

Social Network Analysis

Examining the Role of Network Ties in Supporting Knowledge Management

Jennifer Maddrell

AECT 2009 - Louisville, KY - October 29, 2009

Purpose

- Review of Sociology Literature
 - What can be learned about knowledge networks from **social network analysis** theory and research?
- Influence of Network Ties
- Heuristics and Questions from Research
- Network Examples
 - Networked Professional Development
 - Networked Classroom

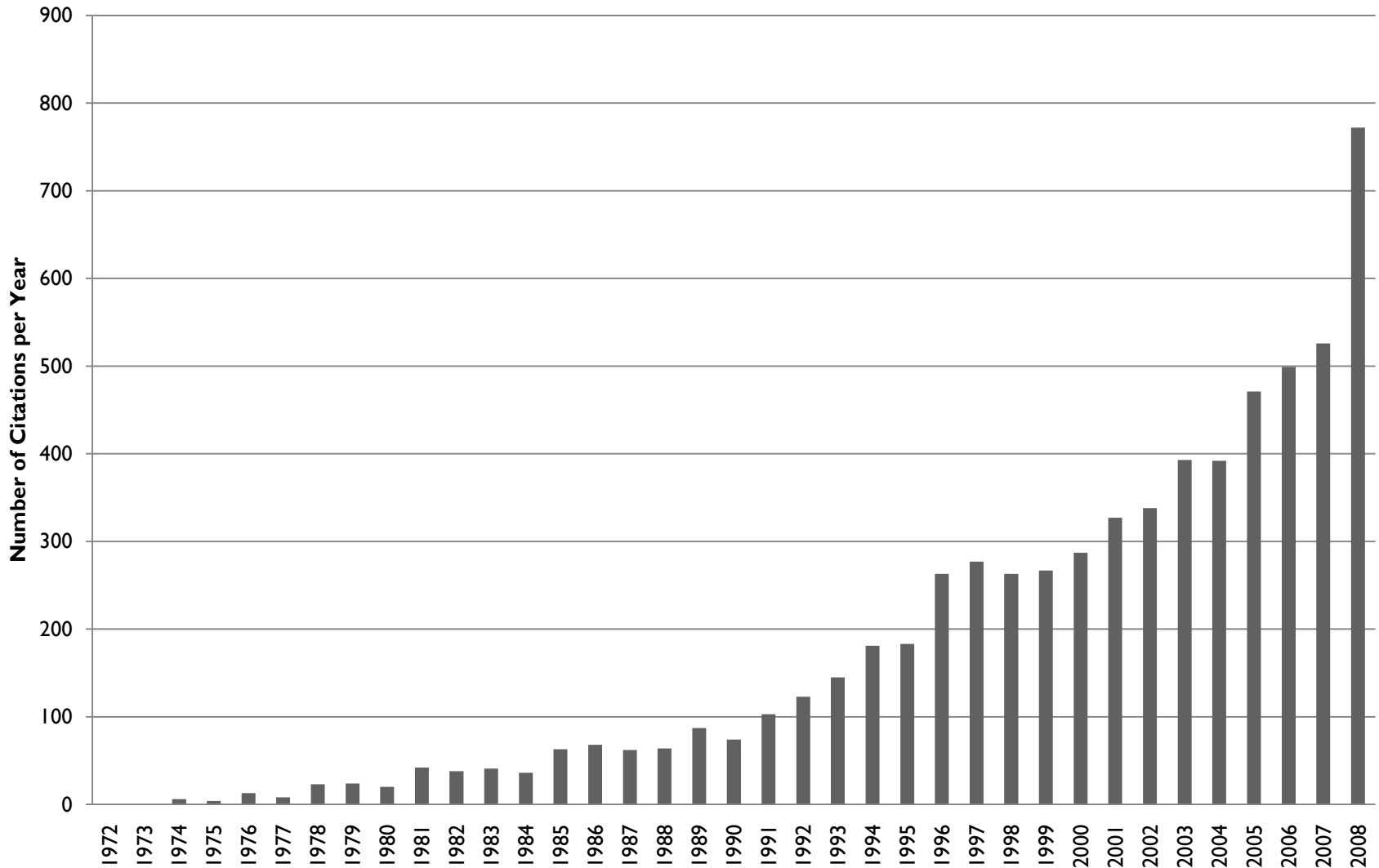
Social Network Analysis Researchers

Thomson Reuters

ISI Web of Knowledge Database

Author	Degree / Most Recent Affiliation	Publication	Times Cited
Breiger, RL	Ph.D., Harvard University (1975) University of Arizona, Professor of Sociology	22	1,072
Burt, RS	Ph.D., University of Chicago (1977) The University of Chicago, Professor of Sociology	72	3,563
Granovetter, MS	Ph.D., Harvard University (1970) Stanford University, Professor of Sociology	29	7,121
Knoke, D	Ph.D., University of Michigan (1972) University of Minnesota, Professor of Sociology	113	1,253
Marsden, PV	Ph.D., University of Chicago (1973) Harvard University, Professor of Sociology	81	2,054
Wellman, B	Ph.D., Harvard University (1969) University of Toronto, Professor of Sociology	60	2,092
White, HC	Ph.D., Massachusetts Institute of Technology Ph.D. Princeton University (1955) Columbia University, Professor of Sociology	122	1,928

