How Students REALLY Use On-Line Course Sites

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Objectives

- Collect user activity data for online course sites.
- Analyze activity data for interesting trends and patterns.
- Use activity data to improve teaching effectiveness and efficiency.
- Use activity data to monitor individual student participation.

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Agenda

- Background
- Capturing activity data
- Analyzing activity data
- Using activity data
  – Improving the course site
  – Monitoring individual students
- Group discussion
- Recommendations and next steps

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DeVry University-Long Beach

- Located near the airport in Long Beach, California.
- Offers regionally accredited, career-oriented Associates, Bachelors and Masters programs in technology and business.
- Part of the DeVry University system of 72 locations throughout North America.
- Variety of course delivery formats.
- Year-round schedule.
- All courses in all delivery formats must use a Course Management System by Summer 2005.

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Course Delivery Formats

Delivery Format	Length	On-site Component	Online Component
Standard	15 week term	1 contact hr per lecture credit, 2 per lab credit	"Augmented"
Compressed	8 week session	Same total as standard	"Augmented"
Hybrid ("iOptimized")	8 week session	3.5 contact hours per week	Rest of contact hours are online
Online	8 week session	None	All online

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Course Management Systems

- "Internet-based software that manages student enrollment, tracks student performance, and creates and distributes course content." [1]
  - Examples: Blackboard, WebCT, eCollege
- 92% of institutions have a Course Management System (CMS).[2]
- 1/3 of college courses use a CMS. [3]
- Little guidance is available for teachers on how to use a CMS effectively. [1]

[1] Ullman, C., & Rabinowitz, M. (2004). http://www.thejournal.com/magazine/vault/A5070.cfm

[2] Randall, S. (2004). Based on Educause Core Data Service survey. http://www.libraryjournal.com/index.asp?layout=articlePrint&articleID=CA456250

[3] Green, K. C. (2003). http://www.campus-technology.com/print.asp?ID=8574

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DeVry eLearning Platform
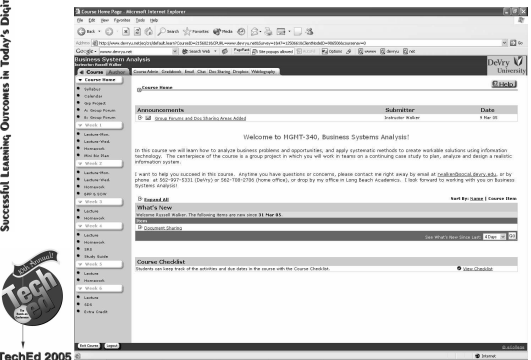
- Common CMS used for:
  - Augmenting standard and compressed courses
  - Online component of hybrid courses
  - Online courses
- Delivered through eCollege
- Provides standard CMS functionality including:
  - Distribution of course materials
  - Threaded discussion forums
  - Dropbox for submission and return of assignments
  - Online gradebook
  - Email to instructor and class members
  - Doc Sharing and Webliography
  - Online exams and quizzes

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Sample Course Site

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User Activity Data

- When and for how long each student was online in the course site.
- Specific pages or areas of the site that they visited, and time they spent on each page.
- Documents they uploaded or downloaded.
- Available from all major CMSs.
  – View online.
  – Export to spreadsheet for detailed analysis.
- A course site not hosted by a CMS can gather similar information from site statistics captured by the Web server software.

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Capturing Activity Data in eCollege

- Available through User Activity button under Gradebook tab.
- View By Unit shows minutes each student spent in each course segment.
- View By Date shows minutes each student spent online each day.
- Drill-down to more detail:
  – By student
  – By content item
- Any view can be exported in CSV format for spreadsheet analysis.

