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Providing meaningful learning analytics data to teachers: a tool to complete the loop

Professor Gregor Kennedy, Dr Linda Corrin and
Ms Paula De Barba (University of Melbourne, Australia)



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Providing meaningful learning analytics data to teachers: a tool to complete the loop

Gregor Kennedy, Linda Corrin
& Paula de Barba



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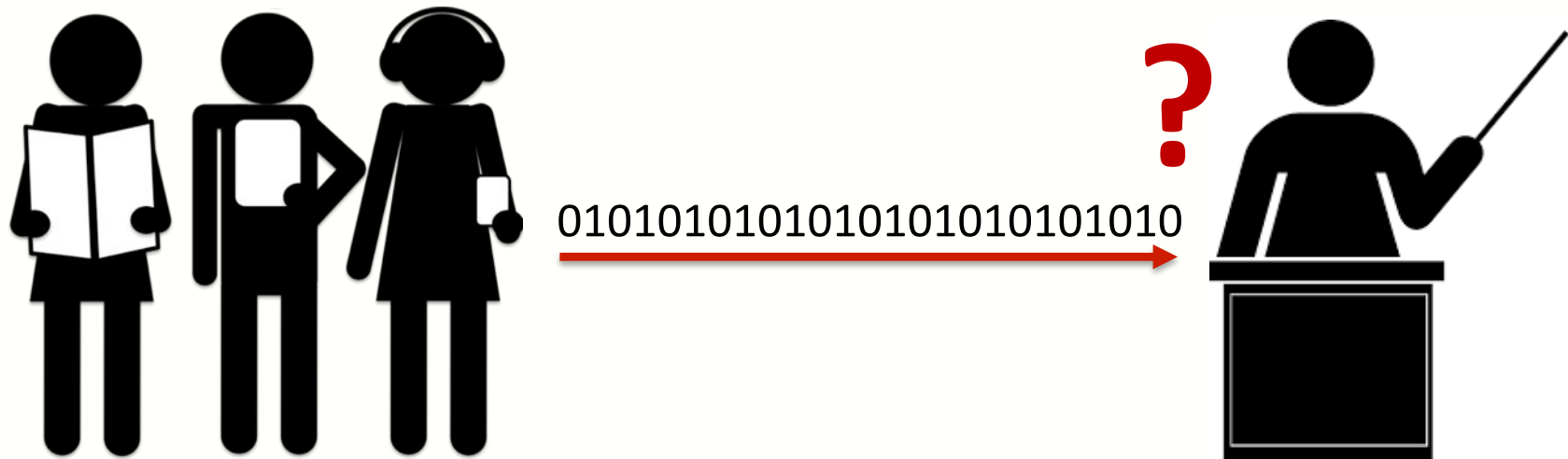
Project Details

Project leader:	Professor Gregor Kennedy, <i>University of Melbourne</i>
Project team:	Dr Linda Corrin, Professor David Williams, Professor Raoul Mulder <i>University of Melbourne</i> Professor Lori Lockyer, Dr Susie Khamis <i>Macquarie University</i> Professor Shane Dawson, Mr Scott Copeland <i>University of South Australia</i>
Project officer:	Ms Paula de Barba, <i>University of Melbourne</i>
Programmer:	Ms Aneesha Bakharia, <i>University of South Australia</i>
Reference group:	Professor Barney Dalgarno, <i>Charles Sturt University</i> Professor Sue Bennett, <i>University of Wollongong</i> Dr David Jones, <i>University of Southern Queensland</i> Professor Diana Laurillard, <i>University of London</i> Professor Maarten de Laat, <i>Open University Netherlands</i>
Funding body:	Office for Learning and Teaching