Citations to Granovetter



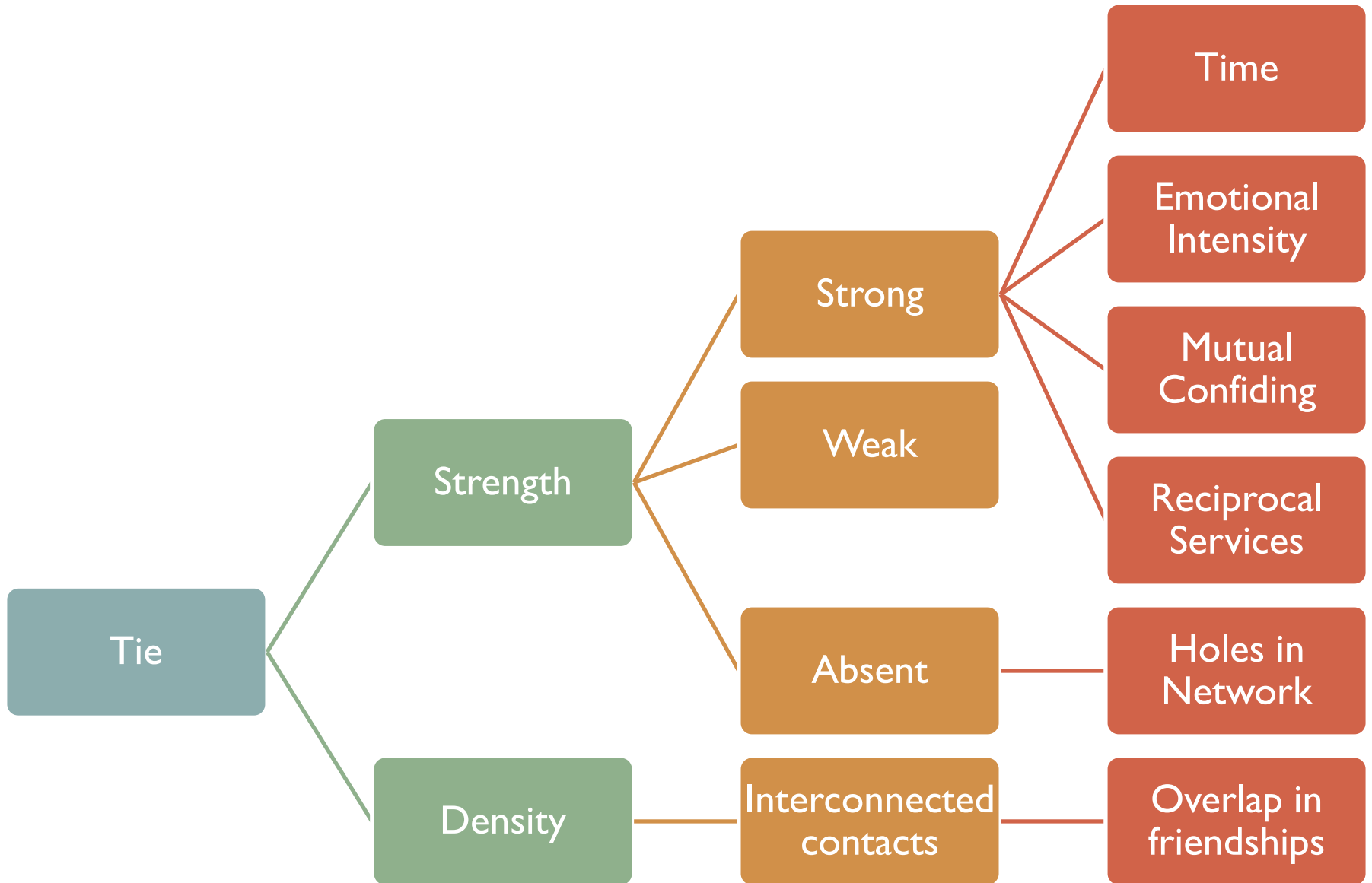
86% of Citations to 2 Papers

Granovetter, M. S. (1973). The Strength of Weak Ties. *The American Journal of Sociology*, 78(6), 1360-1380.

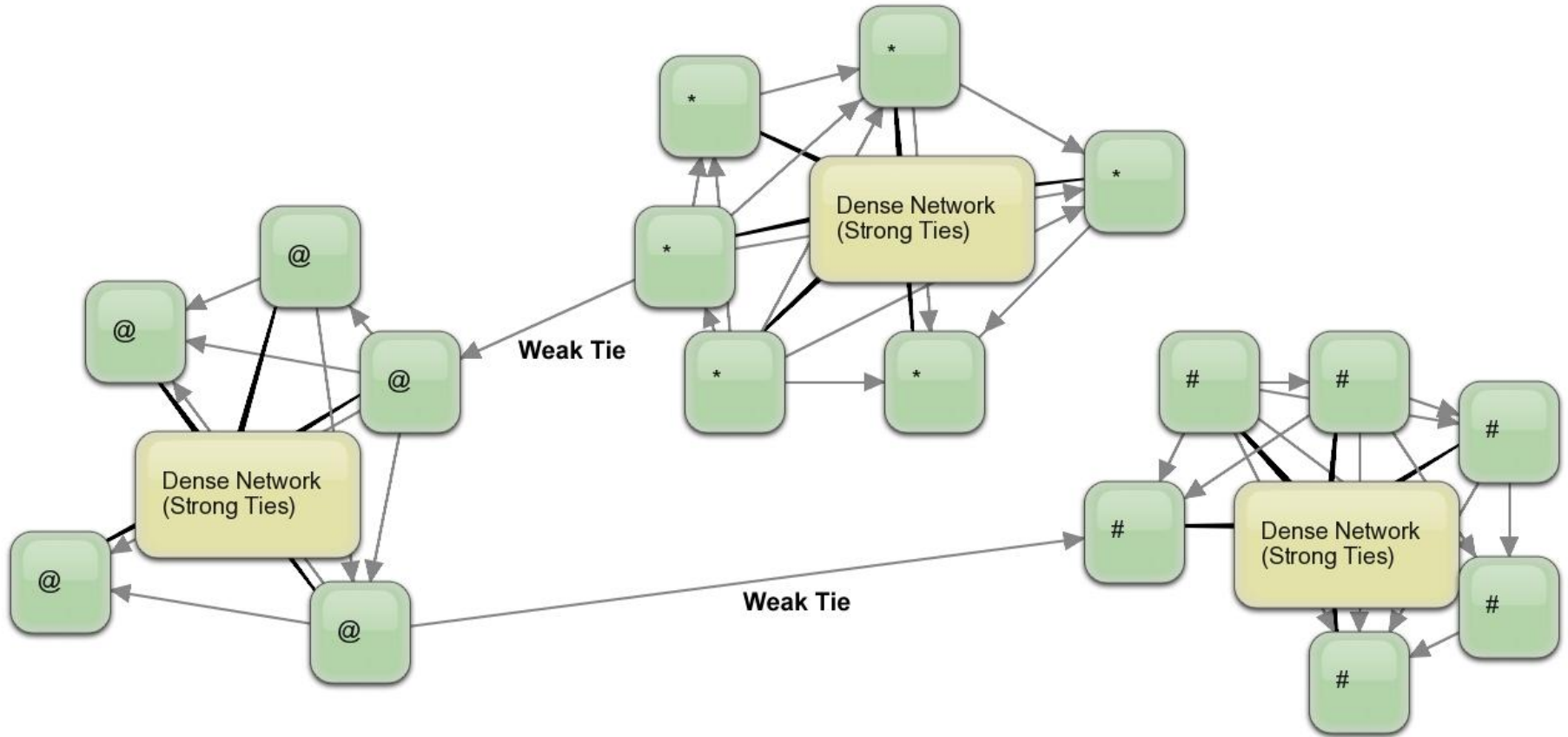
Granovetter, M. S. (1985). Economic action and social structure: The problem of embeddedness. *American Journal of Sociology*, 91(3), 481-510.

Granovetter Social Network Analysis

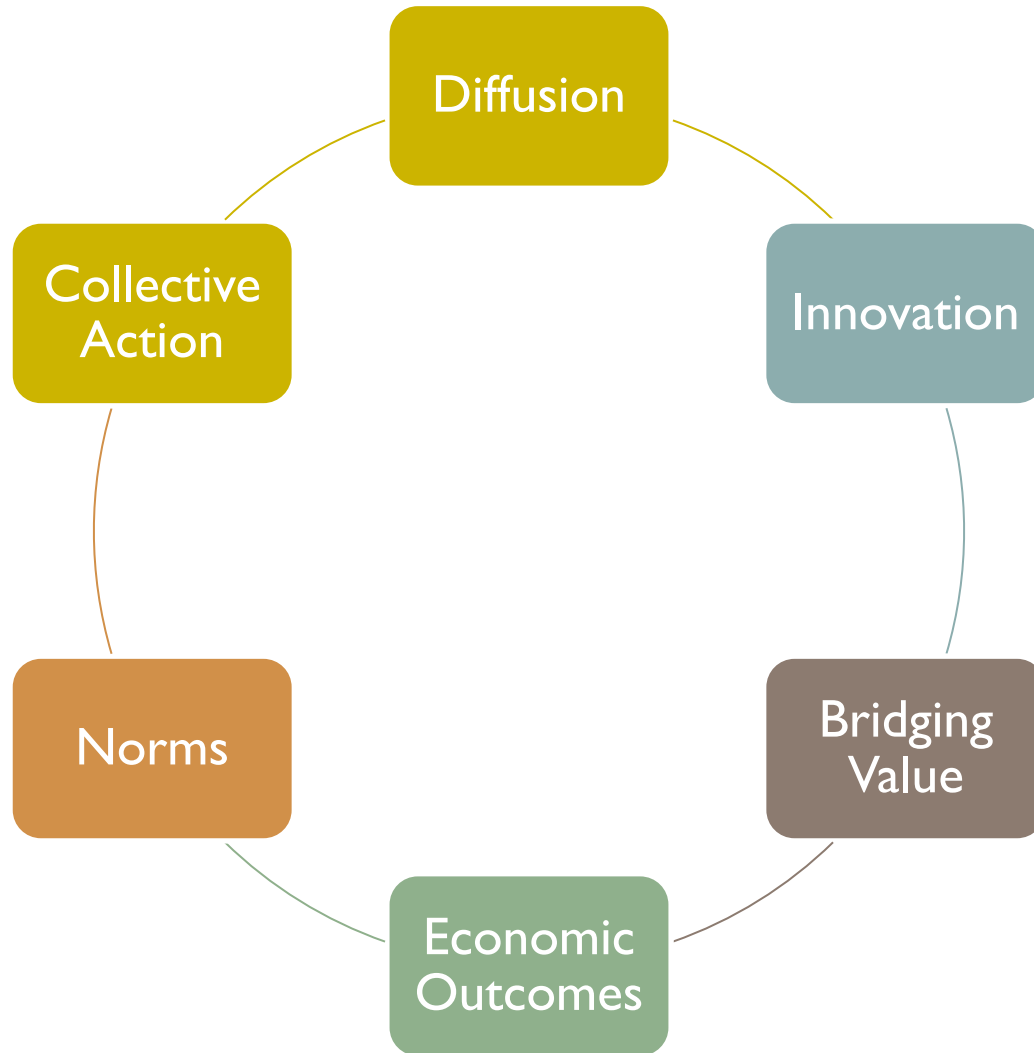
- Suggested as way to bridge micro and macro levels of sociological theory
 - Micro: small groups
 - Macro: diffusion, mobility, community organization
- Focuses on:
 - Strength of interpersonal ties
 - Impact of ties on macro level issues
 - Theory and research on social structure beyond the primary group and on relationships between groups



