Project description

This project was aimed at becoming more informed about the field of learning analytics and whether it could be used to help instructors make better decisions about the design of their online, blended, or technology-enhanced courses. The project was exploratory, and as such, did not have a particular outcome in mind from the outset.

First, I tried to become broadly educated about learning analytics and related fields (business intelligence, educational data mining, academic analytics). In the course of this, I decided that the most appropriate term for what I was interested in might be defined as “course-level learning analytics.” In order to learn about the field, I attended sessions on topics that were related at MIWLA, MWALLT, the Online Learning Consortium conference, from Inside Higher Ed, SoftChalk, Brightspace, through IT services, and through the library. I watched educational videos online, read some books, read almost the complete publication record of the new journal of SoLAR (Society of Learning Analytics Research). I also dabbled in MOOCs on similar topics.

The second step that I took was to organize (with the help of Scott Schopieray) a group of people on campus who are interested in learning more about learning analytics, especially on the course level. The group, which has included people from CAL, the College of Natural Science, IT services, the Hub for Innovation and Technology, the Neighborhoods, and the library, met three times this semester. As part of one of our meetings, we also invited two guests from other universities to join us virtually to tell us about the use of learning analytics on their campuses. The future of this group is uncertain, though I think the people involved do believe that the conversation should continue. The prevailing opinion is that if there is going to be progress on the front of learning analytics, stakeholders on campus have to express a greater commitment to it and either provide leadership themselves or hire people who have expertise that they can translate to faculty and staff. Many campuses are now hiring leaders with expertise in data or analytics in order to fill this gap. As of yet, I don’t know whether I will continue to organize this group. At a minimum, however, these meetings allowed me to become acquainted with other people across the campus who might be able to help me as this field continues to develop. The Hub for Innovation in Learning and Technology is a new group that will soon be headquartered in Wells, and at least four of their staff were involved in my project on some level, and will likely be able to keep me apprised of developments in the field, and will have in mind that faculty like me are starting to be interested in this topic. At some point in the future they may be in a position to influence leaders, and they are at least aware of my interest and some of my hopes and concerns on the topic. The contacts that I made as a part of the project are bound to reap benefits in relation to this topic as well as others.

The third part of my project is to take one of my courses and see what kind of information I could glean from the data in D2L. I have been doing this with both my Russian 201 and Russian 202 courses from this year, both of which contain a substantial online component.
This part of my project, while it has yielded some results, is far from complete. Though I have only about 30 students, D2L provides a large amount of data, and I still don’t know an efficient way to become more educated about how to handle, analyze, and interpret it, which has been something that will have to be an ongoing process for me.

**Project outcomes**

As a result of my reading as well as attending sessions and talking to people, I learned that learning analytics, especially on the course level, is still at a very early stage at MSU. The main initiatives highlighted in the LEAD seminar were focused on analytics on a larger scale, such as those monitoring student retention and providing guidance to advisors. Very little is being done on the course level (or at least that is visible - perhaps individual instructors are engaging in small-scale investigations but are not calling them learning analytics, or are not communicating about them to the larger campus community).

A major outcome of the project was that a conversation about learning analytics was started among interested parties. Hopefully this conversation will continue in some form and leaders will start to support the effort for faculty to become more involved in the analysis of data that they have access to through D2L and other sources, and faculty members who are interested will be able to connect with each other. Even if the formal group does not continue, I have made contacts with people across campus who may be able to help me learn more about this topic in the future.

There are several other products that have or will be coming out of this project. First, I am attaching a short piece of text. This is intended to be my own personal recommendations (informed by my reading and my conversations with others around campus) for MSU leaders for what would need to be done in order for faculty to be able to better take advantage of course-level learning analytics. I don’t know whether I will ever have a chance to express these opinions to those who could influence campus policy, but if I do I will let them know my thoughts.

Second, I have produced a short document that is meant to help instructors get started in finding data in D2L and other common sources. I am also willing to expand this into a Lunch and Learn or Professional Development presentation for CeLTA depending on interest.

