

## Moodle, STEM and 21<sup>st</sup> Century Skills

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21<sup>st</sup> Century skills are not likely to be mastered in schools isolated from online learning and interschool collaboration. This is especially true in STEM areas where globalization is the norm. At The Learning Curve we have just launched a very hopeful effort with our new partner IMG Software. Using Moodle as our online course management system, this new venture now includes seven Massachusetts high schools. In this brief introductory period we have launched 104 blended course sites developed by 59 teachers.

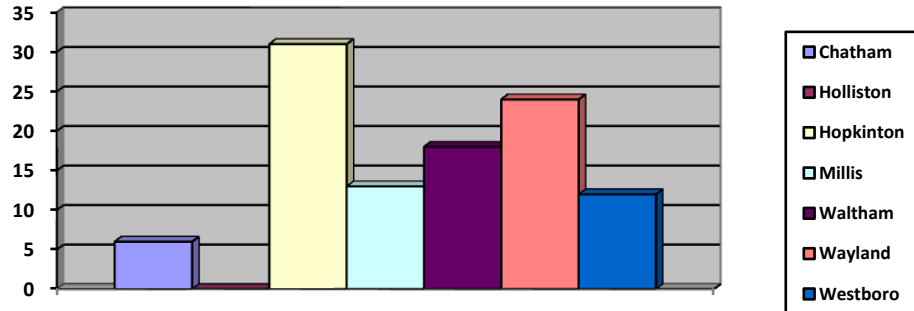


Figure 1: Total blended course sites

Note: Holliston is a new entry; course sites to be added soon.

Participating teachers in these schools undergo initial professional development that emphasizes not only content development but also *online content engagement* skills. These skills focus on interactivity approaches that require critical thinking and online collaboration well beyond the typical school day. Each participating teacher receives a handbook entitled, *Teaching and Learning Online in Elementary and Secondary Schools: Redesigning Learning with Moodle*. The handbook's main sections include (a) Finding and Preparing Content for Online Learning, (b) Engaging Content in New and More Productive Ways, and (c) Assessing Students at Different Levels. Ongoing support is available to participating schools by telephone, by email and by live real time sessions using WebEx.

It is very interesting to note the distribution of blended courses in these high schools. Note the frequency of STEM related course sites.

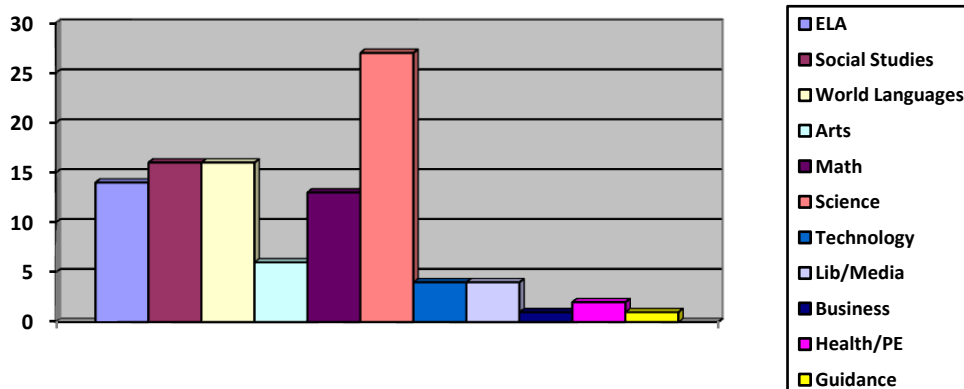


Figure 2: Course sites by content area

It is interesting to note the dominance of science courses – 27 of 104, or 26 percent. I have no objective data that might address the reasons for this. However, it is a very encouraging STEM development. We are currently engaged in early discussions with the Massachusetts Institute of Technology (MIT) to find ways to integrate MIT courseware directly into our Moodle sites, enabling teachers to take advantage of this tremendous resource. Not only would this be a major development in secondary education STEM subjects, it would also lend itself to *all* content areas within which critical writing and problem solving are expected of students. Already there is a direct link available in our Moodle sites labeled “course content finder.”

One local Moodle administrator has organized Moodle Mondays in her district for teachers to share their ideas. In another school a teacher has opened her Moodle site to a group of students in the Netherlands. Another school in our network has initiated early planning with a high school in Honduras. This *is* 21<sup>st</sup> Century learning.

Already in our small but growing interschool community there is discussion of sharing certain courses asynchronously or at the very least in a hybrid mode. Another obvious advantage to this network is shared professional development that focuses on 21<sup>st</sup> Century skills in an online environment that makes no demands on school schedules that allow for little flexibility for faculty development. Online collaboration that engages content in this manner illustrates 21<sup>st</sup> Century skills of collaborative learning and problem solving in ways that are far superior to some of our current approaches to student achievement and professional development. The technology is available. Decisions relative to local governance must be addressed. Perhaps an online engineering workshop for educators or even an engineering elective based on MIT open courseware . . . what a starting point for the schools in our network.

Our goal is to increase our current network of Moodle schools to twenty-five. Seven districts are now on board and we have opened discussions with ten more. The network *will* grow. Perhaps your high school would be a candidate for this network . . .

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