Strong and Weak Interpersonal Ties



Influence of Network Ties



Diffusion

- Assumptions
 - All bridges are weak ties
 - New information spreads through weak ties
- Implications
 - Those without weak ties lack new messages
 - However ... transmission through indirect ties can become distorted and prone to misunderstanding

Innovation

- Assumptions
 - Innovation requires new relationships
 - Need connections to novel resources, knowledge, information
- Implications
 - Weak ties who move in different social networks become **bridges to innovation**
 - However ... weakly connected ties problematic for sustained collaboration

Bridging Value

- Assumptions
 - Weak ties are valuable as they **facilitate connections** to other networks
 - Tends to hold true for higher rather than lower socioeconomic groups
- Implications
 - Weak ties **offer mobility** through new connections
 - Theory refined to suggest the **value** of each bridge not equivalent

Network Norms

- Assumptions
 - Dense networks have a high proportion of interconnections
 - Network **density** plays a role in establishing norms
- Implications
 - Norms will likely to form in dense networks more
 - Large groups less able to **set** and **enforce** norms

Collective Action

- Assumptions

- Cost of membership = network participation
- **Interdependence** fostered when one person's participation depends upon the participation of another

- Implications

- Discourages support for lurkers in the network
- **Reciprocal obligations** fuel collective action
- **Coordination of contributions** within network

Questions for Future Research

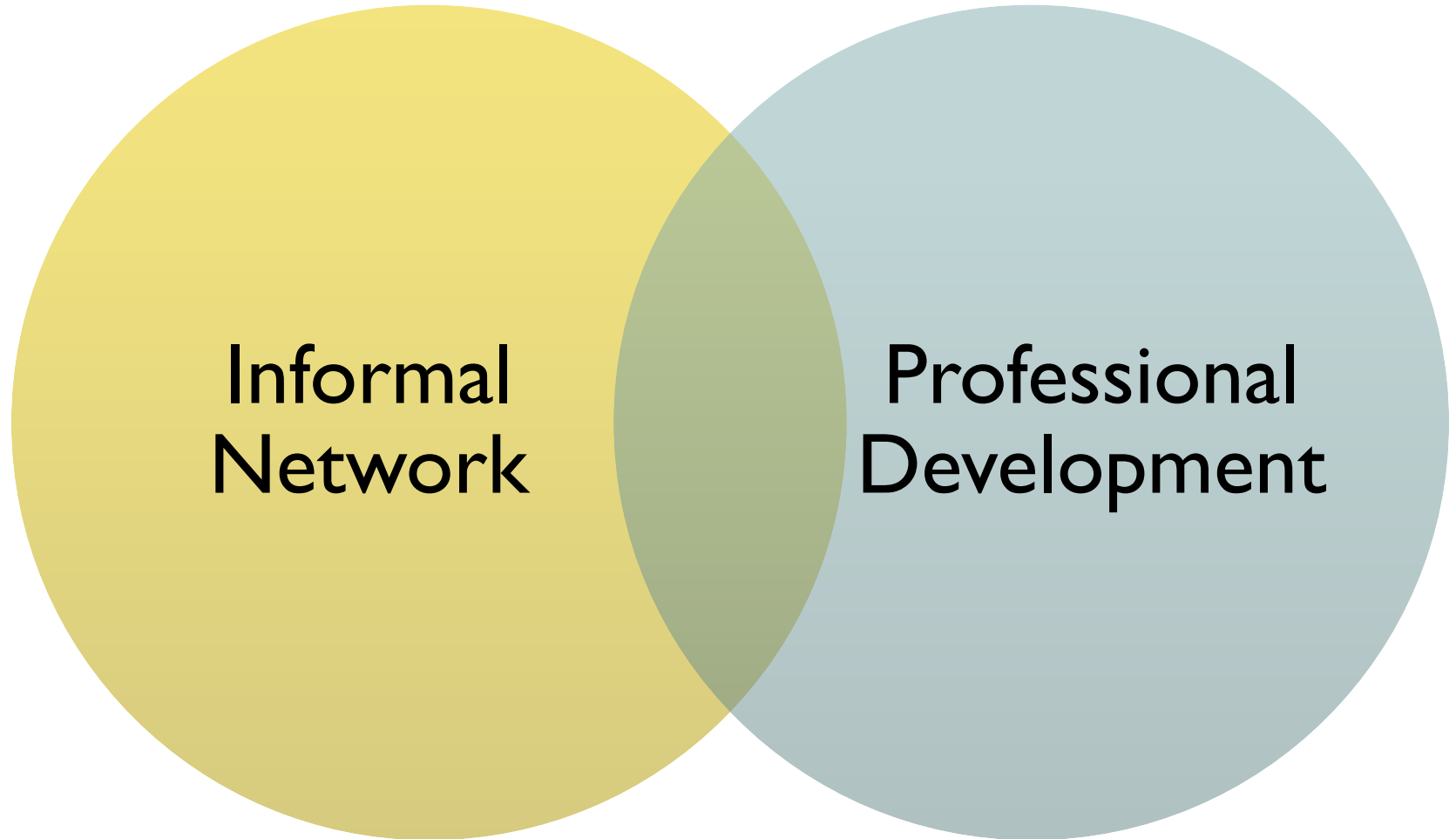
- What are the **characteristics** of weak tie bridges that make some successful and others less successful?
- How does network **content, governance and structure** emerge and develop over time?
- What is the potential for **interplay** between dense networks of **strong ties** and **weak tie bridges**?