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Activity Summary by Unit

Course Admin Gradebook Email Chat Doc Sharing Dropbox Webliography

User Activity

Tips Help

| View Gradebook | User Activity | Setup Gradebook |

Select User Activity view: View by Week Go

Export User Activity

(User Activity information is current as of 4/3/2005 11:59 PM - all times are displayed in minutes)

User Activity Summary

	Course Home	1	2	3	4	5	6	Course Tools	Total
Walker, Russell	402	53	119	52	105	89	6	968	1499
Student A	256	47	23	49	185	2	47	930	1339
Student B	543	12	5	63	3	26	0	860	1082
Student C	215	5	236	152	3	1	1	562	1116
Student D	122	0	1	0	56	0	0	135	249
Student E	131	101	59	60	12	9	1	225	518
Student F	270	328	227	241	156	92	2	614	1864
Student G	110	436	308	139	98	48	0	413	1456
Student H	13	7	5	9	42	0	0	30	92
Student I	248	122	90	41	49	108	7	289	822
Student J	96	14	118	128	21	22	1	219	585

Summary by Date

Course Admin Gradebook Email Chat Doc Sharing Dropbox Webliography

User Activity

Tips Help

| View Gradebook | User Activity | Setup Gradebook |

Select User Activity view: View by Date Go

Export User Activity

(User Activity information is current as of 4/3/2005 11:59 PM - all times are displayed in minutes)

Activity by Date

From: March 28 2005 To: April 4 2005 Go

	3/28	3/29	3/30	3/31	4/1	4/2	4/3	4/4	Total
Walker, Russell	94	151	67	28	0	0	0	0	340
Student A	46	46	0	50	50	0	47	0	239
Student B	47	147	46	78	1	0	0	0	319
Student C	6	3	2	3	0	1	0	0	14
Student D	66	1	1	0	0	0	0	0	68
Student E	8	14	2	0	17	0	0	0	42
Student F	131	31	88	95	0	0	0	0	345
Student G	102	3	0	51	0	0	40	0	204
Student H	6	0	0	5	0	0	0	0	11
Student I	0	2	5	64	2	125	2	0	200
Student J	1	0	0	1	1	22	0	0	25

Course Unit Detail

Course Author

Course Admin Gradebook Email Chat Doc Sharing Dropbox Webliography

Course Home
Syllabus
Calendar
Gp-Project
A- Group Forum
B- Setup Forum
Week 1
Week 2
Week 3
Week 4
Lecture
Homework
SRS
Study Guide
Week 5
Week 6

User Activity

Tips Help

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Back

Select User Activity view: View by Week Go

Export User Activity

(User Activity information is current as of 4/3/2005 11:59 PM - all times are displayed in minutes)

Week 4

	Home Page	Lecture	Homework	SRS	Study Gui...	Total
Walker, Russell	53	0	32	0	19	105
Student A	1	51	51	1	1	185
Student B	1	0	1	1	0	3
Student C	1	0	2	0	0	3
Student D	1	1	53	0	1	56
Student E	1	0	7	2	1	12
Student F	47	51	45	1	1	156
Student G	1	51	45	1	0	98
Student H	1	40	1	0	0	42
Student I	1	0	48	0	0	49
Student J	1	0	3	5	12	21

Student Detail

User Activity:	Student A	
Course Home		4 hours, 16 mins
Week 1	47 mins	
Week 2	23 mins	
Week 3	49 mins	
Week 4		3 hours, 9 mins
Home Page	1 min	
Lecture		1 hour, 31 mins
Homework		1 hour, 31 mins
SRS	1 min	
Study Guide	2 mins	
Week 5	2 mins	
Week 6	47 mins	
Course Tools		15 hours, 30 mins
Course Autho...	0 min	
Drop Box		3 hours, 23 mins
Gradebook		5 hours, 29 mins
Email	0 min	
Chat	0 min	
ClassLive	0 min	
Search	0 min	
Doc Sharing		5 hours, 50 mins
Journal	0 min	
Weblilography	48 mins	

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Activity Data from Other CMSs