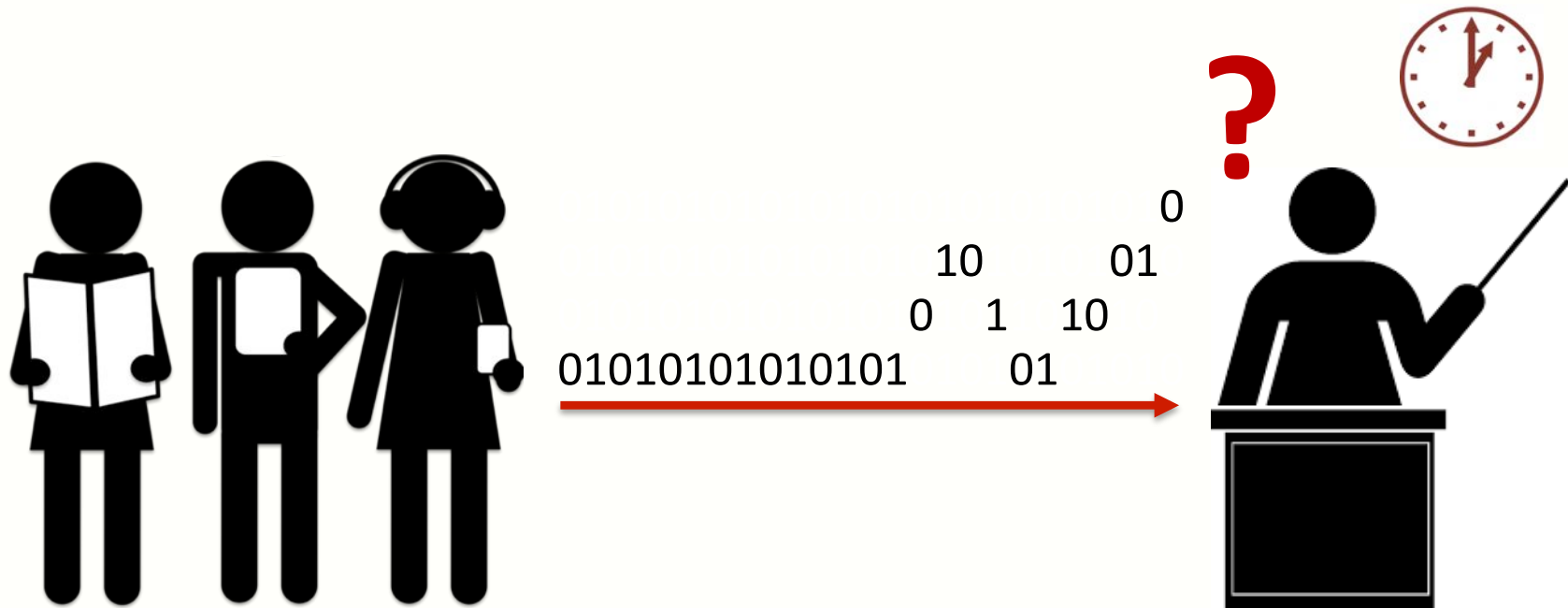
Background

The field of learning analytics offers the potential to enhance teaching and learning practices in higher education by providing an empirical basis for educational design and delivery



Background

The field of learning analytics offers the potential to enhance teaching and learning practices in higher education by providing an empirical basis for educational design and delivery



Aims of the project

This project will investigate ways to deliver useful learning analytics to academic teachers in higher education.

It aims to:

1

Better understand how analytics can be interpreted, applied and actioned by teaching academic staff

2

“Complete the loop” by providing easily accessible data to teachers about their students’ interactions in online learning environments

Phases of the Project

1

Explore teaching problems and analytics solutions

Interviews with 12 teaching academics
(4 from each participating institution)

- Pedagogical intent
- Educational technologies
- Educational problems/situations
- Needs and wants

Findings from Phase 1

1

Explore teaching problems and analytics solutions

Participants had fairly basic requests concerning their needs and ideas of how leaning analytics can be used and retrieved from their courses.

Findings from Phase 1

1

Explore teaching problems and analytics solutions

Such requests mainly focused on analytics around student engagement, specifically frequency of access to resources.

Findings from Phase 1

1

Explore teaching problems and analytics solutions

Due to the blended nature of their teaching, few participants made use of interactive online activities such as quizzes and discussions, limiting the availability of data.

Findings from Phase 1

1

Explore teaching problems and analytics solutions

Some participants wanted to relate data from the learning management system with data from other sources. For example, student evaluation surveys.

Findings from Phase 1

1

Explore teaching problems and analytics solutions

Participants expressed concern about their own ability to interpret the data, and identified a need for training in this area.

Findings from Phase 1

1

Explore teaching problems and analytics solutions

They were also concerned about the time it would take to collect, analyse and develop actions based on the learning analytics data.

