USING PATTERN TO LOG COURSE ACTIVITIES

Presented by
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INTRODUCTION TO LEARNING ANALYTICS AND PATTERN
Agenda

What is Learning Analytics – definition
Introduction to Pattern – quick demo
Instructor Perspectives
  – Heather Kirkorian, SOHE
  – Miguel Garcia-Gosalvez, WSoB
Student Perspective & Evaluation
Discussion
What is Learning Analytics?

Learning analytics is the measurement, collection, analysis, and reporting of data about learners and their contexts, for the purposes of understanding and optimizing learning and the environments in which it occurs.

~ Society for Learning Analytics Research
Do Reflective Practices Impact Learning?

Does logging study time impact the learning experience?

How do students feel about sharing their data (if it helps them learn)?

Are students willing to change study habits based on personalized feedback from a learning analytics tool?

What can instructors learn...
- about students... about courses... about how they teach?
TRACK YOURSELF!
A map of digital tools to help you quantify your life.

Courtesy of Rachelle DiGregorio
Pattern — Quick Intro/Review

• Interactive study log (sort of like a FitBit for studying)

• Students track study and learning behavior/activities, and rate their productivity.

• Instructors only see aggregate data (unless student chooses to share their personal data with instructor/advisor)

• LMS agnostic
Pattern — Quick Intro/Review

- Mobile app & website that creates and curates data
- More holistic student behavior patterns
- Course-level, by student
- Licensed by Purdue University
Students Log Time Spent
My Personal Dashboard

First time here? Watch a video about dashboards [1:20]

8 hours logged

87% time spent outside class

37% homework

7 of 8 total hours were spent outside of class.

Homework was your most popular outside of class category with 3 hours.

WEDNESDAY was the day of the week that you rated as most productive.

MORNING was the time of day that you rated as most productive.

To Add a New Entry

Homework > Practice Problems for 1 hour

test group

Feb 2, 2017 at 11:30 AM CST

Satisfied
Duration

Start Date: 3/13/17
Start Time: 9:05 AM
End Date: 3/13/17
End Time: 11:05 AM

DONE
CANCEL
ADD ENTRY

Homework > Practice Problems for 1 hour
test group
Feb 2, 2017 at 11:30 AM CST
Satisfied

Community Service > Create posters for 1 hour
Test Course 101
Fall 2016 • Study Pattern Test Course • 101 • 001
Add a New Entry

Group: statistics class
Activity: Homework > Practice Problems
Time: Mon Mar 13 2017 - 2 hours
Productivity: Satisfied

CANCEL  ADD ENTRY
My Personal Dashboard

First time here? Watch a video about dashboards [1:20]

- **8** HOURS LOGGED
- **7** ENTRIES CREATED
- **87%** TIME SPENT OUTSIDE CLASS
- **37%** HOMEWORK

**7 of 8 total hours** were spent outside of class.

**Homework** was your most popular outside of class category with **3 hours**.

**WEDNESDAY** was the day of the week that you rated as most productive.

**Productivity - Day of Week**
- **Your average rating:** 4.25/5

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**Homework > Practice Problems for 2 hours**
statistics class
Mar 13, 2017 at 9:05 AM MDT
😊 Satisfied

**Homework > Practice Problems for 1 hour**
test group
Feb 2, 2017 at 11:30 AM CST
Instructor Dashboard - Aggregated Student Data

- 6865 hours logged
- 92% time spent outside class
- 3220 entries created
- 6377 of 6865 total hours were spent outside of class.
- Homework was your learners' most popular outside of class category with 5433 hours.
- 24% of learners active
- 163 of your 658 total learners created entries during this time.
- Sunday was the day of the week that your learners rated as most productive.

Productivity by hour of day, by day of week, and by category.
My Instructor Dashboard

First time here? Watch a video about instructor dashboards [1:00]

6865 hours logged

92% time spent outside of class

79% homework

24% of learners active

163 of your 658 total learners created entries during this time

Sunday was the day of the week that your learners rated as most productive.

6377 of 6865 total hours were spent outside of class.