- Blackboard
  - Reporting and Performance Dashboard
    - "The Performance Dashboard provides a view of student progress adn indicates whether students have reviewed specific content items. Content Tracking provides usage statistics (filterable by user or date range) for individual content items. Similarly, Course Statistics provides usage data for an entire course."
      - http://www.blackboard.com/docs/AS/Bb_Learning_System_Whitepaper_Capabilities.pdf
- WebCT
  - Lists "Activity Tracking" as a feature of the WebCT Virtual Course Environment
    - http://www.webct.com/software/viewpage?name=software_virtual#instructor

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Courses Analyzed

- Six compressed courses "augmented" with an eCollege course site
  - BIS-355, Database & Web Integration (Spring 04 and Fall 04)
  - MGMT-340, Business Systems Analysis (Summer 04 and Fall 04)
  - COMP-313, Intro to Programming with Java (Spring 04)
  - BSOP-206, Operations Strategy (Summer 04)
- One hybrid ("iOptimized") course
  - MGMT-404, Project Management (Fall 04)

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Augmented Course Features

- Lecture slides posted for online viewing and downloading.
- Homework, lab and project instructions posted.
- Online gradebook.
- Assignment submission and return via dropbox.
  - Use of dropbox was required.
- Syllabus stated that students were required to log into course site at least once per week and would be held responsible for information posted there.
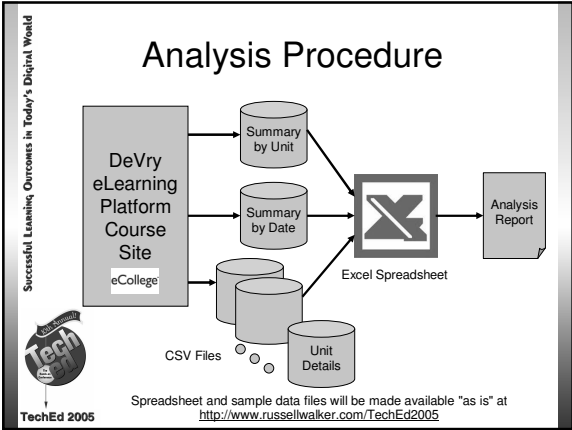
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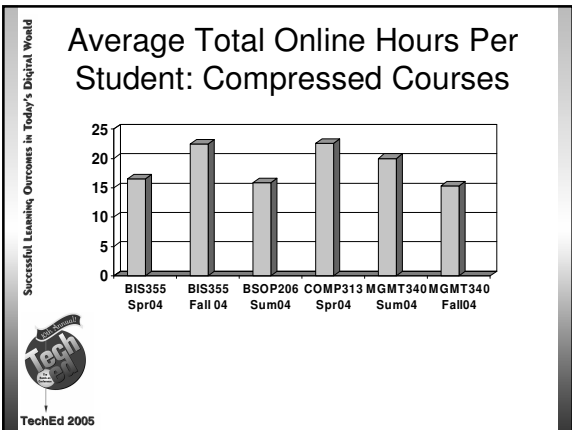