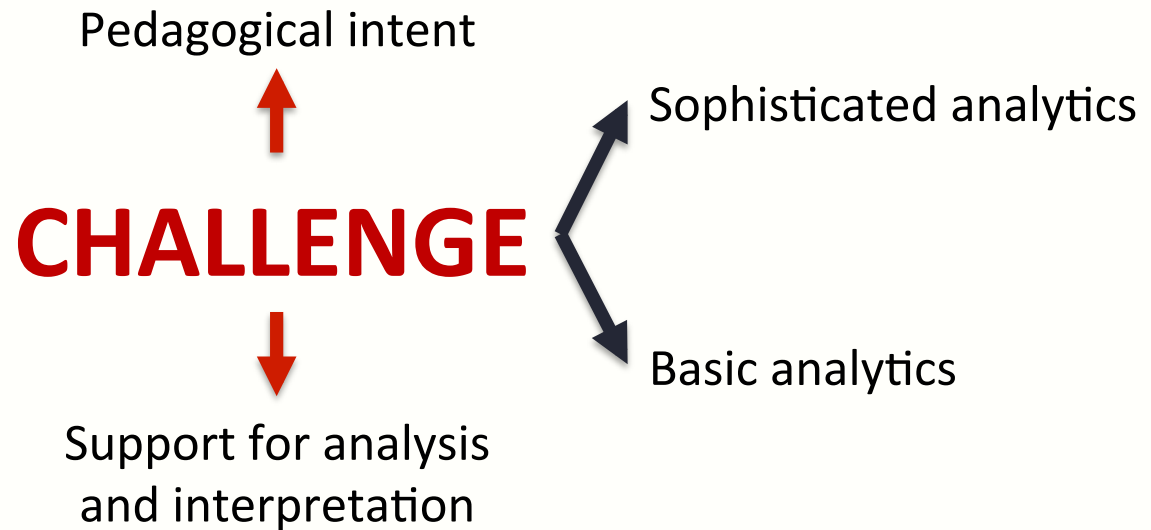
Challenges for Phase 2

1

Explore teaching problems and analytics solutions

2

Development of a web-based analytics tool



Phases of the Project

1

Explore teaching problems and analytics solutions

2

Development of a web-based analytics tool

Web-based tool

Extract data from Moodle/Blackboard

Pedagogical intent, technological tools & data

Course Dashboard

Course Access

Students

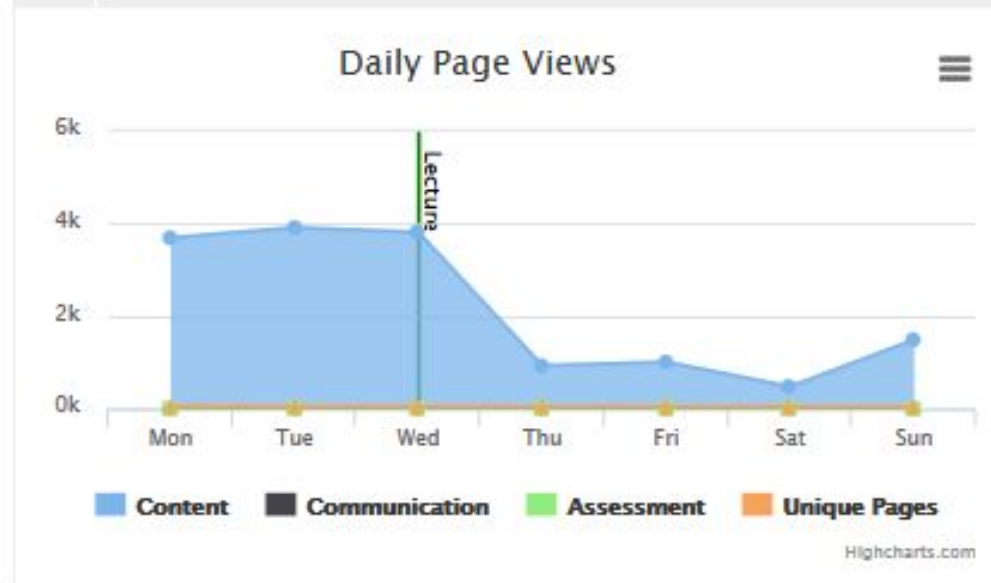
My Courses > Course: TEST - Dummy Course > Dashboard

Course Weekly Dashboard: Week 1 (July 27, 2015 - Aug. 2, 2015)