Homework was your learners' most popular outside of class category with 5433 hours.

Productivity By Hour Of Day

Productivity By Day Of Week

Productivity By Category

Less Data
PATTERN IN ACTION: HEATHER KIRKORIAN
Students need an incentive...
Spring 2017 – no bonus points

My Instructor Dashboard
First time here? Watch a video about instructor dashboards [1:00]  

- 6 HOURS LOGGED
- 100% TIME SPENT OUTSIDE CLASS
- 4 ENTRIES CREATED
- 6 of 6 total hours were spent outside of class.
- 83% HOMEWORK
- Homework was your learners' most popular outside of class category with 5 hours.

1% OF LEARNERS ACTIVE
4 of your 254 total learners created entries during this time

NOT ENOUGH DATA
There is not enough data to find your learners' most productive day of the week.
Fall 2016 – 2 bonus points

My Instructor Dashboard
First time here? Watch a video about instructor dashboards [1:00] ▶

- 6350 HOURS LOGGED
- 70% TIME SPENT OUTSIDE CLASS
- 4945 ENTRIES CREATED
- 4507 of 6350 total hours were spent outside of class.
- 33% HOMEWORK
- Homework was your learners' most popular outside of class category with 2101 hours.

HDFS 362: Development of the Young Child

50% OF LEARNERS ACTIVE
130 of your 259 total learners created entries during this time

WEDNESDAY
was the day of the week that your learners rated as most productive.

Less Data ▼
Define categories
• **Lecture:** Completing online modules, including mini-lectures, videos, and activities (e.g., practice quizzes, matching games, demos)

• **Assigned reading:** Reading chapters in the textbook

• **Discussions:** Preparing original responses and peer responses for discussion assignments; this can include time reading articles in prompts

• **Studying:** Reviewing any materials to prepare for a quiz (e.g., re-reading chapters, re-watching lectures/videos, making flashcards)

• **Office hours:** Visiting instructor/TA office hours in person or by phone, or seeking assistance using online resources, such as posting to the Q&A discussion forum or emailing with the instructor/TA
Percent of time in each activity
Average time in each activity
Average is better than average?
• 5 = extremely satisfied: I am pleasantly surprised with how much I accomplished. I accomplished more than I normally would in this amount of time. This was time well spent, and it definitely helped me to master the material.

• 4 = satisfied: I am happy with how much I accomplished. I accomplished a bit more than I normally would in this amount of time. This helped me to master some of the material.

• 3 = neutral: I accomplished about as much as I expected, given the amount of time that I studied. This was useful, but I will likely need to review a few things in order to really master the material.

• 2 = unsatisfied: I accomplished a bit less than I normally would in this amount of time. I will need to review many of the concepts that I studied in order to master the material.

• 1 = extremely unsatisfied: I accomplished surprisingly little. I would normally accomplish much more in this amount of time. I will probably need to redo this activity (or do a different activity) in order to master any of the material.
When do students work?
Monday/Tuesday
Thursday/Friday
Pattern in Action: Miguel Garcia-Gosalvez
GEN-BUS 311: Fundamentals of Management and Marketing for Non-Business Majors

• Completely redesigned 3-credit course moved from face-to-face to online format.
• Need a way to validate assumptions about workload (make sure that the hours involved pass the requirements).
• Need to understand student behavior in the online environment.
• Provide students ongoing point of reference
PATTERN IN GENBUS 311 (ONLINE)

• FOR INSTRUCTORS
  • Data to validate assumptions (when converting from F2F to Online)
  • Pattern Recognition

• FOR STUDENTS
  • Individual recognition of behavior
  • Comparison to peers
<table>
<thead>
<tr>
<th>Semester</th>
<th>Reward</th>
<th>Students Completed</th>
<th>Total</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>FALL 2016</td>
<td>Extra Credit 5%</td>
<td>96</td>
<td>259</td>
<td>37.07%</td>
</tr>
<tr>
<td>SPRING 2017</td>
<td>Extra Credit 2%</td>
<td>69</td>
<td>285</td>
<td>24.21%</td>
</tr>
<tr>
<td>FALL 2017</td>
<td>1% Final Grade</td>
<td>72</td>
<td>228</td>
<td>31.58%</td>
</tr>
</tbody>
</table>
# IMPACT OF PATTERN ON GRADE