Heuristics

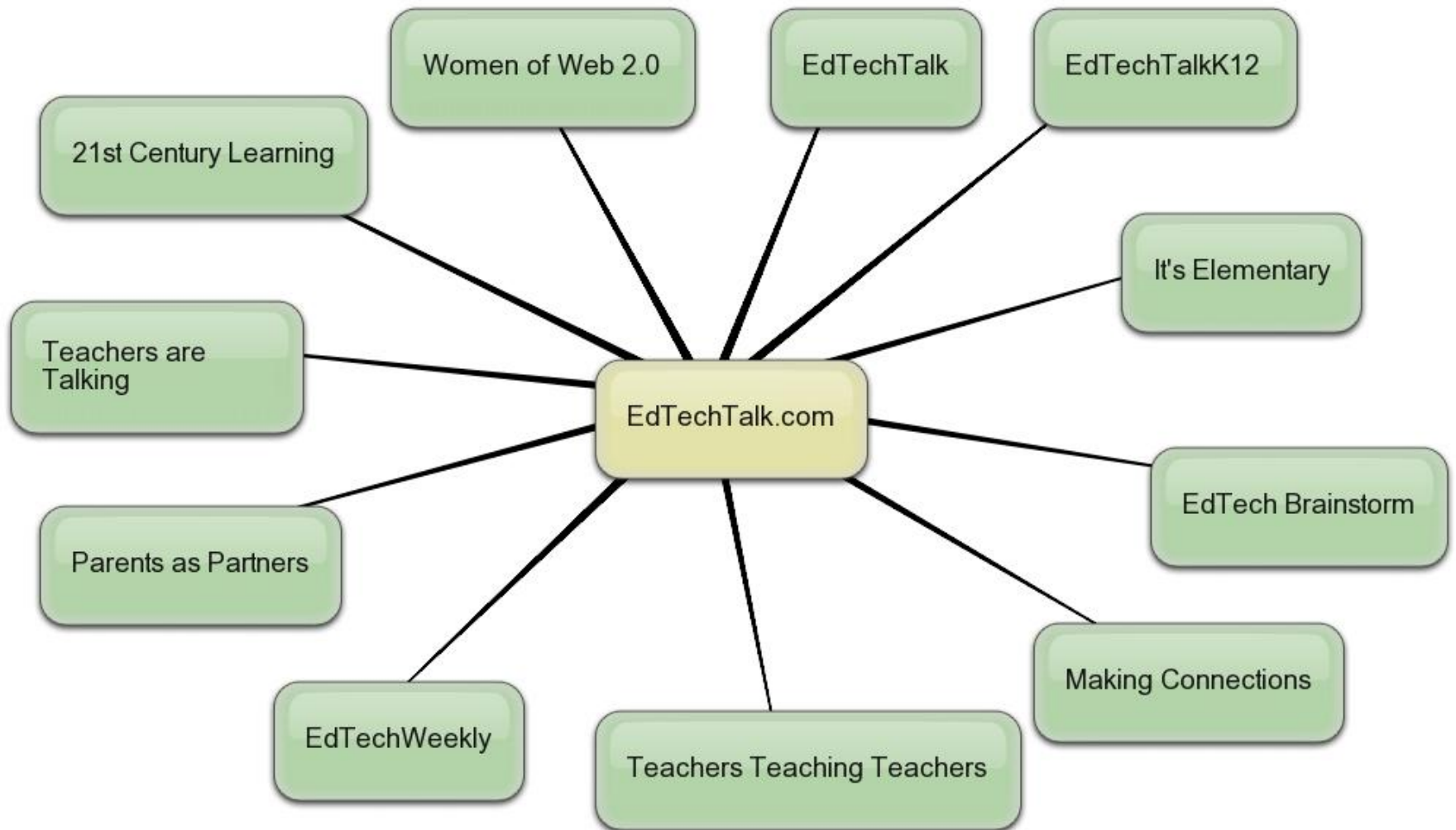
- Identify and utilize weak tie connections to spur innovation and message diffusion
 - Support inter-unit bridges
 - Span **structural holes** for strategic advantage
- Promote interdependence among strong tie clusters
 - Support relationships among densely clustered strong tie relationships through **coordination of contributions**
 - Recognize influence of **reciprocal obligation** on participation

Some examples ...