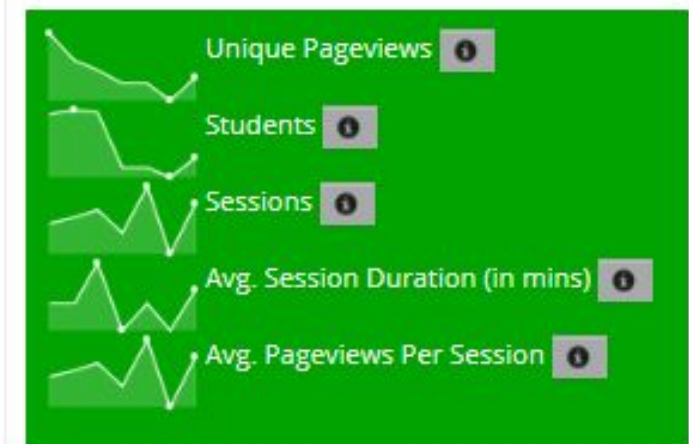
Week 1 ▾

Change Week

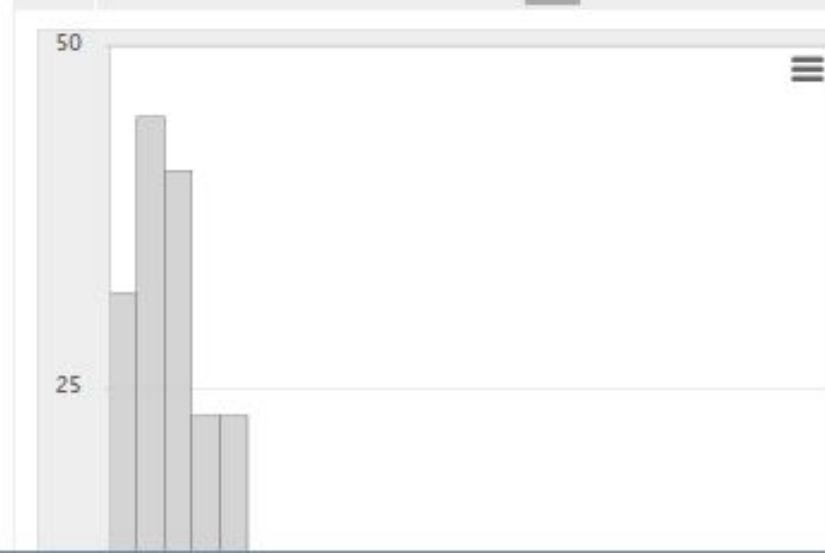
Pageviews



Week Metrics



Student Pageviews Histogram ⓘ



Top Accessed Content

Page	Type	Student Visits	Pageviews
Lecture 2	resource/x-bb-document	173	1182
Introduction lecture	resource/x-bb-file	172	1124
--TOP--	resource/x-bb-folder	171	1080
Lecture 4	resource/x-bb-document	170	1078