Factors Analyzed

- Online hours per student
  - Average, min, max, distribution
  - Ratio of online to onsite contact hours
- Online participation rates
  - Percent of students
  - Frequency
- Online time by date
  - Cycles and trends
- Analysis by content type
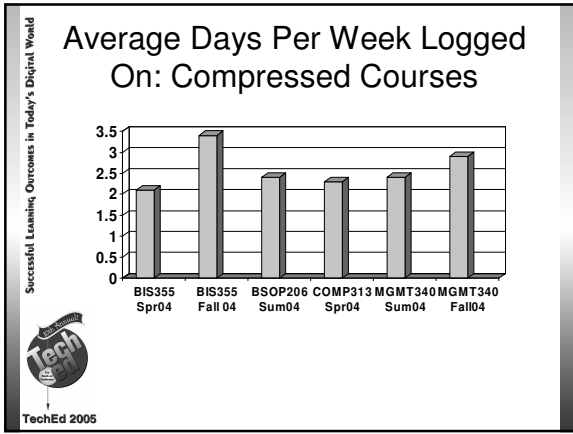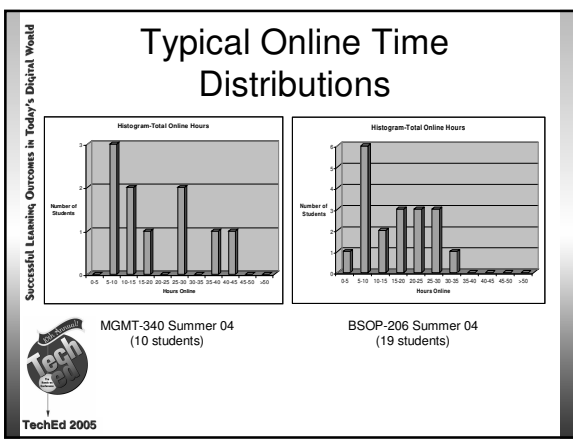 - Time spent
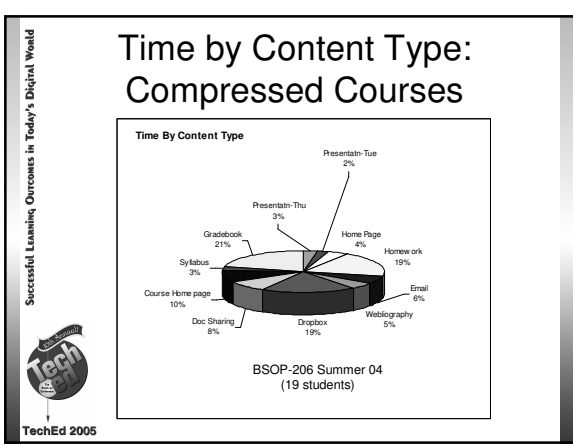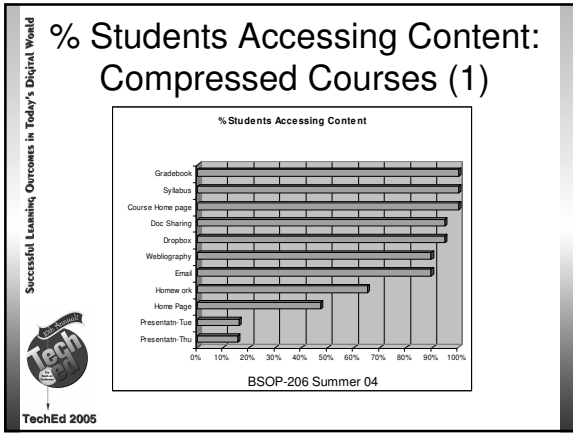 - Percent of students who accessed

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Analysis Procedure

DeVry eLearning Platform Course Site

eCollege

Summary by Unit

Summary by Date

CSV Files

Unit Details

Excel Spreadsheet

Analysis Report

Spreadsheet and sample data files will be made available "as is" at
http://www.russellwalker.com/TechEd2005

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Online Hours Per Student: Compressed Courses

- Overall average was 18.8 hours
  - Average ranged from 15.3 – 22.6 hours
  - Wide variation by student within each course
    - Typical min-max range was 5.7 - 44.0 hours
    - Average standard deviation was 11.8 hours
- Average online/on-site ratio was 0.26
  - Range was 0.21 – 0.31
- 100% of students participated online
  - Forced by requirement to submit assignments online
- Average student logged onto course site on 20.4 days during the 8-week term
  - Logged on about 2.5x per week
  - Range was 2.1 – 3.4x per week over all 6 courses

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Average Total Online Hours Per Student: Compressed Courses

Bar chart with y-axis from 0 to 25. Categories: BIS355 Spr04, BIS355 Fall 04, BSOP206 Sum04, COMP313 Spr04, MGMT340 Sum04, MGMT340 Fall04