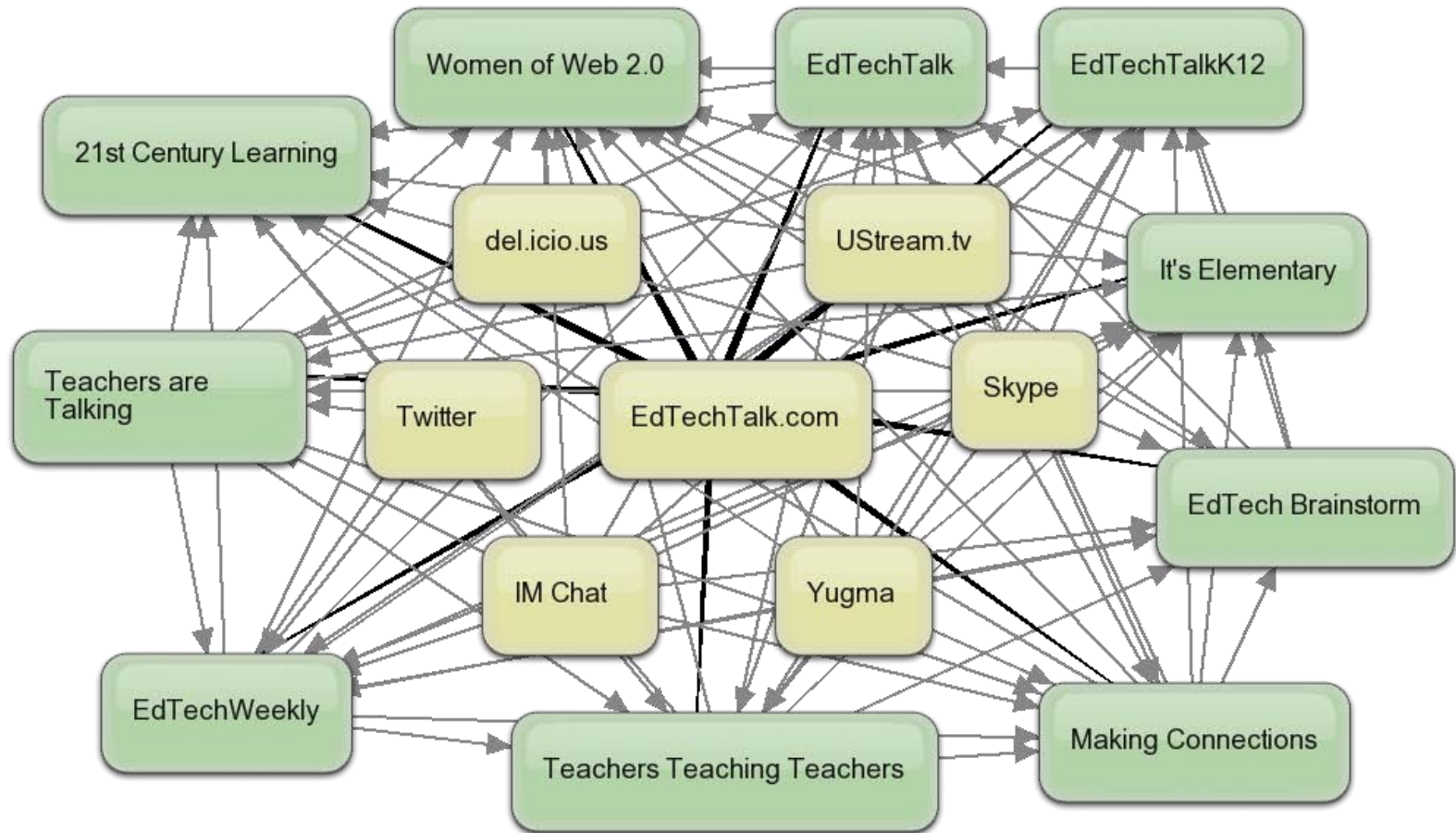
Networked Professional Development



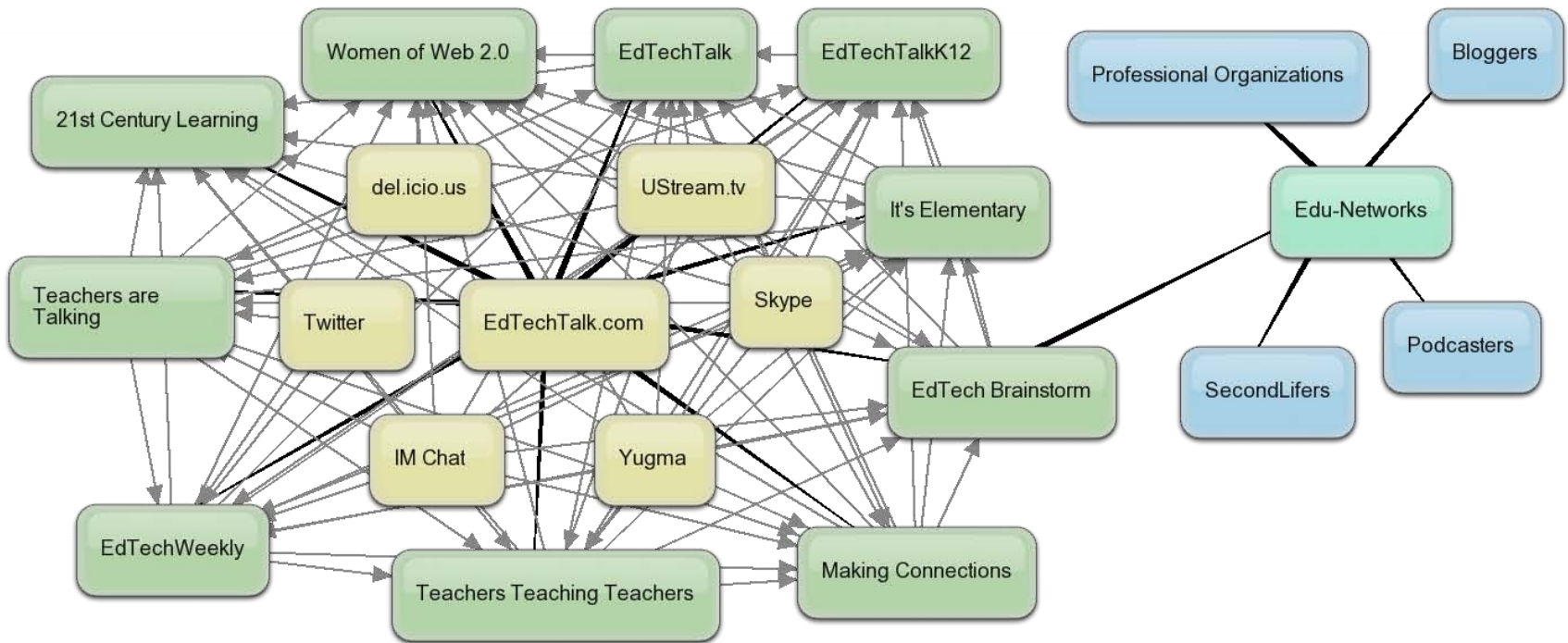
The EdTechTalk.com Webcasts



Networked Connections

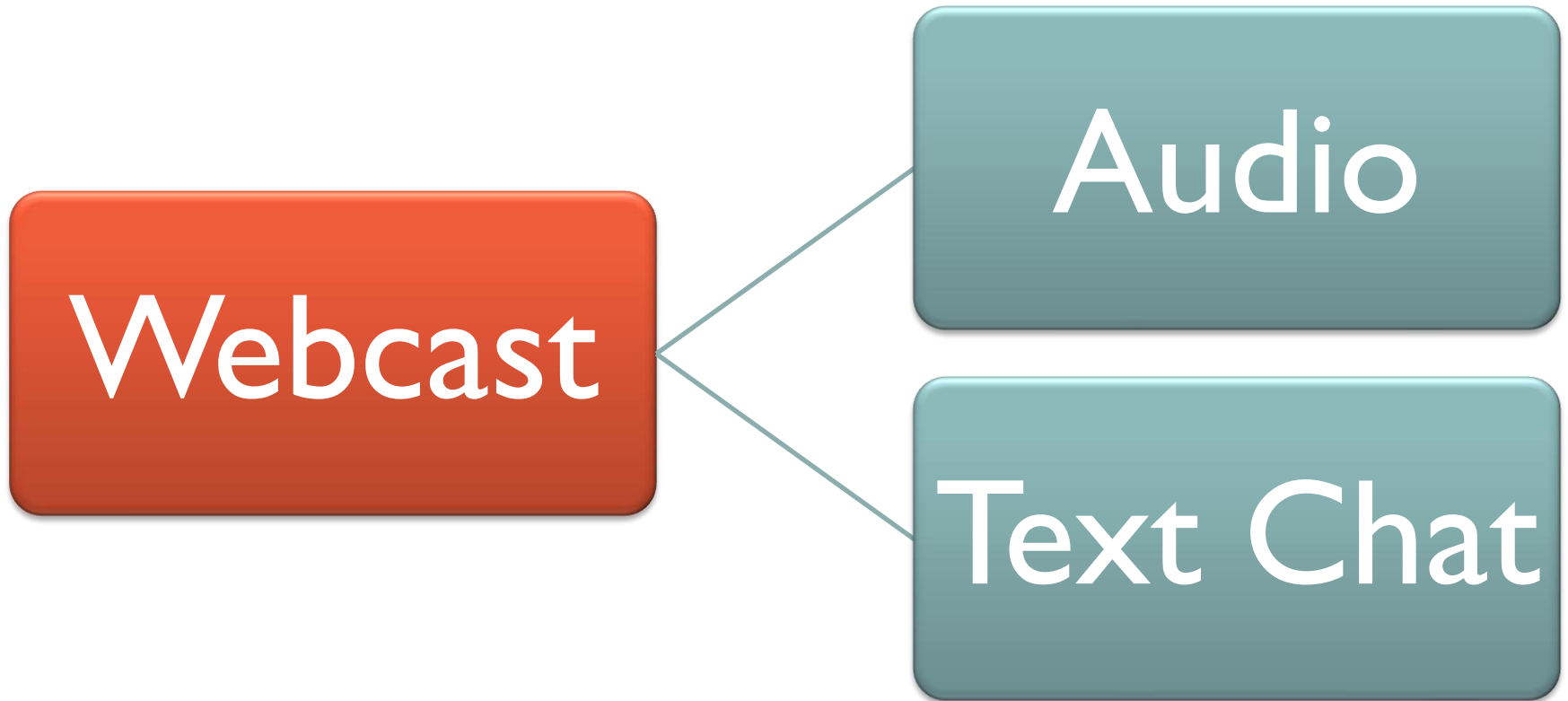


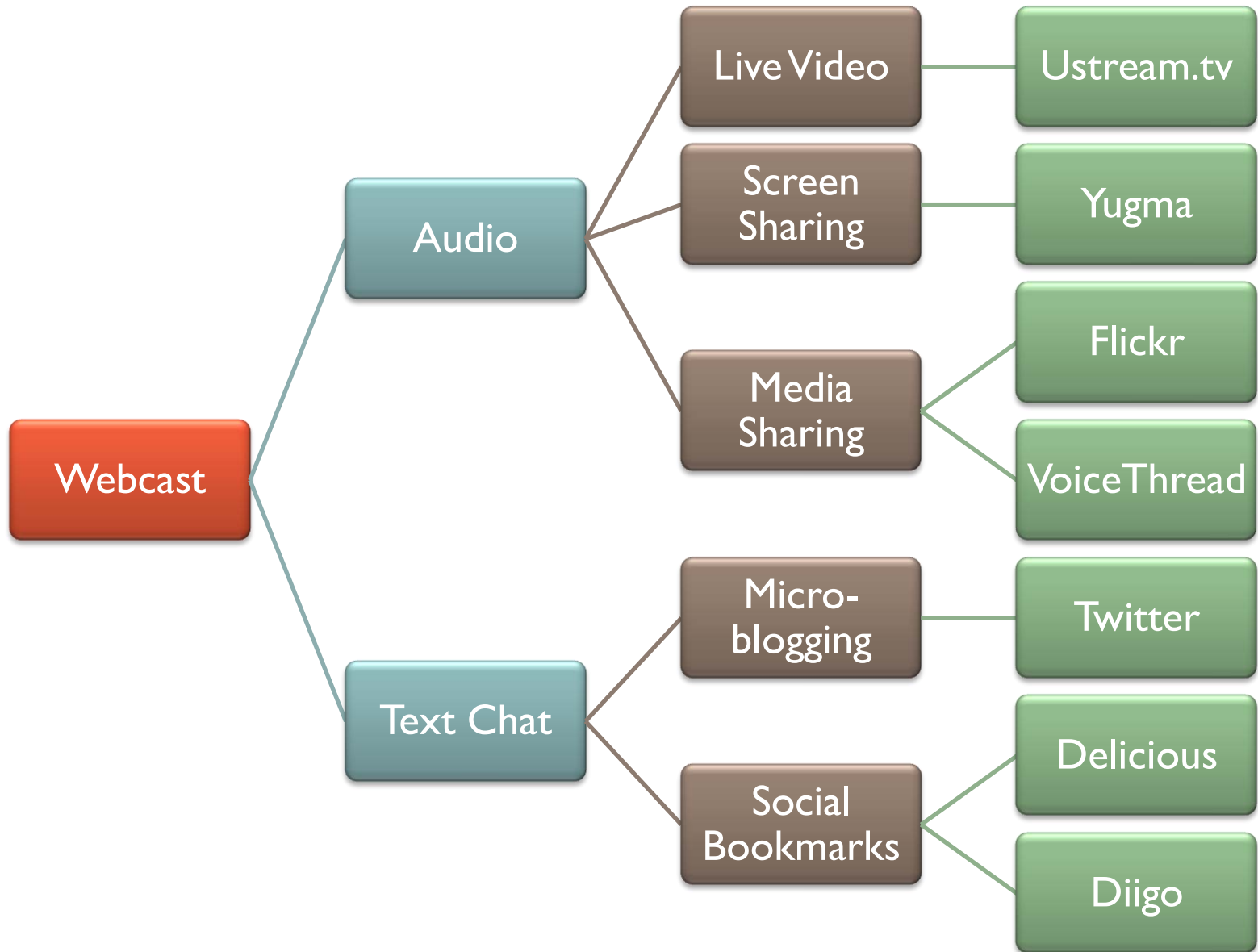
Ties to other Networks



How are connections facilitated?

In the beginning ...







Ed Tech Talk edtechtalk

21cl @edtechtalk Live -- NEIT2009 Preview... <http://neit.wikispaces.com>

about 22 hours ago from TweetDeck

21cl @edtechtalk Live -- NEIT2009 Preview...
<http://neit.wikispaces.co>

about 22 hours ago from TweetDeck