Course Dashboard

My Courses > Overall Course Dashboard - TEST - Dummy Course

Course Access

Course Members

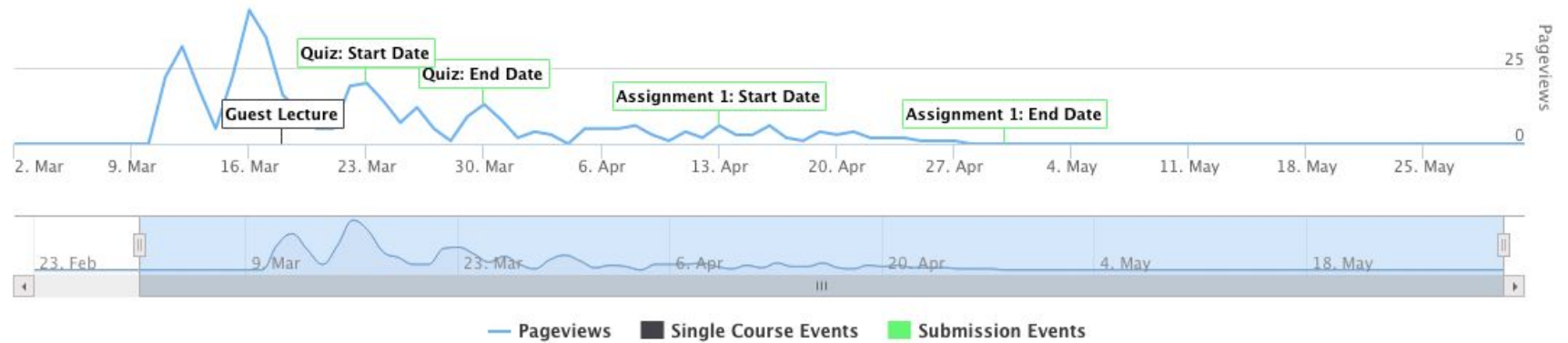
View All

Change Week

Pageviews

Zoom 1m 3m 6m YTD 1y All

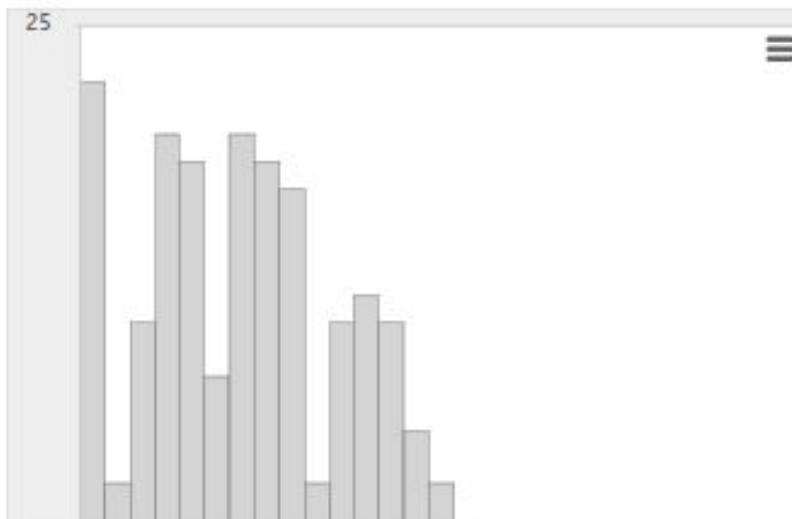
From Mar 2, 2015 To May 31, 2015



Highcharts.com

Update Based On Date Selection

User Pageviews Histogram



Top Accessed Content

Page	Type	Student Visits	Pageviews
Lecture Capture	resource/x-osc-basicti	186	10152
--TOP--	resource/x-bb-folder	225	9304
--TOP--	resource/x-bb-folder	235	9248
Lecture 14	resource/x-bb-document	230	9232

Top Site Visitors			
Firstname	Surname	Role	Pageviews
Student	Student	STUDENT	2850
Student	Student	STUDENT	2804
Student	Student	STUDENT	2537
Student	Student	STUDENT	2399
Student	Student	STUDENT	2169
Student	Student	STUDENT	2092
Student	Student	STUDENT	2074
Student	Student	STUDENT	1913
Student	Student	STUDENT	1876
Student	Student	STUDENT	1865

Communication Tool Access				
Title	Type	Unique Students	Pageviews	No Posts
Drugs news	resource/x-bb-discussionboard	25	130	6
Tutorial discussions	resource/x-bb-discussionboard	11	46	2
Lecture discussions	resource/x-bb-discussionboard	11	36	1
Peer marking	resource/x-bb-discussionboard	4	14	1

Assessment Access				
Title	Type	Unique Students	Attempts	Average Student Score
Drugs that Shape assignment	resource/x-turnitin-assignment	0	0	0
Peer assessment marks submission	resource/x-turnitin-assignment	0	0	0
Online test	assessment/x	207	410	0

Course Dashboard

Course Access

Content

Communication

Assessment

Students

My Courses > Course: TEST - Dummy Course > Content: > --TOP-- (resource/x-bb-folder)

