.com and at IMCL.IO; we are in the process of building the IMLC Roadmap PLN, to better support teacher collaboration (e.g., using eHallway, a chat room-style messaging system support asynchronous collaboration) and Roadmap sharing.



The Design Philosophy Underlying the Collabrify Roadmap System

In creating the CRS, our intent is to support teachers who already have a 1-to-1 classroom – and those that are newly moving to 1-to-1. In working with teachers in both situations, we have evolved a design philosophy we call:

- **“Tiny Footprint Technology”**

The “tiny footprint technology” perspective – defined below – has guided the design of the Collabrify Roadmap System; it is the strategy underlying how the CRS addresses each of the teachers’ pains, identified above.

- **For K-12 Teachers:** “Make the investment teachers need to *start* using the CRS as minimal as possible; minimize the barriers to entry. Make the CRS as familiar as possible; use what teachers have been doing with paper-and-pencil as a guide - but still tap into the powerful affordances of the computer.” For example:
 - Teachers are familiar with road maps and teachers are familiar with “mind mapping” or “concept mapping.” So, in the CRS a lesson is just a Roadmap where the learning activities are nodes in a concept map, which are connected by arcs.
 - Teachers are familiar with distributing a lesson on paper – so in the Roadmap Dashboard, “distribute” enables teachers to send a lesson – a Roadmap – to each student. But Dashboard enables a teacher to build collaborative groups, easily and quickly – and of course, adjust the groups at the time of the enactment.
 - Teachers are familiar with the various stages a lesson proceeds through, e.g., create it, distribute it, monitor its enactment, etc. The **CRS supports the life-cycle** of a lesson that a teacher is already familiar with. To use the CRS, a teacher goes to a URL and from that one URL the teacher steps through the various phases – the life-cycle – of the lesson.
 - Unlike most lesson building systems, *CRS is OPEN* – virtually *any* URL can be included in a Roadmap, e.g., use an OER from Edmodo or Gooru, a video from YouTube, a website (e.g., Lowe’s has a really good description of “energy transfer”), a simulation, an auto-gradable, Google form, etc., etc.
- **For IT staff:** IT staff too are challenged as their classrooms move to 1-to-1 and to digital curricula. Again, we expressly designed the CRS apps to make minimal demands on the IT staff, e.g., no special server software is needed, and no special network infrastructure is needed.
- **For K-12 students:** While “the kids these days” are technology-savvy, and truth be told, will usually be able to figure out even an abominably designed interface, we have used the principles of [Learner-Centered Design](#) (LCD) in the construction of all the tools in the two [Collabrify tool suites](#).

Ease of use; ease of entry; lower the barriers; keep it simple; be respectful of teachers’ and students’ time. Getting started using technology is challenge so we have tried to make the technology being used as approachable, as accessible as possible.

The apps in the Collabrify Roadmap System are:

- **Device-independent:** The CRS apps are written using HTML5 tools which means that the CRS apps run inside a browser – Chrome, Safari, Firefox². Since those browsers run on virtually all computing devices – tablets, laptops, Chromebooks, smartphones, etc. – CRS apps are “device independent.”

The apps in the **Collabrify Roadmap System** are available from our website (imlc.io) and from Google’s [G-suite Marketplace](#). As well, manuals and video tutorials for the apps in the CRS are posted on the [IMLC website](#) – with videos coming shortly!

Note: CRS is Google Classroom-friendly; the CRS can post a Roadmap to Google’s Classroom for easy student access.

Questions, comments? Please contact: Elliot Soloway, soloway@umich.edu, 734-355-4098.

² Currently, CRS does not support the Microsoft browsers, e.g., IE, Edge. We are planning to provide such support in the near term, however.