Getting ready for Parents as Partners over at <http://bit.ly/u7Mai> in a few minutes here. Please join us!

5:58 PM Oct 19th from TweetDeck

Thinking of upgrading to Windows 7 tonight. Backup and getting ETT21 shows uploaded.

1:27 PM Oct 17th from TweetDeck

ETT21 # 110 -- H1N1 and School Communications: <http://bit.ly/22kAA5> #edtechtalk #ett21

1:26 PM Oct 17th from TweetDeck

Just posted ETT 21CL #100... Cool show <http://bit.ly/2DEfwA>

Name EdTechTalk
Web <http://edtechtalk...>
Bio A collaborative community talking about educational technology

3,151 following 4,478 followers

Tweets 677

Favorites

Following

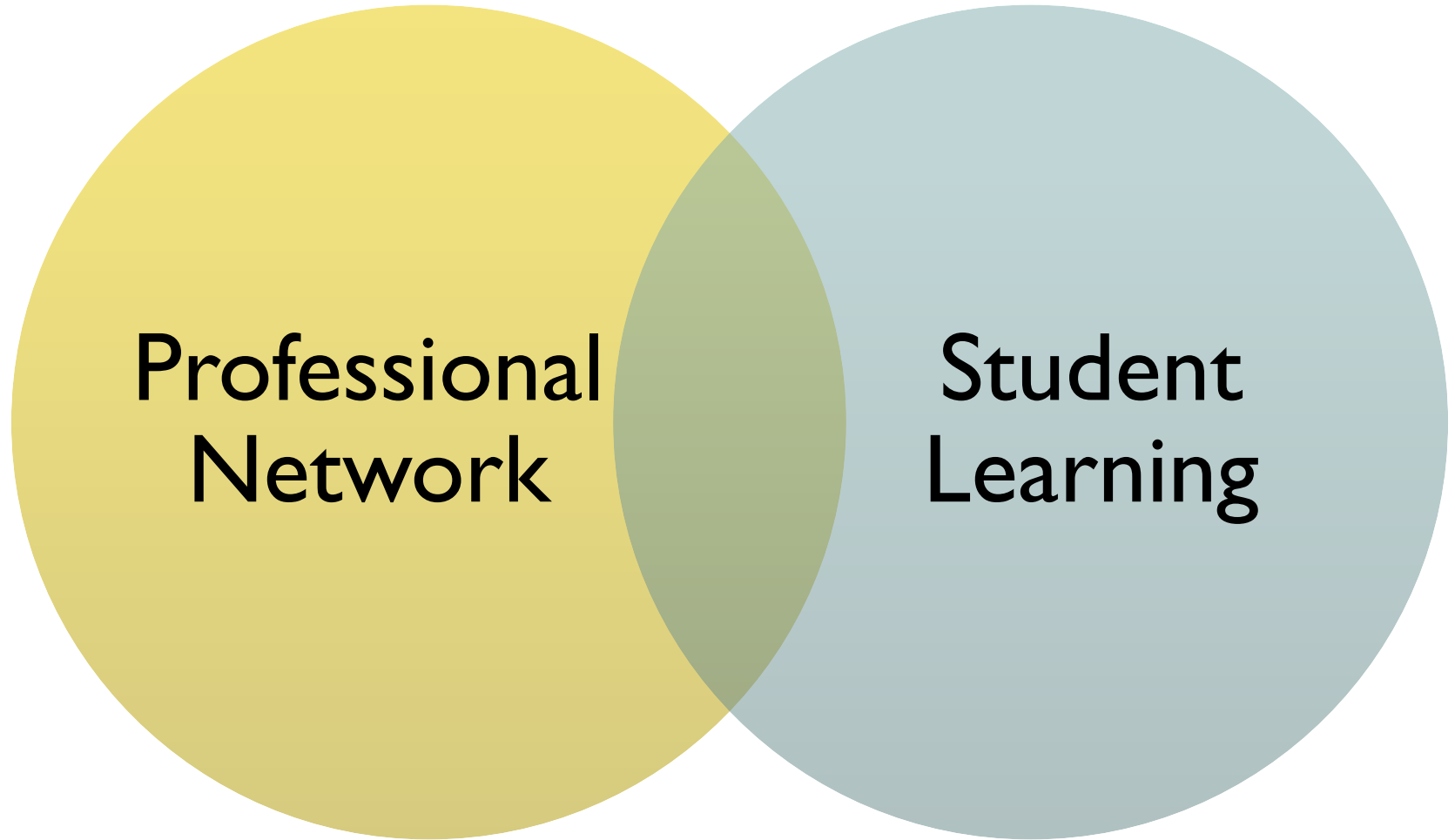
View All...