Third, I am still working on analyzing the data from my courses. I plan to develop a conference presentation and possibly a paper on this topic. Currently I am investigating several aspects of the data in my course, including: the popularity of extra resources that were provided to students and whether those are presented affects how much students use them; the timeline of student access of materials; information in YouTube about at what point in materials viewers stop watching, among others. If I am able to, I can also expand part of what I learn into training opportunities for faculty at MSU. For example, I can develop recommendations about how to structure materials in D2L in order to take advantage of the data that it collects. There are some changes that I plan to make to my course as a result of what I have learned about the data in D2L, such as exploring using the “Objectives” and increasing the number of quizzes within the LMS because of the easy access to data.
Impact on the language teaching and learning community and transferability

Learning analytics is an emerging field, and for me, this project represents simply an introduction to a field that may ultimately be very useful in language teaching, but that is not yet fully accessible to those who are not computer or data scientists. I intend to share what I have learned so far with others in a variety of ways, including in CeLTA professional development workshops, participation in other campus groups and the fostering of relationships with others on campus who are engaging with learning analytics, conference papers, and possibly in writing. As the field develops, I hope to continue to discover ways that teachers can access data and use it to inform their teaching decisions. In the immediate future, I can give teachers guidance with getting started with finding data in D2L and other common tools as well as use my own course as an example in which some of that data can be used to think about design decisions.
Data in its many forms is poised to revolutionize how institutions do business. Universities have begun to talk about analytics in terms of graduation rates, retention rates, warning systems, and progress to degree, but another type of analytics has an equal or greater potential to impact the student experience at MSU: course-level learning analytics (see, for example, Professor of Physics Education Dr. Gerd Kortemeyer’s article in Educause on this topic: http://er.educause.edu/blogs/2016/3/the-two-worlds-of-learning-analytics). The central relationship that creates a successful academic experience is that between students and faculty.

Course-level learning analytics can only be effective with the input of faculty, since only they know the full context of the data in question, and many of the opportunities to improve course design and curriculum based on data are potentially already sitting right in some of our digital tools, such as the course management system. Data also may hold the power to more effectively tell the story of student academic success. However, faculty need help in order to be able to take advantage of this potential.

If MSU wants faculty to use learning analytics to inform course design, the following steps should be considered.

- Faculty need to be given easier access to the data in D2L and other tools. Programmers who can help extract the data that is not easily exported should provide tools to do so.
- Faculty need to be provided with basic training in data science, including on how to extract, clean, store, analyze, interpret, visualize, and communicate data.
- Faculty need to be provided with training and assistance in statistics.
- Faculty need to be provided with tools to assist with data.
Getting started with data in D2L and other common tools

Did you know that D2L and some of the other tools that you might be using for your courses are logging a bunch of data about what students are doing with it that you can access? You might want to take a look at it in order to assess your students, or to figure out which resources they find more or less useful, or to improve your course design, or to conduct research.

This guide will get you started in finding the data that D2L, Mediaspace, YouTube, and Facebook have available.

D2L

D2L is collecting a lot of data without you even asking it to. We will give you some guidelines for how to find some of it.

Content

You can find a lot of data if you go to “Table of Contents,” “Related Tools,” and then “View Reports.”

As you see here, you can see how many of your students have visited and how long, on average, they spent on each item. If you click on the number under “Users Visited,” you can get more information.
Broken down by user, you can see when they last visited, how many times, total time spent, and average time spent. In some cases most notably, you can see who has NOT visited.

Under “View Reports,” you can also find the button “Export Statistics,” which allows you to download some of your course’s data as a .csv file, which can then be manipulated using software such as a spreadsheet or data analysis tool. You can export information by user, as well as in quizzes, but there’s a significant amount of data in D2L that is not easily exportable. If you have any SCORM objects, you can also get information about how your students interacted with them, though in my experience the reports about time spent do not seem to be very accurate.

If you click on “Users” instead of “Content”, you can see how many links from your course each student has viewed.