Title: --TOP--

Type: resource/x-bb-folder

Pageviews

Zoom 1m 3m 6m YTD 1y All

From Aug 16, 2015 To Nov 16, 2015

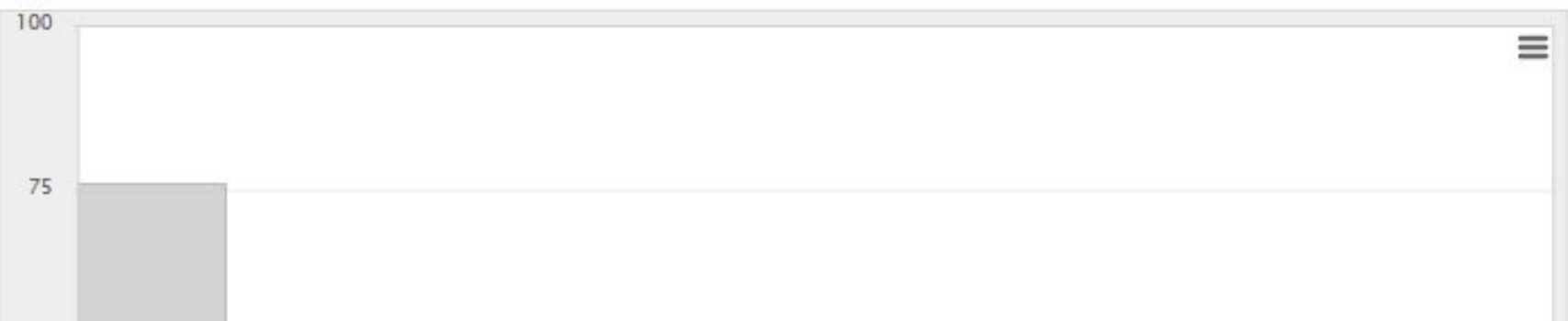


— Pageviews ■ Single Course Events ■ Submission Events

Highcharts.com

Update Based On Date Selection

Student Pageviews Histogram



Course Dashboard

Course Access

Content

Communication

Assessment

Students

My Courses > Course: ACCT1006 - Financial Accounting > Communication



Course Communication

Events

Unique Students

Posts

Pageviews

Name	Type	View	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11
All Forums 	Forum		0	0	0	0	0	0	0	0	0	0	0
Financial Accounting 1 - Course Content Forum	forum	View	0	0	0	99	261	201	423	983	43	29	68
Financial Accounting 1 - Off-Campus Student Forum	forum	View	0	0	0	63	144	45	89	395	16	54	59
Financial Accounting 1 - Administrative Queries Forum	forum	View	0	0	0	32	69	70	64	111	5	10	28
News forum	forum	View	0	0	0	0	2	0	0	0	1	0	0
Total			0	0	0	194	476	316	576	1489	65	93	155

Course Dashboard

Course Access

Content

Communication

Assessment

My Courses > Course: ACCT1006 - Financial Accounting > Communication



Course Communication

Events

Unique Students

Posts

Pageviews

Name	Type	View	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11
All Forums	Forum		0	0	0	0	0	0	0	0	0	0	0
 All Forums refers to views of the page that has links to each discussion forum	forum	View	0	0	0	99	261	201	423	983	43	29	68
Course Content Forum													
Financial Accounting 1 - Off-Campus Student Forum	forum	View	0	0	0	63	144	45	89	395	16	54	59
Financial Accounting 1 - Administrative Queries Forum	forum	View	0	0	0	32	69	70	64	111	5	10	28
News forum	forum	View	0	0	0	0	2	0	0	0	1	0	0
Total			0	0	0	194	476	316	576	1489	65	93	155

Course Dashboard

Course Access

Content

Communication

Assessment

Students

My Courses > Course: ACCT1006 - Financial Accounting > Communication

Course Communication






















Events

Unique Students

Repeating Course Events: Lecture (Tuesday)

Update

Note: Blue indicates the forum was viewed before the selected event, and Red after the event. The size of the circle is related to the number of posts. indicate higher number of posts.

Name	View	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
News forum	forum	View											
General Course & Assessment	forum	View											
Student Lounge	forum	View											