RSS feed of edtechtalk's tweets

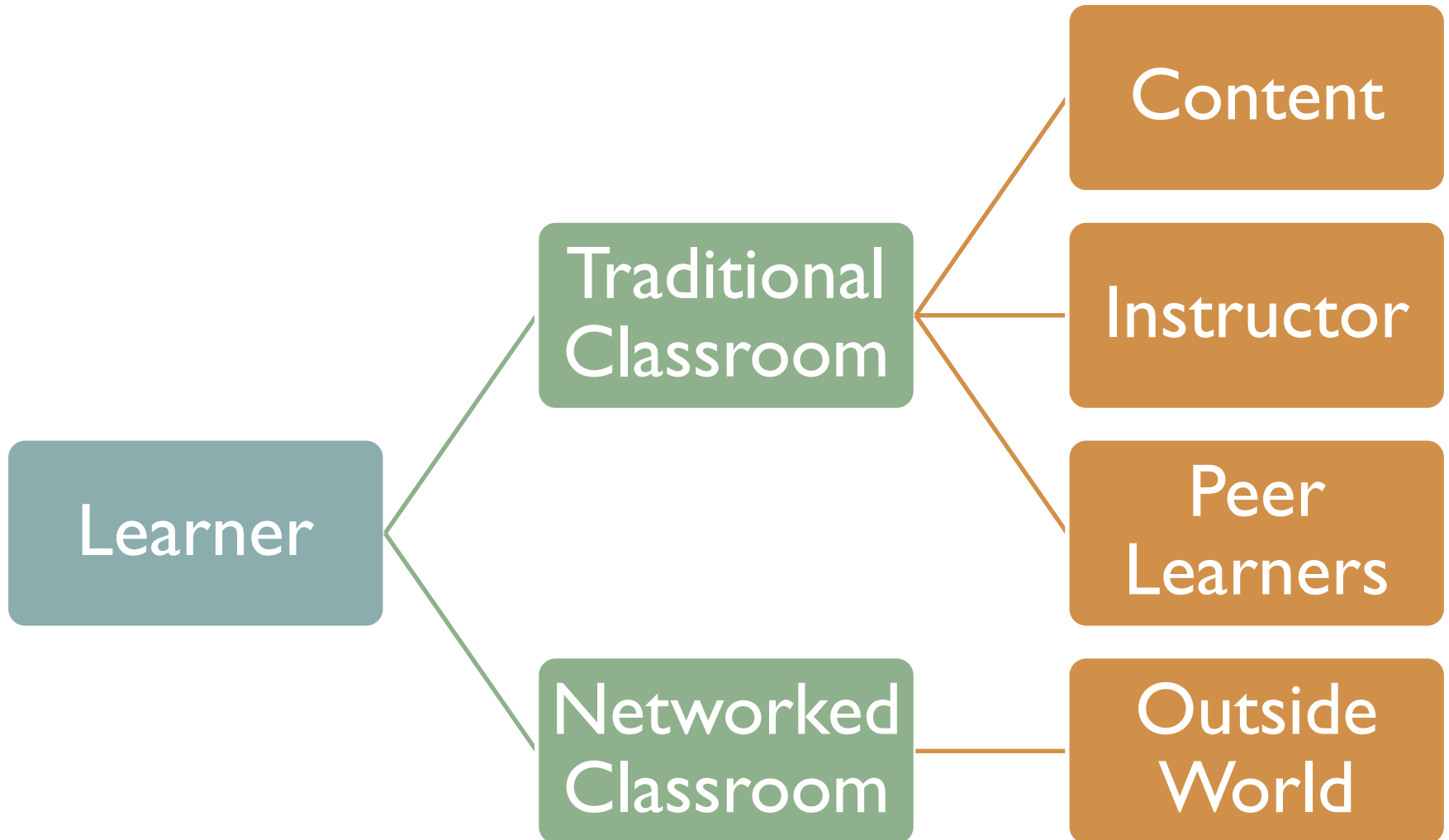
Twitter Research Questions

- What are the experiences of participants in a twitter.com sub-network?
- What is the nature of the communication and interaction?
- What are users' perceptions about the interaction and communication?
- Why do users participate?
- How do users represent themselves?
- What are the demographic characteristics?

Networked Classroom



Interaction



The Networked Classroom

Open Classroom

Synchronous and Asynchronous

Skype

Elluminate

Wiki

Blogs

<http://eci83l.wikispaces.com>



EC&I 831: Social Media & Open Education

Open, Connected, Social

EC & I 831 - Home

Introduction:

This is the main page for EC&I 831: *Social Media & Open Education*, an open access graduate course from the Faculty of Education, [University of Regina](#). This course is available to both for-credit and not-for-credit students. It features openly available, live, and recorded presentations from notable educators & theorists. It is anticipated that the open nature of this course will benefit both the registered and non-registered students especially in the fostering and development of long-term, authentic, educational connections.

See the Course Trailer:

EC&I 831 - Grad Course Movie Trailer - Final Take

★★★★★



Navigation

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Actions

- [Join this Wiki](#)
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- [Manage Wiki](#)



Other stuff



Senior Web Page: <http://www.suze.bc.ca/~andromoo/>

Andrea Ward

I am a Physical Education major with a Business Ed minor at Miller High School in Regina, Sk. I enjoy outdoor pursuits and physical activity. I am only a couple classes away from a Masters in Curriculum and Instruction. I am excited about the opportunity to learn about social media in education!

Blog: <http://gottsela.wordpress.com>

Twitter: <http://twitter.com/gottsela>



Allison Treble

I'm a teacher in Saskatoon, SK. I am currently on maternity leave with my first child and have just started my Master's in Educational Technology.

Blog: <http://allisontreble.wordpress.com>

Twitter: http://twitter.com/a_treble



Greg Stark

I'm a pre-10 instructor with SIIT in Regina, a proud dad of 2 daughters (6 & 3), and I am hoping to finish my Masters in Adult Ed in the 2010 Winter session. I have taught a lot of computer application classes (MS Office), but am looking forward to learning about the possibilities of using social media in the classroom.

Blog: <http://gstark.wordpress.com>

Information For Non-Credit Students

The success of this course in past offerings has been greatly due to the tremendous support and participation from non-credit students. All lectures in this course, from September 15/09 to December 8/09 will be publicly available. To access the lectures, look for the appropriate date under "[Synchronous Sessions](#)", then look for the weekly Elluminate link. I will also offer the appropriate Elluminate link via tweet via [@courosa](#).

Live lectures will take place every Tuesday evening at 7 p.m. [Saskatchewan time](#). Additionally, all sessions will be recorded and made available in several media formats.

We would also love to learn from you! I invite you to visit the blogs of the registered students (links available soon) and leave comments and feedback. If you happen to come across an article, blog post, video, etc. you think would be valuable to us, please use the Delicious tag ['eci831readings](#)'. And, we'd love if you responded to our weekly sessions in the format of your choosing (e.g., blog post, vlog, podcast, etc.) Just tag your media as 'eci831responses' and students will be able to access these.

One more thing. We'd love to know who you are. If you plan to participate as a not-for-credit student (even if it is just to watch the presentations), please tell us a little bit about yourself. To do so, [fill out this Google form](#) and your responses will appear in [this Google spreadsheet](#) (also embedded below).

EC&I 831 - Non-Credit Participant Published by [Google Docs Report Abuse](#) - Updated automatically every 5 minutes

Timestamp	Full Name	Location	Occupation	Blog Address
8/17/2009 22:26:24	Jeff O'Hara	Chicago, IL	Entrepreneur	http://www.edm
8/17/2009 22:28:08	Paula L. Naugle	United States	Teacher - 4th grade	http://plnaugle

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Non-Credit Students
"Teach Us Something"

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- Join this Wiki
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Search

Other stuff

- NonCredit Protected
- page
- history
- notify me

Google docs EC&I 831 - Non-Credit Participant

View only Share

	A	B	C	D	E	F
1	Timestamp	Full Name	Location	Occupation	Blog Address	Twitter Address
246	9/25/2009 14:16:04	David Terron	Elgin, Scotland UK	English/ICT Teacher	http://www.x9english	http://twitter.com/daveterron
247	9/25/2009 17:28:00	Laura Paciorek	California			
248	9/26/2009 19:02:37	Cindy Seibel	Calgary, Alberta, Canada	Technology Director in K-12	http://blog.tech4learn	http://twitter.com/cgseibel
249	9/27/2009 22:46:55	Linda Maier	Bellingham WA USA	College Administrator		
250	9/29/2009 9:15:03	Ting Yuan	New York	Student	http://tingyuanny.wo	http://twitter.com/Ting_Yuan
251	9/29/2009 11:58:41	Darren Draper	Salt Lake City, UT, USA	Technology Director	http://drapestakes.b	http://twitter.com/ddraper
252	9/29/2009 12:08:10	Michael Willits	Norfolk, VA	Instructional Technologist, Old Dominion University		http://twitter.com/michaelwillits
253	9/29/2009 13:57:02	Doug Sawyer	Alton / Belleville IL	Technology Facilitator	http://www.thoughts/dsawyer33/blog	http://twitter.com/dougsawyer
254	10/1/2009 7:50:59	Lorraine Warren	Southampton UK	University Lecturer	http://www.doclorrain	http://twitter.com/doclorraine
255	10/4/2009 22:36:44	Rodrigo Carvajal	Pensacoal, FL USA	Reseech Associate		http://twitter.com/rcarvajal
256	10/17/2009 15:25:46	Tara Matheney	Tampa, FL	Teacher		http://twitter.com/graceomalley208

"Teach Us Something" - Microlectures

There have been several recent articles written about the idea of [microlectures](#) as an alternative to traditional, longer lecture formats. Short & energetic presentation styles such as [Pecha Kucha](#) and [Ignite](#) are becoming more popular in conferences & classrooms. A similar style of concise instruction has become common through websites such as [Instructables](#) and [5Min.com](#). Microlectures seems to satisfy the need for discrete units of knowledge coupled with decreasing attention spans.