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Average Days Per Week Logged On: Compressed Courses

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Typical Online Time Distributions

Histogram-Total Online Hours

Histogram-Total Online Hours

MGMT-340 Summer 04
(10 students)

BSOP-206 Summer 04
(19 students)

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Time by Content Type: Compressed Courses

Time By Content Type

Presentatn-Tue 2%

Presentatn-Thu 3%

Home Page 4%

Homew ork 19%

Gradebook 21%

Syllabus 3%

Course Home page 10%

Email 6%

Doc Sharing 8%

Dropbox 19%

Webliography 5%

BSOP-206 Summer 04
(19 students)

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% Students Accessing Content: Compressed Courses (1)

% Students Accessing Content

Gradebook
Syllabus
Course Home page
Doc Sharing
Dropbox
Webliography
Email
Homework
Home Page
Presentatn-Tue
Presentatn-Thu

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

BSOP-206 Summer 04

Successful Learning Outcomes in Today's Digital World

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% Students Accessing Content: Compressed Courses (2)

% Students Accessing Content

Doc Sharing
Gradebook
Syllabus
Course Home page
Dropbox
Email
Homework
Home Page
Webliography
Lecture
Lecture-Tues.
Study Guide
Lecture-Sat.
SRS
BPP & SOW
Group Pres.
SDS
Mini Biz Plan

0% 20% 40% 60% 80% 100%

MGMT-340 Summer 04

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Hybrid "iOptimized" Course: MGMT-404 Fall 04

	Average for Compressed Courses	"iOptimized" Course (MGMT-404)
Avg. Total Online Hours	18.8	43.2
Range of Online Hours	5.7-44.0 Sd = 11.8	5.1-103.1 Sd = 26.3
Online/Onsite Ratio	0.26	1.54
Avg. Days Online Per Week	2.5	3.6

Successful Learning Outcomes in Today's Digital World

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Findings for Improving Course Sites

- Most effective current elements:
  - Dropbox
  - Gradebook
  - Doc Sharing
- Homework/lab instructions are only accessed by about 50% of students, but those who do spend significant time there.
  - Look for ways to encourage more students to use these resources.
- Students prefer to download lecture slides and study guides from Doc Sharing rather than view them online.
  - Time spent creating HTML versions can be better spent elsewhere.
- A Webliography assignment appears to be an effective way to drive student engagement with the Webliography.
- Your mileage may vary (YMMV).

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Monitoring Individual Students?

- Low online participation MAY be a "red flag" of lack of student involvement in the course.
- However high online time may indicate a student is struggling and spending excessive time trying to understand the material.
- No clear correlation between online time and student performance in "augmented" courses.
- Does give us another indicator to watch for possible intervention.

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Group Discussion Exercise

Successful Learning Outcomes in Today's Digital World

- Within your small group (or with your partner), briefly discuss the following:
  – What is the one thing you would most like to know about how students use your online course site?
  – How could you gather and analyze activity data to answer this question?
  – How will the answer affect your course site and your teaching?

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Recommendations and Next Steps

- Explore the activity tracking features of your CMS or Web server.
- Develop specific questions about how students use your course site, and design ways to analyze the activity data to answer them.
- Create an Excel spreadsheet tool to analyze activity data and present summary results in the format **you** want.
  - Start simple and build over time.
  - Use charts and graphs for data visualization.
- Make analysis of activity data part of your regular incremental improvement cycle.

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Resources

- Major CMS Vendor Web sites:
  - eCollege: www.ecollege.com
  - Blackboard: www.blackboard.com
  - WebCT: www.webct.com
- EDUCause Center for Applied Research (various surveys on use of CMSs):
  - www.educause.edu/ecar/
- Copy of this presentation, Excel analysis spreadsheet and sample data files:
  - www.russellwalker.com/TechEd2005/

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