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<th>Content Topics Visited</th>
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<tr>
<td>149</td>
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<td>113</td>
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Then when you click on each user’s name, you can see detail of which topics he/she has visited, when, and how long he/she spent. Note, however, that it only shows you the last visit. You cannot tell, for example, when the first visit was unless the student only visited that particular link once.

If you go to “Assessments” and “User Progress,” you can see some graphical representation of student progress.
Interestingly, even just these three students’ reports suggest something about a correlation between logins and grades (though of course we would need to confirm that with a lot more information). Note, however, that “Logins” may refer to logins to the whole system rather than an individual course. If you click on logins, you can tell when the course itself was last accessed.

You can also find completion information about each item in your course if you scroll down to the bottom of the item. You can click on “Completion Summary” and see at a glance who has and has not completed the activity and when it was completed.
Quizzes

If you have quizzes in D2L, you can get quite a bit of information by clicking on the arrow to its right and then “Statistics.” Much of this data can be easily exported. You can see graphs of average scores, average scores by user, and much more detailed information by question.

At a glance you can see which questions were the most difficult for students, but keep in mind that you should also examine the question itself to identify problems with it.

The data in the quizzes can give you a place to go to figure out where students need most help.

For example, students did quite well blank #11 in this exercise, but many got blank #12 wrong. You would have to look at the question to try to decide whether it was something that could have been taught better, or something in the question itself that could be improved. Unfortunately, with fill-in-the-blank exercises like this one, D2L does not give you more information about what students actually answered here, though you can find out more if you go to “Grade” rather than “Statistics.” Multiple choice quizzes do allow you to see more about what people answered.
Keep in mind:

If your students can access something in more than one place on your course website, you will have to check in both places to see how many times it was accessed. Or if your students can bookmark a link and open it from outside D2L, the data will not reflect that.

Mediaspace

Sharing videos with students is very easy with mediaspace.msu.edu. You can also get some analytics about what people have done with your videos through the analytics in the tool. You can’t get as much information out of Mediaspace as you can if you have videos in YouTube, but one big advantage of Mediaspace is that you can tie views with actual users - you can see how many times a particular student has viewed a particular video. Note that videos that you have uploaded yourself give you more information than those owned by others, even if you include them in your course.
If you have videos in YouTube, you can get some data about them. When you are in your Video Manager, click on “Analytics” below your video.

You can choose a custom time frame to look at. Here I chose “Lifetime” to see data about all views of this video.
Here you can see some general pieces of data - how many minutes have been watched of your video, and on average how long people watched.

You can also see when people watched it, but you can't tell who exactly watched it - it does not tie views to the identity of viewers.

This feature - called Audience Retention - potentially very useful - it shows you when your viewers tend to drop off. This could help you identify less effective parts of your videos.

If you think it's useful, you can also see how retention differs on different dates.
Here you can see some of the other analytics that are available to you using YouTube, and depending on how you set up your videos, you may or may not have reported data in all the areas, and you may not find some of these data points interesting. Devices may help you determine whether you need to spend resources on making your course materials mobile-friendly. Depending on where your students are and how they are accessing your materials, you may find Playback locations and Traffic sources to be useful information.

Facebook

If you have an official page on Facebook that you have shared with students, you can tell something about how people are interacting with it.

Facebook will tell you how many people have seen your posting and how many have reacted to it or shared it, but like YouTube, you cannot link this with particular people.
You can also get some information about how your posts have spread beyond your direct followers through the location of the people reached, as well as what time of day most people view your page.

There are quite a few more data points available through an official Facebook page. Some may be more relevant to you than others, based on the purpose of your page.

If you have a Facebook group that your students have joined, analytics are not included in groups within Facebook, but you can use outside websites to access some analytics.
sociograph.io is a free tool that can be used for this purpose, and some of the data can be downloaded as a .csv file.

Group activity over time

![Chart showing group activity over time]

Details of activities by individual visitor

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<th>Posts</th>
<th>Comments out</th>
<th>Comment likes in</th>
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