## GB311-FALL2017

<table>
<thead>
<tr>
<th>Grade</th>
<th># Students</th>
<th>% Students</th>
<th>Not Counting Pattern</th>
<th>% Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>66</td>
<td>29.07%</td>
<td>60</td>
<td>26.43%</td>
</tr>
<tr>
<td>AB</td>
<td>72</td>
<td>31.72%</td>
<td>77</td>
<td>33.92%</td>
</tr>
<tr>
<td>B</td>
<td>50</td>
<td>22.03%</td>
<td>51</td>
<td>22.47%</td>
</tr>
<tr>
<td>BC</td>
<td>29</td>
<td>12.78%</td>
<td>29</td>
<td>12.78%</td>
</tr>
<tr>
<td>C</td>
<td>6</td>
<td>2.64%</td>
<td>6</td>
<td>2.64%</td>
</tr>
<tr>
<td>D</td>
<td>0</td>
<td>0.00%</td>
<td>0</td>
<td>0.00%</td>
</tr>
<tr>
<td>F</td>
<td>4</td>
<td>1.76%</td>
<td>4</td>
<td>1.76%</td>
</tr>
<tr>
<td><strong>TOTAL STUDENTS</strong></td>
<td>227</td>
<td>100.00%</td>
<td>227</td>
<td>100.00%</td>
</tr>
</tbody>
</table>
DISCUSSION (in my context)

• It helps the good students
  • Do they just take it as just another assignment?

• Does Pattern incentivize lower end students being able to compare themselves with peers?

• It rewards persistence, commitment, organization, etc. Good skills to have and part of learning outcomes
  • Those who complete the requirements are those who already do this anyway in all other parts of the course.
UW Madison Learning Analytics Series

STUDENT PERSPECTIVE
Student Privacy
76% of students would be happy for their data to be used for personalized interventions.
94% of students would be happy for their data to be used if it helped improve their grade.
Would you be happy to have your data visualized through an app where you can look to compare with your classmates?

61% Yes
32% Not Sure
7% No
Pattern Evaluation
I found Pattern easy to use.

$x = 4.09$, 5-point scale

$N=1,744$
The Pattern visualizations made sense to me.

\[ \bar{x} = 3.92, \text{ 5-point scale} \]

N=1,748
I would be willing to make changes to my study habits based on Pattern’s data.

$\bar{x} = 3.28$, 5-point scale

Course A had $\bar{x} = 3.99$

N=1,746
Pattern made me reflect on my study habits.

$\bar{x} = 3.70$, 5-point scale

Course A had $\bar{x} = 4.6$

N=1,766
Pattern gives me access to information I cannot access elsewhere.

\[ \bar{x} = 3.44, \text{ 5-point scale} \]

Course A had \( \bar{x} = 4.4 \)

N=1,748
I feel there is value in continuing to use pattern.

\[ \bar{x} = 3.29, \text{ 5-point scale} \]

Course B had \( \bar{x} = 3.1 \)

Course A had \( \bar{x} = 4.6 \)

N=1,744
Evidence of Reflective Learning

“I learned I needed to study in smaller sections more often rather than study for 4 hours straight”

“...helped me recognize what times of day were best to devote study time to and if I was studying enough. It also helped me estimate how much I needed to study for exams to perform comparatively well based on past time studying for exams”

“I used it to see how much time I spent on something in hindsight to predict how much time I'll spend on the task in the future. For example, I found out that I usually spend 24 hours studying for a midterm.”
Other Comments

“Pattern held me accountable for the work that I put into this course”

“It was almost like a game, and it encouraged me to study and do my homework”
Other Comments

“I quickly stopped using the app when it continued to tell me that I needed to do more work because I was behind my classmates... I felt it belittled my studying, and in fact my grades have been far above others”

“It felt like a shaming tool”
Thank you!

Questions?

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