Pigeonferry

Name	Type	View	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Total	ROI	
Initiation Declaration questions	accountant's blog post	View	1,052	888	1,026	1,267	617	1,127	31	91	88	36	39	66	376	66	6,713	0.0749	
Concept Check 1: Mendelian Inheritance	accountant's blog post	View	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000	
Concept Check 1: Mendelian Inheritance(1)	accountant's blog post	View	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000	
Concept Check 2: Non-Mendelian Inheritance	accountant's blog post	View	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000	
Concept Check 1: Mendelian Inheritance(1)	accountant's blog post	View	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000	
Concept Check1: Mendelian Inheritance	accountant's blog post	View	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000	
Concept Check 2: Blood and Major Events of RBC	accountant's blog post	View	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000	
MIT1: Practice questions	accountant's blog post	View	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000	
Concept Check 3: Digestion	accountant's blog post	View	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000	
Concept Check 3: Reproduction	accountant's blog post	View	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000	
Practice MCQs	accountant's blog post	View	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000	
MIT2: Practice MCQs	accountant's blog post	View	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000	
Concept Check 3: Regulation	accountant's blog post	View	0	0	0	0	0	0	0	0	0	167	619	7485	261	162	26.7	8999	0.0196
Concept Check 3: AMI and Endocrine Systems	accountant's blog post	View	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000	
Concept Check 3: Digestion	accountant's blog post	View	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000	
Concept Check 3: Reproduction	accountant's blog post	View	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000	
Concept Check 1: Mendelian Inheritance	accountant's blog post	View	0	3838	1608	729	888	1961	76	119	160	877	1562	397	392	216	11238	0.7677	
Concept Check 3: Non-Mendelian Inheritance	accountant's blog post	View	0	0	1	2006	676	1866	78	121	178	367	1380	216	386	219	7336	0.5767	
Concept Check 3: AMI and Endocrine Systems	accountant's blog post	View	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000	
Concept Check 3: Reproduction	accountant's blog post	View	0	0	0	0	0	0	0	0	0	0	1	0	676	896	738	0.3676	
Concept Check 3: Digestion	accountant's blog post	View	0	0	0	0	0	0	166	386	288	677	3877	226	563	267	6099	0.0166	
Concept Check 3: Kidney	accountant's blog post	View	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000	
Week 50 Quiz	accountant's blog post	View	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000	
Week 50 Quiz	accountant's blog post	View	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000	
Week 52 Quiz	accountant's blog post	View	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000	
Week 56 Quiz	accountant's blog post	View	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000	
Week 10 Quiz	accountant's blog post	View	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000	
Week 57 Quiz	accountant's blog post	View	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000	
Week 12 Quiz	accountant's blog post	View	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000	
Week 59 Quiz	accountant's blog post	View	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000	
Week 58 Quiz	accountant's blog post	View	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000	
Week 58 Quiz	accountant's blog post	View	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000	
Week 11 Quiz	accountant's blog post	View	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000	
Week 60 Quiz	accountant's blog post	View	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000	
Concept Check 2: Action Potentials and Neural Integration	accountant's blog post	View	0	0	2794	906	880	1812	72	111	179	384	1380	211	381	268	73836	0.4066	
CU 2: Action Potentials and Neural Integration Review	accountant's blog post	View	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000	
Concept Check 3: Cardiovascular System	accountant's blog post	View	0	0	0	0	0	0	0	628	228	876	2675	279	1668	266	6276	0.0338	
CU 6: Cardiovascular System Review	accountant's blog post	View	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000	
Concept Check 3: Kidney	accountant's blog post	View	0	0	0	0	0	0	0	0	0	0	1	280	629	629	1071	0.0770	