As an experiment in this course, I am attempting to solicit short, five minute or less, *recorded* microlectures that will benefit the course participants and hopefully, will also benefit those individuals who submit them.

The basic request is simply "teach us something" in a style and media format of your choosing (screencasts, talking-heads, lectures, presentations, hands-on, audio, music, animation, drawing, machinima, etc.). While the course is focused on topics related to social media & open education, I also welcome other subjects as I believe it is important that the power of social media is not in simply teaching *about* social media.

If you would like to submit a microlecture, please [fill out this Google Form](#) with the appropriate information including a web link to your media. Once submitted, the information will appear in [this Google spreadsheet](#) below (also embedded below).

Thanks again for your consideration of this request. It will be interesting to see what happens.

EC&I 831 "Teach Us Something" Microlectures

Published by [Google Docs Report Abuse](#) - Updated automatically every 5 minutes

Timestamp	Full Name	Location	Topic of Microlecture
8/18/2009 14:48:45	Brian Lamb	UBC, Vancouver Canada	A distributed publishing framework

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Search

Other stuff

- MicroLectures Protected
- page
- history
- notify me

What We Observed

Sometimes
it works

Sometimes
it doesn't

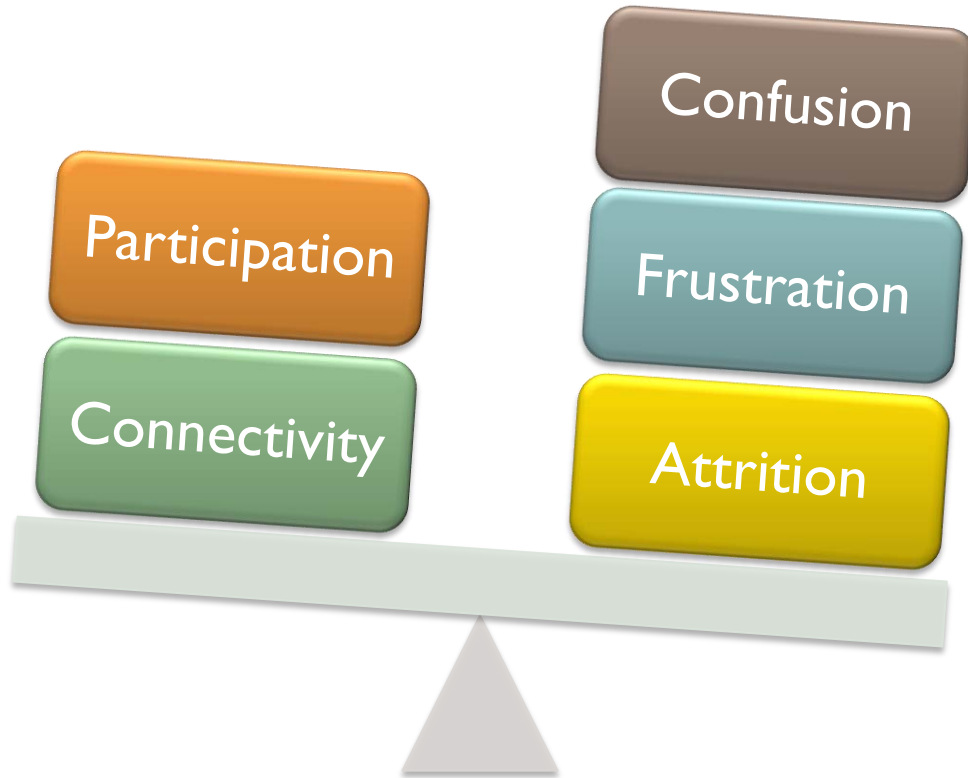
Participation

Connectivity

Confusion

Frustration

Attrition



No Perfect Tool or Technology

Tap into existing tools.

Don't get attached.

Use what works in your network.

http://open.byu.edu/ipt692r-wiley

File Edit View History Bookmarks Tools Help

http://open.byu.edu/ipt692r-wiley/

IPT 692R (Wiley)

IPT 692R (Wiley)

Introduction to Open Education

Welcome! Syllabus Videos Character Classes Quests Participants Exemplary Artifacts Guild Rankings Register


Type and Wait to Search

Welcome!

Published on December 16, 2008 in announcements. 1 Comment

Welcome to IPT692R for Winter 2009: Introduction to Open Education! I'm excited that you'll be participating in the experience this semester. This site contains all the information you need to get involved in the course. You should probably begin by having a look at the Syllabus.

If you have any questions, please don't hesitate to [Contact Me](#).



Professor David Wiley

Latest

[Welcome!](#)

Blogroll

[WordPress.com](#)

[WordPress.org](#)

Powered by [WordPress](#) and [K2](#)

[Entries Feed](#) and [Comments Feed](#)

http://ltc.umanitoba.ca/connectivism

The screenshot shows a Mozilla Firefox browser window with the title 'Connectivism & Connective Knowledge - Mozilla Firefox'. The address bar contains the URL 'http://ltc.umanitoba.ca/connectivism/'. The website's main header is 'CONNECTIVISM & CONNECTIVE KNOWLEDGE' with the subtitle 'a rather large open online course...'. A navigation menu includes 'HOME', 'THE DAILY', 'WIKI', 'MOODLE', 'RECORDINGS', and 'ABOUT'. Below the menu are links for 'AGGREGATIONS', 'SIGNING UP...', 'Posts RSS', and 'Comments RSS'. The main content area features an 'ABOUT' section on the left and a featured article titled 'Week 6: Power and Authority' by George Siemens on Oct 25th 2009. The article text discusses networked technologies and power/authority. It includes links to 'The Fifth Estate' and 'Network Logic' PDFs. The 'Activities' section mentions a meeting on Thursday, Oct 29, and the 'Assignments' section lists a task to continue weekly activities and develop a concept map.

Connectivism & Connective Knowledge - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://ltc.umanitoba.ca/connectivism/

CONNECTIVISM & CONNECTIVE KNOWLEDGE

a rather large open online course...

HOME THE DAILY WIKI MOODLE RECORDINGS ABOUT

AGGREGATIONS SIGNING UP... Posts RSS Comments RSS

ABOUT

Welcome to the **Connectivism and Connective Knowledge** online course! Information on the development and delivery of the course will be shared on this site.

SEARCH

Go

Week 6: Power and Authority

George Siemens on Oct 25th 2009

Networked technologies have changed power and authority. This week, we'll explore to what degree and in what ways power and authority have been altered in learning.

[The Fifth Estate — Through the Network \(of Networks\) .pdf](#)

[Network Logic: Who governs in an interconnected world? \(.pdf\)](#) (this is a long paper/book. Skim sections that you find to be of interest).

Activities:

Thursday, Oct 29, 6 pm CST ([time zone conversion](#)). We will [meet here in elluminate](#).

Assignments:

1. Continue regular weekly activities – blogging, developing your concept map, and follow the distributed conversation through

Other examples?

Presentation and Paper at:

<http://DesignedToInspire.com/drupal/aect2009>