Course Dashboard

My Courses > Course: TEST - Dummy Course > Students

Course Access

Content

Communication

Assessment

Students



Students

Events

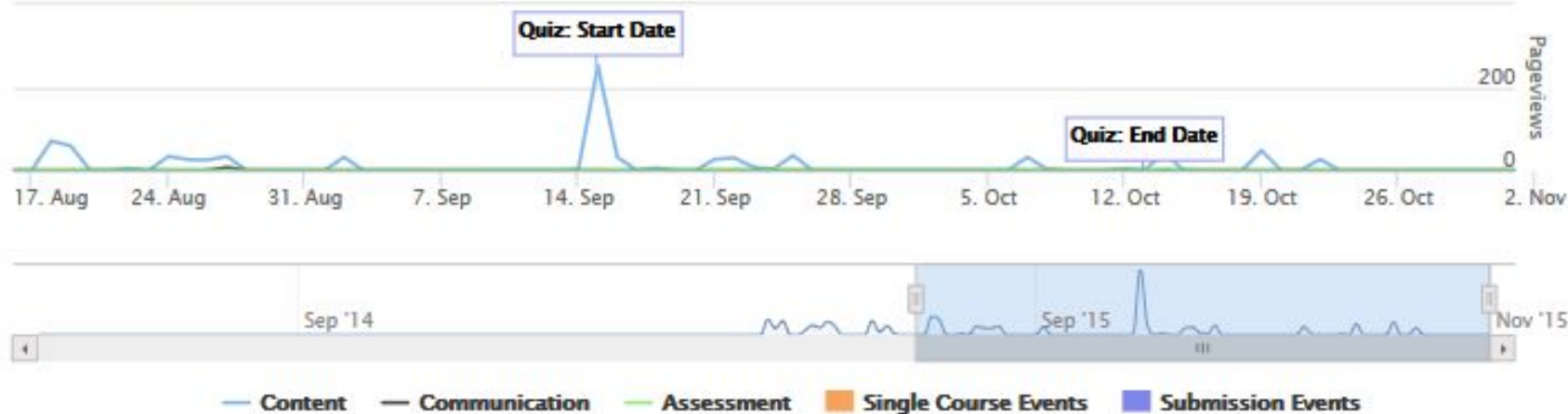
Pageviews

Firstname	Lastname	Account Type	View	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10
Student	Student	STUDENT	View	195	113	104	136	126	32	0	294	109	0
Student	Student	STUDENT	View	43	0	112	83	8	61	11	143	124	0
Student	Student	STUDENT	View	37	5	2	26	60	24	3	35	135	0
Student	Student	STUDENT	View	160	41	159	195	169	143	543	147	215	133
Student	Student	STUDENT	View	28	25	65	67	44	65	116	79	101	0
Student	Student	STUDENT	View	82	164	85	129	89	114	105	23	20	56
Student	Student	STUDENT	View	0	18	0	0	3	0	37	0	112	66
Student	Student	STUDENT	View	122	42	48	61	41	30	94	60	105	0
Student	Student	STUDENT	View	0	0	7	7	0	0	5	43	136	0
Student	Student	STUDENT	View	27	48	95	72	75	45	24	49	87	0
Student	Student	STUDENT	View	147	46	96	100	91	94	12	11	98	14
Student	Student	STUDENT	View	214	90	156	458	277	172	65	619	127	24
Student	Student	STUDENT	View	24	48	87	146	126	34	0	1	30	0
Student	Student	STUDENT	View	1	25	42	66	51	25	38	71	40	0

Pageviews

Zoom 1m **3m** 6m YTD 1y All

From Aug 16, 2015 To Nov 16, 2015



Update Based On Date Selection

Highcharts.com

Course Communication

Title	Type	Pageviews	Posts
Lecture discussions	resource/x-bb-discussionboard	4	0
Tutorial discussions	resource/x-bb-discussionboard	4	0
Drugs news	resource/x-bb-discussionboard	12	0

Course Assessment

Title	Type	Pageviews	Attempts	Average Student Score
Online test 1 2015	assessment/x-bb-qt-test	2	1	90.00
Online test 2	assessment/x-bb-qt-test	2	1	120.00

What's next?

1

Explore teaching problems and analytics solutions

2

Development of a web-based analytics tool

Pedagogical Helper

Input of learning outcomes

Connection with activities/assessments

Connection with technologies used

Available for consultation within the Loop tool/print

Pedagogical Helper Tool

Learning Outcomes	Learning Activities & Assessment	Tools

Print

Save PDF

Edit

What's next?

1

Explore teaching problems and analytics solutions

2

Development of a web-based analytics tool

3

Tool trial and dissemination

Analysis of tool pilot data
Further development of pedagogical support tool
Review of tool
Dissemination

Outcomes of the Project

1 Explore teaching problems and analytics solutions

2 Development of a web-based analytics tool

3 Tool trial and dissemination



Web-based analytics tool

Technical framework

Workshop series

Handbook

Academic papers

Final report

Website

THANK YOU



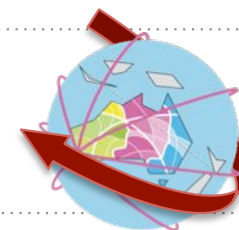
www.cshe.unimelb.edu.au/research/teaching/completingtheloop/



Transforming Assessment Webinar Series



This was a recall



ascilite2015
webinar session

Session feedback:

With thanks from your hosts

Professor Geoff Crisp,
Dean Learning and Teaching, RMIT University
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Dr Mathew Hillier,
Institute Teaching and Learning Innovation,
University of Queensland
[mathew.hillier\[at\]uq.edu.au](mailto:mathew.hillier[at]uq.edu.au)

Recording available

<http://transformingassessment.com>



e-Assessment SIG

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